REPORTS OF TRIALS

FOR

MURDER BY POISONING;

BY

PRUSSIC ACID, STRYCHNIA, ANTIMONY, ARSENIC, AND ACONITIA.

INCLUDING THE

TRIALS OF TAWELL, W. PALMER, DOVE, MADELINE SMITH, Dr. PRITCHARD, SMETHURST, AND Dr. LAMSON,

WITH

CHEMICAL INTRODUCTION AND NOTES ON THE POISONS USED.

BY

G. LATHOM BROWNE,

OF THE MIDLAND CIRCUIT, BARRISTER-AT-LAW, AUTHOR OF "NARRATIVES OF STATE TRIALS IN THE 19TH CENTURY,"

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PREFACES.

THIS volume of selected reports of the most remarkable trials for murder by poisoning, which have been held during the past half century, with essays and notes explanatory of the nature, and operation, and methods of detecting the various poisons supposed to have been employed, will it is hoped prove useful to the medical, as well as the legal profession. With this object the evidence of the medical and chemical witnesses has been given in detail, especially in those cases in which a conflict of scientific testimony arose, between experts of the highest professional character and reputation. Care has also been taken to state the scientific nomenclature of this class of witness correctly, a point on which the shorthand writers, otherwise so reliable, are naturally liable to fail, catching as they do only the sounds of a language unknown to them, in reporting which the error even in a single letter is often most important. My colleague, besides furnishing the latest information obtainable with reference to the various poisons, has offered from recent experiments, made specially for this purpose, explanations of those points in the several trials about which the rival experts disputed, bringing to bear on them the latest discoveries in chemical science.

In preparing these reports, I have followed the form adopted by the late Mr. Townsend, the Recorder of Macclesfield, in his valuable volumes of trials—now I believe quite out of print—grouping the witnesses under the heads of the case to which their evidence specially applied, dividing the scientific from the moral testimony, and wherever a conflict arose between the experts called for the prosecution and those for the defence, giving the evidence of the latter immediately after that of the former, so as to place the points at issue more clearly before the reader.

It would have been impossible, within reasonable limits, to have reported in detail the elaborate speeches of counsel (most of them models of argument, criticism, and eloquence), or the minute and exhaustive charges of many of the presiding judges. The abstracts which have been given will, however, serve to perpetuate the most important and notable parts of both. In some of the cases the immediate application of these either to certain points in the evidence, or to the arguments adduced on either side, has been shown by quotations in the notes. With these exceptions, and a few notes pointing out errors or discrepancies in the evidence, I have generally forborne to express an opinion on the verdict, preferring to present such reports of the evidence as may enable the student to form his own conclusions.

With the progress of chemical science the field of the poisoner is constantly extending. New poisons are yearly discovered, each succeeding one apparently more difficult of detection than the former. Death lurks in many unsuspected forms, and but for the parallel march of the science of detection, the poisoner would more often escape. A grave danger to society, too, lies in the patent medicines, so popular and so perilous; in the vermin killers, loaded with deadly poison, which can be bought without let or hindrance by any one; and the use of preparations for animals—not so

deleterious to the latter, as they are death-dealing—if either intentionally or by accident given to a human being. Stringent as the regulations of the Poisons Act appear on paper, the facility with which Lamson purchased aconitia, merely on the credit of his name appearing in the Medical Directory, and the really unrestricted sale of patent medicines and vermin-killers, mark the practical inutility of the Act. A new Act, dealing with these points, has been promised by the Government, but there seems little probability of its passing this session.

G. L. B.

In the compilation of these chemical notes it has been found very difficult to be sufficiently simple and complete in explanation for non-scientific readers, without either sacrificing many important details, or exceeding the limited space available. I have attempted as far as possible not only to solve the questions that arose in the trials, but to look forward to many that might occur in future cases. No claim is laid to originality except in a few experiments; but the search through existing authorities has involved so much labour, that I must plead a very limited leisure as an excuse for any incompleteness. In such portions as touched on medicine I have been guided by the later text-books, and by living advice. It has been thought preferable to give references in the text, at the very passage quoted, instead of in foot-notes.

With regard to the proposed new Poisons Act one or two considerations should not be forgotten. There are hundreds of ways of taking life: the poisoner's is only one. Even in his method the number of fatal agents he may use is almost unlimited. To make a schedule of certain poisons that are not to be sold without restriction, seems like prohibiting knives, while allowing stilettos—the latter are certainly less usual, but quite as fatal. Moreover, the Act of 1868 only affects one channel by which poisons may reach the public—viz., through the retail chemists. It secures a record of ordinary shop purchases, and thus facilitates the tracing of crime. But the channels of trade are still open: hundred-weights of arsenic are obtained, where ounces could not be purchased; and these large stocks are often carelessly kept, and left open to servants, workmen, or even children. The result is that the supposed restrictions on obtaining poisons are almost illusory: these substances are sown broadcast among ignorant people, and are placed in cupboards unlabelled among articles of food. The following are recent illustrations:—

> "At Corkley, Wilts, the wife of a labourer used, instead of baking-powder, a packet of arsenic, intended by her husband as medicine for his horses. The husband and wife died."—*Weekly Dispatch, May 6, 1883.*
>
> "At Whitchurch, a farmer was accused of poisoning a large number of cattle and other animals with arsenic. In 1881 he had obtained several pounds of it from Liverpool, stating that he wanted it to destroy vermin."—*Evening Standard, June 2, 1883.*

In the schedule of the 1868 Act, among the *less dangerous poisons*, to be obtained without restriction beyond proper labelling, appears, "Almonds, Essential Oil of (*unless deprived of prussic acid*)." Yet this preparation is one of the most perilous, as has been shown by numbers of deaths, and lately by the West Malling case

(not yet ripe enough for reporting). There are also other faults in the schedule.

Remembering, then, that legislation on the sale of poisons is utterly unable to *prevent* poisoning, that all it can do is to make the means a little difficult, and the detection more easy, how can we approve the proposal at this moment made, to tack on a few, very tentative clauses to an unsuccessful Act, and four more names to a very defective schedule? Why insert chloride of antimony, and omit nitrate of silver, sulphate of copper, and chloride of tin? The essence of a "poison" is *quantity*; and no Act which does not specify the maximum quantity that may be sold, can be effective. Beyond this, why should it be more criminal to *sell* a dangerous substance to a poisoner than to *give* it to him, or by culpable negligence to allow him to take possession of it? If such neglect were made punishable, if people who left arsenic, &c., about in cupboards without precaution, had to suffer for the consequences, we should hear less of such "accidents."

I am deeply indebted to Dr. Bernays, Professor of Chemistry at St. Thomas's Hospital, for kind advice and facilities of consultation and experiment; to Doctors Harley, Ord, Acland, and to my namesake, Mr. Charles Stewart, F.L.S., for many valuable suggestions; and especially to Mr. E. G. Clayton, F.C.S., who contributed the main part of the chapter on Aconitia, and helped me materially in other portions of the chemical notes.

The main authorities drawn upon have been:—

Taylor's Medical Jurisprudence, 1873.
Taylor on Poisons.
Woodman and Tidy's Handy-Book of Forensic Medicine and Toxicology, 1877.
Blyth's Manual of Practical Chemistry, 1879.
Guy and Ferrier's Forensic Medicine, 1881.

Allen's Commercial Organic Analysis, 1879.
Royle's Materia Medica, edited by Dr. J. Harley, 1876.
Christison on Poisons, 1829.
Fresenius' Qual. and Quant. Analysis.
Watt's Dictionary of Chemistry.
Chemical Society's Journal.
Chemical News, Lancet, &c.
Farquharson's Therapeutics.
Mohr's Toxicologie, trans. by Gautier, 1876.
Casper's Handbook of Forensic Medicine, trans. by Balfour, 1861-5.
Beilstein's Organische Chemie, 1882.
Year Book of Pharmacy.
British and other Pharmacopœias.
Squire's Companion.

In conclusion, it has been obviously impossible in the limited space to explain elementary facts or principles. These may be ascertained from any of the standard textbooks.

C. G. S.

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A.

THE following is my own experience of the differences between strychnia and morphia.—C. G. S.

	MORPHIA.	STRYCHNIA.
Concent. H_2SO_4—cold. " " warmed. To this warmed solution add:—	If pure, nothing at first. Violet, not strong.	If pure, nothing. Some yellow-brown. Do.
MnO_2.	Red, changing slowly to brown, then orange. On dilution, yellow-brown.	*Deep blue purple* — tored purple— cherryred—finally (changes slow). On dilution, rich orange red.
K_6Cfy_2.	Violet, changing to orange; not strong. On dilution, at once	Same changes, but more rapid and less distinct. On dilution, at once destroyed to

	destroyed to greenish-yellow solution, turning blue.	greenish-yellow solution.
$K_2Cr_2O_7$.	Red-brown, orange-brown, *green*. On dilution, *green*.	Same as with MnO_2, but more evanescent and rapid in change. On dilution, at once removed to yellowish-brown.
HNO_3 concent.	*Intense brownish-red*, changing to brown— bleached by $SnCl_2$.	*In the cold, nothing if pure.* On warming, orange-yellow — then $SnCl_2$ *brown* with excess to yellow.

B.

The chlorine used in the separation of arsenic (p. 385) must be *pure*. The best process for making it is to heat *pure* potass. dichromate with *pure* hydrochloric acid. The latter may be obtained by heating the "pure" acid of commerce in a retort until a portion of the distillate gives no indication of arsenic by the tests. The remainder in the retort is then arsenic-free.

ERRATUM.

Page 397, line 11, *for* “Waislow,” *read*, “Winslow.”

TRIALS FOR POISONING.

CHAPTER I.

CHEMICAL INTRODUCTION.

Summary of symptoms exhibited by various poisons: (1) Sudden death—(2) Insensibility—(3) Vomiting—(4) Action on the eye—(5) Convulsions—(6) Chronic poisoning. Alkaloids, chemically and physiologically—Processes for their detection—Necessity for keeping the extracts separate—Dragendorff's process—Dr. Guy's sublimation process—Effects on animals—Doubtful value of this test—Preparation and effects of reagents: (1) Mayer's—(2) Potassium tri-iodide—(3) Sonnenschein's test—(4) Bismuth—(5) Phosphotungstic acid—(6) Picric acid—(7) Animal charcoal—(8) Platinic chloride—(9) Tannin or tannic acid—(10) Phospho-antimonic acid—(11) Silico-tungstic acid—(11) Auric, palladium and mercuric chlorides—Ptomaines or cadaveric alkaloids; difficulties raised by their discovery—Principles to be observed in analysing.

BEFORE proceeding to a separate examination of the poisons used in the following trials, it will be advisable to take a general view of poisons, specially noticing those that we have selected as the most important legally. They do not admit, perhaps, of accurate classification, but inasmuch as the manner of death and symptoms are usually the most available indication as to the nature of the

poison that has acted, the following arrangement will be serviceable. The heads indicate the most prominent symptom:

I. SUDDEN DEATH.—Large quantities of any poison might be rapid in fatal result, but the sudden poisons proper are:—concentrated sulphuric, nitric, and hydrochloric acids; poisonous gases and vapours, such as carbonic acid and sulphuretted hydrogen (*see* Casper's Forensic Medicine, Case CCXLI.), carbonic oxide, arseniuretted and antimoniuretted hydrogen, and certain rare organic compounds, as kakodyl, &c.; strychnia sometimes, oxalic acid in large doses, chloroform under certain circumstances. But beyond all others, the quickest of poisons is *hydrocyanic or prussic acid*.

II. INSENSIBILITY, generally following nervous excitement. Morphia and opium; henbane (*Hyoscyamus*); stramonium; belladonna; nicotine (*tobacco*); darnel (*lolium temulentum*); hemlock (*Conium maculatum*); water hemlock (*Œnanthe crocata*); fool's parsley (*Æthusa cynapium*), [Dr. J. Harley shows that this is not so poisonous as believed: *see* St. Thomas's Hospital Reports, x. 25]; Indian hemp (*Cannabis indica*); Woody Nightshade (*Solanum dulcamara*); Solanum nigrum; the berries of Potato (*Solanum tuberosum*); Lobelia inflata: Foxglove (*Digitalis*); cocculus indicus; certain fungi (notably *Amanita muscaria*); chloroform; chloral; butylchloral —"croton chloral"): amylene; methylene dichloride; sulphuretted hydrogen; carbonic oxide; and many other substances usually classed as *narcotics*.

III. VOMITING.—Irritant poisons, such as acids, alkalies, alkaline salts in considerable doses (even common salt has proved fatal: *see* Christison[1]); most soluble compounds of the heavy metals (especially antimony, arsenic, zinc, and copper); certain vegetal alkaloids (from colchicum, laburnum, yew, savin, ipecacuanha, capsicum, pepper, ergot, many species of

Ranunculaceæ, the Hellebores, and some fungi); cantharides, turpentine, and essential oils, &c. Pain in the digestive organs, purging, and general inflammation are commonly present. Most of the medicinal purgatives will produce sickness and vomiting if given in overdoses; of course unwholesome food or disease may frequently be the cause.

IV. Action on the Eye.—Opium and morphia, calabar bean, aconite (?), and strychnia, *contract* the pupil: belladonna, henbane, tobacco, stramonium, digitalis and hemlock, *dilate* the pupil. The effect is often temporary, and sometimes is reversed after a time. It is a valuable indication in after-experiments on animals.

V. Convulsions.—Strychnia, brucia, and some fungi: but this symptom is by no means confined to these, and may even result as tetanus, from disease or irritants (*see* Trial of Palmer). Morphia, in rare cases, has also caused it.

VI. Chronic Poisoning, prostration and wasting. Antimony, mercury, and lead in small repeated doses. With the two latter, but more especially with lead, there is a *blue line at the edge of the gums*; constipation and colic, paralysis and trembling of the limbs. As lead frequently occurs as an impurity in food, and also may be absorbed by those working with it, these symptoms may be often accidental. Mercury also is given, less than of old, it is true, but still systematically by some, as a regular course in syphilis, &c.: also to children in teething powders. Antimony has been almost abandoned in medicine, from its depressant effect. In these cases, motive, amount, and necessity of dose, and right to administer, must be considered before wilful poisoning can be proved. The analysis, therefore, must be strictly *quantitative*, which is fortunately tolerably easy.

The above summary is by no means perfect, since there are minor differences in each class, which may sometimes rise into

such prominence as to confuse the classification. But in medical evidence on the individual poisons of which we treat, those physiologically resembling them in action are always most heard of at the trial, and questions are asked whether this or that may not produce the same symptoms; and hence it is well to direct attention to the analogues of our types.

The primary idea of an *alkaloid* is derived from its resemblance to an *alkali*. Alkaloids are often called also "Organic Bases." Their names terminate in—*ia* or *ine*.[2] They are more or less alkaline to test paper, and combine with acids to form salts which are neutral in reaction and often crystallizable. Only a few of the alkaloids are liquid and easily volatile, but almost all can be volatilized by careful heating at definite temperatures, giving in many cases a sublimate of characteristic appearance under the microscope, either of crystals, globules, or a mere film. In a free state, the alkaloids are very slightly soluble in water, but soluble in alcohol, and generally in ether and chloroform. Some are soluble in benzine, others in amylic alcohol, petroleum spirit, acetic ether, &c. On a judicious use of these various solvents depend the different processes of isolation, among which Dragendorff's is the most complete, but so complicated that it is rarely used in its entirety. Fortunately there is generally a clue more or less definite to the probable poison administered, enabling a shorter and quicker method to be adopted. For further details as to these processes see Blyth's Manual of Practical Chemistry. The sulphates, chlorides, and acetates of the alkaloids are generally soluble in water; if ammonia or potash be added to the solution, a precipitate (usually crystalline) of the free alkaloid occurs if the solution be of moderate strength.

Chemically, the alkaloids are derived from ammonia (NH_3) by substituting various organic groups or "compound radicles"

(compounds of carbon and hydrogen), for the hydrogen of the ammonia. They are therefore “compound ammonias,” or “amines.” Nitrogen, carbon, and hydrogen, are always present in natural alkaloids, the non-volatile ones, including the greater number, also contain oxygen.

Physiologically, alkaloids as a class have a powerful action on the human and animal frame. The medicinal properties of plants are generally due to these substances, though many are still undiscovered or imperfectly known. They exist in the plant combined with vegetal acids, some of which are characteristic, as aconitic acid in aconite, meconic in opium, igasuric (?) in nux vomica, &c. The very small quantity which may sometimes be fatal (a fraction of a grain of the pure alkaloid), the indefiniteness of many of their chemical reactions, and the facility with which they decompose if too high a heat, or too strong reagents, be employed in their extraction, render the detection often a difficult, and sometimes an impossible matter. Fortunately, however, fresh tests and better processes develop from every case, and other indications, from symptoms and collateral circumstances, rarely fail to bring home the guilt even to the most ingenious and scientific of poisoners.

For extracting the alkaloids from animal matters the following process has been used by the author. Mince finely, digest with rectified spirit and enough acetic acid to *just acidify*, warm to blood-heat for 15 minutes, filter: this is the first extract. Warm the insoluble matters with more alcohol and filter again: this is the second extract. Repeat the extraction a third time. *Keep the three extracts separate.* Each should be evaporated at as low a temperature as possible, not exceeding 50° C., and preferably in a vacuum at the ordinary temperature, if this can be done fairly quickly. The syrupy residues must be treated with water and a drop

of acetic acid, passed through wet filters to separate fat, rendered just alkaline with ammonia, and shaken with a moderate quantity of a mixture of equal volumes of ether and chloroform (Allen). By a stoppered funnel or burette the ethereal layer is separated, the shaking with ether and chloroform and the separation repeated a second and a third time, the ethereal extracts mixed, transferred to a large porcelain dish, and evaporated, first in a current of air, then in a vacuum or spontaneously. As the solvents evaporate, water generally appears: this hinders any crystallization. Therefore the residue must be rendered *dry*, then dissolved in a little *anhydrous* chloroform (dried by standing over fused calcium chloride), and again evaporated in air in a large watch glass. The residue will generally be crystalline under the microscope if any alkaloid be present. Dissolve again in chloroform, transfer to a graduated burette, make up to a convenient volume (say 10 cubic centimetres), and transfer a measured fraction to a number of watch glasses, reserving about one-fourth for any subsequent *quantitative* test that may be necessary. Allow the liquid in the watch glasses to spontaneously evaporate. To the first add a little water and a very minute quantity of dilute hydrochloric acid, and cautiously taste a portion. A tingling of the lips and subsequent numbness indicate *aconite*; intense bitterness points to *strychnia*; if there be no taste at all it is unlikely that any alkaloid is present. There are some alkaloids of a peppery taste; these are irritants, and are not common as poisons. Bitterness is the most frequent characteristic.

2. Moisten the contents of the second watch glass with a little water and a trace of acetic acid, and apply through an incision in the skin of the back of a young frog. He should be kept as comfortable as possible and the symptoms observed. Strychnia readily produces tetanus in this animal; other poisons also have peculiar effects. Some observers have used mice, rabbits, or cats; in

the Palmer trial it was observed that dogs were not employed because they were inconvenient and might bite! On the whole this so-called physiological test has been overrated, as it is hardly to be expected that an animal with its back cut and otherwise injured will not exhibit some symptoms; and all who have kept wild animals in confinement will know how soon they become, first almost convulsive from excitement, then finally sink into stupor and die. If necessary, any judge may grant a special licence to the experts in a trial to make experiments on animals, otherwise such cruelty is rendered penal by the Vivisection Act.[3]

3. To the third watch glass, after the contents have been dissolved as before, a drop of a solution of iodine in potassium iodide is added. Nearly all alkaloids give a brown precipitate. If none occur, a negative conclusion may be expected.

4. Test the fourth watch glass in one corner for strychnia by concentrated sulphuric acid and peroxide of manganese; in another corner for morphia by iodic acid and starch; in a third corner for brucia (and morphia) by strong nitric acid. (See the special paragraphs on these reactions, pp. 280, 285.)

5. If there is still no indication, and no information has been obtained from other sources, it may be necessary to employ Dragendorff's process on the remainder. But if the poison has been discovered, the solution reserved in the burette should be evaporated, dissolved in water and a little dilute acid, avoiding heat, and titrated by Mayer's reagent to ascertain the quantity.[4]

The second and third extractions of the organs must now be considered. Most of the text-books recommend that *all the extracts should be mixed*. The objection to this is, that since the alkaloid is usually present in very small amount, the first extraction will remove nearly all of it, while the second and third will mainly contain other matters, and therefore will be only adding to the

impurities, and consequently to the difficulty of isolation. If it be worth while, the second and third extracts may be treated *separately* as above, and should any further quantity of alkaloid be found, it may be determined quantitatively, and the amount added to that already obtained.

It has been proposed to precipitate the original spirituous extract by neutral or basic acetate of lead, which throws down many impurities, but leaves the alkaloids in solution. After filtration, the liquid is treated with a current of sulphuretted hydrogen to remove lead; again filtered, evaporated (as speedily as can be done without overheating) to a moderate bulk, and treated with a little ammonia and with ether-chloroform as before. If the sulphuretted hydrogen be left exposed to the air for some time, it oxidizes to sulphuric acid, which, during and after evaporation, tends to destroy the alkaloid. Hence I have found it advisable to remove the H_2S quickly by a current of carbonic acid and warming —previous to evaporation. But this process is not good for alkaloids, as sulphur compounds are often formed, which interfere with subsequent operations.

The foregoing process may fail to extract *morphia*, *curarine*, and *solanine*, as these, being very little soluble in ether-chloroform, may remain behind in the aqueous liquid. This, therefore, should be afterwards treated in one of the following ways:—

1. Heat some redistilled amylic alcohol nearly to boiling (it boils at 120° C.), add an equal volume to the aqueous (alkaline) solution; shake vigorously, separate while still hot, and shake again with a fresh, but rather smaller, quantity of the hot solvent. The united amylic alcohol solutions will contain all the morphia, but can only be distilled in vacuo, since at 120° C. the stability of the morphia would be endangered. It is better to extract the morphia from the amylic solution by shaking with successive small portions

of weak acetic acid, separating each time, till the acidity remains unneutralized. The alkaloid will now be in the acid solution. Nearly neutralize this with ammonia, evaporate at a gentle heat, and apply the special tests.

2. Instead of the above, the aqueous alkaline solution may be agitated with a mixture of equal volumes of ether and *pure* acetic ether (the latter having been previously purified from free acid by standing over powdered carbonate of lime). Although this mixture does not extract the morphia so readily as amylic alcohol, it has this advantage that, after separation from the aqueous layer, it can be evaporated at a moderate temperature, when the morphia, if in sufficient quantity, will be left in the crystalline state, and can be tested as usual.

If sufficient material be at hand, of course both processes may be used.[5]

Selmi (Gazz. Chim. Ital. vi., 32) has given a process for alkaloidal extraction of which I have no experience.

When the alkaloid is obtained in a sufficiently pure form and in sufficient quantity, the sublimation process of Dr. Guy, as improved by Blyth, may be used. For the entire original method, see Blyth's Practical Chemistry, page 285.

Dr. Guy's "subliming cell" is a ring of glass tubing about ⅛-inch long and ⅓ to ½-inch diameter, ground true and smooth at top and bottom, resting on a circle of thin microscope glass, and covered with another similar circle. The alkaloid, thoroughly dry, is placed on the lower disc (a drop of the solution may be evaporated on it), the whole fitted together, and floated on mercury, or better, fusible metal, contained in a small glass beaker nearly full, supported on wire gauze over a small flame. A thermometer held by a clamp dips in the liquid metal. With a hand lens of as high power as possible, the melting point, and also the point when the

first sublimate occurs on the upper glass, may be observed. As soon as the sublimate has become sufficiently distinct, the upper disc is removed, replaced by another, and examined under ¼-inch power of the microscope. The heat is slowly raised till charring occurs, and anything characteristic noted.

Morphia gives a clouding, consisting of minute dots, at 150° C.; from 188° to 200° C., distinct crystals are obtained; then it commences to brown, melt, and carbonize.

Strychnia gives a minute sublimate of fine needles at 169° C., and melts at about 221° C.

Brucia melts at 151° C., browns easily, but gives no true sublimate.

Aconitine or aconitia melts at 183° to 184° C.

Pseudaconitine melts at 104° to 105° C., and easily decomposes, giving off water.

Commercial aconitine usually melts below 100° C., and gives an amorphous sublimate above 150° C.

The reactions of the other alkaloids will be found in Blyth's Practical Chemistry.

In order to avoid repetition, the mode of preparing the general reagents for alkaloids will be given here.

1. *Mayers Reagent*, potassio-iodide of mercury, already described (p. 7; Liebig's Annalen, 133, 286), gives white precipitates with almost all alkaloids. The latter can be recovered from the precipitate by treating it with a solution of zinc chloride mixed with caustic soda. (Mayer.)

2. *Potassium tri-iodide*, a solution of iodine in potassium iodide, gives a brown or reddish precipitate.[6]

3. *Sonnenschein's test*, Phosphomolybdic acid, is prepared as follows. To a warm solution of molybdate of ammonia acidified

with nitric acid, phosphate of soda is added as long as any yellow precipitate is obtained. The precipitate is washed with water containing a little nitric acid, and heated with sodium carbonate solution till dissolved. Evaporate to dryness, heat to expel ammonia, add a little nitric acid and heat again. One part of the residue is then dissolved in a mixture of one part of nitric acid of 1·4 sp. gr., and nine parts of water. With this reagent *strychnia* gives a pale, other *alkaloids* a bright yellow flocculent precipitate, in very dilute solutions. The precipitates are soluble in ammonia, with the production of a greenish blue colour in the cases of aconitia and morphia. From the alkaline liquid the *alkaloid* can be dissolved out by at once shaking with ether-chloroform or hot amylic alcohol as already described. Instead of using ammonia, the precipitate may be agitated with barium carbonate, which has less tendency to decompose the base on its liberation.

4. A solution of *bismuth iodide* in iodide of potassium is recommended by Dragendorff (Zeitschr. f. Chimie, 1866, 478). 80 grammes of commercial bismuth subnitrate are dissolved in 200 cubic centimetres of nitric acid of sp. gr. 1·18: 272 grammes of potassium iodide dissolved in a little water are added, the potassium nitrate allowed to crystallize out, and the whole diluted to one litre. This solution precipitates most alkaloids. The precipitate can be treated with sodium carbonate and the liberated alkaloid extracted by ether-chloroform, &c. For the equivalents, see Maugini, Gazz. Chim. Ital. 12, 155.

5. Scheibler has proposed *Phosphotungstic acid* as a precipitant. Sodium tungstate is digested with half its weight of phosphoric acid, sp. gr. 1·13: on standing, phosphotungstic acid crystallizes. Its solution is said to give a distinct precipitate with $^{1}/_{200000}$ of a grain of strychnia and $^{1}/_{100000}$ of quina, and with similar amounts of other alkaloids. From this precipitate the alkaloid is

obtained by treating with sufficient milk of lime and shaking with ether-chloroform, &c., as before. He recommends the previous removal of impurities by lead acetate and sulphuretted hydrogen as already described (p. 7) (Fresenius, Zeitschr. f. anal. Chemie, 12, 315).

6. *Picric acid*, a saturated aqueous solution, gives precipitates in *neutral* solutions of morphia and atropia. In solutions acidified with sulphuric acid it gives the following:—morphia, and pseudomorphia, no precipitate; aconitia, a precipitate only in concentrated solutions; other alkaloids of opium, a thick precipitate.[7]

7. *Animal charcoal*, previously purified by hydrochloric acid and thorough washing with water, when digested with neutral or alkaline solutions of alkaloids, not too dilute, absorbs them from the liquid. The charcoal, washed twice or thrice with small quantities of water, is dried at a moderate temperature, and boiled with strong alcohol, which extracts the alkaloid. This process has been used for separating picrotoxin from beer, but has the inconvenience that the alkaloid is liable to gradual oxidation within the pores of the charcoal, and that the separation is never complete. It is this property that has caused charcoal to be recommended as an antidote in poisoning.

8. All alkaloids form with *platinic chloride* double salts of more or less sparing solubility. These precipitates, washed, dried and weighed, and then burnt, leave metallic platinum, the amount of which yields a clue to the composition of the base. But aconitine and narcotine are only thrown down from concentrated solutions, and a few are not precipitated at all. Hence this test is of only occasional value in toxicological work. The same may be said of *auric chloride*.

9. *Tannin* or tannic acid, a moderately strong solution in water, throws down most alkaloids. Coffee and tea, and other tannin-containing infusions, have, therefore, been used as antidotes with dubious success. As a test it is not distinctive.

10. *Phospho-antimonic acid* (Schultze), prepared by mixing antimony pentachloride with ordinary sodium phosphate and decanting the clear liquid, gives whitish amorphous precipitates with alkaloids.

11. *Silico-tungstic acid* is prepared by boiling commercial tungstate of soda with fresh gelatinous silica. Filter and allow to crystallize. This gives precipitates with very dilute solutions of alkaloids, but it is also precipitated by ammonium chloride (Godefroy, Arch. d. Pharm., Nov. 1879). Zaubenheimer recommends it as a most delicate test: the precipitate may be decomposed by soda or potash, and the base extracted by ether-chloroform.

12. Auric chloride, palladious chloride, and mercuric chloride have been proposed, but are not of much use. Potassium chromate and sulphocyanide, and sodium nitroprusside give somewhat insoluble precipitates, generally crystalline and of characteristic appearance under the microscope. These tests should be strong, and must be used in small quantity.

Ptomaines or Cadaveric Alkaloids.—Much attention has been attracted lately by the possible interference to toxicological detections owing to the undoubted existence of natural alkaloids in the dead body unpoisoned. Some of these, called by Selmi "Ptomaines" ([Greek: ptôma], a corpse), somewhat simulate strychnia, &c., in their chemical and physiological characters. The observation is not new, as years ago, in the Privy Council's reports, Thudichum called attention to alkaloids separated by Sonnenschein's process (phosphomolybdic acid) from the brain,

urine, and from decomposed bodies. Various substances of the kind have also been found by other investigators. To these "cadaveric alkaloids" have been attributed the "sausage poisoning," so frequent in Germany (for cases, see Casper's Handbook, vol. 3), poisoning by various foods, such as tinned meats, cheese, &c. Some are irritants, others narcotics: different periods and circumstances of putrefaction producing different compounds.

In an Italian criminal prosecution, F. Ciotto, who made the investigation of the corpse, gave it as his opinion that strychnia was probably present. Selmi, for the defence, pointed out differences from strychnia, and considered the compound to be a ptomaine. [Arch. Pharm. (3), 19, 187.] This will show the importance of the subject.

Casali (Gazetta, 1881, 312) regards ptomaines as not true alkaloids, but as "acid or basic amidated compounds." It is only the basic ones that will interfere with testing. Panum and Bergmann have isolated a substance called "*sepsin*," generated by putrefaction, poisonous, acting like a ferment but not destroyed by boiling, soluble in water, but insoluble in alcohol, and thereby distinguished from alkaloids. Sonnenschein and Zuelzer found a product of putrefaction which produced tetanic symptoms, besides one resembling atropine. But these substances, or similar ones, can be produced *without* putrefaction, as Paterno and Spica have shown that fresh blood and fresh albumen (white of egg) yielded, with phosphomolybdic acid, potassio-mercuric iodide, and other alkaloidal reagents, precipitates like those of the vegetal alkaloids. Selmi has even supposed that death from various diseases may be due to the formation of these compounds. The same author obtained from a dead body one month after death a considerable amount of a *crystallizable* ptomaine, giving reactions like those of alkaloidal poisons, and having poisonous effects on frogs.

Brouardel and Bouting (Compt. Rend. 92, 1056) propose the reducing action of ptomaines as a distinction between them and vegetal alkaloids. The solution in weak acid is added to a dilute mixture of ferric chloride and potassium ferricyanide: the latter, if a ptomaine be present, is reduced to ferrocyanide, and Prussian blue is thereby precipitated. But Spica (Gazetta, 11, 486) has shown that strychnia, brucia, morphia, and some others produce this reaction readily, and Beckurts (Arch. Pharm. 3, 20, 104) adds aconitine and others as producing it slowly. Hence the distinction is delusive. See also Husemann (Arch. Pharm. 3, 16, 169; also 3, 20, 270), Tauret (Compt. Rend. 92, 1163).

The discovery of these bodies has certainly raised a new difficulty for toxicologists, and suggested a new and plausible defence, as it must be confessed that at present there is no general method of distinguishing between "cadaveric" and vegetal alkaloids. Yet this mainly affects the "physiological" tests—on frogs and other small animals—for there is no ptomaine yet discovered which gives *all* the reactions of strychnia, morphia, &c. If a chemist be asked, "Could any other substance produce these reactions?" he can only answer, "I do not know of any"; he cannot aver the impossibility. Then the circumstantial evidence must decide.

In conclusion, the following principles should be noted:—

1. The quantity of poison found is generally only a small fraction of the quantity taken. The vomit and evacuations are frequently lost, and much may be decomposed by vital actions in the body, or by putrefaction. That which has caused death is probably thereby either decomposed or so combined as to be rendered undetectible: that which is found is merely the surplus beyond the fatal dose. This would account for the frequent non-discovery in the tissues when a small amount has been given, or

much time has elapsed. To metallic poisons this does not apply, as, unless eliminated, they can always be found. See further under Strychnia.

2. The symptoms will differ according to the dose, the form (solid or solution, pure or admixed), habit, or idiosyncrasy, the state of health, &c.

3. In the post-mortem examination, appearances common to dead bodies generally are often mistaken for the effects of poison. See Casper's Handbook, vol. I., *et passim*.

4. Unhealthy or improper food or acute disease may cause suspicious symptoms. This is the commonest solution of suspected poisoning.

5. In experiments on animals, it may be objected that they are inconclusive as to man. This is not strictly true. But if a *recent vomit* proves poisonous to an animal, *with the same symptoms as in the man*, that is almost conclusive evidence.

6. When a poison is not found by analysis, it does not follow that it has not caused death. Unequal distribution, uncertainty of tests, improper securing of the samples (Palmer case), decomposition or elimination of the poison, may hinder discovery.

7. In every case, if possible, the approximate *quantity* of the poison should be ascertained and stated. This specially applies to substances that *may* have been administered medicinally.

"If poison be administered *with intent to murder*, it is not necessary that there should be enough in the article administered to cause death, or that it should be given in such a way as to act fatally. If any poison be there, and the intent be proved, the crime of attempting to administer poison is complete." [Judge's ruling in *Hartley*, Cent. Crim. Court, May 12th, 1850; *Reg.* v. *Bacon*,

Lincoln Summer Assizes, 1857; *Reg.* v. *Southgate*, Chelmsford Lent Assizes; *Reg.* v. *Cluderay*, York, 1849].

For minute directions as to the conduct of toxicological investigations, see Taylor's Medical Jurisprudence, 1873, I., 202-209; also Guy and Ferrier's Forensic Medicine, 1881, p. 359, *et seq.*

CHAPTER II.

TRIALS FOR POISONING BY HYDROCYANIC OR PRUSSIC ACID.

Two cases are reported under this head. The first that of John Tawell, for the murder of his mistress, Sarah Hart, at Salthill, near Windsor, tried at the Spring Assizes at Aylesbury, 1845, before the late Baron Parke (Lord Wensleydale). The second—a case of misadventure—the trial of George Ball, a surgeon, at Lewes, for the murder of his mother by the negligent administration of an overdose of this poison, medicinally, before the Lord Chief Justice of the Common Pleas (Coleridge) Summer Assizes, Lewes, 1860.

TRIAL OF JOHN TAWELL FOR POISONING SARAH HART AT SALTHILL BY PRUSSIC ACID.

March 12, 13, and 14, 1845, Spring Assizes, Aylesbury, *before* Baron Parke.

HISTORY OF THE CASE.

The trial of John Tawell, of Berkhampstead, Berks, for the murder of Sarah Hart, at Hall Place, Slough, attracted more than usual attention, from the cruelty of the act in poisoning the woman whom he had seduced, the position and popular character of the murderer as a benevolent and hospitable Quaker, noted for his charities, and the novelty of the mode by which his detection was mainly insured. The electric telegraph had only very lately been established on the line of the Great Western Railway, and though Tawell lost no time after committing the act, in getting into the train for London at Slough, the telegraph outstripped him, and on his arrival at the Paddington station he was recognised, and tracked to his lodgings, and thus his immediate arrest secured.

Tawell's life had been of a remarkable character. Originally a commercial traveller, he had exhibited a strange mixture of great shrewdness and money-making talent, combined with an outward show of religious observance. As a young man he had been indicted for forging a bill for £1000, and had he been tried on the counts for forging, or uttering, he would doubtless have been executed. By some influence, however, he was allowed to plead guilty to the count for having the bill in his possession (a *nolle prosequi* being entered on the others), and sentenced to transportation for life. "Accordingly," says Mr. Justice Therry, who knew him well in Sydney, "he came out to the colony as a convict. Besides being a commercial traveller for some time, he had been in an apothecary's shop in England, and on obtaining partial exemption from convict discipline, became the principal druggist in Sydney. After a prosperous career he sold his business for, it was said, £14,000, and judiciously invested this sum in buildings and other pursuits of profit. For nearly two years he occupied the house opposite to mine in Sydney, which gave me almost daily

opportunity then of seeing him. He struck me as being a remarkably well-conducted person. He had once been a member of the Society of Friends; he wore a broad-brimmed hat, appeared always in a neat and carefully adjusted costume, and his whole appearance and manner impressed one with the notion of his being a very saintly personage. He always sought the society in public of persons of reputed piety. I have often met him in the street accompanied by a secretary or collector to a charitable institution, whom he assisted in obtaining contributions for benevolent objects. At one time he took up the cause of temperance in such an intemperate and silly spirit, that he ordered a puncheon of rum he had imported to be staved on the wharf at Sydney, and its contents poured into the sea, saying that, 'he would not be instrumental to the guilt of disseminating such poison throughout the colony.' At another time his zeal took an apparently religious turn. He built, in Macquarie Street, Sydney, a commodious meeting-house for the Society of Friends, on the front of which was inscribed on a large square stone inserted in the wall some such words as these—

JOHN TAWELL
TO
THE SOCIETY OF FRIENDS.

He conveyed no title, however, to the Society to secure them the tenure of the property. After his execution it was sold, I understood, with other portions of his property, for the benefit of the party entitled to it under his will, the Crown having waived its right to the forfeiture of the estate.

"Tawell was himself a liberal contributor to charities, and the opinion of his character was so favourable, that the act for which he suffered created great astonishment in Sydney. A considerable part

of his money had been realised by buying up all the whalebone that trading vessels, at an early period, imported into Sydney. This he sent to a London house, where it was manufactured into combs, handles for brushes, and various other articles of domestic use. He was the first person in the colony who converted whalebone into an article of profitable export. When he left the colony, he had a considerable property from rents and other sources which became much reduced by the general distress that prevailed in New South Wales in 1843." Hence the anxiety expressed by him for his Sydney letters, referred to in the course of his trial. Still, however, a man of good means, occupying a respected position in his town, and noted, through a long and industrious life, for his benevolence and straightforward conduct in his relations with his neighbours, he might well say when first charged with the murder of his mistress, "My station in society places me beyond suspicion." Such had been the remarkable career, and such was the ostensible character of the man to whom the most cold-blooded of murders was clearly brought home in the following trial."

At the trial before Mr. Baron Parke, at Aylesbury, on the 12th, 13th, and 14th of March, 1845, Sergeant Byles and Mr. Prendergast appeared for the prosecution, and Mr. Fitzroy Kelly, Q.C., Mr. Gunning, and Mr. O'Malley, assisted by Messrs. Herapath, of Bristol, Professor Graham and Dr. Letheby, of London, the eminent chemists, for the defence.

In consequence of the excitement in the county caused by the event, numerous objections were taken to jurymen by the prisoner's counsel. At length, however, a jury was formed, and after a brief recapitulation of the leading facts of the proposed evidence by Sergeant Byles, Mary Ashley, a next door neighbour of the deceased, was called, who had seen Tawell go to Sarah Hart's between 4 and 5 in the afternoon of the 1st of January, and between

6 and 7 the same evening, “hearing a sort of stifled scream,” had gone to her door with a candle and seen him leaving the cottage. The cottages stood in a row, with small gardens in front, with rails and gates, and contained four rooms, two on the ground floor, and the same number above.

> “The prisoner,” said the witness, “appeared to be agitated, and unable to open the gate. I opened it for him; it was fastened with a small button. When I went out of my house, I said, ‘I am afraid my neighbour is ill’—not speaking to any person in particular, but as the prisoner was then coming down the garden I should think that I spoke loud enough for him to hear me: I was about six yards from him. No reply was made by him. When I got to the gate I could hear Mrs. Hart still making the same description of noise: the prisoner made me no answer when I asked him if I should open the gate; he appeared very much agitated, and was trying in a hurried manner to open the gate; he came out of the gate before I went in; I saw his face; I held the candle over the gate to open it: I have no doubt that he is the same man, though I had never seen him before that afternoon. In the afternoon Mrs. Hart said to me, ‘I expect my old master, but perhaps he will not come till to-morrow.’ When I got to Mrs. Hart’s door it was shut, and upon my opening it I saw Mrs. Hart lying on the floor with her head not a great way from the door; her legs were towards the fire, her dress was quite in a disordered state, her petticoats nearly up to her knees, her left stocking down to her ankle, and torn, and her left shoe off: her cap was off, and her hair hanging down over her head: her cap was a little distance from her: she was still making a noise, and her eyes were fixed, but her lips moving. I took hold of her hands and raised her head, and said, ‘Oh, Mrs. Hart, what is the matter?’ She did not make any answer, but I thought she seemed to press my hand, but I could not positively tell. I then raised her up, and a little froth came out of her mouth, and I thought she was dying. I laid her down again, and took my candle and went into Mrs. Wheeler’s house, next door but one. When I went into Mrs. Hart’s I observed a bottle and a glass by the

side of it half full, and another glass on the opposite side of the table, near the door, empty; but there appeared to be something in the bottom of it. A chair was beside Mrs. Hart, and another opposite her. I returned from Mrs. Wheeler's with Mrs. Barrett, and we placed a pillow on the child's chair and bathed her temples. One of Mrs. Barrett's apprentices went for Dr. Champneys, and he came. I searched the place immediately, and found no small vial about the size of a thimble. There was a middling fire in the house. Before I got into the house I thought the prisoner was looking, and I locked the door, because I was frightened. The deceased was breathing hard in a short way, and making a noise like 'oh! oh!' and her eyes looked very full."

On *cross-examination* by *Mr. Kelly*, she said—

"That she heard Mrs. Hart's voice rather loud after Mr. Tawell went in—only a few words, but could not hear what she said. She did not think that they were quarrelling, but that perhaps Mrs. Hart was in hysterics, as money matters were always talked over when Tawell came. When Mr. Champneys came in, he said he must try to bleed her: he did so, and there was about as much blood as would cover a plate; she died immediately afterwards; indeed, I think she was dead when he bled her. About Christmas Mrs. Hart received a basket of apples as a present—about a peck, some of which were left in a box."

On *re-examination*, she said—

"That it was not more than a minute after she left her own house that she entered Mrs. Hart's, and that she saw about ten or a dozen apples in the box after her death."

Mrs. Barrett confirmed Mrs. Ashley's account of the condition in which she found the deceased, but did not see any foam on her lips until after she tried to pour some water down her throat.[8]

It was then proved by the barmaid at the "Windmill," on Salthill, and a gardener, that about half after six on that day the deceased came there for a bottle of Guinness's stout, and that she was met between her house and the "Windmill" about the same time in high spirits running towards her cottage.

The next witness spoke to the acts of the prisoner before he arrived at the cottage. At three o'clock in the afternoon he had been at the Jerusalem Coffee-house, inquiring at what hour they closed, saying he was going to the West End, and should not be back until half-past eight, and wishing to leave a greatcoat and a parcel, which, by arrangement with the waiter, he fetched away about half-past nine or a quarter to ten that night, leaving his umbrella there. Other witnesses proved his being seen running from Bath Place towards Slough, getting into the Eton omnibus and stopping opposite Sir John Herschel's house, then returning towards the Slough station and leaving it for Paddington by the half-past eight train.[9] The evidence of the next witness, who tracked him from the moment of his arrival at Paddington, must be given in detail.

William Williams said—

> "I am a sergeant of police on the Great Western Railway, at Paddington Station. On the 1st of January, in consequence of a telegraphic communication, I observed the prisoner get out of a carriage and get into a New Road omnibus. I put on a private coat, and acted as guard. He got out opposite Princes' Street, near the Bank, about a quarter past nine. I opened the door on purpose to look at him; he went towards the Wellington Statue, and then crossed over to Birch's, the pastrycooks: he stood a moment, as if he was considering; I watched him from behind the statue. He then went towards the Jerusalem Coffee-house, and I followed him; he then went down a court into Birchin Lane, and from thence to Scott's Yard, in the Borough, where he lodged, where I left him. On returning there next morning he was gone, so I went to the

Jerusalem, and an officer (*Wiggins*) went in and took him into custody. Wiggins said to him that he was last seen in the house of a woman at Slough who was found dead, when he replied that, 'I was not at Slough yesterday—I know no one there.' I then remarked that I had seen him get off the train from Slough, and that he had given me sixpence after riding in the omnibus from the Paddington station. 'You must be mistaken,' he replied; 'my station in life must rebut any suspicion that might be attached to me.'"

Wiggins, an inspector of the Metropolitan police, gave a graphic account of the arrest.

"On Thursday, the 2nd of January, I went into the Jerusalem Coffee-house with the last witness, and asked the prisoner if his name was Tawell; he said, 'Yes.' I then asked him if he had been at Slough last night, and he said, 'No, I did not leave town all day yesterday.' I then opened my coat, showed my uniform, and said, 'I want you concerning the woman you were with last night.' He said, 'I don't know anyone there.' I said, 'There was a woman found dead there, and you are supposed to be the last person who was seen with her alive.' He said, 'Thee must be mistaken in the identity, my station in society places me beyond suspicion.' I then took him down to Salt Hill, to the 'Three Tuns,' where the inquest was being held. I searched him, and found £12. 10*s.* in gold and £1. 1*s.* 6*d.* in silver, a gold watch, and a letter addressed to him, which he said he had received from his wife. On the second day of the inquest I saw him again. After consulting with his lawyer, he said to me, 'I took thee for a gentleman in the railway carriage.' I said, 'I told you I was an officer.' He replied, 'Yes, but that was afterwards.' The first day of the inquest he said, 'Mind, I have disclosed nothing.'"

In *cross-examination, Mr. Kelly* failed to get the witness to say that when asked about Slough the prisoner said he came from Berkhampstead, and only led the witness to reiterate that he stated "that he had not been at Slough that day."

To *Perkins*, the inspector of the Eton police, Tawell was dangerously communicative.

> "On the day after I had taken him into custody," said this witness, "and brought him to my own house, after he had seen his lawyer, he said to me, 'The unfortunate woman once lived in my service, about two years and a half, or nearly so.' He asked me if I knew this. I told him I had heard so. Then Holmes, the other constable, came in, and he added, 'She left my service about five years ago.' I told him whatever he said I should communicate to the coroner to-morrow. He said, 'he would have no objection to that,' and then continued, 'she had been in the habit of writing letters to him for money,' and that he had been pestered with her; she was a very good servant when in his service, but a bad principled woman. She wrote to him that if he did not send her something she would make away with herself. He came down to her house and told her that he would not give her any more money. She then asked him if he would not give her some porter. I then sent for a bottle of stout, and she had a glass and I had a glass. She then took out a small phial, about the size of a thimble, and said, "I will, I will," and poured some into her glass and drank a part of it—the remainder was thrown into the fire. She then done herself about and laid down on the hearth-rug; I then went out. I did not think she was in earnest, otherwise I would have called somebody.' I asked him if he had got those letters, and he said, 'No, I never keep such letters as those.' I knew him by person, having seen him at Aylesbury."

The *cross-examination* was unimportant—mainly directed to the probable inaccuracy of his recollection and to the nature of the communication he made to the coroner. *Holmes*, in addition to confirming *Perkins'* report of the prisoner's statement, was present when Mrs. Tawell visited her husband, when, in reply to her question, "what he had been doing," he replied, "Nothing. I hope you will forgive me."

MEDICAL EVIDENCE.

H. Montague Champneys, surgeon at Salthill, sent for a few minutes before 7 P.M. on January 1st, said—

"I ran, and when I got there saw deceased on the floor, felt her pulse, but am not certain whether I felt any pulsation. I put my hand under her clothes over her heart, and could not discover any pulsation; considered her dead, but still thought it best to open a vein in her arm, and obtained about an ounce of blood. Next day I made a *post mortem* examination with Mr. Norblad and Mr. Pickering. Having previously examined the external parts, we opened the body, when I smelt the odour of prussic acid; the lungs were perfectly healthy, but the coverings had the appearance of inflammation. Examined stomach and contents. Rather more mucus than there ought to be; the abdominal viscera perfectly healthy. Put contents of stomach into a bottle, which I, with Messrs. Norblad and Pickering, took to Mr. Cooper, in London. The contents were tested for sulphuric acid, oxalic acid, and some poisonous salts, but nothing was discovered; afterwards an experiment was tried for prussic acid. Mr. Cooper tried protosulphate of iron, and also nitrate of silver, but could not during the experiment discover any prussic acid; but nevertheless, it is my opinion that she died from the effects of that poison. On the following Sunday I took the beer and the part of a bun found on the table to Mr. Cooper, which were tested for prussic acid, but none discovered. When I stated that in my opinion the deceased died from the effects of prussic acid I did not know that the prisoner had bought any. I know Scheele's prussic acid and that of the London Pharmacopœia; less than a grain of pure prussic acid would be a dose; two drams of Scheele's would contain six grains. There are cases on record where the smell of prussic acid could not be discovered in the stomach of a person who had taken it. A person in Paris died from taking seven-tenths of a grain. Prussic acid is volatile, and may be carried off by the lungs or absorbed by the tissues. There is a case in the *Lancet* of a person dying from

having less than a grain administered to her. After this occurrence I put thirty grains of Scheele's acid into a glass of Guinness's stout, and the smell was scarcely perceptible. The symptoms would come on in less than two minutes."

In the very minute and detailed *cross-examination* to which this witness was subjected by *Mr. Kelly*, he made the following statements:—

"I have no experience in detecting the odour of prussic acid in a human subject—should think it may be taken without detection; should expect to find the odour in the mouth and in the breath, but there may be exceptions. Neither Mr. Pickering nor Mr. Norblad smelt it when the body was opened. It was not a conjecture of mine; I was positive of it. The smell is very peculiar and strong, and easy to be detected by those acquainted with it. It is more likely to be detected when exposed as this was to a heat of 212 degrees. At every heat we tried to smell it, but failed. There was no such smell in the blood which I drew shortly after death. I am not competent to say whether epileptic patients die more quickly from prussic acid than others. It is said to act powerfully on the nervous system. Have read the case of the seven epileptic patients who died from a dose of seven-tenths of a grain each in from thirty to forty-five hours. There was a case in which the French doctors discovered poison eight days after death.

"This acid exists in a great number of substances, in apples for instance, and probably in many other substances in which it has never been discovered. I agree with Dr. Christisön in his opinion (p. 756) in respect of the formation of this acid in various organic substances and other articles. It is made from the blood, bones, and horns of animals. It consists of 12 carbon, 14 nitrogen, and 1 hydrogen. Those are its elements. They exist and can be obtained in great quantities from various substances—cherry-stones, and stones of various fruits; they are found in the human saliva, but not in the form of prussic acid. It (the salt) is called sulphocyanide, and when

taken is perceptible in the blood and breath, but most in the stomach.[10] In apple-pips or other substances the smell would not be given off until disengaged by some process for that purpose.

"During the experiments for oxalic acid and other poisons, Messrs. Cooper, Pickering, and Norblad failed to perceive any smell. One of them then came to the conclusion that there must be prussic acid."

Question.—"Did Mr. Cooper then apply a process which would set free prussic acid from apple-pips and other substances?"

Answer.—"I believe that is the process, but it was not carried to the full extent. I refer to the heat. When this new process was applied, the result was that prussic acid was found. I did not smell it, nor anyone else. Beyond the smell in opening the body, I smelt none at all."

"When I first saw the deceased I thought I felt a few beats of the pulse, but I imagine that I was mistaken. It might have been the pulse in my own finger. The analogy between animals and human beings dying of prussic acid is considered doubtful by the best authorities. The heart would continue to beat for a short time after the pulse had receded from the arms. The lungs might be considered slightly congested."

Mr. Kelly.—"Why then inform my learned friend that they were sound and healthy?"

Witness.—"The lungs themselves were not diseased."

Mr. Kelly.—"Is it natural and healthy when the lungs are congested?"

Witness.—"They contained rather more blood than usual."

Mr. Kelly.—"Is that a healthy state?"

Witness.—"Not perfectly so."

Mr. Kelly.—"Is not congested lungs the cause of various modes of sudden death?"

Witness.—"Yes."

"I then examined the *pericardium*, it was empty. The heart had a natural appearance. I do not recollect that I examined the arteries proceeding from the aorta. Any disease of the coronary arteries is likely to cause sudden death. I did not examine the spinal marrow. The valves of the heart were very clear. Death might suddenly result from the adhesion of the spinal marrow, if it had existed some time. A sudden termination also might take place where the disease is latent. I looked at the gall-bladder, the colour was natural. My experience teaches me that prussic acid would colour it blue.[11] I examined the œsophagus to see if there was any foreign substance, and found none. I opened the trachea, but not the bronchial tubes, so I could not tell whether there was water in them or not. When I felt the pulse and heart of the deceased I was satisfied that she was dead, still I bled her, as I thought it best to try every means to restore animation. I did not do it to ascertain the cause of death. I then got no information as to the cause of death. I saw a slight motion of the jaw as I felt the pulse, and apprehend she died then. I took the stomach from the body eighteen hours after death. The contents were turned into a jug or basin, and afterwards into a bottle. I do not know for what purpose the bottle had been used. I did not wash it out." (*The bottle was here produced, a large-mouthed one, like a pickle bottle.*) The witness then stated what care he took of it to prevent its being tampered with before taking it to Mr. Cooper: —"The exact dose to cause death is still undetermined, also whether the effect is cumulative or not, also the effect of the same quantity diluted more or less is unsettled. Scheele's prussic acid varies in strength. Prussic acid evaporates by keeping."

Mr. Kelly, reading from Watson's "Lectures on Physic."—"Do you agree to this—'A blow, a fall, an electric shock, a teaspoonful of prussic acid, may cause death and leave no trace on the nervous system?'"

Witness.—"Yes."

On his *re-examination* by *Serjt. Byles*, the witness said:—

"In the case of the seven epileptic patients two medical men did not smell the acid, but two chemists did some time afterwards. It requires an extensive experience readily to detect the smell. Some may perceive it, some not. Several persons should smell, some not being so susceptible of the odour as others. I agree with a French chemist that 'under a considerable number of circumstances there must be great practical knowledge to detect smell.' If a person once knows the smell, I think he will know it again."[12]

"I should think that before prussic acid could be obtained from horns, blood, and bones of animals, a heat of from 400 to 500 degrees would be necessary. All animals, whether human or not, die if they take prussic acid. There is no difference in its operation upon man and the inferior animals. There was no appearance of disease in the heart of the deceased. Had there been any rupture of the coronary arteries it would have been apparent. I never knew such a disease of the spinal marrow to cause sudden death. I know only of the two cases mentioned by Taylor of the gall bladder having a blue tint. The absence of it is no proof that the person did not die from prussic acid. The bottle into which I put the contents was perfectly clean and dry. The ends of the stomach were securely tied up with string when I moved the contents into the jug, which was also perfectly dry and clean. I have no doubt the deceased died from prussic acid."

After two constables (*Hill* and *Larkin*) had proved the finding of a phial in a cupboard and two others in a jug, one of which contained hartshorn, the case was adjourned to the following morning.

SECOND DAY. Thursday, March 13.

SUPPOSED PREVIOUS ATTEMPT TO POISON.

Charlotte Howard, unmarried, a servant, said:—

"I knew Mrs. Hart, and went to see her at Salthill on the 26th September, 1843. She had a child of mine in her care. I was there from three to four months, in which time I saw Mr. Tawell there twice. On the 30th of September he came, and in ten minutes after, Mrs. Hart sent me out for a bottle of stout, which I got and gave to her. She took it into the room where he was. Shortly after she came out and sent me for a sheet of paper, leaving Mr. Tawell in the room with the stout. When I came back she said to me 'I am so ill, I shall be obliged to tell my master to go; I am so sick, my head is so bad.' She was very sick, and I helped her upstairs to bed. After she got upstairs she was sick again. She was in very good health when Tawell came. She said she only drank one glass of porter and felt sick directly afterwards. I went down again and saw eighteen sovereigns on the table, which I put into a drawer. There was some porter in the glasses and in the bottle. That in the glasses I threw away, and drank that in the bottle, and it did not make me ill. Mrs. Hart complained of being very giddy, but did not say anything about her throat."

ANALYTICAL EVIDENCE.

Mr. Cooper, the Analytical Chemist and Lecturer on Medical Jurisprudence, was then called and examined by *Serjeant Byles*.

"On the 3rd of January," said the witness, "Messrs. Champneys, Norblad, and Pickering called on me with a carpet bag. The bag contained a bottle (ordinary one, such as olives are usually sold in) full or nearly so with the contents of the stomach; a portion of porter in an ordinary beer-bottle, on which was a paper label signifying that it contained Guinness's beer; a glass tumbler, about half full of what appeared to be a mixture of beer and water; a part of a plum

bun, and a phial containing a few drops (perhaps about half a drachm) of a nearly colourless fluid; a small piece of pink paper, such as is generally used by apothecaries for tying over the corks of medicine phials, and had apparently been used for such purpose; and the stomach and part of the intestines. The bottle which contained the contents of the stomach was tied over with a piece of bladder, and, I think, corked as well, but of the latter I am not certain; it was opened and smelt strongly of food in the progress of digestion, it had also the smell of beer. On the application of litmus paper to the surface of the contents it became red instantly, and so very red that I was disposed to consider that Mr. Norblad and the other gentlemen were right in their conjecture as to its containing oxalic acid. A portion was now taken out of this bottle and put into a porcelain evaporating basin, to which some distilled water was added, and stirred well together with a glass rod; the basin with its contents was then placed on the heated sand bath and kept stirring until it boiled, and even after it had boiled for some minutes. During the whole of this operation I was standing over it, and the vapour that escaped I smelt the whole time, but did not recognise the slightest odour of prussic acid; the odour was the same as that of the contents of the bottle, but it was more powerful. The contents of the basin were then put into a paper filter placed in a glass funnel, and that which passed through the filter was collected in a glass vessel placed for its reception. While this operation was going on I directed my attention to the contents of the beer bottle and the tumbler. I found them both to have an acid reaction on litmus paper, the contents of the beer bottle very decidedly so; but on the application of the usual tests employed for the detection of oxalic acid, not a trace of it could be found.

"By this time a small quantity of clear liquid from the contents of the basin had passed the filter; this was removed from the glass vessel employed to receive it into a test glass, and on the application of the tests for the detection of oxalic acid not the smallest trace was indicated. I then felt quite certain that oxalic acid had not been the cause of death.

“I was then shown the stomach by Messrs. Champneys and Norblad, and on examining its interior surface it did not appear to have been acted on by any corrosive substance: nevertheless I thought it advisable to search for sulphuric acid, and accordingly applied to a small portion of the liquid, filtered from that which had been boiled, the test for that substance, but none could be detected. In like manner I did also apply the tests for the detection of baryta, opium, arsenic, the salts of mercury, and other metallic poisons, and could find none of them. I then came to the conclusion that, if the person had died from the effect of poison, it could be no other than prussic acid.

“A portion of the contents of the stomach was then taken from the bottle and put into a tubulated retort, to which was added a very small quantity of dilute sulphuric acid; the retort with its contents was placed on the sand bath, a receiver applied and a portion distilled off. When about two drachms of clear liquid had distilled over, it was removed from the receiver into a test glass, about a grain of green sulphate of iron was added, and when this was dissolved, a small quantity of solution of potassa. These were allowed to remain a short time together and stirred with a glass rod. Subsequently muriatic acid was added in sufficient quantity *when instantly Prussian blue appeared*, which could not have resulted unless cyanogen or hydrocyanic acid had been present. But it could not be recognised by the smell. Although I had no doubt in my own mind, from the gentle heat that had been employed in the above detailed process of distillation, that the prussic acid could not have resulted from any decomposition of the animal matters present in the contents of the stomach, yet I thought it prudent to conduct the process of distillation in such a manner as to preclude the possibility of such occurrence.

“Another and much larger portion of the contents of the stomach was put into another retort, to which a little dilute sulphuric acid was added as before, and the retort with its contents placed in a water bath, to which some common salt was added. The salt-water bath was heated until it boiled; a receiver was put on to the retort, an

adapter intervening so as to remove the receiver to a greater distance from the furnace, and the receiver was kept as cool as possible by folds of blotting paper kept constantly wet applied to its external surface. In this manner was the distillation slowly conducted, until about an ounce of clear liquid had distilled over."

On the removal of this liquid from the receiver it had the same smell as that contained in the bottle had before distillation, and neither myself, Mr. Norblad, Mr. Champneys, nor my son could detect the smell of prussic acid in the slightest degree. In fact the odour of beer and digesting food was so powerful as to cover or disguise the smell of the prussic acid in this weak state, but on applying the same tests as before Prussian blue was found in considerable quantity.

"The few drops of liquid which were in the phial before mentioned were now examined: they had no action on litmus paper, they smelt of camphor and acetate of ammonia. The test for prussic acid was applied, but it did not show the smallest quantity. The phial was then washed out, and the distilled liquid, with the precipitated Prussian blue obtained by the two above-detailed processes was put into it. It was corked up and taken by Messrs. Norblad and Champneys to keep in their possession. I also added the same test to distilled water containing a few drops of prussic acid, for the sake of comparison and to try the test. This was also taken by Messrs. Norblad and Champneys, as was also some distilled water with the same tests applied, to which no prussic acid had been added, and which was colourless. As far as I can recollect this completed the first day's proceedings, it being now nearly dark.

"On the evening of the following day (Saturday) Mr. Pickering came to me to request I would on the Monday following examine, by the coroner's desire, the contents of the glass tumbler, the beer bottle, and the remainder of the beer, to determine if prussic acid existed in any of them. On Sunday the 6th, being engaged at Derby on the Monday, Messrs. Norblad and Champneys came, bringing with them the whole of the things they took away with them on the Friday. The beer, the contents of the tumbler, and the remains of the

plum bun we each subjected separately to distillation in the salt-water bath, and to the liquor obtained by distillation the same tests for detecting prussic acid were added, but not a trace could be found.

"I may here observe that, on the intervening Saturday, I continued the distillation of the larger portion before spoken of for the purpose of obtaining more of the distilled liquid, and in fact to continue the distillation until the whole of the prussic acid had been separated. A part of the distilled liquor had its Prussian blue precipitated, which was given to Messrs. Norblad and Champneys on the Sunday, and to another part I added nitrate of silver for the purpose of separating the hydrocyanic acid, or rather the cyanogen it contained. I kept it safe from decomposition or change during my absence, and for the purpose of further experiments on my return, and at my leisure.

"Accordingly, shortly after my return, I put the cyanide of silver obtained by the above process, together with some very dilute muriatic acid, into a small retort, to which a receiver was attached. The retort was placed over a lamp in order to be heated, and the receiver was surrounded by cold water. The distillation proceeded until about a drachm and a half had distilled over. *This liquor possessed the odour of prussic acid*, distinctly recognised by myself, and also by two of my sons.

"It occurred to me that as Messrs. Norblad, Champneys, and myself had distinctly seen among the contents of the stomach some undigested apples, that the seeds or pips of the apple might give rise to the formation of prussic acid by distillation. I therefore determined on making an experiment to see if any and what quantity of prussic acid they were capable of producing. Accordingly the seeds from fifteen apples were bruised and put into a retort with some distilled water, and about an ounce of liquor was distilled off. On the application of the tests before spoken of, Prussian blue, in exceeding small quantity, was produced. On testing the last product of distillation, no Prussian blue was found. I have the whole of the Prussian blue thus produced.

“About ten days ago I was applied to and requested to make more experiments for the purpose (if possible) of discovering the whole amount of prussic acid originally contained in the contents of the stomach, or at least of that portion brought to me. I stated that I had not the means in my possession of doing so, and that Mr. Norblad or Mr. Champneys possessed almost everything relating to the matter; but I thought it possible, if I had the remainder of the contents of the stomach, and that if it were contained in the same bottle in which it was originally brought, I might be able to do so—having a distinct recollection of about the height at which the matter stood in the neck of the bottle. Mr. Champneys, on Saturday, the 8th of February, delivered, with other matters, into my charge, the remainder of the contents of the stomach which had not before been subjected to any operation or experiment, and which, when I gave it him back, after my former experiments, I requested him to keep in a cool dark place for further investigation, should it be deemed requisite. The bottle was tightly corked and securely tied over with a piece of bladder. Before uncorking it, I made a mark with a file outside the bottle coincident with the surface of the contents in the interior. I then emptied the contents into a glass alembic, washed the bottle out with a little distilled water, and added this to the matter in the alembic. The head of the alembic was then put on, a condensing apparatus attached, the alembic placed as before on a salt-water bath, the bath brought to the boiling point, and distillation conducted until the whole of the prussic acid was expelled. A solution of nitrate of silver was put into the recipient for the purpose of seizing hold of the hydrocyanic acid the moment it reached that vessel. By this process I succeeded in obtaining 1·455 grains of dry cyanide of silver, very slightly contaminated with chloride of silver. The latter did not amount to a quantity which could be collected and weighed. But if I allow 0·025 grains, and call the quantity of cyanide of silver produced in reality 1·43 on the quantity operated on in this instance, it must be very near the truth. But as the quantity operated on in this instance formed only 51 parts out of the 180 of the whole volume of the contents of the bottle as it was first brought to me, the following proportion will show how much was contained

in the whole. For if 51 parts give 1·43 grains of cyanide of silver, 180 parts will give 5·047 grains of cyanide of silver. This quantity of cyanide of silver is equivalent to 1·002 grains of real hydrocyanic or prussic acid, which is equal to 50 grains of the prussic acid of the strength of the London Pharmacopeia. The determination of the relative quantity operated on, and the original volume of the contents of the stomach, was ascertained by measuring, with water, the bottle filled, as near as possible to remember, to that part in the neck where the contents originally stood, which was 180½ drachms, and to the mark made by the file 51½ drachms.

"I may also remark that the contents of the stomach, after distillation, was still strongly acid, occasioned most probably by the acid in the beer, and also by the acid which is invariably produced during the process of digestion."[13]

During his *examination, Mr. Cooper* produced the bottles containing the Prussian blue produced from the stomach and from the apple-pips—the former dark blue in colour, the latter hardly more than tinged with it. When placed side by side on the front of the witness-box the marked contrast caused much excitement in Court.

The *cross-examination* of this witness by *Mr. Kelly* was so important, that though very lengthy it is necessary to give it in considerable detail.

"Until this case," said the witness, "I had never examined the contents of a human stomach where a person had been killed by prussic acid, or a human stomach containing prussic acid. Respecting the effect of prussic acid on the stomach and tissues of the body, my knowledge is only theoretical. Prussic acid, which I have smelt from its most concentrated to its weakest state, has a peculiar smell; it affects different persons differently. When I smell it, it affects spasmodically the back of the throat. But it loses its smell in combinations. I am not aware what quantity of prussic acid

destroys life. I have no practical knowledge on the subject. The case I am most familiar with is that of the seven epileptics.

"I began my investigation with the view of seeing if oxalic acid was present. I recognised the odour of beer more strongly in the contents of the stomach than anything else. I did not trace the smell of prussic acid in them, nor feel any spasmodic affection in the throat in smelling them. I did not come to the conclusion, after trying for those acids and mercurial poisons, which I did not discover, that there was prussic acid in the stomach, but I remarked to those present at that time, 'Well, if this person has taken poison, it must be prussic acid.'

"I have no idea how much Prussian blue I obtained from the first experiment, as it was made in a hurry. (*The bottle of dark blue liquid was here shown again.*) I thought the obtaining evidence of its presence sufficient. I got more Prussian blue in the second experiment than in the first, and more in the third experiment than the second. I have not calculated the total amount of Prussian blue in the bottle."

As to the contents of the stomach: "There was undigested flesh and a pulpy mass of which I could make nothing, and some portion of apple, but no pips either partially digested or undigested with the apple. I am not prepared to say that the pips of this apple contained more prussic acid than others. There is a great difference between bitter and sweet apples—*the bitter contain a great deal of prussic acid, the sweet, I believe, none*."[14]

As to prussic acid being in many substances: "Strictly speaking, I don't think it exists in any substance, not even in bitter almonds. I mean in a free state; it is so extremely volatile that it cannot possibly exist unless in combination with some other substance. It is my opinion that prussic acid is a 'product,' and not an 'educt'—that is to say, in consequence of its great volatility it cannot exist unless in combination with some other substance; you liberate it by combination and change. The elements of it exist in a great many substances. These elements, on taking new arrangements, may produce prussic acid. Therefore I feel that it is always a 'product,'

and that it does not exist in any substance in a free state, because if it did it would be continually evaporating from that substance."

Question.—"Are not the substances which are already known to contain the elements of prussic acid, and from which it can be obtained, very numerous?"

Answer.—"They are very numerous certainly, because all those compounds which contain carbon, nitrogen, oxygen, and hydrogen, may, in my opinion, by new changes be made to produce prussic acid. All animal substances of any kind contain those elements, in which are contained the elements of prussic acid. I agree, as far as I know, with Christison, that the distilled seeds of bitter almonds, and pomaceous seeds, yield prussic acid by distillation."

Question.—"Is it not found, from time to time, by accident or experiment, to exist in organic and other matters?"

Answer.—"I believe it is. I was the first person to discover it in fulminating silver, and perhaps also in apple-pips, from recent experiments. I am not aware of it ever having been produced by mere organic changes in the stomach. If the apple-pips on which I operated had been macerated, I cannot say that I should have obtained more Prussian blue. I know it is the habit to macerate bitter almonds, but I also know that without maceration they have sometimes yielded more prussic acid than with maceration."

Question.—"I will ask you one question more, 'Do you agree with Dr. Taylor that the odour of prussic acid, which is said to be peculiar, may be found when all tests fail?"

Answer.—"*I do not believe it.* As far as my experience goes, it would lead me to the contrary conclusion."

Question.—"But if I understand you rightly, you do not smell prussic acid, but feel its effects in another way?"

Answer.—"Sometimes it has produced a spasmodic constriction about the throat, without my smelling it. At other times I have distinctly smelt it. It depends very much, I think, on the state of the nasal organ at the time."

To Serjeant Byles.—"The same peculiar action at the back of the throat is, I think, felt by others on putting prussic acid to the nose. I communicated the nature of my evidence to the solicitor of the prisoner about a month ago."

Baron Parke.—"Have you or have you not a doubt upon your mind from the result of your experiments as to the existence of prussic acid in the stomach?"

Witness.—"None whatever! I have no doubt that prussic acid may exist without being smelt."

Baron Parke.—"If there was an absence of smell, would you suppose that the prussic acid was present in the shape of a salt, and that, therefore, you did not smell it?"

Witness.—"Absence of smell may arise from dilution, or from its being covered by the smell of other substances."

Baron Parke.—"Do you, in this particular case, ascribe the absence of smell to the circumstance of the prussic acid being in the form of a salt?"

Witness.—"*No, because it could not exist in the stomach as a cyanide of potassium, which is a salt, or as a cyanide of soda, when another and more powerful acid was present; as, for instance, muriatic acid, which in this case was found in considerable quantity, it being an acid generated by the process of digestion.*"

Baron Parke.—"Do you not believe that there was also acetic acid present. Is not that a strong acid?"

Witness.—"I have no doubt there was also acetic acid present, and it would have a greater affinity for soda or potash than prussic acid. I think prussic acid cannot be formed by putrefaction in the stomach."

Mr. Joseph Cooper, a son of the last witness, and his assistant for four years, deposed to having smelt the ordinary prussic acid at the time in the process, mentioned by his father.

Mr. Norblad, surgeon and apothecary at Slough for 10 years, said:

"On January 2 I went to Mrs. Hart's house and saw her body; have heard the evidence of Mr. Champneys, and should say that death was caused by prussic or oxalic acid; do not know of any other poisons that would produce death so rapidly; was present at Mr. Cooper's experiments; have heard and perfectly agree with his evidence; oxalic acid must have been detected if present; I am quite of opinion that prussic acid was present in the stomach, and have no doubt about it; have heard the evidence of the witness Howard, the symptoms she describes (of supposed former attempt) are precisely those of prussic acid. That acid acts uniformly upon all animal subjects, and destroys life in the same way in all cases. Have tried experiments on dogs, and have seen cats and dogs poisoned by that acid. On the 18th February I made an experiment on two dogs. Five hours after feeding them I gave one of them half an ounce and the other one drachm of Scheele's acid, administered it at 7 p.m., and exactly in ten seconds after receiving the smaller dose the dog fell as if dead, and the other in half the time; *I opened their bodies eighteen hours after and could not discover any odour*; I smelt the mouth of the dog and could not detect it then, nor at any other time; I opened the stomach of the dog, which smelt intensely of sour beer, the acid having been administered in beer. I attributed the absence of smell to the admixture of Guinness's stout; I should have expected on opening Mrs. Hart's body to have discovered the cause of death."

By the Court.—"I examined the brain; it was perfectly healthy; death did not arise from apoplexy."

By Serjeant Byles.—"Less than a grain of pure prussic acid would be sufficient to produce death."

Cross-examined by *Mr. Kelly*:—

"I have never attended any one who had taken prussic acid except in the form of medicine. The average dose of Scheele's is five minims, and a minim is about a grain. Never heard of prussic acid being administered externally for varicose veins, and should think it useless (*prescription handed to him*). That is a proper prescription for varicose veins. I agree with Dr. Thompson, of London, that prussic acid may be applied successfully to diseases of the skin and cancerous affections to alleviate pain. I consider my sense of smell very acute. *I mixed twelve grains of prussic acid with a pint of porter, but could not smell it. Some porter dropped on the table and I did then smell it.* I know that prussic acid when combined with the blood of an animal volatilises very rapidly when exposed to the air. There is a case in which prussic acid appears to have allayed irritation of the stomach; it is a useful medicine sometimes in small doses. I have seen dogs vomit after it. Disease of the heart would produce death from mental emotion or rupture of the coronaries of the heart. Forcing water down the throat of a person in a syncope might cause sudden death. There was no congestion or gorging of the lungs. I saw but did not examine specially the coronary arteries."

Kelly.—"If sudden death had occurred from a disease of the coronary arteries, what would be the appearance of the lungs?"

Witness.—"The lungs have nothing to do with the coronary arteries; ossification of them is supposed to cause sudden death. The blood in the lungs would not be prevented from returning the heart so as to gorge the lungs. I did not see any symptoms of the coronary arteries being ossified."

"I examined the lungs carefully. The lungs have been found gorged in some persons who have died of prussic acid. I don't think that what has been called congestion was always clearly so. In all cases of paralysis of the heart, the blood has not been returned to the heart, and remaining in it gorges the lungs. Death by prussic acid paralyses the heart. In death from prussic acid, death is often denoted by an involuntary scream. I cannot say that I have heard of a succession of screams in any case of the kind. When I first saw the

body, my impression was that death had been caused by oxalic acid, and that impression continued until the tests were applied. Blackness of the stomach is a symptom. There was a dark spot on the surface of the stomach. I have not seen a case of poisoning by oxalic acid."

Re-examined by Mr. Prendergast.

"There was nothing in the stifled screams described by Mrs. Ashley yesterday at all inconsistent with poisoning by prussic acid; on the contrary, the catching of the breath is the last symptom. Less than one grain of prussic acid will kill a healthy person."

By the Court.—"I saw nothing on the brain to indicate death by apoplexy. If a sudden emotion had caused death I don't think I could have told that by the brain."

Mr. Pickering, who had been in practice as a surgeon for nine years, and was present when Mr. Champneys made the first incision through the integuments, said he then smelt the odour of prussic acid,[15] and confirmed the accounts of the previous witnesses of the experiments in Mr. Cooper's laboratory. On *cross-examination* he admitted that before they examined the body they were led to suppose that the death had been caused by poison, and that he had never seen a case of death from poisoning either by oxalic or prussic acid.

Previous visits of Tawell to Mrs. Hart, were proved by *Kesiah Harding*, a washerwoman at Slough, in December, 1844, and particularly on the Monday week before her death, when he told the deceased that he wished her to be alone when he next came, and that he would come on the Tuesday or Saturday week.

PURCHASE OF PRUSSIC ACID BY TAWELL.

This was proved by *Henry Thomas*, shopman to a Mr. Hughes, a chemist in Bishopsgate Street, who said,

> "On the 1st of January, between twelve and two the prisoner came to the shop dressed in a great coat and usual quaker garb and asked for two drachms of Scheele's Prussic Acid, bringing with him a ½oz. bottle with a regular label of Scheele's Acid on it. As I could not get the stopper out, I gave it him in one of our own bottles. When about to put on a label, I believe the prisoner said "You need not," but I would not swear it. He said he wanted it for an external application to varicose veins, paid 4*d.* for it, which was entered in the book now produced. Next day he came again between ten and two and asked for the same quantity, and, as he had broken our bottle, took it in the one he had originally brought. I had seen him frequently before and might have sold him prussic acid, but am not certain. He told me, three months before, that he had been a chemist and apothecary abroad. I do not remember his being in a hurry to catch the train and my being not able to get the stopper out. It is our practice to do it. We usually cover our bottles with leather. Attended at Aylesbury on the 13th of January, and recognised the prisoner the next morning in gaol."

The *cross-examination* of this witness, who was evidently favourable to the prisoner and in communication with his solicitor, was directed to three points—the suitability of prussic acid to the disease in the legs from which the prisoner suffered; the effect of porter on the odour of prussic acid when mixed with it; and the amount that can be produced from apple-pips.

> "The prisoner," said the witness, "told me he was suffering from varicose veins. I judged that he was, from the medicine I sold him. He rubbed his leg. The prescription now shown me would be a good external application for the ulceration produced by varicose veins."
>
> *Baron Parke.*—"What is that?"
>
> *Kelly.*—"Scheele's Acid."

Witness.—"That prescription is in the handwriting of Dr. Addison. I do not believe that Scheele's Prussic Acid could be mixed with a drink and taken by a person and not smelt after death. *I do not think porter would disguise it.* I put about twenty drops of Scheele's Prussic Acid down the throat of a parrot with a glass syringe. Three women were present, and the smell was so strong and suffocating, that it compelled them to leave the room. The bird was afterwards stuffed. *I mixed thirty drops of this acid with eleven ounces of porter, and found the odour slightly perceptible. I did not perceive the difference when the froth was on and when there was none.* It is the property of prussic acid to give out a smell when volatilising. *Apple-pips contain prussic acid. I have assisted at the extracting it from fifteen small apples. The process was a soft-water bath, diluted sulphuric acid, and sulphate of iron.* TWO GRAINS AND A QUARTER OF CYANIDE OF SILVER WERE PRODUCED. *I did this under the direction of Dr. Lievesley, a lecturer at the London Hospital. In this process two sweet almonds were used.*"[16]

On *cross-examination* by *Serjeant Byles* the witness admitted that he made this experiment on the 9th of March at the request of the Prisoner's solicitor, and that he had never made this experiment before; that he had been with Mr. Hughes only about a year and half, and was paid £80 a year, and that Dr. Lievesley provided the London Pharmacopœia acid, and the porter. On being shown a leather or paper covering of a small bottle that had been found in the ashes of the grate in Mrs. Hart's house, the witness declared that it could not be the covering of the bottle that he had put on, as it was too small for leather.

HISTORY OF MRS. HART.

Sarah Bateman said that she knew Mrs. Hart six years ago, when employed to nurse the Prisoner's first wife, who soon after

died. The witness at that time observed that Mrs. Hart—then known as Hadler—was with child, and the following statement was subsequently made by her when at tea with Tawell and the witness.

> "I am in the family way, and will vindicate my master in it. He is going to be married to Sarah Catforth (the present wife), 'and if it was to get abroad it would make a great difference to him.' She seemed much excited, and Tawell begged her not to excite herself. 'He was about to be admitted into the Society of Friends,' he said, 'and should not like these things to get abroad.' She said, 'He could marry Miss Catforth, and no one, not even her mother, should know what had become of her.'"

Mary Ann Moss, of Crawford Street, Bryanston Square, with whom Mrs. Hart came to lodge in 1841, when she was confined of a girl, remembered Tawell frequently visiting her, as Mrs. Hart said, "to bring her money from her husband." From there she removed to a small house on Paddington Green for the sake of privacy, where Tawell paid regular visits, and eventually to Salt Hill, at Tawell's desire. She represented to this witness that her husband was Tawell's son, that Tawell disapproved of the marriage, and that the girl and a boy of whom she had been subsequently delivered were his. Mrs. Hart's mother, Mrs. Hadler, also spoke to her having not heard of her for several years.

With the proof by a clerk of Barnet's Bank that Tawell had drawn a cheque for £14 on the 1st of January, and the identification of certain letters being in his handwriting, the case for the prosecution was closed.

THE DEFENCE.

The nature of the defence opened by Mr. Fitzroy Kelly, in his long and eloquent address to the jury has already been indicated by

his cross-examination of the medical witnesses, and was so fully commented on by the learned judge in his charge to the jury that it is needless to reprint it. On its conclusion residents at Berkhampstead who had known him for several years, testified to the good character which he had borne for kindness, charity, and benevolence, and a Mr. Richards, of Dover, and a Captain Dillon, who had both known him abroad—the latter for nearly thirty years—gave similar evidence of his kind, charitable, and hospitable disposition. On the conclusion of this evidence Baron Parke adjourned the Court to the next morning, when he gave the following exhaustive charge to the jury.

THE JUDGE'S CHARGE.

After the usual introductory caution to the *Jury* to be strictly impartial, *Baron Parke* said:—

> "He would next tell them what the case was, and how it was to be proved. It was to be proved by circumstantial evidence—the only sort of evidence that could be obtained in most cases of a similar nature. The most atrocious crimes were committed in secret, but Providence had so ordered it that some traces were frequently left which were sufficient to lead to the discovery of the perpetrators. The law, therefore, wisely provided that direct proof of crime was not absolutely necessary; but on the other hand it was equally necessary that by circumstantial evidence the case should be so fully made out as to leave no rational doubt of its committal. He should, therefore, advise them to lay down the rule, that they should first consider what had been proved to their satisfaction, and then whether all those facts were consistent with the guilt of the prisoner. If they thought that they were consistent with his guilt—and there was nothing inconsistent with it except the prisoner's previous character—then they should consider whether they were inconsistent with his innocence, and they should remember that the

existence of the crime was not inconsistent with the other parts of the case. Whilst on this part of the case, he should observe that the counsel for the prisoner had admitted all those facts, but had asserted that the law required not only that those facts should be proved, but that it should be shown directly that the deceased had died from poison, and that a sufficient quantity of poison to cause death had been found in her stomach. *That was not true of the law.* It was not necessary to give direct and positive evidence in every step of the case. There was no difference between direct and circumstantial evidence, if the evidence was sufficient to satisfy their minds that death had ensued from poison. It was not necessary to prove what quantity of that poison was necessary to produce death by the testimony of the person who had actually seen death produced by it; nor was it necessary to prove that such a quantity as would destroy life was actually found in the body. If they were satisfied that the prisoner administered poison to the deceased, and that she died of it, it was not necessary to prove what quantity had been administered to her. The only positive fact which the law required to be proved was the finding of the body, where such was possible. The body of the deceased having been found, it was to be considered whether the prisoner administered poison to her—whether it had been administered to her by the prisoner or by herself. The only allegation that she had done so was that of the prisoner himself, and if the jury thought the extraordinary story told by him was worthy of credit, it would agree with the latter mode of accounting for her death. But if they did not believe it, they had no other conclusion left than that he had committed the crime imputed to him."

The learned judge then proceeded to comment on the evidence of Mrs. Ashley, and others, who deposed to the perfect health and good spirits of the deceased up to a few minutes of the discovery of her lifeless body, and to the medical evidence of the perfect state of her internal bodily organs, leaving no doubt that she had not died from natural causes. He then went to the evidence of Messrs.

Champneys and Pickering, the surgeons, who, on opening the body of the deceased on the day following her death smelt the odour of the prussic acid.[17] "There, then," he said, "was evidence at once of the presence of prussic acid in the stomach on the day following a sudden death accompanied by appearances, such as would be symptomatic of sudden death from that powerful poison. Mr. Cooper, the chemist, analysed the contents of the stomach subsequently and obtained a quantity of pure Prussian blue from it, and before he proceeded further with the evidence on this point, he would observe, that the jury should never lose sight of the conduct of the prisoner during the whole of the proceedings. He then proceeded to comment on the evidence of the presence of prussic acid in the stomach immediately after death, and the allegation of the Prisoner's counsel, that it was producible from apples, and that it might have been produced from natural causes in the stomach, which contained a quantity of apple pulp. He pointed out that from all the medical evidence, it was proved that, that acid was contained not in the apple, but in the pip, and that pips were not found in the pulp in the deceased's stomach. It was also proved that prussic acid had been obtained from the pips themselves only by a process of distillation, and was not produced by the mere natural process of digestion.[18] No one would die from eating apple pips, although a person might be killed by the prussic acid obtained from them by a chemist. Besides, the action of the acid was sudden and immediate, and the deceased had died in the manner she would have done after suddenly swallowing some."

With respect to the evidence regarding the odour of the acid being perceptible under this or that circumstance, said the Judge:—

> "All that could be inferred was, that though the perception of it was a positive proof of its presence, the non-perception was no proof of its not being present. As to the deceased having died from

water having been poured down her throat, it was quite idle to attribute it to that. At that moment she was not living: death had already done its work. With regard to the quantity of prussic acid requisite to kill a human being, it had been proved that less than a grain would kill in some cases, as appeared by the melancholy cases so frequently referred to of the seven epileptic patients in Paris; and Mr. Cooper had proved that more than a grain existed in the stomach of the deceased. It was said that the experiments were not satisfactorily conducted—that was a question for the jury.

"In considering the conduct of the prisoner, the jury must couple it with all the other evidence, in order to judge how far it bore out or contradicted the inferences that might be derived from it. It appeared that on the day in question the prisoner had gone to the Paddington station of the Great Western Railway and taken his place for Slough. He had left his great coat at the Jerusalem coffee-house, and told the waiter that he was going to dine at the West End of town. That was untrue, and he must have made that false statement for some object or other. He went down to Slough at five o'clock, and between six and seven Mrs. Ashley went round to the deceased's house, in consequence of the noise she heard of stifled screaming. She met the prisoner in the garden in a state of agitation —so great that he could not undo the latch of the gate. She opened it for him. As to the observation she made about fearing that her neighbour was ill, she could not say that the prisoner heard it, and therefore it went for nothing. Let that pass. However, after she got in at the door of the deceased's house, she turned round and saw the prisoner looking at her, and such was the effect upon her that she felt alarmed, and closed and fastened the door. At seven o'clock the prisoner was seen by a postboy, and he was then making towards the station. At ten minutes after seven he was at the station. He was next seen getting into the Eton omnibus, and asking to be set down at Herschel House. What his intention was in going to Herschel House does not appear. He was traced back again to the station, and an alarm having been given, a signal was made by the electric telegraph, and he was seen to alight from the railway carriage at

Paddington, and was then traced home. When he was taken up next morning, and told what he was taken for, his answer was, that he knew no one at Slough. It had been suggested by his counsel that this was strictly true, as the deceased did not live exactly at Slough, but a little distance from it. It had also been suggested that he wished to prevent his wife hearing of his improper connection. It would be for the jury to say what degree of weight should be given to these explanations.

"He had told several falsehoods when informed of the nature of the charge. On the Friday, about one o'clock, the prisoner had an interview with his legal adviser, and after that, but not until after that, did he make any attempt at explanation or give any account of what had taken place; and the account which he then gave was the extraordinary statement of her self-destruction. Here, then, the prisoner represented himself as present when the poison was administered, and as it was found in her stomach, it was for the jury to say whether the question did not amount to the simple one, of whether she had destroyed herself or the prisoner had administered it. If he thought she had been threatening to poison herself, he should at least have stayed to see what would be the effect upon her. The jury would next observe, keeping the prisoner's story in mind, that no such vial as that described by him was found in the house. It had been proved by Mr. Thomas, who had sold him the poison in the morning, that the prisoner had prussic acid in his possession that day. He (the judge) did not give much weight to the observation that he would not have gone back the next day to the same shop for more if he were conscious of guilt, because in cases of murder, and especially of murder by poison, it was found that great precautions were not used. The perpetrators did not at all expect to be found out. As to the medicinal use alleged to have been made by the prisoner of the deadly poison, he might have had varicose veins; but at all events it had been shown that he had poison in his possession—he had the means of doing this act on the day it was committed."

Coming then to the question of motive the Judge gave a brief history of the connection between the prisoner and the deceased, and, after detailing its commencement, commented on it as showing her extraordinary affection and devotion to the prisoner.

> "With striking self-devotion," said Baron Parke, "she had said, that, in order not to prevent the union of the prisoner with the lady to whom he was about to be married, she would go out of the world, and be dead to the world, even to her own mother, from that day forth; and the jury had heard from that very mother that from that time she had never heard of her unfortunate daughter until after her death. She kept her promise. She did go out of the world, and went from place to place till she went to reside at Slough. It appeared that there she received from the prisoner an allowance of £13 a quarter, and on the day in question it was seen that he was to have taken her her quarterly allowance. When taken into custody, the sum of £12 10*s.*, besides silver, was found in his pocket; and it was proved that he had drawn a cheque for £14 that morning. From that fact it might be inferred that he had gone down with a sort of mixed feeling, either of paying her the money or, if he had the opportunity of accomplishing his purpose, of poisoning her. But as to motive for destroying her, it had been suggested that no man would commit such a dreadful crime for the sake of getting rid of expense. That, he should say, was not a matter to be easily judged of."
>
> His Lordship then touched upon all the evidence regarding his alleged pecuniary circumstances, and read the letter from his wife, in which allusion was made to his anxiety to have the papers from Sydney. "As to the feeling appeal made upon that affectionate letter by his counsel, it only proved that the prisoner had been very kind to and enjoyed the affection of his wife, which was not at all incompatible with the commission of the crime with which he stood charged towards another woman."
>
> As to the alleged previous attempt to poison the deceased in September last, the Judge considered that there was no sufficient proof that he then administered prussic acid to her. It was, however,

remarkable that after drinking porter with the prisoner on the 30th September, she should have been so ill, and that after drinking porter with him on the 1st of January she should have been taken ill and died. The strong facts against the prisoner, in his opinion, “were his presence at the woman’s house at the time she died; his declarations before and after his arrest, and the fact that prussic acid was found in her stomach.”

The Judge then read over the whole of the material evidence, and, with the usual caution, left the case in the hands of the jury. On Mr. Gunning reminding him of the evidence to the prisoner’s character which had been produced, Baron Parke said—“Such evidence was admissible in cases of this kind, because it went to show the general impression of the habits and feelings of a person. The prisoner was reputed to be a kind-hearted, benevolent man. It was admitted that he had been transported for some offence, the nature of which they had not been told, but it was said that it was not one to affect his character for kindness of disposition.” The Judge then read over the evidence to character, and left it to the jury to decide in reference to its value to the prisoner in his present position.

On the conclusion of the Judge’s charge, which lasted from eight in the morning until half-past eleven, the Jury retired, and in about half an hour returned a verdict of Guilty. In a few impressive sentences, in which he spoke of the hypocrisy that had characterised the prisoner’s life in the assumption of the garb of a virtuous, peaceful, benevolent, and religious body of persons, the Judge passed on him the dread sentence of the law, which he suffered on the 28th of March. Previously to his execution Tawell handed a written confession to the jail chaplain, that he committed the murder for fear that his wife should discover his connection with the deceased, and that the previous attempt was not made with prussic acid. He never imagined that Sarah Hart had spoken of him to her neighbours, to whom he believed that he was personally unknown, and so more likely to escape detection.

At the Easter Quarter Sessions of the County, held subsequently to the execution of Tawell, an ineffectual attempt was made by a section of the magistrates to compel the jail chaplain to deliver to the visiting justices this written confession, which the chaplain refused to hand over, on the ground of its having been received under the seal of confession, and on the promise that it should not be published. All that was known of it rested on the statement of the governor of the prison, and the general admission of the chaplain that it was a full confession of the prisoner's guilt.

A difficult legal question arose, after Tawell's death, with reference to his Australian land, which the Crown re-granted to his widow and family, after its forfeiture by his conviction; whether this re-grant should prevail over the claims of a previous purchaser, a retired auctioneer, who had houses on it, who alleged that he had purchased it for a *bonâ fide* consideration, under a sufficient power of attorney, executed before Tawell's conviction. "The affixing the seal of the colony to this grant by Sir W. Denison, created a serious difference between that governor and his chief minister, Mr. Cowper. The seal was affixed pursuant to the instructions of the Secretary of the Colonies, who only acted in the matter in accordance with the opinion of the Attorney and Solicitor-General of England. A part of the sworn duty of a colonial governor is to obey the instructions of the Secretary of State for the Colonies."[19] The governor, therefore, sent his private secretary for the great seal of the colony and himself executed the new deed. On this being done the owners of the property found the ground cut from under their feet, and it never came before the law courts, but it is believed that some compromise was effected with the family of Tawell, and so the matter ended.

TRIAL OF GEORGE BALL FOR POISONING HIS MOTHER WITH PRUSSIC ACID.

July, 1860, Home Circuit, Lewes, *before* Coleridge, Chief Justice *of Common Pleas*. Barrow, *for the Prosecution*. Serjeant Ballantine

for the Defence.

This case, really of misadventure, is reported, briefly, as showing the carelessness with which dangerous medicines may, no doubt most unintentionally, be administered even by professional men, the culpable ignorance in some of those chemists who deal in such deadly preparations.

The accused, a medical man, but not in regular practice, had for some time attended his mother, a very ailing old lady, and been in the habit of giving her small doses of prussic acid, as a remedy for violent attacks of vomiting to which she was subject. On the 11th of July in consequence, he purchased of a Mr. Moswell, a chemist in Lewes, a drachm of Scheele's prussic acid, equal to 60 "minims," and gave her a dose of 4 "minims." The result was favourable, and the old lady went for a walk. On her return, however, she again complained, and the accused administered another dose of prussic acid, evidently from its effects, a deadly quantity, as she hardly got to her bedroom before she became insensible, and died almost instantaneously. The accused believed he had given her only seven drops, the proper quantity to be given. That he gave her seven drops was not doubted, but that the size of drops differ under circumstances as much as the strength of Scheele's preparation of the acid, will be seen from the following evidence.

Mr. Scrate, a surgeon at Lewes (who was sent for by the accused, found the lady dead and the accused apparently in a very distressed state of mind), said:—

> "I asked what was the matter; and the accused said he had given her seven drops of prussic acid, and witness replied he must have given her more."

Chief Justice.—"Would seven drops be sufficient to cause death?"

Witness.—"Not according to my experience; it was the proper quantity to be given. The smallest quantity of prussic acid on record having caused death was of nine-tenths of a grain."

Chief Justice.—"How many 'minims' would a 'drop' contain?"

Witness.—"That would depend upon how the drops were obtained from the bottle. If the cork was partly in, the drop would be larger than if it was carefully poured from the open neck of the bottle. Some medical men made use of one method and some of the other, but it was his practice not to rely on 'drops,' but to measure 'minims.'"

To Mr. Barrow.—"With such a deadly poison as prussic acid I should say that it was not prudent for any medical man to rely on 'drops,' but to measure 'minims.' The proper doses, as marked on all bottles of Scheele's strength, to be administered were *one*, *two*, or the largest *three* 'minims.' Scheele's acid was not uniform in strength: sometimes it contained *four*, sometimes *five*, and sometimes as much as *six* per cent."

Chief Justice.—"Would not that amount to almost the difference between life and death?"

Witness.—"It would make a very great difference certainly. Taylor and other eminent medical men have recommended that Scheele's prussic acid should not be used, on account of the very great variation of strength. I myself always use that of the Pharmacopœia. But notwithstanding what has been written upon the subject by many eminent men, Scheele's acid is generally used in the profession."

Chief Justice.—"Supposing the acid to be of the highest strength you have mentioned, do you consider seven drops would have been sufficient to cause death?"

Witness.—"I don't believe they would."

To Mr. Barrow.—"Six per cent. is an exceptional strength, but I should think that it would take seventeen minims of that strength to

cause death."

Chief Justice.—"What do you say is the difference between a 'drop' and a 'minim'?"

Witness.—"That would depend on the sort of 'drop.' The prisoner afterwards gave me a bottle which contained prussic acid. He told me he had given his mother *four* minims, and 2·5 minims remained. I did not test the strength of what remained, but had no doubt the deceased died from the effects of prussic acid."

To Serjeant Ballantine.—"There was a broken cork in the bottle when the accused gave it to me. In his opinion 'seventeen minims' was the smallest dose that would destroy life. It was very easy to destroy life when dropping the liquid from a bottle. When accused told him he had given seven drops, he understood that he had given three and a half minims. He had never heard of any instance in which the strength of Scheele's acid had exceeded six per cent."

Mr. C. H. Moswell (chemist in Lewes).—"On the 11th of July accused came to his shop and asked for some prussic acid. Gave him a drachm, which would contain sixty minims. Did not measure it, but gave what he considered a quarter of the bottle."

Cross-examined by Serjeant Ballantine.—"As you say you really did not measure it, can you tell us how much prussic acid you really did give?"

Witness.—"I cannot say to a drop. I am sure he had fifty drops. I consider a 'drop' and a 'minim' synonymous. I gave him about the quantity, but when prussic acid is dispensed by a medical man, he is, of course, careful as to the quantity he uses."

Chief Justice.—"We have been told that a 'drop' contains two 'minims,' and this witness says he looks upon them as synonymous."

Serjeant Ballantine.—"If you were told to give a patient so many 'minims,' should you give him so many 'drops'?"

Witness.—"Certainly not."

Serjeant Ballantine.—"Can you tell us the strength of the prussic acid you sold?"

Witness.—"I don't know what the strength was—I should suppose about *four* per cent."

Case for the prosecution closed.

The *Chief Justice* called the attention of the Jury to the evidence and observed, that the fact of the cork being broken in the bottle and defective was certainly an important matter for their consideration, as it admitted the possibility that the prussic acid might have escaped from the bottle accidentally, and then there was an absence of evidence that an excessive dose had been administered by the accused.

The *Jury* almost immediately returned a verdict of "Not Guilty."

If the estimate of the witness Scrate is taken for the difference between a drop and a minim, and the second witness, Moswell, is correct in saying that he gave the accused at least 50 drops, equal to 25 minims, as only 2·5 minims were left in the bottle, equal to 4¼ drops; in the two doses the accused must have administered more than 45 drops, equal to 22½ minims. If the cork was not broken in the bottle when the first dose was administered, the probability is that the dose then given did not exceed seven drops of the size that would make them equal to 3½ minims, thus leaving 19 minims for the second dose. It is to be regretted that the strength of the prussic acid was not tested.

NOTE ON TAWELL'S CASE.

In a case of the poisoning at Egglesham, near Glasgow, by prussic acid, of a young woman, of the name of Agnes

Montgomery, by Peter Walker, a tailor, the symptoms were thus described by one of the witnesses, as well as the effect of prussic acid on herself:—

> "After we learnt that the moaning came from Aggie's room, we came up, got Clarkson's key, and went in. (As in Tawell's case, the prisoner had left the girl's room only a few minutes before.) Aggie was sitting on a chair (in which it was probable from other evidence that she had been placed by her murderer), with her head leaning on the table. The body was quite still. There was a little froth coming out of the *wicks* of her mouth. It was a little coloured with blood; and we afterwards found she had bit her tongue and her lips. She threw back at different times, as if in distress. Her right hand was very firmly closed. I loosed the boot of the left foot, and found it was swelled and quite stiff. About ten minutes after that was another groan: the breathing was slow, and with great oppression. She sighed six times before she died. Her skin was getting quite cold after we got her. I thought there was a little sweat on her face. We got hot water to bathe her arms. The eyes were large and staring. She died about three quarters of an hour after we got her. When we went into her room, I found a sickening smell. I felt in my nostrils a kind of nipping, and my throat was dry. I felt it off Aggie the moment I came forward. I know the smell of almonds, but can't say it was exactly like that. On the 5th of November I saw the superintendent of police, and others, and saw something (it was prussic acid) put into beer. I smelt the beer; and after some of it was poured on the floor, I recognised it as the same smell. It affected me in the same way as before in the nostrils and throat."—*Evidence of Mrs. M'Donald.*

In this case, on a *post-mortem* examination of the exhumed body, the presence of prussic acid was clearly detected; and it was proved on the trial that the prisoner had employed a carrier to get some prussic acid for him, and that the bottle containing it had been given to him on the day of the murder; and the fragments of a glass

phial were subsequently discovered, with the key of the girl's room, at the root of a tree, at which the prisoner had been seen stopping, as he returned from going for a doctor. In this case the poison had been most probably given in beer, as in Tawell's, a tumbler in which beer had been being found on the girl's table.

The fellow, two months afterwards, tried to poison a Mr. Mason and his wife, with whom he had gone to lodge in Glasgow, with prussic acid, but happily failed in his attempt.

He confessed his guilt; and at first gave as his motive his desire to possess himself of the girl's money, but subsequently said he could not tell what possessed him to do it. "Following so closely on the case of Madeleine Smith, the probability is that her case had had on him the same effect as Palmer's on Dove—exciting a morbid desire to tamper with deadly drugs, and that the death of his victim, and the danger of the others, was as much due to this feeling as the desire for plunder." He was discovered to have been transported for robbery, and to have been guilty of other crimes. He now confessed that he had murdered a lad, by pushing him into a quarry hole. He was executed at Paisley, Jan. 14, 1858.—*Annual Register for 1858.*

CHAPTER III.

CHEMICAL NOTES.

Note I.—Hydrocyanic or Prussic Acid.

Nature of—Strength of different preparations of, English and foreign—Where found—Tests, preliminary: (1) Odour—(2) Silver—(3) Prussian blue—(4) Sulphur—(5) Guaiacum—(6) Uranium—(7) Picric acid—(8) Cupric sulphate—(9) Cobalt chloride—(10) Mercuric oxide—(11) Peroxide of hydrogen—(12) Mercurous nitrate. Test apparatus—Salts of hydrocyanic acid: (1) Potassium cyanide—(2) Mercuric cyanide—(3) Cyanides of the heavy metals—(4) Double cyanides—(5) Sulphocyanides—Oil of bitter almonds—Antidotes—Fatal dose—Symptoms—Post-mortem appearances—Drops and minims—Period after death at which hydrocyanic acid can be discovered—Formic acid to be tested for—Processes.

Synonyms.—Cyanhydric or prussic acid, Hydric cyanide, Hydrogen cyanide, Acidum borussicum, Blausaüre, Berlinerblausaüre.

Formula HCN, *i.e.*, a compound of single atoms, of hydrogen, carbon, and nitrogen, in the proportions by weight of 1 + 12 + 14 =

27. In its pure state (anhydrous, or free from water), it is a feebly acid, colourless, mobile liquid, inflammable and very volatile. Boiling point 24·5° C. Much lighter than water: sp. gr. ·7058. It has a characteristic overpowering and oppressive odour, resembling peach-blossom or laurel-water. But the anhydrous acid, from its volatility and dangerous character is rarely seen or made. In commerce it is always found as a dilute aqueous solution, the varying strengths in real HCN being:—

	Per cent. HCN.
Pharmacopœia, British, Swiss, America, Borussica, London, Norway,	2
Schräders	1·5
Pharmac. Saxony	1·9
” Austria, Baden, Batavia	2·5
” Edinburgh, Dublin	3·3
Vauquelin’s acid	3·3 to 3·5
Pharmac. Bavaria	4
Scheele’s acid	4 to 5 (rarely 6)
Duflos’s acid	9
French Pharmacopœia	10 to 10·5
Riner’s and Pfaff’s acids	10
Hessian Pharmacopœia	18 to 20
Koller’s	25
Robiquet’s	50

In this country, only Scheele's, and the British Pharmacopœia (2 per cent.) acid, are usually met with.

These numbers, however, must be regarded merely as rough approximations for two reasons; first, on account of the extreme volatility of the acid—if loosely stoppered, or frequently opened, it rapidly loses strength—second, both the anhydrous acid and its aqueous solution are decomposed by light, with formation of a brown matter. This change is supposed to be retarded by a trace of mineral acid, hence a little hydrochloric or sulphuric acid is frequently added to the commercial solution with this object. But the acid may even be *stronger* than supposed, as the methods of preparation are somewhat various, and the one adopted may have been carelessly carried out. Scheele's acid is said to be the most popular among medical men; samples of it obtained from different large firms and examined by the author showed very irregular strengths, the lowest being 2, and the highest 8 per cent. The latter was purchased at the shop of a chemist who said he had made it himself, and could guarantee it was of full strength. He had evidently made allowance for deterioration. Woodman and Tidy found 16 samples sold in one neighbourhood as B.P. acid to contain 0·6 to 3·2 per cent. of HCN; others have found 0·25 per cent. not infrequent. It follows that if, in a poison case, a bottle has been found of a hydrocyanic preparation of a definite name, or even with a certain strength or dose marked on it, it will not be safe to trust to such figures without actually determining the amount. In Ball's trial (Lewes, 1860), the judge asked whether this variation in strength would not make the difference between a medicinal and a poisonous dose? It would not, as the maximum medicinal dose, 4 grains, of even the abnormally strong (8 per cent.) Scheele's acid mentioned above, would only contain 0·32 grain of anhydrous HCN, and it requires at least half a grain to cause death, while

about 1 grain is the usual fatal quantity. And a medical man would not even give the maximum medicinal dose as a beginning, and without precaution.

ACIDUM HYDROCYANICUM DILUTUM, PHARMACOPŒIA BRITANNICA.

We shall use the abbreviation "B. P. 2 per cent." for this acid, which has the characteristic odour, a sp. gr. of ·997, and a taste "at first bland and sweet, ultimately pungent and acrid" (Thomson), "hot and bitter" (Taylor), "cooling, with pungent bitter aftertaste" (Watts). If pure, it only slightly and transiently reddens litmus; if other acids have been added to keep it, it may have a stronger reddening effect. Also, if pure, it leaves no residue on platinum, and gives no precipitate with barium chloride, but with silver nitrate it gives an immediate white curdy precipitate of silver cyanide, not blackening in daylight as the chloride does, soluble in ammonia, insoluble in dilute, but soluble in hot concentrated nitric acid. It dissolves mercuric oxide, giving a mercuric cyanide which may be obtained in white crystals on evaporation. The vapour is said to be more deadly than the fluid acid. The weaker the acid, the more permanent it is. Glycerine increases its stability (J. Williams); this might be useful if suspected substances had to be kept a long time.

Occurrence.—Hydrocyanic acid itself has never been found as a natural constituent of the body, although a compound of cyanogen occurs in the saliva (*see* Sulphocyanides). Hydrocyanic acid is not formed during putrefaction, nor by heating organic substances with chemical reagents at temperatures up to 212° F., as in testing for poisons. The only way in which it may be generated from animal matter is by heating with alkalies *to a red heat*;[20] this

cannot, of course, happen in the ordinary process of testing for prussic acid, though it must be remembered that cyanide might thus be formed in an *ash* (by burning), without having been present in the original substance.

It is rather frequent, however, in the vegetable kingdom, and consequently in a poisoning case the defence often sets up the theory that it has been ingested in the food (Tawell's Trial, &c.). It is necessary, therefore, to examine in what kind of food, and to what amount, it may be taken.

Its principal source is the seeds, leaves, and flowers, and sometimes the bark, of most of the species of the sub-orders Amygdaleæ and Pomeæ of the natural order Rosaceæ. It does not occur in them ready-formed. There is a substance called *Amygdalin*, a white bitterish crystalline body, which may be extracted by alcohol from these plants. Amygdalin when dissolved by itself in water does not produce HCN, and is probably harmless, but there exists by its side in the plant a species of ferment called *Emulsin* or Synaptase, which has the power, when macerated in water with amygdalin, of breaking up the latter into glucose (so-called grape-sugar), benzoyl hydride (oil of bitter almonds), and hydrocyanic acid. In the plant the amygdalin apparently exists in cells apart from the emulsin, but by crushing in water, or masticating in the mouth, the change is very rapidly effected. By long soaking the same result may happen, as in cherry brandy; here the diluted spirit dissolves the amygdalin, and the emulsin then may act. But if, in the stomach, the apple-pips or cherry-stones should be found *whole*, it is almost impossible that the amygdalin should be decomposed, protected as it is by its horny or stony envelope. Stones and pips, in fact, pass through the body intact, and are found in the fæces.

Yet as amygdalin and its decomposition may be much mentioned by the defence, the following account may be useful.

100 parts of amygdalin yield 6 parts HCN.

It has been found in the species of Rosaceæ given below, generally in fruit, flowers, leaves, sometimes bark, rarely root.

Pyrus malus (apple pips), domesticus (pear).

Prunus spinosa (sloe), avium (bird cherry), padus (wild service), Virginiana or serotina (wild black cherry), capricida, insititia (bullace), domestica (plum, damson, &c.).

Amygdalus communis (almond), Persica (peach), lævis (nectarine).

Armeniaca vulgaris (apricot).

Cerasus communis (cherry), acida, laurocerasus (cherry-laurel), Lusitanica (Portugal laurel).

Cydonia vulgaris (quince).

Sorbus aucuparia (mountain ash), torminalis, hybrida.

Cratægus oxyacantha (hawthorn, young branches).

Spiræa aruncus, sorbifolia, japonica (not in herbaceous species).

Hydrocyanic acid, ready formed, has been found in the roots of the bitter and sweet cassava (Jatropha manihot).

If the poisonous dose of the B. P. (2 per cent.) acid be at least 30 minims (Royle's Mat. Med., Dr. Harley, 6th ed.) the following table shows the amount of some of the above which is needed.

Substance.	Percentage of amygdalin.	Equal to HCN per cent.	Amount required for poisonous dose.	Observer.
Cherry kernels	3	0·18	333 grains	Gieseler.
Pips of sweet apples	0·45	0·027	2222 ”	C.G. Stewart.
Pips of bitter apples	0·85	0·051	1176 ”	”
Wild service kernels	1·5	0·08	750 ”	Hermann
Flowers, fruit, and bark of do.	1·0	0·06	1000 ”	Riegel.
Bitter almond pulp	4·25	0·25	240 ”	Allen.
Sweet Cassava		0·017	3500 ”	Francis.
Bitter do.		0·027	2222 ”	”

Sweet almonds contain emulsin, but no amygdalin, hence give no HCN (*see* Tawell’s Trial, p. 40).

According to my own experiments, 837 *sweet* apples (apples weighing 135 pounds, pips about 5 oz.), would be required for a poisonous dose of HCN; whereas 130 *bitter* apples, weighing 18 pounds, and the pips about 2½ oz., would suffice. The pips of bitter apples are bigger, more numerous, and weigh about three times as much as those of sweet apples.

Among substances containing much more HCN, and actually poisonous on that account, are:—

	HCN.
Crude bitter almond oil	8 to 15 per cent.
Bitter almond water	¼ to 1 ”
Cherry laurel oil	2 to 3 ”

” ” water[21]	¼ to ¾	”
Cluster cherry oil	9 to 10	”

(Allen, Comm. Org. Anal.) It is obvious that of fruits an impossibly large quantity must be eaten to produce any considerable amount of HCN. In Tawell’s trial, Mr. Cooper, the analyst, deposed that the seeds from 15 apples gave him an exceedingly small quantity of Prussian blue. Whereas, Henry Thomas, a druggist’s assistant, stated that “15 small apples gave 2¼ grains of silver cyanide” [equal to 0·46, or nearly ½ a grain, of anhydrous HCN, corresponding to 25 minims of B. P. acid, nearly a poisonous dose!] “This was done under the direction of a lecturer at the London Hospital.” A fair sample of the erroneous and bewildering evidence that is frequently offered in courts of justice.

Mr. Cooper also stated “there is a great difference between bitter and sweet apples; the bitter contain a great deal of prussic acid, the sweet, I believe, none at all!” This statement is misleading; no apples *contain* prussic acid, but all that I have met with will *yield* it by maceration, as all contain amygdalin. The highest class of eating apples, such as Newtown pippins, Ribstones, and Blenheims, contain only a minute trace. These have very few pips, 3 to 5 to each apple, while the bitter varieties, such as “winesours,” have 9 to 13 pips.

In the arts, cyanides are used in photography, dyeing, cleaning lace and metals, electro-plating, removing silver stains, &c. Their solutions may cause accidental poisoning, either by the fumes or by absorption through the skin, especially if the latter is abraded.

Hydrocyanic acid is also formed (1) in the preparation of nitrous ether (sweet spirit of nitre), (2) by distilling albumen, fibrin, casein, or gelatin, with sulphuric acid and bichromate of potash, or manganese peroxide, (3) by the dry distillation of albuminous

bodies. It is hardly necessary to say that these formations could not occur in the ordinary methods of testing.

TESTS: PRELIMINARY.—It cannot be too strongly insisted that all operations for the detection of HCN should be carried out as soon after death as possible, on account of the loss from volatility, or from secondary changes. (See Sulphocyanides.)

Allen asserts (Commercial Organic Analysis, 1879), that detection in the body is rarely possible more than twenty-four hours after death; but Taylor (Med. Juris., 1873, p. 368) has found it in the stomach twelve days after, saying, however, that "after the stomach had been exposed a few days longer, all had disappeared." In a dog's stomach he found it, after twenty-four hours' exposure, *and washing with water*. In a human stomach, success was achieved seven days after death, where no odour was perceptible; in another case, after twenty-two days in the stomach, and after two months in the spleen. It may be found in the stomach, and not in the tissues; but in most cases it is easily detected, soon after death, in the blood, organs, &c. The vapour of HCN will traverse paper, wet or dry bladder, &c., in a few minutes (Taylor), and few stoppers are close enough to retain it. Hence care should be taken to shut up the suspected matters at once in glass bottles *accurately stoppered*; bad stoppers are worse than corks.

The stomach should be first examined entire, to ascertain *odour*, &c., *noticing whether alkaline or acid*, then cut in pieces, under distilled water sufficient to cover it, the whole measured, and one-half (acidulated with tartaric acid, if alkaline), placed in a capacious retort, and distilled in a bath of water saturated with salt to raise the boiling point. The condenser should be well supplied with cold water, the receiver attached airtight, with a mercury valve (a narrow glass U-tube, containing mercury), to prevent undue pressure. A little distilled water, about ½ oz., should be placed in

the receiver. The distillation should be continued till one-third to one-half of the original liquid has passed over. The tests may then be applied to the distillate.

Allen recommends us to distil *with water alone* about one-half. If there is no result on testing the distillate, continue with addition of tartaric acid. Finally, add a considerable excess of moderately dilute sulphuric *and* hydrochloric acid, and carry the distillation nearly to dryness. In the last stage sulpho-, ferro-and ferricyanides and mercuric cyanide are decomposed, and give HCN. The original should be tested for ferrocyanide, &c. This seems a process calculated to give the clearest idea of the form in which the HCN is present, but is open to the objection that it is protracted, and may hence cause loss.

Sokoloff. (Chem. Centr., 1876, 603) advises a much more heroic treatment. “Strongly acidify with sulphuric acid, and distil over a water bath for *two or three days*, replenishing the water as evaporated. The longer the distillation, the more accurate the result.” He adds, that the muscles contain the greater part of the HCN. He quotes figures in support of his results, but I have not found such prolongation necessary; and we must remember that HCN is decomposed by heating with moderately strong mineral acids.

The following modification, proposed by the author, may be advantageous, as diminishing the risk of loss, and also effecting concentration:—Prepare *exactly* equivalent solutions of silver nitrate, and hydrochloric acid: the silver solution may contain 17 grammes of silver nitrate, the hydrochloric solution 3·65 grammes of hydric chloride, per litre. Place in the receiver 100 cubic centimetres of the silver solution (= 1·70 gramme silver nitrate) before distillation. This is allowing large excess, to provide for exceptional quantities of HCN. If any quantity of HCN be present,

the liquid in the receiver will become milky; if it does not, there cannot be more than a minute trace. Transfer the distillate and washings to a retort, provided with a thistle-funnel, and boil down to one-third of its bulk; then add, through the funnel, 100 cubic centimetres of the hydric chloride solution, which will precipitate all the silver as chloride, and liberate the HCN. Distill with the same precautions as before: the first 25 cubic centimetres will contain probably all the HCN. If doubted, a further quantity may be collected and tested. The 25 cubic centimetres of distillate may now be subjected to the following tests, taking care that each portion is *measured* before being examined, in order that the idea of the quantity present may be definite. For instance, in the Prussian blue, and sulphocyanide tests, the resulting colour may be imitated by standard solutions: in the silver test, a standard silver solution should also be used, and thus a triply-confirmed knowledge of the quantity present may be attained; and little bottles, containing the results, should be preserved, to show in the courts of justice.

I. ODOUR.—All tests involving odour are affected seriously by the remarkable differences between different people as to their sense of smell. We hear much of "colour-blindness;" but the analogous olfactory defect has almost escaped remark. Yet "smell-blindness," as I have formerly christened it, or "anozism," if a Greek word be required, is exceedingly common, and chemists and medical men are frequently afflicted with it. I have known an artist, who could not smell strong ammonia, yet delighted in the odour of new paint, which he compared to roses. Many laboratory students can neither smell acetic acid, arseniuretted hydrogen, nor cyanogen. An assistant was so fond of sulphuretted hydrogen, that he was once found insensible beside the apparatus, having narcotized himself with the gas (he recovered); and many more

such eccentricities. In the case of prussic acid these diversities are enormous. Some are so sensitive, that the least trace in a room becomes rapidly unbearable, causing headache and nausea; others are like photographers, and can work in a heavily-cyanogened atmosphere. Such idiosyncrasies become of great importance in evidence; for example:—

In Tawell's trial, Mr. Champneys, surgeon, testified as follows: "Have no experience in detecting odour of prussic acid in a human subject. Should think it may be taken without detection. Should expect it in the mouth and breath, but there may be exceptions. There was no odour in her [the deceased's] breath; but, on opening the body, I was positive I smelt prussic acid. The other two surgeons could not smell it." Afterwards, when the contents of the stomach were transferred to a jar, neither the three surgeons, nor Mr. Cooper, the analyst, could perceive the least odour of prussic acid, even when the contents were boiled. Nor was it smelt in the blood. Mr. Cooper subsequently stated: "I have no doubt that prussic acid may exist without being smelt: absence of smell may arise from dilution, or from its being covered by the smell of other substances. When I smell it, it affects spasmodically the back of the throat. *Sometimes it has produced a spasmodic constriction about the throat without my smelling it.*" Here was a well-marked case of intermittent smell-blindness.

There were also several questions as to whether prussic acid might have existed in the form of an inodorous salt. Mr. Champneys further stated that he put ½ drachm of prussic acid into a tumbler filled with Guinness's porter, and the smell was *scarcely perceptible*. Mr. Norblad, surgeon, deposed that he mixed 12 grains of prussic acid with a pint of porter, but could not then smell it. "Some of the porter dropped on the table, and I did then smell it." In the same trial, Henry Thomas, druggist's assistant, mixed 30

drops of B.P. prussic acid with 11 oz. of porter, and found the odour of the acid *slightly perceptible*; yet, when he was pouring Scheele's acid from a bottle, three women had to leave the room to avoid suffocation!

In a case of suicide by cyanide of potassium (Chem. News, 1861, p. 261), the smell of prussic acid was not perceived by the surgeon, either immediately after death or at the post-mortem examination, nor by the analyst until the contents had been distilled with dilute sulphuric acid.

To help in elucidating this matter I have made some experiments as to the detection of the odour of prussic acid. An acid of 2 per cent. strength (B.P.) was used.

1. From a bottle of Guinness's stout, freshly opened, 3 samples of 1 fluid oz. each were measured. To the first 1 drop of the acid was added, to the second 2 drops, the third being left untouched. This was done out of my sight in another room. They were then privately marked by an assistant, and brought in; when myself and two others, one of them entirely inexperienced, independently and at once classified them without hesitation correctly as to the relative *amounts* of prussic acid. The odour was so distinct as to produce, when inhaled, a feeling of oppression, and to *quite overpower the odour of the beer*.

1 drop in 1 fl. oz.	=	0·23 per cent. of the dilute (B.P.) acid.
„	=	·0046 per cent. of real anhydrous HCN.

About $^{1}/_{30}$ of a poisonous dose. Hence if a poisonous dose were put into a pint and a half of stout, the odour would be distinct.

2. One drop of the dilute (2 per cent.) acid was added to 6 oz. stout: there resulted a slight but distinct odour of prussic acid. Hence a poisonous dose in *nine pints* would be smelt. Covered by a watch-glass, with a drop of yellow ammonium sulphide on it, it was warmed; the drop, on evaporation, gave a distinct red sulphocyanide reaction with ferric chloride. Exposed to the air for twenty-four hours, all the above samples had lost their odour, and failed to give the sulphocyanide reaction.

3. Two samples of urine, measuring ½ pint each, were treated respectively with 1 and 2 drops of B.P. acid (strength in this case 1·18 per cent. HCN), and a third ½ pint left untouched, the same precautions being used as with the above beers. Three independent witnesses again classified them without difficulty as to relative amounts of the poison. This is 2 drops of an exceptionally weak acid to the pint.

4. The contents of a human stomach, very fetid from decomposition, were divided into two portions of about 2 oz. each: one was left untouched; to the other 1 grain of mercuric cyanide was added, and then about 5 drops of hydrochloric acid, and a little zinc dust. The whole was well stirred, and shut up close. Next day the odour of HCN was very prominent in the one to which the cyanide had been added, in spite of the strong original smell of both.

5. I cannot agree with Taylor that either peppermint or tobacco mask the odour appreciably.

The odour of *nitrobenzol*, being similar to that of bitter almonds, might lead to a suspicion of prussic acid without due caution (Woodman and Tidy).

In putrefying, organic matters often develope ammonium sulphide, becoming alkaline. The ammonium sulphide would combine with the HCN to form sulphocyanide of ammonium,

which is inodorous, but, by distillation with acids, gives HCN. Sulphocyanide, however, could not be produced *unless the original matters were alkaline*. In Tawell's, and most other trials, the stomach contents were *acid*, as they always are naturally from the gastric juice.

Taylor (Med. Jurisprudence, 1873, vol. i., p. 364) mentions a case where the blood had a strong odour of prussic acid, and the mucous membrane of the stomach, *even after it had been washed three times with water*, also exhaled a strong odour. In another case (Med. Gaz., vol. xxxvi., p. 104), where 20 grains of Scheele's acid had been taken with ultimate recovery, the vomited matters had *no odour*, "showing that, if not concealed by other odours, the whole of the acid must have been absorbed." Many other instances might be quoted where nothing was smelt, and yet the tests revealed prussic acid.

As to the question about the *salts* of prussic acid, it may be generally said that all poisonous cyanides would smell in the stomach, except, perhaps, mercuric cyanide. *See* "Properties of the Salts," p. 73. Possibly the formation of mercuric cyanide may have accounted for the absence of odour in some of the above cases, as I do not find that mercury was tested for, though its compounds are common medicines. Otherwise it is hardly possible that hydrocyanic poisoning should have been effected, and the acid be still there, without its very characteristic odour being perceptible to an observer with an acute olfactory sense. I have entered at some length into the question of odour, as much importance has been attached to it in the trials, and I still consider it as one of the most delicate and positive of tests.

II. Silver Test.—When silver nitrate is added to a solution containing HCN or a cyanide acidulated with nitric acid, a white precipitate falls of silver cyanide, soluble in ammonia, insoluble in

dilute, but soluble in hot concentrated nitric acid, and not blackened by light. This reaction is rendered quantitative according to Liebig's volumetric method. The original solution is made slightly alkaline by potash, and a standard solution containing 1·7 grammes of silver nitrate per litre (1 cub. centimetre = ·0017 grm. $AgNO_3$) is added until a permanent white turbidity is produced, seen best over a sheet of black paper or a black book. Then each cub. centimetre used is equivalent to a *double* quantity or ·00054 grammes of HCN. Formic acid, or chlorides, do not interfere; in fact, it is advantageous to have a little chloride present.

The silver cyanide may be also estimated *gravimetrically* by adding excess of silver nitrate, collecting the precipitate on a weighed filter, washing, drying, and weighing. Silver cyanide corresponds to two-tenths of its weight of HCN (134 gives 27). If chlorides be present, the mixed precipitate of silver cyanide and chloride is weighed, treated with dilute hydrochloric acid, and weighed again. The HCN is thus displaced, and passes into the filtrate; the silver precipitate, now all as chloride, is weighed again: then the increase of weight multiplied by 27 and divided by 9·5 (the difference between the equivalent weights of silver chloride and cyanide) is equal to the *weight* of HCN present. But the volumetric process is quite as accurate, and more expeditious.

In poisoning cases advantage is taken of the opacity of silver cyanide thus: A drop of moderately dilute silver nitrate is placed on a watch-glass over the substance, which may be gently warmed, taking care that the steam condensed does not cause the drop to fall. If HCN be present, the drop will become opaque-white from formation of silver cyanide. $^1/_{100}$ grain of HCN, equal to ¼ grain of B.P. acid, will give this reaction (Taylor). If there is only a small amount, and the action is gradual, the drop on drying in the air may exhibit crystals of silver cyanide, recognizable under the

microscope as minute prisms obliquely truncated. Of course the silver nitrate itself may give crystals, but they will be very soluble in water.

Cyanide of silver is decomposed by (1) hydrochloric acid, giving silver chloride; (2) dilute sulphuric acid and zinc, giving silver; (3) sulphuretted hydrogen, giving silver sulphide; in each case HCN is liberated and may be distilled off: then the other tests may be applied.

If sulphuretted hydrogen be present, it will give a *black* with silver nitrate. The liquid should in this case be previously shaken with just enough carbonate of lead to remove the sulphuretted hydrogen. The latter, however, does not interfere with the Prussian blue or sulphur tests.

When sufficient in quantity, the cyanide of silver, thoroughly dried in a water-bath, may be transferred to a small bulb-tube and heated, the end being closed with the finger. It breaks up into cyanogen gas, silver, and paracyanide of silver, a peculiar glow and effervescence occurring as it decomposes. The cyanogen will have the characteristic bitter almond odour, and, on removing the finger, will burn with a flame violet on the margin and rosy in the centre.

III. Prussian Blue (Scheele).—Add to the solution or distillate caustic potash in excess, then a drop or two of fresh ferrous sulphate (protosulphate of iron), and a little ferric chloride (perchloride of iron—the tinct. ferri perchlor. of the Pharmacopœia will do), warm gently for a few minutes, add dilute hydrochloric acid in slight excess: if much HCN be present, a deep blue precipitate (Prussian blue) will remain; if only a trace, the liquid will be greenish, and on standing till the next day a blue deposit will form.[22] This is the only *blue* iron precipitate which is insoluble in dilute hydrochloric acid.[23]

Remarks.—Sulphuretted hydrogen does not interfere with this test, as the black ferrous sulphide dissolves in hydrochloric acid. The amount of iron salts added should have some relation to the amount of HCN present, an idea of which will have been attained by the silver test. Moderate excess of potash must be present all the time till the hydrochloric acid is added. A large amount of iron salt is objectionable, as the yellow colour interferes with the final green tint with traces of HCN. The test may be made quantitative by imitating the tint with a weak standard solution of potassium ferrocyanide treated with a drop of hydrochloric acid and a drop of ferric chloride, on the same principle as "*Nesslerizing*" (see Wanklyn's Water Analysis). Finally the precipitate of Prussian blue should be preserved to exhibit at the trial, as this is the most positive, though not the most delicate, test.

IV. SULPHUR TEST (Liebig).—The liquid to be examined is placed in a somewhat shallow glass dish or beaker, covered almost airtight with a watch-glass, moistened on the under surface with a drop or two of *yellow* ammonium sulphide. [The ordinary sulphide is commonly yellow enough for the purpose, or, if not, can be made so by warming with a little flowers of sulphur.] After warming gently for a short time (the periods recommended by different authorities vary from half a minute to ten minutes), great care being taken that the steam does not condense and cause the solution on the watch-glass to drop back into the liquid, the cover is removed, dried on a water bath to drive off any excess of ammonium sulphide, treated with a drop or two of water, and a drop of not too acid ferric chloride free from nitric acid and diluted till nearly free from colour. If HCN be present, it will have formed sulphocyanide with the ammonium sulphide, and will therefore generate a blood-red colour with the ferric chloride. If a colour be produced, continue the addition of ferric chloride till no further deepening

occurs. The reaction is made quantitative by comparing the tint with that produced by a known quantity of sulphocyanide and ferric solution (Herapath). But there are difficulties in making it exact.

This is the most delicate test for HCN, detecting $^{1}/_{7930\text{th}}$ of a grain of HCN in a very dilute liquid, whereas Prussian blue does not discover less than $^{1}/_{780\text{th}}$ of a grain (Taylor, Ann. Ch. Pharm. lxv., 263). Salts of acetic, formic, and meconic acids give red colours with ferric chloride, but (1) meconic acid is not volatile; (2) the red from acetic and formic acids is at once removed by a slight excess of dilute hydrochloric acid, sulphocyanide is not; (3) sulphocyanide-red is destroyed by solution of mercuric chloride, the others are not.

The above tests are sufficient, but the following additional ones have been at different times proposed.

V. Guaiacum Test.—Paper dipped in fresh tincture of guaiacum, containing about 3 per cent. of the resin, then dried, then moistened with dilute cupric sulphate solution (2 per cent.), becomes blue in HCN vapour. But the same effect is produced *without HCN* by almost all oxydants, such as chlorine, bromine, or iodine, ferric chloride, nitric and nitrous acids, chromic acid, peroxide of hydrogen, ozone (Mohr's Toxicologie), also by ammonia, hypochlorous acid, soluble chromates, &c. (Blyth).

VI. Uranium Test.—A grain or two of pure ferrous salt (ammonio-ferrous sulphate will do), and the same quantity of uranium nitrate, are dissolved in half an ounce of water. Two or three drops of this are placed on a white plate, and a drop of the suspected liquid added. A purple precipitate, or a greyish purple colour in weak solutions, indicates HCN. Cobalt nitrate may be used instead of the uranium salt, and is nearly as delicate. (Carey Lea, American J. of Science [3] ix., 121.)

VII. A hot solution of potassium cyanide mixed with *picric acid* gives a deep blood-red —"picrocyanic" acid). Free HCN does not give this reaction, and therefore must first be neutralized by an alkali. Said to be more delicate than the iron tests. (C. D. Braun, Zeitschr. f. anal. Ch. iii., 464.)

VIII. Slightly alkalize the distillate with potash, add a few drops of *cupric sulphate*, and afterwards just enough hydrochloric acid to dissolve the excess of cupric hydrate: white cuprous cyanide will remain undissolved. "This test will detect $^{1}/_{20000}$ of HCN in solution." (Lassaigne, Ann. de Chimie, xxvii., 200.) But a similar effect is produced by hydriodic acid, and potassium iodide might have been administered.

IX. Mix the HCN with excess of alkali, add cobalt chloride and tartaric acid: on exposure to air a deep brown-red colour will be produced. (C. D. Braun, loc. cit.).

X. If to a solution of HCN, potash be added in excess, and then a little very finely pulverised, or precipitated, mercuric oxide, the latter will dissolve. Mercuric oxide is soluble in alkaline fluids only in presence of HCN. (Fresenius, Qual. Anal.).

XI. "With peroxide of hydrogen, natural blood gives effervescence from escape of oxygen, but no discoloration. Blood containing HCN gives a brown colour, the spectroscopic bands disappearing, and no effervescence." (Schönbein.) Hæmatocrystallin, the colouring matter of the blood corpuscles, combines, in fact, with HCN, giving a dark coloured compound which appears to be crystallizable and definite in composition (Hoppe Seyler), does not act as a carrier of oxygen like the natural hæmatocrystallin, and possesses a distinct spectrum (see Thudichum, Chem. Physiology). The blue masses in the blood described by Ralph (Journ. Microsc. Science, Oct. 24, 1866) have not been found by others.

XII. Mercurous nitrate gives at once with HCN solutions, a black deposit of metallic mercury, and a solution of mercuric cyanide. With calomel, a similar reaction takes place according to Allen, but I have found that the solution is not deodorized even by large excess of calomel, the odour becoming stronger and more pungent than the original HCN. On evaporating, mercuric chloride is left. Probably some cyanogen chloride is formed. The odour is so much intensified that it might be of use as a test. In view of the possible administration of calomel, the reaction is interesting.

Of course it will not be necessary to employ all these methods. The odour, and the silver, Prussian blue, and "sulphur" tests will be sufficient. I would suggest a form of apparatus by which all the latter could be obtained from the original substance without distillation in a retort.

A shallow beaker or glass jar is closed by an india-rubber stopper, through two holes in which are passed glass rods ending in glass spoon bowls bent at right angles, so as to be horizontal when mounted. The bowls should be one inch in diameter, and will have to be specially made. In the first bowl a few drops of silver nitrate are placed, in the second a little potash. The apparatus is put in a warm place for six or eight hours, then the two rods are removed, a third rod substituted, its bowl containing a drop or two of yellow ammonium sulphide, the other hole plugged, and the apparatus put back in the warm place for two or three hours more. The first bowl will have the silver cyanide, the second should be treated with ferric and ferrous salt and hydrochloric acid for Prussian blue (*vide*), the third evaporated and ferric chloride added for the sulphocyanide test. This arrangement prevents loss of HCN by volatilization, and also, with a little care, avoids any danger of the reagent dropping back into the solution. The three rods cannot

safely be placed in together, as the sulphide vapour would blacken the silver.

For the modifications in testing necessitated by the presence of mercury, &c., see under the different *Salts*.

SALTS.

Hydrocyanic acid combines with bases to form the *cyanides*, which may be thus grouped:—

A. Cyanides of the Alkalies (potassium, sodium, ammonium), and of the Alkaline Earths (barium, strontium, calcium, magnesium). These are all soluble in water, are alkaline to test paper, and are decomposed by all acids, even carbonic, hence they *exhale an odour of HCN*, and are nearly as poisonous as prussic acid itself. If they are present, the stomach contents must be alkaline. The only member of this group likely to be met with is

Potassium Cyanide, KCN. Broken opaque white lumps, or small crystals, deliquescent, smelling strongly of HCN, soapy to the feel, often containing much carbonate, and therefore effervescing with acids, easily fused by heat to a clear liquid, very soluble in water, less in alcohol. Used for removing silver stains in the form of "cyanogen soap," but very dangerous, as a cut or scratch may cause absorption, and even the unbroken skin, according to Allen, may absorb enough to cause symptoms. Its aqueous solution decomposes spontaneously into formiate of potassium, ammonia, and a brown substance. Its taste is bitter and acrid, causing constriction and a burning heat in the throat. It is very strongly alkaline. Distilled with dilute acids it gives off all its HCN. It easily responds to the other tests. In a case of poisoning investigated by Dr. Bernays, a piece of potassium cyanide was found in the deceased's mouth, which was much inflamed by its

acridity. The alkali being strong, and the acid weak, cyanide of potassium has most of the effects of an alkaline irritant.

The *potassium* may be found by incinerating a portion of the substance and testing for it in the ash. Taylor (Med. Jurisprudence) improperly says that the *salt itself* (cyanide of potassium) may be recovered from the organs by incinerating them in close vessels and treating the ash with water. I have already mentioned that cyanide would be formed in this way from the organic matters themselves, even if not originally present.

B. MERCURIC CYANIDE, $Hg(CN)_2$. Of all metals mercury has most affinity for HCN, mercuric oxide decomposing other cyanides, even Prussian blue, and dissolving readily, as we have seen, in free HCN, or in alkaline cyanides. Hence if a compound of mercury have been given medicinally, the prussic acid will be found in the stomach as mercuric cyanide, which is easily soluble in water, neutral to test paper, *quite inodorous*, and extremely poisonous. It is not officially recognised in any Pharmacopœia, except the French; has been occasionally used in medicine instead of mercuric chloride, which it resembles in action, but has the advantage of not being incompatible with alkalies and organic matters (Royle's Mat. Med., 6th ed.). It crystallizes in anhydrous four-sided obliquely-truncated white opaque prisms, with a disagreeable metallic taste, is permanent in the air, easily soluble in water, less in alcohol. It fails to respond to the silver nitrate (partially) or Prussian blue tests, and gives the sulphur test with difficulty. It is decomposed by distillation with hydrochloric acid, but only ⅔rds of the HCN pass over into the distillate, unless ammonium chloride be added (Roscoe and Schorlemmer's Chemistry). Whenever HCN is looked for, it is safer to examine also for mercury, and, if found, to add a little hydrochloric acid and sulphuretted hydrogen to the original liquid, thereby precipitating

mercuric sulphide (black) and liberating the HCN, which may be distilled off. If, however, excess of sulphuretted hydrogen has been inadvertently added, it would blacken silver nitrate, and hence the silver test would not be available, unless the solution was previously shaken with lead carbonate to remove the sulphide. But it would not affect the Prussian blue or sulphur tests, as sulphide of iron is soluble in hydrochloric acid. Mercuric cyanide also gives off all its HCN when distilled with iron filings or zinc dust, sulphuric acid, and water. This seems a better method.

Mercuric cyanide is said to be an irritant poison, and to be similar in its action to corrosive sublimate. Combination with mercury seems to mask the physiological action of HCN, just as it does its chemical action. The medicinal dose is $^{1}/_{16\text{th}}$ grain gradually increased to ½ grain, in pills or solution (Royle). 10 grains have proved fatal. By heat, when dry, it is broken up like silver cyanide into mercury and cyanogen.

C. Cyanides of the Heavy Metals, as zinc, lead, copper, &c. *Silver cyanide* has already been described. These are insoluble in water, inodorous, and probably, while intact, not poisonous. But they are decomposed by mineral acids, and, as the gastric juice is acid, they would more or less readily yield free HCN, with its usual odour and effects. The influence of the metal has also to be considered.

D. Double Cyanides, derived from iron, cobalt, manganese, chromium, platinum, &c., are inodorous. Those of the alkalies and alkaline earths are alone soluble. The only common ones are ferro- and ferricyanide of potassium, the so-called yellow and red prussiates of potash. They are said to be merely purgative, not poisonous, but, from the comparative facility with which they yield HCN by acids, they cannot be considered safe. Soluble ferrocyanides give, with pure ferrous sulphate, a white precipitate

turning blue in air; with ferric chloride a precipitate of Prussian blue; with cupric sulphate a maroon precipitate. Ferricyanide solutions give with ferrous salts a deep blue precipitate; with ferric salts a dark-brown coloration. These reactions would be applied to a filtered portion of the stomach contents. *Prussian blue* is ferric ferrocyanide mainly, but varies in composition: it is supposed to be inert.

Almen states (Chem. Centr. 1872, 439) that potassium ferrocyanide in solution decomposes at ordinary temperatures, especially if a little free acid be present, HCN being formed. Prussian blue only decomposes when warmed to 40° or 50° C. (therefore not in the body, C. G. S.), "hence the presence of HCN, if accompanied by ferrocyanide, is not a proof of poisoning." But ferrocyanide is not in any Pharmacopœia, and is not administered medicinally. Yet, to answer a possible question, a known fraction of the original substance might be extracted with water, and tested as above. The same observations apply to ferricyanide.

When ferro-or ferricyanides are distilled with moderately strong sulphuric acid, a *portion* of the contained HCN passes over; in fact, this is the common process for preparing prussic acid. The iron remains behind in the retort, in combination with potassium and the rest of the cyanogen. If ferric hydrate —"ferri peroxidum humidum"), or ferrous sulphate and potash, have been administered as antidotes to HCN, Prussian blue might be formed in the stomach. It would then show a blue colour, either by itself or on addition of an acid, and blue particles under the microscope, if in sufficient quantity. In this case the HCN left in the stomach would have been rendered innocuous, and the prussic acid which had actually caused the death would be found free in the blood, &c. The stomach contents might then show no HCN, either by odour or distillation, as Prussian blue is inodorous, and not easily

decomposed by dilute acids. With alkalies it turns brown, giving ferric hydrate and an alkaline ferrocyanide.

Ludwig and Maushner (Chem. Centr. 1881, 43), in a case of poisoning, discovered a quantity of potassium ferrocyanide in the body. This was removed by slightly acidulating and carefully precipitating by ferric chloride. The filtrate, distilled with tartaric acid, yielded much HCN. The sample of cyanide of potassium, which had probably caused death, was afterwards found to contain a large proportion of ferrocyanide.

E. SULPHONCYANIDES (Thiocyanates). Those of the alkalies and alkaline earths are soluble and colourless; ferric sulphocyanide is soluble, and intense blood-red (sulphur test); other sulphocyanides are mostly insoluble. They are all inodorous, poisonous in moderate quantities, and are not officinal in any Pharmacopœia. Distilled with acids they break up, HCN being found in the distillate. It has been mentioned already that ammonium sulphide, produced by putrefaction, may combine with any HCN present to form ammonium sulphocyanide; therefore, if the matters to be examined are alkaline, and putrefaction has commenced, Allen (Commerc. Org. Anal., 1879, art. HCN) recommends us to digest with alcohol, filter, evaporate to dryness on a water bath, redissolve in a little water, filter again, and test the filtrate with ferric chloride after just acidulating with hydrochloric acid: the well-known blood-red colour will result (*see* "Sulphur Test"). But the ordinary distillation with tartaric or sulphuric acid would in this case also detect the HCN, though the *whole* might not pass into the distillate.

Sulphocyanide of mercury is the toy called "Pharaoh's Serpent." A case of poisoning by it is recorded.

It is important to notice that traces of sulphocyanide are naturally present in the saliva. If this salt be found, the question will occur, how much could be accounted for by the saliva?

Carpenter (Princ. of Human Physiol.) quotes Harley to the effect that the average daily secretion from the salivary glands is 1 or 2 pounds: other observers have stated that it varies greatly. The secretion itself is said to contain, in 1000 parts, one part (Frehrichs), or 0·6 part (Jacubowitsch), or even 0·3 part (Oehl), of potassium sulphocyanide; that is, 4·2 to 7 grains per pound, equivalent to from 1 to 2 grains of HCN, or 2 to 4 grains if 2 pounds of saliva were secreted. This would be a serious matter but for the fact that, whether from decomposition by the gastric juice or otherwise, or from its passing out of the stomach as it passes in, it is certain that no such quantity is ever found naturally in the stomach, not more than a minute trace being ever given by the processes, unless hydrocyanic acid, in one of its forms, has actually been administered.

Cyanide of cadmium, and some of its double salts, are sparingly soluble. *Double cyanide of silver and potassium* is soluble and crystallizable. It is the salt used in electro-plating, and, as commonly met with, smells strongly of potassium cyanide. *Zinc-potassium cyanide* has been used medicinally: it occurs in beautiful crystals, inodorous when dry, but having a faint odour of HCN in solution.

The other cyanides are rare, and their physiological action is unrecorded. *Cyanic acid* and cyanates are said not to be poisonous.

Oil of Bitter Almonds.—The crude oil contains, as we have seen, 8 to 15 per cent, of HCN. Dissolved in spirit it forms "essence of almonds," and is exceedingly poisonous, having caused thirty-one deaths in four years (Taylor). Two drachms of the oil has killed a man in seventeen minutes (*Lancet*, 1868, p. 447), two ounces caused death immediately. The odour of almonds is always distinct in the stomach.

The oil can be freed from HCN, but then does not keep so well, and is much more costly. Its sp. gr. is 1·049; it boils at 356° F. The crude oil is yellow: with concentrated sulphuric acid it gives a crimson-red colour, and on diluting a yellow emulsion. We may estimate the amount of HCN in it by shaking with water, separating, adding dilute potash to the aqueous liquid, and testing it with standard silver solution as described under "Silver Test." The other tests may also be used to prove the *presence* of HCN; the guaiacum and copper paper being specially convenient.

A case of poisoning by bitter almonds is reported in the "South Australian Register" for August 6th, 1879. A female child (whose age is not stated) ate a dozen of them, freshly taken from the tree, and died in three hours. The symptoms described are pain, coma, and convulsions.

Antidotes to HCN are generally useless since the death is so sudden. A moderately dilute solution of an alkali, such as potash, lime or washing soda, along with a little ferrous sulphate, would render harmless so much of the poison as was still in the stomach unabsorbed. As already mentioned, this would cause a little difficulty in the chemical analysis. *Ammonia* acts as an antidote by opposing the *depressant* action of HCN. *Chlorine water* has been used: this converts the HCN into ammonium chloride, carbon monoxide and dioxide, and a little cyanogen chloride.

Medicinal uses.—Its primary action is on the cerebrospinal nerves. It is employed externally, largely diluted, to allay neuralgia and itching of the skin, and to relieve earache (not more than two drops of B. P. acid at a time)[24]: it must not come in contact with abrasions, or it might be absorbed and produce poisoning symptoms. Internally, it allays dyspepsia and the irritant effects of capsicum, &c. (Royle). Safe dose internally two to six minims of

the B. P. 2 per cent. acid, suspended if there is any constriction of the throat (Farquharson's Therapeutics).

Fatal dose.—Smallest recorded (Med. Gaz. 35, p. 896); twenty grains of Scheele's acid, fatal in twenty minutes, equal to fifty grains of B. P. 2 per cent. acid, equal to one grain of anhydrous prussic acid. Largest dose with recovery (*Lancet*, 1854, January 14), *one drachm* (sixty grains) of Scheele's acid, but in this case energetic remedies were at once applied. Average fatal dose of 2 per cent. acid, thirty minims (Royle's Mat. Med., Dr. Harley, 6th ed.).

Symptoms.—These vary with the dose, &c. A large quantity kills in two to five minutes, though insensibility may ensue in a few seconds. But patients may survive for twenty minutes, or even for an hour; and may continue in imminent danger for several hours, and yet recover (Guy and Ferrier, Forens. Med., 1881). Many cases have occurred of voluntary acts, such as concealing or throwing away the bottle, having been performed after fatal doses had been swallowed (*Ibid*, p. 600). In animals, according to Mr. Nunneley, there is usually a peculiar plaintive cry, but not in man, though there may be a call for assistance. Convulsions, and involuntary evacuation of fæces or urine, may or may not occur. Large doses kill by cardiac syncope; smaller ones by paralysis of the respiratory centre, or, if gradual, by impeded oxidation of the blood (Farquharson's Therapeutics). Other symptoms are, dilatation of pupils, muscular prostration, deep convulsive breathing at long intervals, quick feeble irregular pulse, spasmodic closure of the jaws and clenching of the hands (Taylor). Breathing sometimes stertorous (Christison, Ed. Month. Journal, February, 1850, p. 97. Reg. *v.* Burroughs, Cent. Crim. Court, February, 1857). Vomiting occasional, or foaming at the mouth.

Post-mortem appearances.—Not characteristic (Farquharson; Guy and Ferrier). Putrefaction not accelerated (Taylor). The veins contain dark fluid blood: the right side of the heart is gorged (Harley). There may or may not be congestion and reddening of stomach and intestines, or of the brain. On the whole, the appearances are those of asphyxia.[25] The odour should be sought for in all parts, and *as soon as possible* the organs should be shut up in stoppered jars, or well-corked and sealed bottles, and sent at once for analysis.

The symptoms and post-mortem appearances of poisoning by *Cyanide of Potassium* are the same as those of prussic acid, except that:—

1. Convulsions are more common.

2. Owing to the irritant action of the alkali, the stomach is reddened.

3. The contents are alkaline.

The fatal dose is less than five grains, but Taylor mentions a case of recovery after nearly one ounce of the commercial cyanide, which may, however, have contained much carbonate.

Hydrocyanic acid is not, in the strict sense, a *cumulative* poison; "but doses that exceed the proper medicinal limit may happen to prove fatal though similar previous ones have appeared to be harmless, in consequence of a change in the body itself." (Guy and Ferrier's Forensic Medicine, 1881, p. 606.)

In the trial of George Ball for poisoning his mother with prussic acid, at Lewes, July, 1860 (previously reported), the question arose as to the difference between *minims* and *drops*. A minim of water is supposed to weigh a grain: if the fluid is heavier than water, it weighs more than a grain; if lighter, it weighs less. But a *drop* is quite an indefinite quantity: it is affected, not only by the specific

gravity, but by the cohesion of the fluid, by the shape and size of the vessel, the manner of pouring, and the temperature. I have made some experiments which show the irregularity. (See also Woodman and Tidy's Forensic Medicine, p. 456.)

Capacity of Bottle.	Liquid.	No. of Drops.	Measured in Minims.
(Stoppered) 6 fluid oz.	Water	117	180
Do. (another observer)	Do.	90	120
1½ fluid oz.	Do.	47	100
(Corked) 6 do.	Do.	36	100
Same capacity, dropped with the cork	Do.	37 to 41	100
(Stoppered) 6 fluid oz.	Rectified Spirit	243	120

Proving that while a drop may be estimated at about 1½ to 2 minims (a good deal more than the usual supposition, the two terms being often regarded as synonymous), yet the inconstancy is so great that it is absolutely imperative, in using powerful medicines, to prescribe exact measurement, and not such a precarious process as dropping.

As to the period after death during which HCN may be detected, Allen (Comm. Org. Anal.) asserts that its detection is rarely possible after more than twenty-four hours. This is astonishing, as Casper separated more than 18 milligrammes from a body eight days after death; Sokoloff detected it in hounds sixty days after; Dragendorff after four weeks in a dog, after eight or ten days in man. Reichardt (Arch. Pharm. 3, 19, 204) found it in a body two months after death—in the organs, but not in the urine. In the Tawell trial, also, the interval was considerable.

Casper states in his Handbook (vol. iii., illustrative cases of HCN) that Schauenstein (one of the Prussian official chemists), twenty-six hours after death, found no HCN in the stomach, but a considerable amount of *formic acid*, the result of its metamorphosis. We know that strong HCN, exposed to light, decomposes into formate of ammonium, which, by distillation with a dilute acid, would give formic acid in the distillate. That such a change should occur so rapidly in a dilute solution, and in the darkness of the body, is improbable. It would be well, however, that formic acid should be looked for in the distillate thus:—

Carefully neutralize a *measured portion* with pure soda or potash; evaporate on the water-bath to dryness. The alkaline formate will be left in white crystals if present, together with the cyanide, which will not crystallize, but remain as a deliquescent mass. Dissolve in a little water, and divide into three equal portions.

(1.) To the first add silver nitrate in slight excess. Cyanide of silver will precipitate, formate will remain in solution, if not too concentrated. Filter, if possible. On boiling, if any blackening happens from reduction of the silver, formic acid is *probably* present. *Acetic* acid does not reduce silver nitrate.

(2.) To the second add dilute *neutral* ferric chloride (a solution of iron-alum answers admirably). A red-brown colour, removed by a drop of hydrochloric acid, indicates either acetic or formic acid.

(3.) Evaporate the third portion to dryness, and ignite gently in a closed crucible. Formate and acetate will be turned into carbonate, while cyanide will remain unchanged if air be excluded. If then effervescence take place on treating the residue with a little hydrochloric acid, it is a confirmation of the presence of formic or acetic acid. The first test will have revealed which it is.

Many animal substances, when distilled with strong acids, *do* give acetic and formic acids, but they do not act thus with *dilute* acids. Yet a stomach will usually yield a little acetic acid from the food having turned sour.

If formic acid be present, it will probably have proceeded from the decomposition of HCN. Then the reduced silver obtained in the first test should be weighed, and calculated into formic acid, and also into hydrocyanic acid (108 parts of silver = 46 parts formic acid, or 27 parts HCN). The result may be stated thus:—

"Hydrocyanic acid actually found,—— grains. Formic acid found,—— grains. If this had proceeded from the decomposition of hydrocyanic acid, it would correspond to an additional amount of —— grains of hydrocyanic acid."

It is needless to observe that the mere finding of formic acid would be no proof of the administration of HCN, unless strong corroborative evidence were at hand.

On the whole, we must always try, and we may often hope, to find HCN if given, either free, as cyanide, or as sulphocyanide, even after months have elapsed.

CHAPTER IV.

TRIALS FOR POISONING BY STRYCHNIA. PALMER, DOVE, AND BARLOW.

THREE cases are reported in this chapter. (1) That of William Palmer, for the poisoning of John Parsons Cook, at Rugeley, in Staffordshire, which, in consequence of the prejudice existing against him in that county, was transferred by Act of Parliament to the Central Criminal Court in the City of London,[26] and taken before Lord Chief Justice Campbell, on the 14th, and eleven following days, of May, 1856. (2) That of William Dove, for the murder of his wife, Harriet, at Leeds, tried at York, July 16th, 1856, before Baron Bramwell. (3) That of Silas Barlow, for the murder of his mistress, Eliza Soper, at Vauxhall, tried at the Central Criminal Court, November, 1876, before Mr. Justice Denman.

The *first* of these trials is remarkable for the conflict of the medico-scientific evidence, the most eminent men among our physicians and analysts being called on either side, and the most contradictory testimony as to the possibility of detecting strychnia being given by them. The *second* trial shows the dangerous effect of hasty newspaper reports in such cases—the murder of his wife

by Dove having been clearly suggested by the popular report to which some of the journals of the day gave circulation, that Dr. Taylor, the eminent analyst, had stated, in connection with Palmer's case, that strychnia could not be detected by analysis. This case is also interesting from the nature of the insanity which was set up by the defence. The *last* trial, that of Silas Barlow, exposes the danger of the sale of the "Vermin Killers," so popular with all householders, most, if not all, of which contain a large proportion of strychnia, and thus offer a ready means for murder or suicide, especially as the purchase of them would not be attributed to an evil intention. It is but a poor consolation to know that, when the mischief has been done, the punishment of the actor can be secured by the skill of the analyst.

THE RUGELEY POISONINGS.

TRIAL OF WILLIAM PALMER, *May 14, and following days*, 1856.[27]

Before Lord Chief Justice Campbell, Baron Alderson, *and* Mr. Justice Cresswell, *at the* Central Criminal Court.

For the Prosecution: The Attorney-General (Sir A. Cockburn), Mr. Edwin James, Q.C., Mr. Bodkin, Mr. Welsby, and Mr. Huddlestone.

For the Defence: Mr. Serjeant Shee, Mr. Grove, Q.C., Mr. Gray, and Mr. Kenealy.

William Palmer, surgeon, of Rugeley, Staffordshire, aged 31, was indicted for the wilful murder of John Parsons Cook.

HISTORY OF THE CASE.

Connection between Cook and Palmer.

Mr. Cook, having been originally brought up as a solicitor, on coming into a fortune of from £12,000 to £13,000, abandoned his profession, and took to the turf, where he became acquainted with the prisoner, who had for some years kept racehorses. Originally in good local practice, Palmer had of late transferred the majority of his patients to a Mr. Thirlby, who had previously been his assistant, retaining only two or three more immediately connected with him or his family. His father, originally a working sawyer, had, by his industry, gradually risen to be a timber merchant in a large way of business, and, on his sudden death in 1837, left a fortune of £70,000. As he died intestate, the eldest son executed a deed by which each of the children took £7,000, and the remainder was left to the widow. Of these children, seven in number, the prisoner was the fourth. As a child he was known for his amiability and kindness, but also for his shy and underhand manner, and his partiality for trying experiments of a cruel nature on animals. "He was just and generous," said one of his early friends, "when he grew up, and he never forgot an old face."[28] Originally apprenticed to a firm of druggists in Liverpool, he had to leave them in consequence of a scandal in money matters; was then put with Mr. Tylecote, a surgeon, near Rugeley; walked the London hospitals, living the gay life of so many of that class of students; passed his examinations; married the illegitimate daughter of an Indian officer, who left her a small property; and set up in Rugeley as a surgeon. Of his five children only the first, a son, was living at the time of his trial, the others all dying suddenly of convulsions within a few weeks after their birth. He was an indulgent husband, a kind father, a regular attendant at church, and apparently a religious man.

On his marriage, Palmer commenced to live in a handsome style, keeping his carriage, and soon after began training and breeding racehorses, and occupying himself on the turf. As his wife's fortune was only for her life, in 1854 he insured her life for £13,000, the premiums on which exceeded the income he derived from her, further insurances of a greater amount being declined by other offices. Within nine months after this, his wife was dead, and the insurance money received, relieving Palmer from difficulties that were already pressing on him. Again, within three months after his wife's death, Palmer was endeavouring to effect insurances on the life of his brother Walter, a confirmed drunkard, to the enormous extent of £80,000. Only one of these policies, that in the Prince of Wales' office, was accepted, the other offices being put on their guard by the hint that "his wife had died after the first payment of the premium had been made." Pressed by his pecuniary difficulties, he then tried to effect an insurance for £10,000 on the life of one George Bate, a decayed farmer, whom he employed as a kind of farm bailiff, and represented as a gentleman and an esquire, with a famous cellar of wine, but the insurance offices were now thoroughly awake; a detective was sent to interview the esquire, whom he found hoeing turnips, and the scheme fell through.[29]

Since 1854, Palmer had been in the hands of the bill discounters, and especially of a money-lending attorney in Mayfair of the name of Pratt, with whom he from time to time discounted what purported to be the acceptances of his mother, some of which were renewed on partial payment, others cleared off by the money received from the insurance of his wife's life.

> "This," said the Attorney-General, "brings us to the close of 1854. In the course of that year he effected another insurance in his brother's name, but Palmer was the real party, and corresponded with Mr. Pratt on the subject of effecting it, and the policy for

£13,000 was assigned to Palmer. On the strength of that policy, which remained in the hands of Pratt, who paid the first premium out of a bill he discounted for Palmer at 60 per cent., they proceeded to discount further bills, this policy being kept as a collateral security. The bills, in the whole, discounted in the course of that year, amounted to £12,500—two in June, which were held over from month to month to keep them alive—two of £2000 each in March, 1855, with the proceeds of which Palmer bought two racehorses, Nettle and Chicken. These bills were renewed from time to time, and eventually came due in January, 1856. Another bill for £2000 was discounted in April, 1855, renewed like the others, and became due on the 25th of October. On the 9th of July another bill for £2000 was discounted, renewed, and became due on the 12th of January. On the 27th of September another bill for £1000 was discounted to pay for the renewal of the bills due and then coming due. So that when the Shrewsbury races took place in November, 1855, bills were due or rapidly maturing to the extent of £11,500, every one of which bore the forged acceptance of the prisoner's mother. You will therefore understand the pressure which naturally and necessarily arose upon him; the pressure of the liabilities for £11,500 which he had not a shilling in the world to meet, and the still greater pressure which arose from the consciousness that the moment he could go on no longer, his mother would be resorted to for payment. The fact of his having committed these forgeries would be known, and would bring on him the penalty of the law for that crime so committed. The insurance company having refused to pay the policy effected on his brother's life, no assistance could be derived from that source."

Already, in May, 1855, Cook, with whom he had become intimately acquainted in racing transactions, had lent him his acceptance for £200 to meet a small claim, and had had to pay it on Palmer's default. In August of that year, Palmer again asked the money-lending attorney of Mayfair to discount a bill of Cook's for £500, representing that Cook required the money. It was, however,

declined without further security, and then Cook assigned two of his racehorses—Polestar, the subsequent winner at Shrewsbury, and Sirius—as a collateral security, and obtained only £375 in money, and a wine warrant for £65, the rest being swallowed up in discount and expenses. This money and warrant Cook never got, Palmer asking Pratt to send it to the post-office at Doncaster, whence he obtained it; and as it was made "to order," and bore a receipt stamp, Palmer, it was alleged, forged the name "John Parsons Cook," and took the cheque and the warrant, and appropriated the proceeds. That bill would be due on the day of Cook's death. In the same month it was that he attempted to effect the insurance on Bate's life and failed; and though Cook had, at Palmer's request, attested this proposal, which referred to Palmer as the usual medical attendant, beyond that he had nothing to do with this attempt.

Such was the desperate position of the prisoner at this time. It, however, rapidly grew worse. On the 6th of November a writ for £2000 against Palmer, and another for the same sum against his mother, were issued, but held over by Pratt in order that Palmer might make some arrangement. This he did to the amount of £800, and in consequence, after allowing for an exorbitant discount, £600 was taken off the bill, leaving £1400 to be met. The Prince of Wales office had refused to pay on Walter Palmer's life, and Mr. Pratt would not wait any longer. On the 13th of November, Pratt wrote him that all the bills, £11,500 in amount, must be met—a letter which Palmer must have received the next day—the day after that on which Cook's horse, Polestar, won at the Shrewsbury races. After the race, Cook had between £700 and £800 in his pocket from bets paid on the course, and from the stakes and his other bets would be entitled on the week after to receive more than a thousand pounds at Tattersal's. Before that day Cook was dead, his pocket-book empty, and his betting-book not to be found.

Cook, though slightly disposed to pulmonary complaints, was a hale and hearty young man, at the time of his fatal illness suffering only from debility.[30] It was only natural that his victory should excite him, and that with some friends he should celebrate it with two or three bottles of champagne at the "Raven Hotel" on his return from the course. He was, however, generally abstemious. He went to bed with nothing the matter with him, got up the next day and went on the course as usual. That night his illness began.

Late on the evening of the 14th of November, a betting agent of Cook's, of the name of *Fisher*, who was staying at the "Raven," was invited by Cook to come into the room where he, Palmer, and one Myatt were, and take some brandy and water.

> "They were drinking grog," says *Fisher*; "the deceased had some brandy and water before him. He asked me to sit down, and I did so. Cook asked the prisoner to have some more brandy and water, and he said he would not until Cook had drunk his. Cook then took up his glass, and drank almost all the liquor that was in it, and, within a minute, he exclaimed, 'There is something in it; it burns my throat dreadfully.' Upon his saying this, Palmer took up the glass, and sipped what remained in it, and said, 'There is nothing in it.' There was a very small quantity in the glass when the prisoner took it up. At this time a person of the name of *Reid* came in, and the prisoner handed the glass to him, and asked if he thought there was anything in it, and handed it to me also, and we said there was nothing we could recognize, as the glass was empty. I said, however, that there was a strong scent upon it, but I could not detect anything but brandy. Cook went out of the room, and when he returned he called me out. I went with him into my sitting-room. He appeared very ill, and he told me he had been very sick and asked me to take his money. He said he thought Palmer had been dosing him. He gave me £700. He did not say what I was to do with the money. He was very sick again after he had given me the money, and asked me to go into his bedroom with him. I did so. Another person named *Jones*

went with us; the deceased vomited violently in his bedroom in our presence. He was so ill I recommended him to send for Dr. Gibson, who attended and gave him some medicine. He was certainly not drunk; there was nothing about him approaching to drunkenness. He appeared very ill the next morning, but a good deal better than the previous night, and I returned him his money."[31]

Mr. Gibson, who saw Cook during this attack, confirmed Fisher's and Reed's account, stating that his tongue was perfectly clean, his pulse good, but his stomach appeared distended, that he only administered simple remedies. Cook told him he thought he had been poisoned. He seemed a little excited, but not drunk. A *Mrs. Brooks*, who also attends races, added the following evidence on this incident:—

"I went to the 'Raven' to see Palmer about half-past ten at night on Wednesday the 15th. I went upstairs, and asked a servant to tell Palmer that I wished to speak to him. She said he was there. At the top of the stairs are two passages, one facing, the other to the left. I turned to the left. I saw Palmer standing by a small table in the passage. He had a tumbler-glass in his hand in which there appeared to be a small quantity of water. I did not see him put anything into it. There was a light between me and him, and he held it up to the light. He said to me, 'I will be with you presently.' He saw me the moment I got to the top of the stairs. He stood at the table a minute or two longer with the glass in his hand, holding it up to the light and shaking it. The door of a sitting-room was partially open, and he went into it, taking the glass with him. In two or three minutes he came out again with the glass. What was in it was still of the colour of water. He then went into his own sitting-room, and the door was shut."

Some brandy and water, which Palmer afterwards brought to Mrs. Brooks, proved harmless to her; but she admitted that on the

previous day a great number of the racing men at Shrewsbury were affected with sickness and purging, and that there was a talk in the town of the water being poisoned.[32] With the return of Cook from Shrewsbury to Rugeley with Palmer, on the day after this suspicious attack, the summary of the case ends, it being necessary to detail the subsequent events in the words of the leading witnesses.

THE SYMPTOMS.

In the evening of the 15th of November, Cook returned from Shrewsbury with Palmer to the "Talbot Arms," at Rugeley, an inn situated immediately opposite Palmer's own house. He said he had been ill at Shrewsbury, went to bed early, dined with Palmer the next day, and returned to the inn at night, apparently none the worse, and quite sober.

> "On the following morning," said *Mills*, the chambermaid, "Palmer came to see him, and asked me for a cup of coffee for him, which I procured, and I think I gave it to the deceased, and left the room. I did not see him drink the coffee; but when I went into the room shortly afterwards, I found it had been vomited in the utensil. I did not observe a jug of toast-and-water in the bedroom; but a jug that did not belong to the bedroom was sent down at night, for me to make some fresh toast-and-water in it. The prisoner was in deceased's bedroom four or five times on this day, and I heard him tell Cook that he would send him over some soup. I afterwards saw some broth in the kitchen, which I knew had not been made in the Talbot Arms; and the waitress took this broth to the deceased's bedroom. I saw the prisoner after this, and he asked me if Mr. Cook had had his broth; and the waitress said she had taken it to him, but he refused to take it, and said that it would not stay on his stomach. The prisoner then told me to fetch the broth, as Mr. Cook must have it, and I did so, and left it in deceased's bedroom, and shortly

afterwards I saw that it had been vomited. The same evening some barley water was made for the deceased, and also some arrowroot, but I cannot say whether they remained on his stomach or not. Mr. Bamford, the doctor, was called in after this. On the Sunday after the deceased came to the Talbot Arms, I saw him in his bedroom about eight o'clock in the morning, and he said he had slept well since twelve o'clock, and he felt pretty comfortable. A large breakfast cup of broth was brought from the prisoner's house between twelve and one o'clock on the Sunday, and I took it up to the deceased's bedroom. I tasted the broth, and very soon afterwards I was sick. I drunk about two tablespoonfuls. I vomited violently all the afternoon, and was obliged to go to bed. I was quite well up to the time of my drinking the broth. I saw the deceased on Sunday evening, and he seemed in good spirits, and not to be any worse. I saw the deceased on the Monday morning between seven and eight o'clock, when I took him a cup of coffee for his breakfast. He did not vomit the coffee. Palmer had seen him before this, but he did not come again until ten o'clock at night. The deceased got up about one o'clock, and he shaved and dressed himself, and appeared a great deal better, but said that he was exceedingly weak. Ashmall, the jockey, came to see him on the Monday, and also Mr. Saunders, the trainer. Soon after one o'clock, the deceased took some arrowroot, and it remained on his stomach. The deceased went to bed at four o'clock, and between nine and ten the prisoner went into his room, and I left him there. Some pills were sent by Dr. Bamford for the deceased, about eight o'clock, and I took them into his room, and placed them on the dressing-table, and they were there when the prisoner went into the room. I went to bed between ten and eleven, and I was called up about twelve. I then heard violent screams from the deceased's bedroom, and upon entering it *I saw the deceased sitting up in bed, and he desired me to fetch the prisoner directly. I told him he had been sent for, and I then walked to the bedside and found one of the pillows was upon the floor. I picked it up and asked Mr. Cook if he would lay his head down. At this time he was beating the bedclothes apparently in great agony, and he told me he could not lie down, and he should be suffocated if he did; and he then, in a*

loud tone, asked me again to send for Mr. Palmer. There was a sort of jumping or jerking about his head and neck and body all this time, and his breathing was very much affected. He screamed three or four times while I was in the room, and twice he called out, 'Murder.' He asked me to rub one of his hands, and I found it quite stiff. It was the left hand. The fingers were all stretched out and there was no motion in them, and they twitched while I was rubbing the hand. Palmer came into the room while this was going on, and the deceased recognized him, and said, 'Oh, Palmer,' or 'Oh, doctor, I shall die.' The prisoner replied, 'Oh, my lad, you won't;' and after remaining a minute or two in the room he told me to stay there, and went out. He returned in a very few minutes, and he then produced some pills, and he gave the deceased a draught in a wine-glass, after he had given him the pills. Cook said that the pills stuck in his throat, and the prisoner told me to give him some toast-and-water, and I did so in a teaspoon. *His head and body continued jerking, and he seized the spoon fast between his teeth and seemed to bite it very hard.* The deceased shortly after swallowed the toast-and-water and the pills, and the prisoner then handed him the draught. It had a thick heavy appearance. The deceased snapped at the glass in the same way he did at the spoon, and he appeared unable to control himself. *As soon as he had swallowed the draught, he vomited it immediately, and it appeared to me to smell like opium.* The prisoner then made the remark that he hoped the pills had stayed, and he searched the utensil in which the deceased had vomited with a quill, and said that he could not find them; and he told me to take the utensil away and empty it carefully, and I did so, but could not see any trace of the pills. After this the deceased seemed a little more easy. *The attack lasted altogether about half an hour, and during the whole of the time he was quite conscious.* When he was composed he asked the prisoner to feel how his heart beat; and Palmer went to his bedside, and put his hand either to his heart, or the side of his face, and he said it was all right. I left the deceased about three o'clock in the morning, and at this time the prisoner was sitting in the easy chair, and I believe he was asleep. About six o'clock the same morning I saw the deceased again, and he told me that Mr.

Palmer had left him about a quarter past five o'clock. *I asked him how he was, and he replied that he was no worse; and he then asked me if I had ever seen any one in such agony as he was the night before, and I told him I never had. He then said he was sure I should never like to see anyone in such agony again, and I inquired what he thought was the cause. He replied that it was through some pills that Palmer had given him about half-past ten. The deceased was quite composed and quiet at this time, and there was no jerking or convulsion about him, but his eyes looked very wild.* About twelve o'clock the deceased desired me to send the Boots over to Mr. Palmer to know whether he might have a cup of coffee. A message was brought back that he might, and Mr. Palmer would be over immediately. When I took up the coffee the prisoner was in the room, and I gave him the coffee, and he tasted it to see that it was not too strong. Mr. Jones came to the inn about three o'clock, and I saw him in the deceased's room, and the prisoner after this told me that Cook had vomited the coffee. *I saw Cook several times after this, and he appeared in very good spirits, and talked about getting up the next morning, and wished the barber to be sent for to shave him.* I did not see the deceased later than half-past ten o'clock on the Tuesday night, and the prisoner was then in his bedroom, and I gave him some toast-and-water for the deceased, and the prisoner said he did not want anything more. I sat up in the kitchen on purpose to see how Mr. Cook went on, and I heard the bell of his room ring violently about ten minutes before twelve, and went up immediately. *I found the deceased sitting up, and Mr. Jones had his arm round his shoulders, apparently supporting him.* The deceased when he saw me, told me to fetch Palmer directly. I went over to his house, and rang the surgery bell, and the prisoner came to the window almost in an instant, and opened a small casement, and I told him to come over to Mr. Cook, as he was in much the same state as he was the night before. He made some reply, and I returned at once to the 'Talbot Arms,' and in a minute or two the prisoner came into Mr. Cook's room. The first thing he said was that he did not think he had ever dressed so quickly before in his life. At this time Mr. Jones was supporting the deceased. I went out into the landing about a minute

> or two, and the prisoner came out, and I observed to him that Mr. Cook appeared in the same state as the night before, and he replied, 'Not so ill by a fiftieth part.' He then went to his own house, and returned in a very short time to the deceased's bedroom. *I then heard the deceased ask to be turned on his right side*, and I then shortly after heard that he was dead."

The *cross-examination of Elizabeth Mills* was mainly directed to three points—(1.) The fact of Mr. Cook complaining of sore throat, but not of difficulty in swallowing, in May, 1855, when the witness said all that he did was to use a gargle sent by Dr. Bamford. (2.) Her omission to tell the coroner that the broth had made her sick; that Cook had said he became ill on taking the pills sent by Palmer; that he beat the bedclothes, called "Murder!" and "twitched" when she rubbed his hands. These omissions the witness accounted for by the fact that the coroner did not ask her to detail all the symptoms she saw, but merely required her to answer such questions as he put. On her depositions being read, the Attorney-General proposed to call evidence to prove the negligence and misconduct of the coroner, but the court ruled that it was inadmissible.[33] (3.) That the witness had had several interviews with Cook's stepfather, Stevens, his attorney, and the chief constable, before giving evidence—the defence imputing that they had instructed her in the symptoms. She denied, however, any such conduct on their part. She had heard of Dove's case, but not read it, and Mr. Stevens had never given her any money. An attempt to injure her moral character in reference to a man of the name of Dutton entirely failed, and her evidence remained substantially uncontradicted.

Lavinia Barnes, the waitress at the "Talbot Arms," remembered Cook coming there on Monday, the 12th, on his way to the races, and not complaining of illness, and she saw him when he returned

on Thursday, the 15th, and after he came from dining at Palmer's, on the Friday evening, when he spoke to her, and was sober.

"On the Saturday," continued this witness, "I saw him twice. Some broth was sent over and taken up to him by me. He could not take it; he was too sick. I carried it down, and put it in the kitchen. I afterwards saw Palmer, and told him Cook was too sick to take it; he said he must have it. Elizabeth Mills afterwards took it up again. Mills was taken ill with violent vomiting on the Sunday between twelve and one o'clock. She went to bed, and did not come downstairs till four or five o'clock. I saw some broth that day in the kitchen; it was in a sick cup, with two handles, not belonging to the house. I did not see it brought; it was taken back to Palmer's. On Monday morning (19th) I saw Palmer, and he told Mills he was going to London. I saw Cook during that day. Saunders came to see him, and took him up some brandy-and-water. I slept that night in the next room to Cook's. Palmer came between eight and nine in the evening, but I did not see if he went up to Cook's room. (*According to Mills, Palmer had seen Cook in the morning, and saw him again at ten at night.*) About twelve o'clock I was in the kitchen, when Cook's bell rang violently. I went upstairs. Cook was very ill, and asked me to send for Palmer. *He screamed out ''Murder!' He exclaimed that he was in violent pain—that he was suffocating. His eyes were wild-looking, standing a great way out of his head. He was beating his bed with his arms. He cried out, 'Christ, have mercy on my soul!' I never saw a person in such a state.* Having called up Mills, I left to send 'Boots' for Palmer, who came, and I again went into Cook's room. *Cook was then more composed. He said, 'Oh, doctor, I shall die!' Palmer replied, 'Don't be alarmed, my lad.*' I saw Cook drink a dark mixture out of a glass, but do not know who gave it him. I both heard and saw him snap at the glass. He brought up the draught. I left him between twelve and one, when he was more composed. On Tuesday he seemed a little better. At night, a little before twelve, the bell rang again. I was in the kitchen. Mills went upstairs, and I followed her, and *heard Cook screaming*, but

did not go into the room. I stood outside the door, and saw Palmer come. He had been fetched. I said, as he passed me, 'Mr. Cook is ill again.' He said, 'Oh, is he?' and went into the room. He was dressed in his usual manner, and wore a black coat and a cap.[34] She also heard him make the observation to Mills before reported. She went to the room, but came out before Cook died."

MEDICAL EVIDENCE.

In consequence of his severe illness, the following deposition of *Dr. Bamford* (an aged local practitioner) before the coroner was read:—

"I attended the late Mr. Cook, at the request of William Palmer, and first saw him about three o'clock on Saturday, the 17th of November, *when he was suffering from violent vomiting, the stomach being in that irritable state, that it would not contain a teaspoonful of milk. There was perfect moisture of the skin, and he was quite sensible.* I prescribed medicine for him; and Mr. Palmer went up to my house and waited until I had made it up, and then took it away. I prescribed a saline draught, to be taken in an effervescing state. Between seven and eight in the evening Mr. Palmer again requested me to visit Mr. Cook. *The sickness still continued, everything he took being ejected from his stomach.* I gave him two small pills as an opiate. Palmer took the pills from my house. I did not accompany, nor do I know what became of the pills. On the following morning (Sunday) Palmer again called, and asked me to accompany him. *Mr. Cook's sickness still continued.* I remained about ten minutes. *Everything he took that morning was ejected from his stomach. Everything he threw up was as clear as water, except some coffee that he had taken.* Palmer had administered some pills before I saw Mr. Cook on Saturday, which had purged him several times. Between six and seven in the evening I again visited the deceased, accompanied by Palmer. *The sickness still continued.* I went on Monday morning between eight and nine,

and changed his medicine. I sent him a draught, which relieved his sickness, and gave him ease. I did not see him again until Tuesday night, when Palmer called for me. *I examined Mr. Cook, in the presence of Mr. Jones and Mr. Palmer, and I observed a change in him. He was irritable and troubled in his mind. His pulse was firm, but tremulous, and between 80° and 90°. He threw himself down on the bed, and turned his face away. He said he would have no more pills, nor take any medicine.* After they had left the room, Palmer asked me to make two more pills, similar to those on the previous night, which I did, and he then asked me to write the directions on a slip of paper, and I gave the pills to Palmer. The effervescing mixture contained 20 grains of carbonate of potash, 2 drachms of compound tincture of cardamine, and 2 drachms of simple syrup, together with 15 grains of tartaric acid for each powder. *I never gave Mr. Cook a grain of antimony.* I did not see the preparations after they were taken away. *His skin was moist, and there was not the least fever about him.* I considered death to have been the result of congestion of the brain, when the *post-mortem* examination was made, and I do not see any reason to alter that opinion. Palmer said he was of the same opinion with respect to the death of the deceased. I never knew apoplexy produce rigidity of the limbs. Drowsiness is a prelude to apoplexy. *I attribute the sickness on the first two days to a disordered stomach.*" When called in the sixth day of the trial, after his recovery, the witness said—speaking of the last visit to Mr. Cook—"Having seen Cook, I left the room with Jones and Palmer: the latter said he rather wished Cook to have his pills again (I had prepared the same pills on Saturday, Sunday, and Monday), and he would walk up with me for them. He did so, and stood by me in the surgery while I prepared them. I had strychnia in a cupboard in my private room. I put the pills in a box, and addressed it 'Night pills, John Parsons Cook, Esq.' I wrote that direction all four nights. On the Tuesday night Palmer requested me to put on a direction. After that I did not see Cook alive. It was, as near as could be, twenty minutes past twelve, at midnight, when I saw Cook dead. I understood he was alive when they came for me, and I could not have been more than five or ten minutes in going up.

My house is about two hundred yards from Palmer. *I found the body stretched out, resting on the heels and the back of the head, as straight as possible, and stiff. The arms were extended down each side of the body, and the hands clenched.* I certified it was apoplexy."

Mr. William Henry Jones, a surgeon at Lutterworth, and intimate friend of Cook's for the last five years, was written to by Palmer on the Monday, the 19th, stating that "Cook was taken ill at Shrewsbury, and obliged to call in a medical man;" that "*since then he had been confined to his bed with a very serious bilious attack, combined with diarrhœa*," and that Palmer "thought it advisable that his friend should come and see him." Illness prevented this before about half-past three in the afternoon of Tuesday, the day before Cook died.

"On my arrival at Rugeley," said the witness, "I went up to Cook's room. He said he was very comfortable, but had been very ill at Shrewsbury. He did not detail the symptoms, but said he had had to call in a doctor. Palmer came in. I examined Cook in his presence. *He had a natural pulse. I looked at his tongue; it was clean. I said it was hardly the tongue of a bilious, diarrhœa attack. Palmer replied, 'You should have seen it before.'* I did not then prescribe for Cook. In the course of the afternoon I visited him several times. *He changed for the better. His spirits and pulse both improved. I gave him, at his request, some toast and water, and he vomited. There was no diarrhœa.* The toast and water was in the room. Mr. Bamford came in the evening, about 7 o'clock, and expressed his opinion that Cook was going on very satisfactorily. We were talking about what he was to have, and Cook objected to the pills of the previous night. Palmer was there all the time. Cook said the pills made him ill. I do not remember to whom he addressed this observation. We three (Palmer, Bamford, and myself) went out upon the landing. Palmer proposed that Mr. Bamford should make up some morphine pills as before, at the same time requesting me

not to mention to Cook what they contained, as he objected to the morphine so much. Mr. Bamford agreed to this, and he went away. I went back to Cook's room, and Palmer went with me. During the evening I was several times in Cook's room. He seemed very comfortable all the evening. *There was no more vomiting nor any diarrhœa, but there was a natural motion in the bowels. I observed no bilious symptoms about Cook.*"

By *Lord Campbell*.—"*Did he appear to have recently suffered from a bilious attack?*"

Answer.—"No."

Examination resumed.—"Palmer and I went to his house about eight o'clock. I remained there about half-an-hour, and then returned to Cook. I next saw Palmer in Cook's room at nearly eleven o'clock. He had brought with him a box of pills. He opened the paper on which the direction was written in my presence. That paper was round the box. He called my attention to the paper, saying, 'What an excellent handwriting for an old man!' I did not read the direction, but looked at the writing, which was very good. Palmer proposed to Cook that he should take the pills. Cook protested very much against it, because they had made him so ill on the previous night. Palmer repeated the request several times, and at last Cook complied with it, and took the pills. *The moment he took them he vomited into the utensil.* Palmer and myself (at Palmer's request) searched in it for the pills, to see whether they were returned. We found nothing but toast-and-water. I do not know when Cook had drunk the toast-and-water, but it was standing by the bedside all the evening. *The vomiting could not have been caused by the contents of the pills, nor by the act of swallowing. After vomiting Cook laid down and appeared quiet. Before Palmer came Cook had got up and sat in a chair. His spirits were very good; he was laughing and joking, talking of what he should do with himself during the winter.* After he had taken the pills I went downstairs to my supper, and returned to his room at nearly twelve o'clock. His room was double-bedded, and it had been arranged that I should sleep in it that night. I talked to Cook for a few minutes, and then went to bed. When I

last talked to him he was rather sleepy, but quite as well as he had been during the evening. There was nothing about him to excite any apprehensions. I had been in bed about ten minutes, and had not got to sleep, when he suddenly started up in bed, and called out, 'Doctor, get up, I am going to be ill! Ring the bell and send for Palmer.' I rang the bell. The chambermaid came, and Cook called out to her, 'Fetch Mr. Palmer.' He asked me to give him something. I declined, and said, 'Palmer will be here directly.' Cook was then sitting up in bed. *The room was rather dark, and I did not observe anything particular in his countenance. He asked me to rub the back of his neck. I did so. I supported him with my arm. There was a stiffness about the muscles of his neck.* Palmer soon came in; two or three minutes at the utmost after the chambermaid went for him. He said, 'I never dressed so quickly in my life.' I did not observe how he was dressed. *He gave Cook two pills, which he told me were ammonia pills. Cook swallowed them. Directly he did so he uttered loud screams, threw himself back in the bed, and was dreadfully convulsed. That could not have been the result of the pills last taken. He said, 'Raise me up; I shall be suffocated.' That was at the commencement of the convulsions, which lasted five or ten minutes. The convulsions affected every muscle of the body, and were accompanied by stiffening of the limbs. I endeavoured to raise Cook with the assistance of Palmer, but found it quite impossible, owing to the rigidity of the limbs. When Cook found we could not raise him up, he asked to be turned over. He was then quite sensible. I turned him on his side.* I listened to the action of the heart. I found it gradually weakened, and asked Palmer to fetch some spirits of ammonia, to be used as a stimulant. He went to his house and fetched a bottle. He was away a very short time. When he returned the pulsations of the heart were gradually ceasing, and life was almost extinct. He died very quietly a short time afterwards.

"*From the time he called to me to the time of his death there elapsed about ten minutes or a quarter of an hour. He died of tetanus*, which is a spasmodic affection of the muscles of the whole body. It causes death by stopping the action of the heart. The sense

of suffocation is caused by the contraction of the respiratory muscles. The room was so dark that I could not observe the outward appearance of Cook's body after death. *When he threw himself back in bed he clenched his teeth, and they remained clenched after his death. When I was rubbing his neck, his head and neck were unnaturally bent back by the spasmodic action of the muscles. After his death his body was so twisted or bowed that if I had placed it upon the back it would have rested on the head and feet.*"

By *Lord Campbell*.—"*When did you first observe the bowing and twisting?*"

Witness.—"*When Cook threw himself back on the bed. The jaw was affected by the spasmodic action.*"

The *cross-examination* of this witness was directed to the previous health of the deceased, and to his fears that he was still suffering from a former attack of venereal disease, which Mr. Jones decidedly negatived; to his having been in pecuniary difficulties from his racing ventures, which the witness said he was steadily redeeming; to Cook's objection to take morphia; to the question whether, when before the coroner, the witness had used the word "tetanus," which it was evident from the original depositions had been scratched out by the clerk, probably from ignorance of its meaning, and to whether he agreed with Dr. Bamford that Cook had died in an apoplectic fit, or rather, as the witness at the time thought, of one of an epileptic character. In *re-examination*, he said that "*he was satisfied that Cook's death did not arise from epilepsy, as in that disease consciousness is lost, but there is no rigidity or convulsive spasm of the muscles, and the symptoms quite different. He was equally certain that it did not arise from apoplexy.*" *Dr. Savage*, of Gloucester Place, London, who had attended Cook for four years, also negatived the suggestion that he was suffering from syphilitic symptoms, or that he had any venereal taint about him. He was timid, no doubt, about his throat, and had had two small

ulcers on his tongue due to two bad teeth, but by the end of May they had gradually disappeared, and were quite well.

The woman who laid out the body noticed that "*though it was quite warm, the hands and arms were cold; the body lying on the back, straight down the bed,*[35] *the arms crossed upon the chest, and the head 'lying a little turned on one side.'" She had never seen so stiff a corpse before. "We," she continued, "had difficulty in straightening the arms. We could not keep them straight down to the body. I passed a piece of tape under the back, and tied it round the wrists, to fasten the arms down. The right foot turned on one side outwards. We were obliged to tie both feet together. The eyes were open. We were a considerable time before we could close them, because the eyelids were so stiff. The hands were closed, and were very stiff. I have never known them so stiff as in this case.*" *Mr. Stevens*, Cook's stepfather, who saw the body three days after death, also noted that the right hand was clenched, and, as he looked across the body, that the left was clenched in the same way.

What passed between *Mr. Stevens* and Palmer at their interview at Rugeley on the Friday after Cook's death, and the reasons why he eventually insisted on a *post-mortem* examination and a chemical analysis of the corpse, belong rather to the section relating to the conduct of the prisoner. It will be sufficient here to note that on the 26th of November the *post-mortem* examination was held with the following results by Dr. Harland, of Stafford, assisted by Mr. Devonshire, of the London University, and Mr. Newton, of Rugeley, in the presence of Dr. Bamford, Palmer, and several other persons.

POST-MORTEM EXAMINATION.

Dr. John Thomas Harland, physician, of Stafford, arrived at Rugeley at ten in the morning of the 26th, called at Dr. Bamford's on his way to the hotel where the examination was to be conducted, and on his road met Palmer, whom he had previously known. "I am glad," said Palmer, "that you are come to make a *post-mortem* examination. Someone might have been sent whom I did not know." "What is the case?" replied Harland; "I hear there is a suspicion of poisoning." "Oh no," said Palmer; "*he had an epileptic fit on Monday and Tuesday last, and you will find old disease in the heart and head*." Such was not the result of the *post-mortem*. They "found the body much stiffer than bodies usually are five or six days after death—the muscles strongly contracted and thrown out, and the hands stiff and firmly closed." According to a report which Dr. Harland sent to Mr. Stevens, and which at the suggestion of the judge was read in full, the various internal organs were perfectly healthy and natural, as described in detail in the following examination, subsequent to reading the report:—

> "The abdominal viscera were in a perfectly healthy state. They were taken out of the body. We examined the liver. It was healthy. The lungs were healthy, but contained a good deal of blood; not more than would be accounted for by gravitation after death. We examined the head. The brain was quite healthy. There was no extravasation of blood, and no serum. There was nothing which, in my judgment, could cause pressure. The heart was contracted, and contained no blood. That was the result, not of disease, but of spasmodic action. At the larger end of the stomach there were numerous small yellowish-white spots, about the size of mustard seeds. They would not at all account for death. I doubt whether they would have any effect upon the health. I think they were mucous follicles. The kidneys were full of blood which had gravitated there. They had no appearance of disease. The blood was in a fluid state. That was not usual. It is found so in some cases of sudden death, which are of rare occurrence. The lower part of the spinal cord was

not very closely examined. We examined the upper part of that cord. It presented a perfectly natural appearance. On a subsequent day, I think the 25th of January, it was thought right to exhume the body, that the spinal cord might be more carefully examined. I was present at that examination. The lower part of the spinal cord was then minutely examined. A report was made of that examination."

This report was put in, and was read by the witness. It described minutely the appearance and condition of the spinal cord and its envelopes, and concluded with this statement:—"There is nothing in the condition of the spinal cord or its envelopes to account for death; nothing but the most normal and healthy state, allowance being made for the lapse of time since the death of the deceased."

Examination resumed.—"I am still of opinion that there was nothing in the appearance of the spine to account for the death of the deceased, and nothing of an unusual kind which might not be referred to changes after death. When the stomach and intestines were removed from the body on the occasion of the first examination they were separately emptied into a jar, and were afterwards placed in it. Mr. Devonshire and Mr. Newton removed them from the body. They were the only two who operated. At the time the prisoner was standing on the right of Mr. Newton. While Mr. Devonshire was opening the stomach a push was given by Palmer, which sent Mr. Newton against Mr. Devonshire, and shook some of the contents of the stomach into the body. I thought a joke was passing among them, and said, 'Don't do that.'"

By *Lord Campbell*.—"Might not Palmer have been impelled by some one outside him?"

Answer.—"There was no one who could have impelled him."

Question.—"What did you observe Palmer do?"

Answer.—"I saw Mr. Newton and Mr. Devonshire pushed together, and Palmer was over them. He was smiling at the time."

Examination continued.—"After this interruption the opening of the stomach was pursued. The stomach contained about three ounces of a brownish fluid. There was nothing particular in that.

Palmer was looking on, and said, ‘They won’t hang us yet.’ He said that to Mr. Bamford in a loud whisper. That remark was made upon his own observation of the stomach. The stomach after being emptied, was put into the jar. The intestines were then examined, but nothing particular was found in them. They were contracted and very small. The viscera, with their contents, as taken from the body, were placed in the jar, which was then covered over with two bladders, which were tied and sealed. I tied and sealed them. After I had done so I placed the jar upon the table by the body. Palmer was then moving about the room. In a few minutes I missed the jar from where I had placed it. During that time my attention had been withdrawn by the examination. On missing the jar I called out, ‘Where’s the jar?’ and Palmer from the other end of the room, said, ‘It is here; I thought it would be more convenient for you to take away.’ There was a door at the end of the room where he was. He was within a yard or two of that door, and about twenty-four feet from the table on which the body was lying.” (Before making this last statement the witness referred to a plan of the room which was put in by the Attorney-General.) “The other door near which Palmer was standing was not the one by which he entered the room. I called to Palmer, ‘Will you bring it here?’ I went from the table and met Palmer half-way coming with the jar. *Since I last saw it it had been cut through both bladders. The cut was hardly an inch long, done with a sharp instrument.* I examined the jar. The edges were quite clean; no part of the contents could have passed through it. Finding this cut, I said, ‘Here is a cut! who has done it?’ Palmer, Devonshire, and Newton, all said they had not done it, and nothing more was said. When I was about to remove the jar from the room, the prisoner asked me what I was going to do with it. I said I should take it to Mr. Frere’s (a neighbouring surgeon). He said, ‘I would rather you would take it to Stafford than take it there.’ I made no answer that I remember. On finding the slit, I cut the strings, and altered the bladder, so that the slits were not over the top. I took it to Mr. Frere’s, and left it in his hall, tied and sealed. Afterwards when I went for my carriage, whilst waiting in the yard, the prisoner came and asked me what would be done with it, and I said, ‘Sent either to

Birmingham or London for examination.' When I recovered the jar, I tied each corner separately and resealed it with my own seal. During the first *post-mortem* examination, there were several Rugeley persons present, but, I believe, no one on behalf of the prisoner. At the second examination there was some one on behalf of Palmer (*Mr. Pemberton* and *Mr. Bolton*)."

On *cross-examination*, after stating that Palmer's words, "they won't hang us yet," were addressed to Bamford in a loud whisper, and afterwards repeated to several persons, and that his original notes in pencil were destroyed, a more formal report being written by him on getting home, *Dr. Harland* said—

"At the base of the tongue of the deceased I observed some enlarged mucous follicles; they were not pustules containing matter, but enlarged mucous follicles of long standing. There were a good many of them, but I do not suppose that they would occasion much inconvenience. They might cause some degree of pain, but it would be slight. I do not believe they were enlarged glands. I should not say that the deceased's lungs were diseased, although they were not in their normal state. The lungs were full of blood and the heart empty. I had no lens at the *post-mortem* examination, but I made an examination which was satisfactory without one. The brain was carefully taken out; the membranes and external parts were first examined, and thin slices about a quarter of an inch in thickness were taken off and subjected to separate examination. I think that by that means we should have discovered disease if any had existed; and if there had been any indication of disease I should have examined it more carefully. *I examined the spinal cord as far down as possible, and if there had been any appearance of disease, I should have opened the canal. There was no appearance of disease, however. We opened down to the first vertebra. If we had found a softening of the spinal cord, I do not think that it would have been sufficient to have caused Mr. Cook's death; certainly not. A softening of the spinal cord would not produce tetanus; it might*

produce paralysis. I do not think, as a medical man investigating the cause of death, that it was necessary carefully to examine the spinal cord. I do not know who suggested that there should be an examination of the spinal cord two months after death. There were some appearances of decomposition when we examined the spinal cord, but I do not think that there was sufficient to interfere with our examination.[36] I examined the body to ascertain if there was any trace of venereal disease. I did find certain indications of that description, and the marks of an old excoriation, which was cicatrized over."

Re-examined by the Attorney-General.—"There were no indications of wounds or sores such as could by possibility produce tetanus. There was no disease of the lungs to account for death. The heart was healthy, and its emptiness I attribute to spasmodic action. The heart being empty, of course death ensued. The convulsive spasmodic action of the muscles of the body, which was deposed to yesterday by Mr. Jones, would, in my judgment occasion the emptiness of the heart. There was nothing whatever in the brain to indicate the presence of any disease of any sort; but if there had been, I never heard or read of any disease of the brain ever producing tetanus. *There was no relaxation of the spinal cord which would account for the symptoms accompanying Mr. Cook's death as they have been described. In fact, there was no relaxation of the spinal cord at all, and there is no disease of the spinal cord with which I am acquainted which would produce tetanus.*"

Dr. Monckton, a physician at Rugeley, made a separate examination of the spinal marrow of the deceased on the 28th of January, when he said that the body was in such a condition as to enable him to do so satisfactorily, and when had there been any disease of a normal character on the spine he should have had no difficulty in discovering it. All that he found were certain granules, the origin of which it was difficult to account for, though frequently found in persons of an advanced age, but which he never knew to

occasion sudden death. He agreed entirely with the evidence of Dr. Harland.[37]

EVIDENCE OF MEDICAL EXPERTS.

We come next to a remarkable body of evidence given by men of such eminence in their profession as Mr. Curling, Dr. Todd, Sir Benjamin Brodie, and others of nearly equal mark, negativing the idea that had been suggested in the previous cross-examinations that the death was due to one of the two forms of true *tetanus*, and affirming that the symptoms which had been detailed were those of the action of strychnia. Not only were these opinions closely questioned in cross-examination, but as many medical men, several of them of not less eminence than these witnesses, were subsequently called for the defence to contradict them; and thus the most extraordinary conflict of scientific evidence raised that had hitherto been witnessed in a criminal court. Subsequently, as we shall see, a similar dispute between the medical giants of the day was roused in the case of Dr. Smethurst, but with, in the end, a very different result. In reading the following statements for the prosecution, it will help to make them more clear, if it is borne in mind that *tetanus* is of two kinds—(1), *Idiopathic*, or self-generated, and the other (2), *Traumatic*, the result of a wound or a sore; that the former may arise from exposure to cold or damp, or even from the irritation of worms in the alimentary canal, but in temperate climates is by no means a frequent disease; whilst the latter, from the various accidents to which human beings are liable, is of more frequent occurrence. Another point to be remembered is, that it is a moot point in medical practice whether a syphilitic sore, unless of course of a most aggravated character, will produce *tetanus*, and that the difference between the symptoms and progress

of *true tetanus* and of that due to poison is, in the opinion of these experts, very marked. *Dr. James Blizard Curling*, surgeon to the London Hospital, was first called, and after describing the two kinds of *tetanus* and their causes, and speaking of the very numerous cases of the "traumatic" kind which he had seen, he thus detailed the symptoms:—

> "The disease first manifests itself about the jaws and neck. Rigidity of the muscles of the abdomen afterwards sets in. A dragging pain at the pit of the stomach is almost a constant attendant. In many instances the muscles of the back are extensively affected. These symptoms, though continuous, are liable to aggravations into paroxysms. As the disease goes on these paroxysms become more frequent and more severe. When they occur the body is drawn backwards; in some instances, though less frequent, it is bent forward. A difficulty in swallowing is a very common symptom, and also a difficulty of breathing during the paroxysms. The disease may, if fatal, end in two ways. The patient may die somewhat suddenly, from suffocation, owing to the closure of the opening of the windpipe; or he may be worn out by the severe and painful spasms, the muscles may relax, and the patient gradually sink. The disease is generally fatal. *The locking of the jaw is an almost constant symptom attending 'traumatic tetanus;' I may say a constant symptom. It is not always marked, but generally so. It is an early symptom.* Another symptom is a peculiar expression of countenance. I believe this is not peculiar to '*traumatic tetanus*,' but my observation is from such cases. There is a contraction of the eyelids, a raising of the angles of the mouth, and contraction of the brow. In '*traumatic tetanus*' the lower extremities are sometimes affected, and sometimes, but rarely, the upper ones. When the muscles of the extremities are affected, the time at which that occurs varies. If there is no wound in the arms or legs, the extremities are generally not affected until late in the progress of the disease. *I never knew of tetanus being produced by a sore throat or a chancre. In my opinion a syphilitic sore would not produce tetanus. I know of*

no instance in which one has led to tetanus. I think it a very unlikely cause. The time within which '*traumatic tetanus*' causes death varies from twenty-four hours to two or three days or longer. The shortest time to my knowledge was eight to ten hours. *When once commenced, the disease is continuous.*"

Question.—"Did you ever hear of a case in which a man was attacked one day, had twenty-four hours' respite, and was then attacked the next day?"

Witness.—"Never. Such a case could not occur."

Question.—"You have heard Mr. Jones's account of the death of the deceased. *Were the symptoms there consistent with any forms of traumatic tetanus?*"

Witness.—"*No.*"

Question.—"*What distinguishes it from such causes?*"

Witness.—"*The sudden onset of the disease.* In all cases that have come under my observation the disease was preceded by the milder symptoms of *tetanus*, gradually proceeding to the complete development."

Question.—"*Were the symptoms described by Mills those of tetanus?*"

Witness.—"*No. Not of tetanus of disease.*"

Question.—"Assuming tetanus to be synonymous with convulsive or spasmodic action of the muscles, was there, in that sense, *tetanus* on Monday night?"

Witness.—"No doubt there was spasmodic action of the muscles, but not *idiopathic* or *traumatic tetanus*, because the sudden onset of the spasms, and their rapid subsidence, are consistent with neither of the two forms of *tetanus*."

Question.—"Is there not *hysteric tetanus*?"

Witness.—"Yes: it is rather *hysteria* combined with spasms, but it is sometimes called *hysteric tetanus*. I have known no instance of its proving fatal, or of it occurring to a man. Some poisons will produce *tetanus*. Nux vomica, acting through its poisons, strychnia

and brucia, poisons of a cognate character, produce that effect. I never saw human or animal life destroyed by strychnia."

In his *cross-examination*, Mr. Curling admitted that irritation of the spinal cord, or of the nerves proceeding to it, might produce *tetanus*, and the correctness of Dr. Watson's statements in his Lectures, that, in four cases out of five, the disease begins with lockjaw, and that all the symptoms of tetanic convulsions may arise from very trivial blows; but he denied that there was any well authenticated instance of "*traumatic tetanus*" occurring within a quarter of an hour after the reception of the injury, or that it was very likely that the irritation of a syphilitic sore by wet, cold, drink, mercury, or mental excitement, might lead to *tetanic* symptoms.

"The irritation," said Mr. Curling, "which is likely to produce *tetanus* is the sore being exposed to friction, to which syphilitic sores in the throat are not exposed. I should class *tetanus* arising from the irritation of a sore as *traumatic*. Cases very rarely occur which it is difficult to class as either *traumatic* or *idiopathic*. I should class *tetanus* arising from irritation of the intestines as *idiopathic*. The character of the spasms of epilepsy are not tetanic."

Serjeant Shee.—"Not of the spasms; but are not the contractions of epilepsy sometimes continuous, so that the body may be twisted into various forms, and remain rigidly in them?"

Answer.—"Not continuously."

Question.—"For five or ten minutes together?"

Answer.—"I think not."

Question.—"Does it not frequently happen that general convulsions, no cause or trace of which in the form of disease or lesion is to be found in the body after death, occur in the most violent and spastic way so as to exhibit appearances of tetanic convulsions?"

Answer.—"No instance of the kind has come under my observation."[38]

Question.—"Do you agree with this opinion of Dr. Copland, expressed in his *Dictionary of Practical Medicine*, under the head of 'General Convulsions,' 'The abnormal contraction of the muscles is in some cases of the most violent and spastic nature, and frequently of some continuance, the relaxations being of brief duration or scarcely observable, and in others nearly or altogether approaching to tetanic?'"

Answer.—"I would rather speak from my own observation. I have not observed anything of the kind."

Question.—"Does it not happen that a patient dies of convulsions, spasmodic in the sense of their being tumultuous and alternating, and chronic in the sense of exhibiting continuous rigidity, yet after death no disease is found?"

Answer.—"It does not often happen to adults."

Question.—"Does it sometimes?"

Answer.—"I do not know, nor have I read of such a case. I have no hesitation in saying that people may die from *tetanus* and other diseases without the appearance of morbid symptoms after death."

Question.—"Are not convulsions, not, strictly speaking, tetanic, constantly preceded by retching, distention of the stomach, flatulence of the stomach and bowels, and other dyspeptic symptoms?"

Answer.—"Such cases do not come under my observation as a hospital surgeon. I think it is very probable that general convulsions are accompanied by yelling. I don't know that they frequently terminate fatally, and that the proximate cause of death is spasm of the respiratory muscles, inducing asphyxia."

Re-examined by the Attorney-General.—"These convulsions are easily distinguished from tetanus, because in them there is an entire loss of consciousness."

Question.—"Is it one of the characteristic features of *tetanus* that the consciousness is not affected?"

Answer.—"It is."

Dr. Todd, for twenty-one years physician to King's College Hospital, well known for his lectures on *Tetanus* and the diseases of the Nervous System, and who had seen only two cases of what appeared to him to be *idiopathic tetanus*, so rare are they in this country, gave the following evidence:[39]—

> "In my opinion the term *tetanus* ought not to be applied to disease produced by poisons, but I should call the symptoms tetanic in order to distinguish the character of the convulsions. I have observed cases of *traumatic tetanus*. Except that in all such cases there is some lesion the symptoms are precisely the same as those of *idiopathic tetanus*. The disease begins with stiffness about the jaw. The symptoms gradually develope themselves and extend to the muscles of the trunk."
>
> *Question.*—"When the disease has begun is there any intermission?"
>
> *Answer.*—"There are remissions, but they are not complete; only diminutions of the severity of the symptoms, not a total subsidence. The patient does not express himself as completely well, quite comfortable. I speak from my own experience."
>
> *Question.*—"What is the usual period that elapses between the commencement and the termination of the disease?"
>
> *Answer.*—"The cases may be divided into two classes. Acute cases will terminate in three or four days, chronic cases will go on as long as from nineteen to twenty-two or twenty-three days, and perhaps longer. I do not think that I have known a case in which death occurred within four days. Cases are reported in which it occurred in a shorter period. In *tetanus* the extremities are affected, but not so much as the trunk. Their affection is a late symptom. *The locking of the jaw is an early one.* Sometimes the convulsions of epilepsy assume somewhat of a tetanic character, but they are essentially distinct from tetanus. *In epilepsy the patient always loses*

consciousness. Apoplexy never produces tetanic convulsions. Perhaps I may be allowed to say that when there is an effusion of blood upon the brain, and a particular portion of the brain is involved, the muscles may be thrown into short tetanic convulsions. In such a case the consciousness would be destroyed. Having heard described the symptoms attending the death of the deceased, and the *post-mortem* examination, *I am of opinion that in this case there was neither apoplexy nor epilepsy*."

The deposition of Dr. Bamford, before reported, was here read, his inability to attend from illness having been proved.

The *examination* of Dr. Todd by the *Attorney-General* was then proceeded with as follows:—

"Having heard the deposition of Dr. Bamford read, *I do not believe that the deceased died from apoplexy or from epilepsy. I never knew tetanus arise either from syphilitic sores or from sore throat.* There are poisons which will produce tetanic convulsions. The principal of these poisons are nux vomica and those which contain as their active ingredients strychnia and brucia. I have never seen human life destroyed by strychnia, but I have seen animals destroyed by it frequently. The poison is usually given in a largish dose in those cases, so as to put an end to the sufferings and destroy life as soon as possible. I should not like to give a human subject a quarter of a grain. I think that it is not unlikely that half a grain might destroy life; and I believe that a grain certainly would. I think that half a grain would kill a cat. The symptoms which would ensue upon the administration of strychnine when given in solution—and I believe that poisons of that nature act more rapidly in a state of solution than in any other form—would develope themselves in ten minutes after it was taken, if the dose was a large one; if not so large, they might be half an hour or an hour before they appeared. *Those symptoms would be tetanic convulsions of the muscles—more especially those of the spine and neck; the head and back would be bent back, and the trunk would be bowed in a marked manner; the extremities also would be stiffened and jerked out. The stiffness,*

once set in, would never entirely disappear; but fresh paroxysms would set in, and the jerking would reappear, and death would probably ensue in a quarter of an hour or so. The difference between tetanus produced by strychnia and other tetanus is very marked. In the former case the duration of the symptoms is very short, and instead of being continuous in their development, they will subside if the dose has not been strong enough to produce death, and will be renewed in fresh paroxysms: whereas in other descriptions of tetanus the symptoms commence in a mild form, and become stronger and more violent as the disease progresses. The difficulty experienced in breathing is common alike to *tetanus* properly so called, and to tetanic convulsions occasioned by strychnia, arising from the pressure on the respiratory muscles. I think it is remarkable that the deceased was able to swallow, and that there was no fixing of the jaw, which would have been the case with *tetanus* proper, resulting either from a wound or from disease. *From all the evidence that I have heard, I think that the symptoms which presented themselves in the case of Mr. Cook arose from tetanus produced by strychnia.*"

Cross-examined by Mr. Grove, Q.C.—"There are cases sloping into each other, as it were, of every grade and degree, from mild convulsions to tetanic spasms. I have published some lectures upon diseases of the brain, and I adhere to the opinion there expressed, that the state of a person suffering from *tetanus* is identical with that which strychnia is capable of producing. *In a pathological point of view, an examination of the spinal cord shortly after death, in investigating supposed deaths from strychnia, is important. The signs of decomposition, however, could be easily distinguished from the evidence of disease which existed previously to death, but it would be difficult to distinguish in such a case whether mere softening resulted from decomposition or from pre-existing disease.* There is nothing in the *post-mortem* examination that leads me to think that the deceased died from *tetanus* proper. *I think that granules upon the spinal cord, such as I have heard described, would not be likely to cause tetanus.* In animals to which strychnia

has been administered I cannot say that I have observed what you call an intolerance of touch, but by touching them spasms are apt to be excited. That sensibility to touch continues as long as the operation of the poison continues. I have examined the interior of animals that have been killed by strychnia, but I have not observed in such cases that the right side of the heart was usually full of blood. It is some years since I made such an examination, but I am able, nevertheless, to speak positively as to the state of the heart. *It is usually empty on both sides.* I do not agree with Dr. Taylor, or other authorities, that, in cases of *tetanus*, animals died asphyxiated. If they did, we should invariably have the right side of the heart full of blood, which is not the case. I think the term asphyxiated is sometimes very loosely used. I know, from my reading, *that morphia sometimes produces convulsions, but believe they would be of an epileptic character. I think that the symptoms of morphia would be longer deferred in making their appearance than from strychnia*, but cannot speak positively on the point. Morphia, like strychnia, is a vegetable poison. I have not observed in animals the jaw fixed after the administration of strychnia."

Re-examined by the Attorney-General.—"Whatever may be the true theory as to the emptiness of the heart after strychnia, I should say that the heart is more ordinarily empty than filled after *tetanus*, and more contracted after strychnia, than in ordinary *tetanus*. I do not believe that a medical practitioner would have any difficulty in distinguishing between ordinary convulsions and tetanic convulsions. I have heard the evidence of the gentlemen who made the *post-mortem* examination, and I apprehend that there was nothing to prevent the discovery of disease in the spinal cord had any existed previously to death."

Sir Benjamin Brodie's evidence, which follows, was given "with great clearness, slowly, audibly, and distinctly," and produced a marked effect.

Sir Benjamin Brodie, examined by Mr. James, Q.C.—"I have been for many years senior surgeon to St. George's Hospital, and have had considerable experience as a surgeon. In the course of my practice I have had under my care many cases of death from *tetanus*. Death from *idiopathic tetanus* is, according to my experience, very rare in this country. The ordinary *tetanus* in this country is *traumatic tetanus*. I have heard the symptoms which accompanied the death of Mr. Cook, and I am of opinion that so far as there was a general contraction of the muscles they resembled those of *traumatic tetanus*; but, as to the course those symptoms took, they were entirely different. I have attended to the detailed description of the attack suffered by Mr. Cook on the Monday night, its ceasing on Tuesday, and its renewal on the Tuesday night. The symptoms of *traumatic tetanus* always begin, so far as I have seen, very gradually, the stiffness of the lower jaw being, I believe, invariably, the symptom first complained of—at least, so it has been in my experience. The contraction of the muscles of the back is always a later symptom—generally much later. The muscles of the extremities are affected in a much less degree than those of the neck and trunk, except in some cases where the injury has been in a limb, and an early symptom has been spasmodic contraction of the muscles of that limb. I do not myself recollect a case of ordinary *tetanus* in which occurred that contraction in the muscles of the hand which I understand was stated to have taken place in this instance. Again, ordinary *tetanus* rarely runs its course in less than two or three days, and often is protracted to a much longer period. I knew one case only in which the disease was said to have terminated in so short a time as twelve hours; but probably in that case the early symptoms had been overlooked. Again, I never knew the symptoms of ordinary *tetanus* to last for a few minutes, then subside, and then come on again after twenty-four hours. I think that these are the principal points of difference which I perceived between the symptoms of ordinary *tetanus* and those which I have heard described in this case. I have not witnessed tetanic convulsions from strychnia on animal life. I do not believe that death in the case of Mr. Cook arose from what we ordinarily call

tetanus—either idiopathic or traumatic. I never knew tetanus result from sore throat or from a chancre, or from any other form of syphilitic disease. The symptoms were not the result either of apoplexy or of epilepsy. Perhaps I had better say at once that I never saw a case in which the symptoms that I have heard described here rose from any disease. (Sensation.) *When I say that, of course I refer not to particular symptoms, but to the general course which the symptoms took.*"

Cross-examined by Mr. Serjeant Shee.—"I believe I remember one case in the physician's ward of St. George's Hospital, which was shown to me as a case of *idiopathic tetanus*, but I doubted whether it was *tetanus* at all. It was a slight case, and I do not remember the particulars."

Question.—"Considering how rare cases of *tetanus* are, do you think that the description given by a chambermaid and a provincial medical man, who had never seen but one case, is sufficient to enable you to form an opinion as to the nature of the case?"

Answer.—"I must say I thought that the description was very clearly given."

Question.—"Supposing that they differed in their description, which would you rely upon—the medical man or the chambermaid?"

Lord Campbell.—"That is hardly a proper question."

Baron Alderson.—"It may be a very proper observation for you to make."

Cross-examination continued.—"I never knew syphilitic poison produce tetanic convulsions, except in cases where there was disease of the bones of the head."

Two other surgeons, *Dr. Daniell*, late surgeon to the British Hospital, and *Mr. Samuel Solly*, of St. Thomas's Hospital, confirmed in every respect the views of the previous medical witnesses, that the circumstances attending Cook's death were clearly distinguishable from those attendant on ordinary *tetanus*.

They relied on the fact that ordinary *tetanus* was always progressive, and that it is never intermittent to the extent witnessed in Cook's case, and seldom endured less than from thirty to forty hours. Mr. Solly alluded to the peculiar grin—"the *risus Sardonicus*, as the first symptom of *true tetanus*, which is not common to all convulsions, and which having once seen," he said, "you cannot forget." He distinguished between *tetanus* with convulsions and death from epileptic convulsions by the fact that "the first seldom leaves any trace behind it, whilst the latter does leave its trace in the shape of a slight effusion of blood on the brain, and a congestion of the vessels." The syphilitic theory was finally overthrown by the testimony of *Mr. Henry Lee*, surgeon to the Lock Hospital, which is exclusively devoted to syphilitic cases. Though he saw there nearly 3000 cases a year, he had never known one resulting in *tetanus*, or read of a case of primary or secondary symptoms having that result.

In addition to these experts, on the sixth day important evidence was given by *Dr. Jackson*, who had had twenty-five years' experience of *tetanus* in India, on the difference of the symptoms observed in the *idiopathic* and *traumatic* kinds; the former being much more frequent in India than in other climates, affording him in his practice as many as forty cases.

> "It is as equally fatal," said Dr. Jackson, "according to my experience, as *traumatic*. It is frequently found, in India, in children, both natives and Europeans, and generally takes place the third day after birth. It will also be occasioned by cold in that climate. In infants there is a more marked symptom of lockjaw in *idiopathic tetanus*. In adults there is no difference in the symptoms from *traumatic*. I have always seen the *idiopathic* form preceded by premonitory symptoms, such as a peculiar expression of the countenance, stiffness of the muscles of the throat and of the jaw. The usual period from the attack to death in infants is forty-eight

hours; in adults, when arising from cold, it is of longer duration, and may continue for many days, going through the same grades as the *traumatic* forms."

Cross-examined by Mr. Serjeant Shee.—"The patient always appears to be very uncomfortable shortly before an attack of *idiopathic tetanus*. His appetite would not be affected, but he would chiefly complain of the muscles of the neck. He might entertain a desire for food, and take it as usual within twelve hours of the attack. I never heard a patient complain of want of appetite. Within the twelve hours I should say that the patient's attention would be more directed to the stiffness of his mouth and neck. I have known cases of *idiopathic tetanus*, where the first paroxysm was in bed. Difficulty of swallowing is another premonitory symptom."

Re-examined by the Attorney-General.—"In the case of a child not more than six hours would elapse between the premonitory symptoms and the tetanic convulsions; in an adult the period would not be greater than twenty-four hours. The duration of the disease generally varies from three to ten days, but death has occurred as early as two days. The *traumatic* and *idiopathic* cases are alike in these respects. Both forms of the disorder are much more common in India than they are in this country. The symptoms are not more severe. *In all my experience I never saw a case in which the disease ran its course in twenty minutes.*"

LATE EXAMPLES OF DEATH BY STRYCHNIA.

Four cases of undoubted poisoning by strychnia were brought forward by the prosecution, in each of which the symptoms had been observed by medical men, as well as by the attendants on the several patients. In the *first* case, that of Agnes Sennett, or French, a patient in the Glasgow Infirmary, in September, 1845, for a sore skin, from thoughtlessness apparently, she took one of two strychnia pills prepared for a paralytic patient, and then went and sat by the ward fire. "In three quarters of an hour," said *Kelly*,

another patient, “she was taken ill and fell back on the floor. I went for the nurse; we took her to bed, and sent for the doctor; we were obliged to cut her clothes off first because she never moved. She was like a poker. She never spoke till she died.” Each pill, according to the prescription, contained a quarter of a grain of strychnia. When the medical clerk of the hospital saw her in bed, the symptoms were—

> “*A strong retraction of the mouth; the face much suffused and red; the pupils of the eyes dilated; the head bent back; the spine curved, and the muscles rigid and hard as a board; the arms stretched out; the hands clinched; and there were severe paroxysms occurring in about a quarter of an hour. She died in about an hour and a quarter.* When I was called the paroxysms did not last so long; but they increased in severity.” “*The retraction of the mouth was continuous, but worse at times.* I do not think I observed it after death. *The hands were not clinched after death; they were semi-bent.* The symptoms appeared about thirty minutes after taking the pills. I tried to make her vomit with a feather. She only vomited partially after I had given her an emetic. *There was spasmodic action and grinding of the teeth. She could open her mouth and swallow. There was no lockjaw or ordinary tetanus*.”[40]

Dr. Watson, the surgeon to the infirmary, who was called in within a quarter of an hour of the patient being taken ill, said, “*She was in violent convulsions, and her arms stretched out and rigid; they were kept quiet by rigidity. She did not breathe, the muscles being kept still by tetanic rigidity.* That paroxysm subsided, and fresh ones came on after a short interval. She died in about half an hour. She was perfectly conscious. Her body was opened. *The heart was found distended and stiff. The cavities of it were empty.* The spinal cord was healthy.”

The *second* case, also of accidental poisoning, by the error of a local chemist, who substituted strychnia for salicine (willow bark), of which there ought to have been nine grains in the bottle of medicine, was that of a Mrs. Sergeantson Smyth, residing near Romsey. On the 30th of October, 1848, she took half a wine-glass of the mixture, equal to a third of the whole, containing three grains of strychnia. The effect was of course immediate. The symptoms were identical with Cook's.

> "I left the room," said *Hickson*, the lady's maid, "when I had given it her. Five or ten minutes afterwards I was alarmed by the ringing of her bell. I went into her room and found her out of bed leaning upon a chair in her night-dress. I thought she had fainted. She appeared to suffer from what I thought were spasms. I ran and sent the coachman for Dr. Taylor, and returned to her. Some of the other servants were there assisting her. *She was lying on the floor. She screamed loudly, and her teeth were clinched. She asked to have her arms and legs held straight. I took hold of them; they were very much drawn up. She still screamed and was in great agony. She requested that water should be thrown over her, and I threw some. I put a bottle of hot water to her feet, but it did not relax them. Shortly before she died she said she felt easier. The last words she uttered were, 'Turn me over.' She died very quietly. She was quite conscious, and knew me during the whole time. About an hour and a quarter after I gave her the medicine she died.*"
>
> *Cross-examined by Mr. Grove, Q.C.*—"She could not sit up from the time I went to her till she died. It was when she was in a paroxysm that I tried to straighten her limbs. The effect of the cold water was to throw her into a paroxysm. It was a continually recurring attack, lasting about an hour and a quarter. Her teeth were clinched the whole time."
>
> *Re-examined.*—"She was stiff all the time till within a few minutes of her death. She was conscious all the time."

Mr. Francis Taylor, of Romsey, found her dead on his arrival. "Her body was on the floor by the bed; *the hands very much bent; the feet contracted and turned inwards; the soles of the feet hollowed up and the toes contracted, apparently from recent spasmodic action; the inner edge of each foot was turned; there was a remarkable rigidity about the limbs; the body was warm, and the eyelids almost adherent to the eyeballs*." Three days afterwards the witness made a *post-mortem* examination, with the following results:—

> "The contraction of the feet continued, but it had gone off somewhat from the rest of the body. I found no disease in the body. *The heart was contracted, and perfectly empty*, as were all the large arteries leading from it. I analysed the medicine she had taken with another medical man. It contained a large quantity of strychnia. It had originally contained nine grains; she had taken a third—three grains. I made a very casual examination of the stomach and bowels, as we had plenty of proof that poison had been taken, without the use of tests."
>
> *Cross-examined by Mr. Serjeant Shee.*—"In cases of death from ordinary causes the body is much distorted. It does not generally remain in the same position. If the body is not laid out immediately, probably it is stiffened by the *rigor mortis*. The ankles were tied by a bandage to keep them together. I commenced to open the body by the thorax and abdomen. The head also was opened."

The *third* case was that of a Mr. Clutterbuck, a gentleman suffering from paralysis, on whom, with *Dr. Chambers*, *Mr. E. D. Moore*, who detailed the case, had attended some fifteen years before.

> "We had been giving him," said the witness, "small doses of strychnia, when he went to Brighton. On his return he told us he had taken larger doses of it, and we in consequence gave him a stronger

dose. I made up three draughts of a quarter of a grain each. He took one in my presence. I remained with him a little time, and he said he felt quite comfortable. About three quarters of an hour afterwards I was summoned to him. *I found him stiffened in every limb, and the head drawn back. He was desirous we should move him, and turn him and rub him.* We tried to give him ammonia in a spoon, *and he snapped at it*. He was suffering, I should say, more than three hours. Sedatives were given to him. He survived the attack. *He was conscious all the time.*"

Cross-examined by Mr. Serjeant Shee.—"The spasms ceased in about three hours, but the rigidity of the muscles remained till the next day. His hands were at first drawn back, and he was much easier when we got them round clinched together. His paralysis was better after the attack."

Re-examined by the Attorney-General.—"Strychnia stimulates the nerves which act upon the voluntary muscles, and therefore acts beneficially in cases of paralysis."

The *fourth* case of poisoning by strychnia, though at this time given anonymously, as it had not as yet been brought to a public trial, was that of Mrs. Dove, of Leeds, more fully related in the next report. In this case, *Mrs. Witham*, who had been in attendance on the deceased, described how, after taking the medicine given to her, "*She complained first of her back; her head was thrown back; her body stretched out; that she twitched, her eyes were drawn aside, staring, and that when the witness put her hands on the patient's limbs they did not relax.*" In this case the illness commenced on the 25th of February; attacks came on the 27th, 28th, and 29th (the last a very slight one), and then again, about a quarter past eight, on the 1st of March, and the person died about twenty minutes to eleven on that night. "She principally complained of prickings in the legs, twitchings in the muscles and in the hands, which she said she could compare to nothing else than a galvanic shock. Between the

attacks, she was composed. *She wished her husband to rub her legs and arms.* She was dead when the doctor came."

On *cross-examination*, the witness said that the sufferer "*could not bear to have her legs touched when the spasms were strong upon her. Her limbs were rigidly extended when she asked to be rubbed between the intervals of the spasms. Touching her then brought on the spasms. Her body was stiff immediately after death*," but how long it continued so the witness could not say, as she did not stay long. *She was sensible from half an hour to an hour*, from a quarter past eight till after nine, and the witness *supposed she was insensible the remainder of the time; she did not speak*. On the Saturday before she died the symptoms were the same as on the other days—not more violent."

Mr. Morley, the surgeon who had attended this case, and whose opinion as to the symptoms being identical with those in the present inquiry, was directly opposed by *Mr. Nunneley*, of Leeds, who had then assisted him in the *post-mortem* examination, not only detailed the symptoms he then saw, but also the method and results of his subsequent examination of the body.

> "I had attended," said Mr. Morley, "on the lady to whom the last witness has alluded for about two months before her death. On the Monday before she died she was in her bed, apparently comfortable, when I observed (as I stood by her side) *several slight convulsive twitchings of her arms*. I supposed they arose from hysteria, and ordered medicine in consequence. *The same symptoms appeared on the following Wednesday and Thursday.* I saw her on Saturday, the day she died. She was apparently better and quite composed in the middle of the day. She complained of an attack she had had at night. She spoke of pain and spasms in her back and neck, and of shocks. I and another medical man were sent for hastily on Saturday night. We were met by an announcement that the lady was dead. On the Monday I accompanied another medical gentleman (Nunneley) to

the *post-mortem* examination. We found no disease in any part of the body which would account for death. There was no emaciation, wound, or sore. *There was a peculiar expression of anxiety in the countenance. The hands were bent and the fingers curved. The feet were strongly arched.* We carefully examined the stomach and its contents for poison. We applied several tests—nitric acid, followed by protochloride of tin,[41] sulphuric acid, followed by bichromate of potash in a liquid and also in a solid state. They are the best tests to detect strychnia. In each case we found appearances characteristic of strychnia. We administered the strychnia taken from the stomach to animals by inoculation—to two mice, two rabbits, and a guinea-pig, having first separated it by chemical analysis. We observed in each of the animals more or less of the effects produced by strychnia, namely—*general uneasiness, difficult breathing, convulsions of a tetanic kind, muscular rigidity, arching backwards of the head and neck, violent stretching out of the legs.* These symptoms appeared in some of the animals in four or five minutes, in others in less than an hour. The guinea-pig suffered but slightly at first, and was left, and was dead next day. The symptoms were strongly marked in the rabbits. After death there was an interval of flaccidity, after which rigidity commenced, more than if it had been occasioned by the *rigor mortis*. I afterwards made numerous experiments on animals with exactly similar results, the poison being administered in a fluid form."

Cross-examined by Mr. Grove.—"I did not see the patient during a severe attack. I have observed in animals that spasms are brought on by touch. That is a very marked symptom. The spasm is like a galvanic shock. The patient was not at all insensible during the time I saw her, and she was able to swallow, but I did not see her during a severe attack. After death we found the lungs very much congested. There was a small quantity of bloody serum found in the pericardium. The muscles of the whole body were dark and soft. There was a decided quantity of effusion in the brain. There was also a quantity of serum tinged with blood in the membranes of the spinal cord. The membranes of the spinal marrow were congested to

a considerable extent. We opened the head first, and there was a good deal of blood flowing out. *Part of the blood may have flowed from the heart. That might partially empty the heart, and would make it uncertain whether the heart was full or empty at the time of death. I have often examined the hearts of animals poisoned by strychnia. The right side of the heart is generally full.* In some cases I think that the symptoms did not appear for an hour after the administration of the poison. I have made the experiments in conjunction with Mr. Nunneley. We have made experiments upon frogs, but they are different in many respects from warm-blooded animals. I have in almost all cases found the strychnia where it was known to have been administered. In one case it was doubtful. We were sure the strychnia had been administered in that case, but we doubted whether it had reached the stomach. There were appearances which might lead one to infer the presence of strychnia, but they were not satisfactory. I have detected strychnia in the stomach nearly two months after death, when decomposition has proceeded to a considerable extent."

Re-examined by the Attorney-General.—"From half a grain to a grain has been administered to cats, rabbits, and dogs. From one to two grains is quite sufficient to kill a dog."

Question.—"How does the strychnia act? Is it taken up by the absorbents, and carried into the system?"

Answer.—"I think it acts upon the nerves, but a part may be taken into the blood and act through the blood. We generally examined the stomach of the animals when the poison had been administered internally. Sometimes we examined the skin. The poison found in the stomach would be in excess of that absorbed into the system."

Question.—"Are you then of opinion that, a portion of the poison being taken into the system and a portion being left in the stomach, the portion taken into the system would produce tetanic symptoms and death?"

Mr. Serjeant Shee objected to a question which suggested a theory.

The Attorney-General.—"What would be the operation of that portion of the poison which is taken into the system?"

Answer.—"It would destroy life."

Mr. Baron Alderson.—"And yet leave an excess in the stomach?"

Answer.—"That is my opinion."

The Attorney-General.—"Would the excess remaining in the stomach produce no effect?"

Answer.—"I am not sure that strychnia could lie in the stomach without acting prejudicially."

Question.—"Suppose that a minimum quantity is administered, which, being absorbed into the system, destroys life, should you expect to find any in the stomach?"

Answer.—"I should expect sometimes to fail in discovering it."

Question.—"If death resulted from a series of minimum doses spread over several days, would the appearance of the body be different from that of one whose death had been caused by one dose?"

Answer.—"I should connect the appearance of the body with the final struggle of the last day."

Question.—"Would you expect a different set of phenomena in cases where death had taken place after a brief struggle, and in cases where the struggle had been protracted?"

Answer.—"Certainly. At the *post-mortem* examination of which I have spoken we found fluid blood in the veins."

Mr. Serjeant Shee.—"Is it your theory that in the action of poisoning the poison becomes absorbed and ceases to exist as poison?"

Answer.—"I have thought much upon that question, and have not formed a decided opinion, but I am inclined to think that it is so. A part may be absorbed and a part remain in the stomach unchanged."

Mr. Serjeant Shee.—"What chymical reason can you give for your opinion that strychnia, after having effected the operation of poisoning, ceases to be strychnia in the blood?"

Answer.—"My opinion rests upon the general principle that, in acting upon living bodies, organic substances—such as food and medicine—are generally changed in their composition."

Mr. Serjeant Shee.—"What are the component parts of strychnia?"

Mr. Baron Alderson.—"You will find that in any cyclopædia, brother Shee."

Mr. Serjeant Shee.—"Have you any reason to believe that strychnia can be decomposed by any sort of putrefying or fermenting process?"

Witness.—"I doubt whether it can."[42]

ANALYTICAL EVIDENCE.

On the fifth day, the late *Doctor Alfred Swaine Taylor*, the well-known Analytical Chemist and Author of "Medical Jurisprudence" (the text-book of the legal profession in all criminal investigations), *Doctor Owen Rees*, now one of the physicians extraordinary to her Majesty, and the late *Professor Brande*, of the Royal Institution, were called as witnesses. By the two first, the analytical examination of the various parts of Mr. Cook's body had been conducted, and they had made a joint report of the results. By the last, that report had been carefully examined, and he had also heard all the evidence as to symptoms previously given in the case. No inconsiderable portion of the *cross-examination* of Dr. Taylor was occupied by questions connected with the publication, in the *Illustrated Times*, by Mr. Augustus Mayhew, of what professed to be statements as to the details of their analysis by Dr. Taylor and Dr. Rees, in which, if correctly reported, the former had committed

himself somewhat prematurely to opinions on the case, and had used expressions towards the prisoner which, to say the least, were not discreet. Dr. Taylor, however, stoutly maintained that he had not used many of the expressions objected to; that the opportunity of interviewing him, after the American fashion, had been unfairly obtained, and the pretended report published not only without, but contrary to, his expressed wish. Except, however, as throwing a shade of partisanship over his conduct, and so far lessening the value of his evidence, the whole episode was useless to the defence —perhaps, to a certain extent, injurious. Dr. Taylor had been hasty and injudicious, and undoubtedly taken at an advantage by the energetic reporter, who certainly obtained his interview with him by pretences not strictly true.[43] With these remarks, due to Dr. Taylor's reputation and abilities, we proceed to give his evidence.

Dr. Alfred Swaine Taylor, examined by the Attorney-General. —"I am a fellow of the College of Physicians, lecturer on medical jurisprudence at Guy's Hospital, and the author of the well-known treatise on poisons and on medical jurisprudence. I have made the poison called strychnia the subject of my attention. It is the produce of the nux vomica, which also contains brucia, a poison of an analogous character. Brucia is variously estimated at from one-sixth to one-twelfth the strength of strychnia. Most varieties of impure strychnia that are sold contain more or less brucia. Unless, therefore, you are certain as to the purity of the article, you may be misled as to its strength. I have performed a variety of experiments with strychnia on animal life. I have never witnessed its action on a human subject. I have tried its effects upon animal life—upon rabbits—in ten or twelve instances. The symptoms are, on the whole, very uniform. The quantity I have given has varied from half a grain to two grains. Half a grain is sufficient to destroy a rabbit. I have given it both in a solid and liquid state. When given in a fluid state it produces its effects in a very few minutes; when in a solid state, as a sort of pill or bolus, in about six to eleven minutes. The

time varies according to the strength of the dose, and also to the strength of the animal."

Question.—"In what way does it operate, in your opinion?"

Answer.—"It is first absorbed into the blood, then circulated through the body, and especially acts on the spinal cord, from which proceed the nerves acting on the voluntary muscles."

Question.—"Supposing the poison has been absorbed, what time would you give for the circulating process?"

Answer.—"The circulation of the blood through the whole system is considered to take place about once in four minutes. The circulation in animals is quicker. The absorption of the poison by rabbits is therefore quicker. The time would also depend on the state of the stomach,—whether it contained much food or not, whether the poison came into immediate contact with the inner surface of the stomach."

Question.—"In your opinion, does the poison act immediately on the nervous system, or must it first be absorbed?"

Answer.—"It must first be absorbed."

Question.—"The symptoms, you say, are uniform. Will you describe them?"

Answer.—"The animal for about five or six minutes does not appear to suffer, but moves about gently; when the poison begins to act it suddenly falls on its side; there is a trembling, a quivering motion of the whole of the muscles of the body, arising from the poison producing violent and involuntary contraction. There is then a sudden paroxysm or fit, the fore legs and the hind legs are stretched out, the head and the tail are drawn back in the form of a bow, the jaws are spasmodically closed, the eyes are prominent; after a short time there is a slight remission of the symptoms, and the animal appears to lie quiet, but the slightest noise or touch reproduces another convulsive paroxysm; sometimes there is a scream, or a sort of shriek, as if the animal suffered from pain; the heart beats violently during the fit, and after a succession of these fits the animal dies quietly. Sometimes, however, the animal dies

during a spasm, and I only know that death has occurred from holding my hand over the heart. The appearances after death differ. In some instances the rigidity continues. In one case the muscles were so strongly contracted for a week afterwards, that it was possible to hold the body by its hind legs stretched out horizontally. In an animal killed the other day the body was flaccid at the time of death, but became rigid about five minutes afterwards. I have opened the bodies of animals thus destroyed."

Question.—"Could you detect any injury in the stomach?"

Answer.—"No. I have found in some cases congestion of the membranes of the spinal cord to a greater extent than would be accounted for by the gravitation of the blood. In other cases I have found no departure from the ordinary state of the spinal cord and the brain. I ascribe congestion to the succession of fits before death. In a majority of instances, three out of five, I found no change in the abnormal condition of the spine. In all cases the heart has been congested, especially the right side. I saw a case of ordinary tetanus in the human subject years ago, but I have not had much experience of such cases. I saw one case last Thursday week at St. Bartholomew's Hospital. The patient recovered."

Question.—"You have heard the description given by the witnesses of the symptoms and appearances which accompanied Cook's attacks?"

Answer.—"I have."

Question.—"Were those symptoms and appearances the same as those you have observed in the animals to which you administered strychnia?"

Answer.—"They were. Death has taken place in the animals more rapidly when the poison has been administered in a fluid than in a solid form. They have died at various periods after the administration of the poison. The experiments I have performed lately have been entirely in reference to solid strychnia. In the first case the symptoms began in seven minutes, and the animal died (including those seven) in thirteen minutes. In the second case the symptoms appeared in nine minutes, and the animal died in

seventeen. In the third case the symptoms appeared in ten minutes, and the animal died in eighteen. In the fourth case the symptoms appeared in five minutes, and death took place in twenty-two. In the fifth case the symptoms appeared in twelve minutes, and death occurred in twenty-three. If the poison were taken by the human subject in pills it would take a longer time to act, because the structure of the pill must be broken up in order to bring the poison in contact with the mucous membrane of the stomach. I have administered it to rabbits in pills."

Question.—"Would poison given in pills take a longer period to operate on a human subject than on a rabbit?"

Answer.—"I do not think we can draw any inference from a comparison of the rapidity of death in a human subject and in a rabbit. The circulation and absorption are different in the two cases. There is also a difference between one human subject and another. The strength of the dose, too, would make a difference, as a large dose would produce a more rapid effect than a small one. I have experimented upon the intestines of animals, in order to reproduce the strychnia. The process consists in putting the stomach and its contents in alcohol, with a small quantity of acid which dissolves the strychnia, and produces sulphate of strychnia in the stomach. The liquid is then filtered, gently evaporated, and an alkali added—carbonate of potash, which combines with the sulphuric acid, and precipitates the strychnia. Tests are applied to the strychnia, or supposed strychnia, when extracted. Strychnia has a peculiar strongly bitter taste. It is not soluble in water, but it is in acids and in alcohol. The colour tests are applied to the dry residue after evaporation. Change of colour is produced by a mixture of sulphuric acid and bichromate of potash. It produces a blue colour, changing to violet and purple, and passing to red; but colouring tests are very fallacious, with this exception,—when we have strychnia separated in its crystallised state we can recognise the crystals by their form and their chemical properties, and, above all, by the tetanic symptoms and death when administered through a wound in the skin of animals."[44]

Question.—"Are there other vegetable substances from which, if these colouring tests were applied, similar colours could be obtained?"

Answer.—"There are a variety of mixtures which produce similar colours;[45] one of them also has a bitter taste like strychnine.[46] Vegetable poisons are more difficult of detection than mineral: the tests are far more fallacious. I have endeavoured to discover the presence of strychnine in animals I have poisoned in four cases, assisted by Dr. Rees. I have applied the process I first described. I have applied the tests of colouring and taste. In one case I discovered some by the colour test. In a second case there was a bitter taste, but no other indication of strychnine. In the other two cases there were no indications at all. In the case where it had been discovered by the colour test, two grains had been administered; and in the second case, where there was a bitter taste, one grain. In one of the cases where we failed to detect it, one grain, and, in the other, half a grain had been given. I account for the absence of any indication, *because it is absorbed in the blood, and is no longer in the stomach. It is in a great part changed in the blood.* When administered in large doses there is a retention of some in excess of what is required for the destruction of life."

Question.—"Supposing a minimum dose, which will destroy life, has been given, could you find any?"

Answer.—"No. It is taken up by absorption, and is no longer discoverable in the stomach. The smallest quantity by which I have destroyed an animal is half a grain. *There is no process with which I am acquainted by which it can be discovered in the tissue.*[47] As far as I know, a small quantity cannot be discovered."

Question.—"Suppose half a grain to be absorbed into the blood, what proportion does it bear to the total quantity of blood circulated in the system?"

Answer.—"Assuming the system to contain the lowest quantity of blood—25lb.—it would be one-fiftieth of a grain to a pound of blood. A physician once died from a dose of half a grain in twenty

minutes. *I believe it undergoes some partial change in the blood which increases the difficulty of discovering it. I never heard of its being separated from the tissues in a crystallised state.* The crystals are peculiar in form, but there are other organic crystallised substances like them, so that a chemist will not rely on form only. After the *post-mortem* examination, a portion of the stomach was delivered to me by Mr. Boycott, covered with bladder, tied and sealed. The jar contained the stomach and the intestines. I have experimented upon them with a view to discover if any poison was present. I sought for prussic acid, morphia, strychnia, veratria, tobacco poison, hemlock, arsenic, antimony, mercury, and other mineral poisons, but only found small traces of antimony. *The parts on which I had to operate were in the most unfavourable condition that could possibly be. The stomach had been cut completely from end to end; all the contents were gone, and the fine mucous surface, on which any poison, if present, would have been found, was lying in contact with the outside of the intestines—all thrown together. The inside of the stomach was lying in a mass of intestinal fœcal matter.* That was, I presume, the fault or misfortune of the person who dissected, but it seemed to have been shaken about in every possible way in its journey to London.[48] By my request the spleen, two kidneys, and a small bottle of blood, were sent up to me. We had no idea where the blood came from. *Each part of the liver, one kidney, and the spleen, all yielded antimony.* It was reproduced, or brought out by boiling the animal matter in a mixture of hydrochloric acid and water. Copper, in the shape of foil and gauze in a sort of web of fine copper, was introduced, and the antimony was found deposited on the copper. *The quantity of antimony was less in proportion in the spleen than in the other parts. I detected some antimony in the blood.* We applied the tests of Professor Brande, Dr. Rees, and others. *It is impossible to say how recently it had been administered, but I should say shortly before death, that is, within some days.* The longest period at which antimony can be found in the blood after death, within my knowledge, is eight days; the earliest period, within my knowledge, eighteen hours. A boy

died within eighteen hours after taking it, and it was found in his liver. It is usually given in the form of tartar emetic; it acts as an irritant, and produces vomiting. If given in repeated doses, a portion would find its way into the blood and the system, beyond what was ejected. If it continued to be given after it had produced certain symptoms, it would destroy life. It may, however, be given with impunity."

Referring to the symptoms previously proved in Cook's case, the witness said—

"Vomitings produced by antimony would cause those symptoms. If given in small quantities, sufficient to cause vomiting, it would not affect the colour of the liquid with which it was mixed, whether brandy, wine, broth, or water. *It is impossible to form an exact judgment when the antimony was administered, but it must have been two or three weeks at the outside before death. There was no evidence that it was administered within some hours before death.* It might leave a sensation in the throat—a choking sensation—if a large quantity was given at once. *I found no trace of mercury during the analysis. If a few grains had been taken recently before death, I should have expected to find some trace. If a man had taken mercury for a syphilitic affection within two or three weeks, I should have expected to find it.* It is very slow in passing out of the body. As small a quantity as three or four grains might leave some trace. I recollect a case in which three grains of calomel were given three or four hours before death, and traces of mercury were found. Half a grain three or four days before death, if given in divided doses more favourable for absorption, would, I should expect, leave a trace. One grain would certainly do so." The witness agreed with the opinion of the other witnesses as to the causes of the deaths of Mrs. Smyth, Agnes French, and the other lady (Mrs. Dove), and of the attack of Clutterbuck, and that the symptoms in Mr. Cook's case appeared to be of a similar character. As a professor of medical science, he did

not know any cause in the range of human disease, except strychnia, to which the symptoms in Cook's case could be referred.

The *cross-examination* of *Dr. Taylor* was necessarily very diffuse and lengthy; with the exception, however, of the part in which it was sought to raise a prejudice against the witness as a partisan, to which I have previously referred, it was so important that, like the *examination* in chief, it must, in justice to all parties, be reported at length.

Cross-examined by Mr. Serjeant Shee.—"I mean by the word 'trace' a very small quantity, which can hardly be estimated by weight. I do not apply it in the sense of an imponderable quantity. In chemical language it is frequently used in that sense. An infinitesimal quantity would be called 'a trace.' *The quantity of antimony that we discovered in all parts of the body would make up about half a grain. We did not ascertain that there was that quantity, but I will undertake to say that we extracted as much as half a grain. That quantity would not be sufficient to cause death.* Only arsenic or antimony could have been deposited, under the circumstances, on the copper, and no sublimate of arsenic was obtained." [The witness, in reply to a further question, detailed the elaborate test which he had applied to the deposit, in order to ascertain that it consisted of antimony.]

Question.—"Would a mistake in any one of the processes you have described, or a defect in any of the materials you have used, defeat the object of the test?"

Answer.—"It would, but all the materials I used were pure. Such an accident could not have happened without my having some intimation of it in the course of the process. I should think antimony would operate more quickly upon animals than upon men. I am acquainted with the works of Orfila. He stood in the highest rank of analytical chemists."

Question.—"Did not Orfila find antimony in a dog four months after injection?"

Answer.—"Yes; but the animal had taken about forty-five grains."

Mr. Serjeant Shee called the attention of the witness to a passage in Orfila's work in reference to that case, to the effect that the antimony was found accumulating in the bones, the liver contained a great deal, and the tissues a very little.

Witness.—"Yes; when antimony has been long in the body it passes into the bones; but I think you will find that these are not Orfila's experiments. Orfila is quoting the experiments of another person."[49]

Question.—"But is not that the case with nearly all the experiments referred to in your own book?"

Answer.—"No; I cannot say that."

Mr. Serjeant Shee again referred to a case in Orfila in which forty-five grains were given to a dog, and three and a half months after death a quantity was found in the fat, and some in the liver, bones, and tissues.

Witness.—"That shows that antimony gets into the bones and flesh, but I never knew a case in which forty-five grains had been given to a human being in ten days, and I have given no opinion upon such a case."

Question.—"A pretty good dose is required to poison a person, I suppose?"

Answer.—"That depends on the mode in which it is given. A dog has been poisoned with six grains. The dog died in the case you mentioned. When antimony is administered as it was in that case the liver becomes fatty and gristled. Cook's liver presented no appearance of the sort. *I should infer that the antimony we found in Cook's body was given much more recently than in the experiments you have described. We cannot say positively how long it takes to get out of the body, but I have known three grains cleared out in twenty-four hours.* I was first applied to in this case on Thursday, the

27th of November, by Mr. Stevens, who was introduced to me by Mr. Warrington, professor of chemistry. Either then or subsequently he mentioned Mr. Gardner. I had not known Mr. Gardner before. I had never before been concerned in cases of this kind at Rugeley."

Mr. Serjeant Shee read the letter written by Dr. Taylor to Mr. Gardner:

"CHEMICAL LABORATORY, GUY'S HOSPITAL,

"*Dec. 4, 1855*.

"*Re* J. P. Cook, Esq., *deceased*.

"DEAR SIR,—Dr. Rees and I have completed the analysis to-day. We have sketched a report, which will be ready to-morrow or next day.

"As I am going to Durham Assizes on the part of the Crown, in the case of *Reg.* v. *Wooler*, the report will be in the hands of Dr. Rees, No. 26, Albemarle-street. It will be most desirable that Mr. Stevens should call on Dr. Rees, read the report with him, and put such questions as may occur.

"In reply to your letter received here this morning I beg to say that we wish a statement of all the medicines prescribed for deceased (until his death) to be drawn up and sent to Dr. Rees.

"We do not find strychnine, prussic acid, or any trace of opium. From the contents having been drained away it is now impossible to say whether any strychnine had or had not been given just before death, but it is quite possible for tartar emetic to destroy life if given in repeated doses; and, so far as we can at present form an opinion, in the absence of any natural cause of death, the deceased may have died from the effects of antimony in this or some other form.

"We are, dear Sir, yours faithfully,

"ALFRED S. TAYLOR.

"G. OWEN REES."

Question.—"Was that your opinion at the time?"

Answer.—"It was. We could infer nothing else."

Question.—"Have you not said that the quantity of antimony you found was not sufficient to account for death?"

Answer.—"Certainly. If a man takes antimony he first vomits, and then a part of the antimony goes out of the body; some may escape from the bowels. A great deal passes at once into the blood by absorption, and is carried out by the urine."

Question.—"Can you say upon your oath that from the traces in Cook's body you were justified in stating your opinion that death was caused by antimony?"

Answer.—"Yes; perfectly and distinctly. *That which is found in a dead body is not the slightest criterion as to what the man took when alive.*"

Question.—"When you gave your opinion that Cook died from the effects of antimony, had you any reason to think that an undue quantity had been administered?"

Answer.—"I could not tell. People may die from large or small quantities; the quantity found in the body was no criterion as to how much he had taken."

Question.—"May not the injudicious use of a quack medicine containing antimony, the injudicious use of James's powders, account for the antimony you found in the body?"

Answer.—"Yes; the injudicious use of any antimonial medicine would account for it."

Question.—"Or even their judicious use?"

Answer.—"It might."

Question.—"With that knowledge, upon being consulted with regard to Cook, you gave it as your opinion that he died from the poison of antimony?"

Answer.—"You pervert my meaning entirely. I said that antimony in the form of tartar emetic might occasion vomiting and other symptoms of irritation, and that in large doses it would cause death, preceded by convulsions." [The witness was proceeding to read his report upon the case, but was stopped by the Court.] "I was

told that the deceased was in good health seven or eight days before his death, and that he had been taken very sick and ill, and had died in convulsions. No further particulars being given us, we were left to suppose that he had not died a natural death. There was no natural cause to account for death; and finding antimony existing throughout the body, we thought it might have been caused by antimony. An analysis cannot be made effectually without information."

Question.—"You think it necessary before you can rely upon an analysis to have received a long statement of the symptoms before death?"

Answer.—"A short statement will do."

Question.—"You allow your judgment to be influenced by the statement of a person who knows nothing of his own knowledge?"

Answer.—"I do not allow my judgment to be influenced in any way; I judge by the result."

Question.—"Do you mean to say that what Mr. Stevens told you did not assist you in arriving at the conclusion you state in writing?"

Answer.—"I stated it as a possible case—not as a certainty. If we had found a large quantity of tartar emetic in the stomach we should have come to the conclusion that the man died from it. As we found only a small quantity, we said he might have died from it. I attended the coroner's inquest, first, I think, on December 14. Some of the evidence was read over to me. I think that Dr. Harland was the first witness I heard examined. I heard Mr. Bamford, and also Lavinia Barnes. I cannot say as to Newton. I heard Jones. I had experimented some years ago on five of the rabbits I have mentioned. That is the only knowledge of my own that I had of the effect of strychnia upon animal life when I wrote my book. I have a great objection to the sacrifice of life. No toxicologist will sacrifice the lives of one hundred rabbits to establish facts which he knows to be already well established. I experimented on the last rabbits since the inquest."

Question.—"Do you not think it rather rash to judge of the effects of strychnia on man by so small an experiment?"

Answer.—"You must add to the experiment the study of poisons and cases."

Question.—"Do you not think that a rabbit is a very unfair animal to select?"

Answer.—"No."

Question.—"Would not a dog be better?"

Answer.—"They are very dangerous to handle."

Question.—"Do you mean to give that answer?"

Answer.—"Dogs and cats bear a greater analogy to man because they vomit, while rabbits do not; but rabbits are much more manageable."

Question.—"Do you admit that as to the action of the respiratory organs they would be better than rabbits?"

Answer.—"I do not."

Question.—"As to the effect of poison would they not?"

Answer.—"I think a rabbit quite as good as any animal. The poison is retained, and its operation is shown. At the inquest I saw Mr. Gardner (the solicitor of Mr. Stevens). I suggested questions to the coroner. Some of them he put to the witnesses, and others they answered upon my suggesting them. Ten days before the inquest Mr. Gardner informed me in his letter that strychnia, Battley's solution, and prussic acid, had been purchased on Tuesday; that was why I used the expressions to which you have referred. We did not allow that information to have any influence on our report." [The witness's deposition before the coroner was then read.] "Having given my evidence, I returned to town, and soon afterwards heard that the prisoner had been committed on a charge of wilful murder."

Question.—"And that his life depended in a great degree on you?"

Answer.—"No. I simply gave an opinion as to the poison, not as to the prisoner's case. I knew I should probably be examined as a

witness on the trial."

Question.—"Do you think it your duty to abstain from all public discussion of the question which might influence the public mind."

Answer.—"Yes."

Question.—"Did you write a letter to the *Lancet*?"

Answer.—"Yes, to contradict several mis-statements of my evidence that had been made."

Letter to Lancet *of Feb. 2, 1856, read, in which Dr. Taylor said*:—"During the quarter of a century which I have now specially devoted to toxicological inquiries, I have never met with any cases like these suspected cases of poisoning at Rugeley. The mode in which they will affect the person accused is of minor importance compared with their probable influence on society. I have no hesitation in saying that the future security of life in this country will mainly depend on the judge, the jury, and the counsel who may have to dispose of the charges of murder which have arisen out of these investigations."[50]

Cross-examination continued.—"That is my opinion now. It had been stated that if strychnia caused death it could always be found, which I deny. It had also been circulated in every newspaper that a person could not be killed by tartar emetic, which I deny, and which might have led to the destruction of hundreds of lives. I entertained no prejudice against the prisoner. What I meant was that if these statements which I had seen in medical and other periodicals were to have their way there was not a life in the country which was safe."

Question.—"Do you adhere to your opinion that 'the mode in which they will affect the person accused,' that is, lead him to the scaffold, 'is of minor importance, compared with their probable influence on society'?"

Answer.—"I have never suggested that they should lead him to the scaffold. I hope that, if innocent, he will be acquitted."

Question.—"What do you mean by the mode in which they will affect the person accused being of minor importance?"

Answer.—"The lives of sixteen millions of people are, in my opinion, of greater importance than that of one man."

Question.—"That is your opinion?"

Answer.—"Yes. As you appear to put that as an objection to my evidence, allow me to state that in two dead bodies I find antimony. In one case death occurred suddenly, and in the other the body was saturated with antimony, which I never found before in the examination of three hundred bodies. I say these were circumstances which demanded explanation."

Question.—"You adhere to the opinion that, as a medical man and a member of an honourable profession, you were right in publishing this letter before the trial of the person accused?"

Answer.—"I think I had a right to state that opinion in answer to the comments which had been made upon my evidence."

Question.—"Had any comments been made by the prisoner?"

Answer.—"No."

Question.—"Or by any of his family?"

Answer.—"Mr. Smith, the solicitor for the defence, circulated in every paper statements of 'Dr. Taylor's inaccuracy.' I had no wish or motive to charge the prisoner with this crime. My duty concerns the lives of all."

I omit here the numerous questions about Mr. Mayhew's visit, and take up the *cross-examination* with the witness's opinion of Cook's symptoms.

"Cook's symptoms were quite in accordance with an ordinary case of poisoning by strychnia."

Question.—"Can you tell me any case in which a patient after being seized with tetanic symptoms sat up in bed and talked?"

Answer.—"It was after he sat up that Cook was seized with these symptoms."

Question.—"Can you refer to a case in which a patient who had taken strychnia beat the bed with his or her arms?"

Answer.—"It is exactly what I should expect to arise from a sense of suffocation."

Question.—"Do you know in your reading of any case in which the symptoms of poisoning by strychnia commenced with beating of the bed clothes?"

Answer.—"There have been only about fifteen cases, and in none of those was the patient seized in bed. Beating of the bed clothes is a symptom which may be exhibited by a person suffering from a sense of suffocation, whether caused by strychnia or other causes. A case has been communicated to me by a friend, in which the patient shook as though with an ague." [Answer objected to, but allowed as witness had been questioned as to the results of his reading.] "I have known of no case of poisoning by strychnia in which the patient screamed before he was seized. That is common in ordinary convulsions. In cases of poisoning by strychnia the patient screams when the spasms set in; the pain is very severe. I cannot refer to a case in which the patient has spoken freely after the paroxysms had commenced."

Question.—"Can you refer me to any case in an authentic publication in which the access of the strychnia paroxysm has been delayed so long after the injection of the poison as in the case of Cook on Tuesday night?"

Answer.—"Yes; longer. In my book on Medical Jurisprudence, p. 185, 5th Edition, it is stated that in a case communicated to the *Lancet*, Aug. 31, 1850, by Mr. Bennett, a grain and a half of strychnia taken by mistake destroyed the life of a healthy female in an hour and a half. None of the symptoms appeared for an hour. There is a case in which the period which elapsed was two hours and a half. A grain and a half is a full, but not a very considerable, dose. In my book on Poisons there is no case in which the paroxysm commenced more than an hour and a half after the injection of the poison. That book is eight years old, and since 1848 cases have occurred. There is a mention of one in which three hours elapsed before the paroxysms occurred."

Mr. Serjeant Shee then referred to the case, and called attention to the fact that the only statement as to time was that in three hours the patient lost his speech, and was seized with violent convulsions. [51]

Cross-examination continued.—"I know of no other fatal case in which the interval was so long. In that case there was disease of the brain. Referring to the *Lancet*, I find that in the case to which I referred, as communicated by Dr. Bennett, the strychnia was dissolved in cinnamon water. Being dissolved, one would have expected it to have a more speedy action. The time in which a patient would recover would depend entirely upon the dose of strychnia which had been taken. I do not remember any case in which a patient recovered in three or four hours, but such cases must have occurred. There is one mentioned in my book on Medical Jurisprudence. The patient had taken nux vomica, but its powers depend upon strychnia. In that case the violence of the paroxysms gradually subsided, and the next day, although feeble and exhausted, the patient was able to walk home. The time of the recovery is a point which is not usually stated by medical men. I cannot mention any case in which there was a repetition of the paroxysms after so long an interval as that from Monday to Tuesday night, which occurred in Cook's case. I do not think that the attack on Tuesday night was the result of anything which had been administered to him on the Monday night. In the cases of four out of five rabbits the rigidity was continued at the time of death and after death. In the other the animal was flaccid at the time of death."

Question.—"Are you acquainted with this opinion of Dr. Christison, that in these cases rigidity does not come on at the time of death, but comes on shortly afterwards?"

Answer.—"Dr. Christison speaks from his experience, and I from mine."

Question.—"Did you hear that Dr. Bamford said that when he arrived he found the body of Cook quite straight in bed?"

Answer.—"Yes."

Question.—"Can that have been a case of ophisthotonos?"

Answer.—"It may have been."

Question.—"Are not the colour tests of strychnia so uncertain and fallacious that they cannot be depended upon?"

Answer.—"Yes, unless you first get the strychnia in a visible and tangible form."

Question.—"Is it not impossible to get it so from the stomach?"

Answer.—"It is not impossible; it depends upon the quantity which remains there."

Question.—"You do not agree that the fiftieth part of a grain might be discovered?"

Answer.—"I think not."

Question.—"Nor even half a grain?"

Answer.—"That might be. It would depend upon the quantity of food in the stomach with which it was mixed."

Re-examined by the Attorney-General.—"In cases of death from strychnia the heart is sometimes found empty after death. That is the case of human subjects. There are three such cases on record. I think that emptiness results from spasmodic affection of the heart. I know of no reason why that should rather occur in the case of man than in that of a small animal like a rabbit. The heart is generally more filled when the paroxysms are frequent. When the paroxysm is short and violent, and causes death in a few moments, I should expect to find the heart empty. The rigidity after death always affects the same muscles; those of the limbs and back. In the case of the rabbit, in which the rigidity was relaxed at the time of death, it returned while the body was warm. In ordinary death it only occurs when the body is cold, or nearly so. I never knew a case of tetanus in which the rigidity lasted two months after death; but such a fact would give me the impression that there were very violent spasms. It would indicate great violence of the spasms from which the person died. The time which elapses between the taking of strychnia and the commencement of the paroxysms depends on the constitution and

strength of the individual. A feeling of suffocation is one of the earliest symptoms of poisoning by strychnia, and that would lead the patient to beat the bedclothes. I have no doubt that the substances I used for the purpose of analysis were pure. I had tested them. The fact that three distinct processes each gave the same result was strong confirmation of each. I have no doubt that what we found was antimony. The quantity found does not enable me to say how much was taken. It might be the residue of either large or small doses. Sickness would throw off some portion of the antimony which had been administered. We did not analyse the bones and tissues. I suggested questions to the coroner because he did not put such as enabled me to form an opinion. I think that arose rather from want of knowledge than intention. There was an omission to take down the answers. At the time I wrote to Mr. Gardiner I had not learnt the symptoms which attended the attack and death of Cook. I had only the information that he was well seven days before he died, and had died in convulsions. I had not information to lead me to suppose that strychnia had been the cause of death, except that Palmer had purchased strychnia. Failing to find opium, prussic acid, or strychnia, I referred to antimony as the only substance found in the body. Before writing to the *Lancet*, I had been made the subject of a great many attacks. What I had said as to the possibility or impossibility of discovering strychnia after death had been misrepresented. In various newspapers it had been represented that I had said strychnia could never be detected—that it was destroyed by putrefaction. What I had said was, that when absorbed in the blood it could not be separated as strychnia. I wrote the letter in my own vindication."

Dr. Rees and *Professor Brande* briefly but decidedly confirmed the statements, and coincided with the opinions expressed by Dr. Taylor, the latter witness speaking as to an experiment made by him to test the accuracy of the previous one, with reference to the supposed presence of antimony, which enabled him to state positively that that poison was isolated by it. *Professor Christison*,

of the University of Edinburgh, author of the well-known treatise on poisons, was then called, and gave the following evidence:—

Professor Christison said:—"I am a fellow of the Royal College of Physicians and Professor of Materia Medica to the University of Edinburgh; I am also the author of a work on the subject of poisons, and I have directed a good deal of attention to strychnia. In my opinion it acts by absorption into the blood, and through that upon the nervous system. I have seen its effects upon a human subject, but not a fatal case. I have seen it tried upon pigs, rabbits, cats, and one wild boar. (A laugh.) I first directed my attention to this poison in 1820, in Paris. It had been discovered two years before in Paris. In most of my experiments upon animals I gave very small doses—a sixth of a grain; but I once administered a grain. I cannot say how small a dose would cause the death of an animal by administration into the stomach. I generally applied it by injection through an incision in the cavity of the chest. A sixth part of a grain so administered killed a dog in two minutes. I once administered to a rabbit, through the stomach, a dose of a grain. I saw Dr. Taylor administer three-quarters of a grain to a rabbit, and it was all swallowed except a very small quantity. The symptoms are nearly the same in rabbits, cats, and dogs. The first is a slight tremor and unwillingness to move; then frequently the animal jerks its head back slightly; soon after that all the symptoms of tetanus come on which have been so often described by the previous witnesses. When the poison is administered by the stomach death generally takes place between a period of five minutes and five and twenty minutes after the symptoms first make their appearance. I have frequently opened the bodies of animals thus killed, and have never been able to trace any effect of the poison upon the stomach or intestines, or upon the spinal cord or brain, that I could attribute satisfactorily to the poison. The heart of the animal generally contained blood in all the cases in which I have been concerned. In the case of the wild boar the poison was injected into the chest. A third of a grain was all that was used, and in ten minutes the symptoms began to show themselves. If strychnia was administered in the form of a pill it might be mixed with other ingredients that would protract the period of its operation. This would be the case if

it were mixed with resinous materials, or any materials that were difficult of digestion, and such materials would be within the knowledge of any medical men, and they are frequently used for the purpose of making ordinary pills. Absorption in such a case would not commence until the pill was broken down by the process of digestion. In the present state of our knowledge of the subject I do not think it is possible to fix the precise time when the operation of the poison commences on a human subject. In the case of an animal we take care that it is fasting, and we mix the poison with ingredients that are readily soluble, and in every circumstance favourable for the development of the poison. I have seen many cases of tetanus arising from wounds and other causes. The general symptoms of the disorder very nearly resemble each other, and in all the natural forms of tetanus the symptoms begin and advance much more slowly, and they prove fatal much more slowly, and there is no intermission in certain forms of natural tetanus. In tetanus from strychnia there are short intermissions. I have heard the evidence of what took place at the 'Talbot Arms' on the Monday and Tuesday, and the result of my experience induces me to come to the conclusion that the symptoms exhibited by the deceased were only attributable to strychnia, or the four poisons containing it: namely, nux vomica, St. Ignatius's bean, snakewood, and a draught poison called "exhetwick."[52] There is no natural disease of any description that I am acquainted with to which I could refer these symptoms. In cases of tetanus consciousness remains to the very last moment. When death takes place in a human subject by spasm it tends to empty the heart of blood. When death is the consequence of the administration of strychnia, if the quantity is small, I should not expect to find any trace in the body after death. If there was an excess of quantity more than was required to cause the death by absorption, I should expect to find that excess in the stomach. The colour tests for the detection of the presence of strychnia are uncertain. Vegetable poisons are more difficult of detection than mineral ones, and there is one poison with which I am acquainted for which no known test has been discovered. The stomach of the

deceased was sent in a very unsatisfactory state for examination, and there must have been a considerable quantity of strychnia in the stomach to have enabled any one to detect its presence under such circumstances."

Cross-examined by Mr. Grove.—"The experiments I refer to were made many years ago. In one instance I tried one of the colour tests in the case of a man who was poisoned by strychnia, but I failed to discover the presence of the poison in the stomach. I tried the test for the development of the violet colour by means of sulphuric acid and oxide of lead. From my own observation I should say that animals destroyed by strychnia die of asphyxia, but in my work, which has been referred to, it will be seen that I have left the question open."

Some further questions were put to the witness by the learned counsel for the prisoner in reference to opinions expressed by him in his work, and he explained that this work was written twelve years ago, and that the experience he had since obtained had modified some of the opinions he then entertained.

Cross-examination continued.—"I have not noticed that in cases where a patient is suffering from strychnia the slightest touch appears to bring on the paroxysm. It is very remarkable in the case of animals, unless you touch them very gently indeed. Strychnia has a most intensely bitter taste. It is said on the authority of a French chemist that a grain will give a taste to more than a gallon of water. If resinous substances were used in the formation of a pill it does not follow that they would necessarily be found in the stomach; they might be passed off."

By the Attorney-General.—"One of the cases quoted in the work that has been referred to was that of a gamekeeper, who was found dead; his head was thrown back, his hands were clenched, and his limbs were rigid. A paper containing strychnia was found in his pocket, and upon a *post-mortem* examination, there were indications which, under the circumstances, satisfied me of the existence of

strychnia. There was a substance in the body of an intensely bitter taste, which was tested by the colour test, and it succeeded in one instance, but failed in another. It appears that colour tests are not to be relied upon in the case of strychnia in an impure condition: in the first place, you may not find indication of strychnia: and, secondly, they are subject to fallacy even if the strychnia is pure from other substances not containing strychnia presenting similar appearances."

With the *examination* of this witness, the medical and scientific evidence for the prosecution was closed.

MEDICO-SCIENTIFIC EVIDENCE FOR THE DEFENCE.

The conflict in the testimony given by scientific experts in this case, will be more clearly shown if, instead of deferring it to its original position, after the speech for the defence, the evidence of the eminent medical men and analysts is at once contrasted with that of those called for the prosecution. The two points mainly in contest were, (1.) Were the symptoms in Cook's case such as could only be produced by *strychnia*, or could they have arisen from other diseases, and especially from one of the forms of ordinary *tetanus*? (2.) If strychnia had been given, could it not have been discovered by chemical analysis?[53] Under the *first* head came the consideration of Cook's mode of life and general state of health, and his excitement at the victory of his horse at such a critical period of his fortunes, as predisposing causes to one or other of the various diseases to which the witnesses for the defence were prepared to attribute the symptoms and the result. Under the *second*, the success that uniformly attended such analysts as Mr. Herapath in detecting, even twenty times less than the fiftieth part of a grain of strychnia, and the inference that as it was not discovered by such eminent analysts as Dr. Taylor and Dr. Rees,

that none had been given. If this inference was fair, it would follow that, however mysterious the causes of the death of Cook might have been, and the symptoms of his attacks difficult of being referred to any known form of disease, yet it was not proved that he died of strychnia, and that therefore Palmer was entitled to an acquittal. “According to the witnesses for the Crown,” said Serjeant Shee, “the poison of strychnia is of that nature, that when it has done its fatal work, and become absorbed into the system, it ceases to be the thing it was when it was taken into the system; it becomes decomposed, its elements separated from each other, and, therefore, no longer capable of responding to the tests which, according to Taylor, would certainly detect the presence of undecomposed strychnia. They account for the fact that it is not detected, and for their still believing that it destroyed Mr. Cook, by this hypothesis. Now it is only an hypothesis: there is no foundation for it in experiment: it is not supported by the evidence of any eminent toxicologists but themselves; it was the theory of Dr. Taylor, which he propounds in his book—but he propounds it as a theory of his own; he does not vouch, as I remember, any eminent toxicologist in support of it.”

Against this theory, among other eminent men, the defence called *Mr. Nunneley*, of Leeds, who had assisted Mr. Morley (previously called for the prosecution) in the case of Mrs. Dove, *Dr. Letheby*, the medical officer of health of the city of London, and *Mr. William Herapath*. Of these three experts it will be advisable to give the evidence at some length, contenting oneself with summarising that of the other scientific witnesses who agreed with them in rejecting, as a scientific heresy, the hypothesis of Dr. Taylor.

The evidence of *Mr. Nunneley* covered both points—the character of Cook’s symptoms and the discovery of strychnia. “He

had been, he said, in large practice for more than twenty-five years, and had seen four cases of *idiopathic tetanus*, all of which did not commence with lockjaw; in one of them lockjaw not becoming so marked as to prevent the person from swallowing once during the disease."

> "I assume," said the witness, "that Cook was a man of very delicate constitution; that for a long time he had felt himself ailing, for which indisposition he had been under medical treatment; that he had suffered from syphilis; that he had disease of the lungs, and an old standing disease of the throat; that he led an irregular life; that he was subject to mental depression and excitement, and that after death appearances were found in his body to show this to have been the case. There was an unusual appearance in the stomach. The throat was in an unnatural condition. The back of the tongue showed similar indications. The air vessels of the lungs were dilated. In the lining of the aorta there was an unnatural deposit, and there was an unusual appearance in the membranes of the spinal marrow. One of the witnesses also said there was a loss of substance from the penis. That scar on it could only have resulted from an ulcer. A chancre is an ulcer, but an ulcer is not necessarily a chancre. The symptoms at the root of the tongue and throat I should ascribe to syphilitic inflammation of the throat. *Supposing these symptoms to be correct*" (*which they were not*), "I should infer that Cook's health had not for a long time been good, and that his constitution was delicate. His father and mother died young. *Supposing that to have been his state of health*, it would make him liable to nervous irritation. That might be excited by moral causes. Any excitement or depression might produce that effect. A person of *such* health and constitution would be more susceptible of the injurious influence of wet and cold than one of a stronger one. Upon *such a constitution* convulsive disease is more likely to supervene. I understand he had three attacks on succeeding nights, occurring about the same hour. As a medical man I should infer from this that they were of a convulsive character—*in the absence of other causes to account for* them. Convulsive attacks

are as various as possible in their forms and degrees of violence: it is not possible to give a definite name to every convulsive symptom. There are some forms of convulsion in which the patient retains consciousness. Those are forms of hysteria, sometimes found in the male sex. It is also stated that there are forms of epilepsy in which the patient retains consciousness."

To Lord Campbell.—"*I cannot mention a case in which consciousness has been retained during the fit. No such case has come under my notice.*"

Examination continued.—"I know from reading that, though rarely, it does sometimes occur. The degree of consciousness in epilepsy varies very much. In some attacks it is wholly lost for a long time. Convulsive attacks are sometimes accompanied by violent spasms and rigidity of the limbs—they sometimes assume tetanic complexion. I agree with Dr. Copland that convulsions arise from almost any cause. Affections of the spinal cord, or eating indigestible food, will produce them. I know of no case in which they resulted from retching and vomiting. I agree with Dr. Copland that they sometimes end immediately in death. The immediate proximate cause of death is frequently asphyxia. Death from spasm of the heart is often described as death by asphyxia. I have seen convulsions recurring—in various cases. The time at which a patient recovers his ease after a violent attack of convulsions varies very much. It may be a few minutes, it may be hours. From an interval between one convulsion and another I should infer that the convulsions arose from slight irritation in the brain or the spinal cord. When death takes place in such paroxysms there is sometimes no trace of organic disease to be found by a *post-mortem* examination. *Granules between the* DURA MATER *and the* ARACHNOID *are not common at any age. I should not draw any particular inference from their appearance. They might or might not lead to a conjecture as to their cause and effect. I do not form any opinion upon these points.* They might produce an effect upon the spinal cord. There are three preparations in museums where granules are exhibited in the spinal cord, in which the patients are

said to have died from tetanus. Those are at St. Thomas's Hospital. [54] To ascertain the nature and effect of such granules the spinal cord ought to be examined immediately after death. Not the most remote opinion could be formed upon an examination made two months after death, more especially if the brain had been previously opened. Independently of the appearance of granules, it would not after that period be possible to form a satisfactory opinion upon the general condition of the spinal cord. If there were a large tumour, or some similar change, it might be exhibited; but neither softening nor induration of the structure could be perceived. The nervous structure changes within two days of death. To ascertain minutely its condition it is necessary to use a lens or microscope. That is required in an examination made immediately after death. I have attended cases of *traumatic tetanus*. That disease commonly begins with an attack upon the jaw. One of the cases of *idiopathic tetanus* that I have seen was my own child. In three of those cases the disease began with lockjaw. The fourth case commenced in the body, the facility of swallowing remaining. I have within the last twelve months made *post-mortem* examinations of two persons who had died from strychnia. I did not see the patients before death. In both cases I ascertained by chemical analysis that death had been caused by strychnia. In both I found the strychnia. In one case—that of a lady aged twenty-eight years—I made my examination forty-two hours after death, and in the other thirty hours. In the former case the body had not been opened before I commenced my examination." [The witness read a report of this examination, in which it was stated that the eyelids were partially open, the globes flaccid, and the pupils dilated. The muscles of the trunk were not in the least rigid; indeed, they were so soft that the body might be bent in any direction. The muscles at the hip and shoulder joints were not quite so flaccid, but they allowed these joints to be easily moved; while those of the head and neck, forearms, &c., were rigid. The fingers were curved, and the feet somewhat arched. All the muscles, when cut into, were found soft and dark in colour. The membranes of the liver were exceedingly vascular. The membrane of the spinal

cord was much congested. There was bloody serum in the pericardium; the lungs were distended, and some of the air cells were ruptured. The lining membrane of the trachea and bronchial tubes was covered with a layer of dark bloody mucus of a dark chocolate colour. The thoracic vessels and membranes were much congested, and the blood was everywhere dark and fluid.] After reading this report the witness continued:—"In the second case I made my examination thirty hours after death. I first saw the body about twelve hours after death. It was a woman somewhere near twenty years of age." [The witness also read the report of the examination in this case. The appearances of the body were substantially similar to those presented in the previous case.] "In two other cases I have seen a patient suffering from over doses of strychnia. Neither of those cases was fatal. In one case I had prescribed the twelfth of a grain, and the patient took one-sixth. That was for a man of middle age. Strychnia had been given in solution. In a few minutes the symptoms appeared. They were a want of power to control the muscles, manifested by twitchings, rigidity, and cramp, more violent in the legs than in any other part of the body. The spasms were not very violent. They continued six hours before they entirely disappeared. During that time they were intermittent at various intervals. As the attack passed off the length of the intervals increased. At first their length was but a few seconds. The spasms were not combated by medical treatment. The other case was a very similar one. The quantity taken was the same —double what I had prescribed. I have experimented upon upwards of sixty animals with strychnia. Those animals were dogs, cats, rats, mice, guinea pigs, frogs, and toads. The symptoms of the attack in all animals present great resemblances. Some animals are, however, much more susceptible of its influence than others are. The period elapsing between the injection of the poison and the commencement of the symptoms has been from two minutes to thirty,—more generally five or six. I administered the poison occasionally in solution, but more generally in its solid state. It was sometimes placed dry upon the back of the tongue, and some fluid poured down the throat; sometimes it was enclosed between two portions of

meat; sometimes mixed up with butter or suet, and sometimes rolled up in a small piece of gut. To frogs and toads it was administered by putting them into a solution of strychnia. I have also applied it direct to the spinal cord, and in other cases to the brain. The first symptom has been a desire to be quite still; then hurried breathing; then slavering at the mouth (when the poison had been given through that organ); then twitching of the ears, trembling of the muscles, inability to walk, convulsions of all the muscles of the body, the jaws being generally firmly closed; the convulsions attended by a total want of power in the muscles, which on the least touch were thrown into violent spasms with a galvanic-like shock. Spasms also come on if the animal voluntarily attempts to move; that is usually the case, but occasionally the animal is able to move without inducing a recurrence of the spasms. These spasms recur at various periods, but do not always increase in violence. The animals die after periods varying from three hours to three hours and a half. In the cases where the animals live longest, the paroxysms occur at the longest intervals. In all cases in the interval before death the rigidity ceases (I know no exception to this) and the muscles become quite soft, powerless, and flaccid. The limbs may be put in any position whatever. There is but little difference from ordinary cases of convulsive death in the time at which the *rigor mortis* comes on. I have destroyed animals with other poisons, and there is very little difference between the rigidity in their cases and that in the cases of death from strychnia. In the two women I have mentioned the *rigor mortis* was much less than is usual in cases of death from natural disease. I have known fatal cases of poisoning animals by strychnia in which there has between the first and the second paroxysm been an interval of about half-an-hour, but that is not common. I have examined the bodies of upwards of forty animals killed by strychnia. I have invariably found the heart full on the right side; very generally the left ventricle firmly contracted, and the blood usually dark, and often fluid. There is no particular appearance about the spine. I have experimented with other poisons upon upwards of 3000 animals, and have written upon this subject. It very often happens that in the case of animals dying suddenly from

poisoning the blood is fluid after death. That also happens in cases of sudden death from other causes. I have attended to the evidence as to the symptoms exhibited by Cook on the Sunday, Monday, and Tuesday nights. The symptoms on Sunday night I assume to have been from great excitement. Cook described himself as having been very ill, and in such a state that he considered himself mad for a few minutes. He stated that the cause of this was a noise in the street. These symptoms in the three nights I have mentioned, do not resemble those which I have seen follow the administration of strychnia. Cook had more power of voluntary motion than I have observed in animals under the influence of this poison. He sat up in bed, and moved his hands about freely, swallowed, talked, and asked to be rubbed and moved, none of which, if poisoned by strychnia, could he have done. The sudden accession of the convulsions is another reason for believing that they were not produced by strychnia. Other reasons for believing that the convulsions were not produced by strychnia are their sudden accession without the usual premonitory symptoms, the length of time which had elapsed between their commencement and the taking of the pills which are supposed to have contained poison, and the screaming and vomiting. I never knew an animal which had been poisoned with strychnia to vomit or scream voluntarily. I apprehend that where there is so much spasm of the heart there must be inability to vomit. In the cases related in which attempts were made to produce vomiting they did not succeed. There is such a case in the 10th volume of the *Journal de Pharmacie*, in which an emetic was given without success. The symptoms exhibited after death by animals poisoned by strychnia differ materially from those presented by the body of Cook. In his case the heart is stated to have been empty and uncontracted."

Lord Campbell.—"I do not remember that. I think it was said that it was contracted."

Mr. Baron Alderson.-"According to my note, Dr. Harland said that the heart was contracted, and contained no blood."

Examination continued.—"The lungs were not congested, nor was the brain. In the case of animals which have recovered the paroxysms have subsided gradually. I never knew a severe paroxysm followed by a long interval of repose. I have experimented upon the discovery of strychnia in the bodies of animals in various stages of decomposition, from a few hours after death up to the forty-third day, in which latter case the body was quite putrid. It has never happened to me to fail to discover the poison. I have experimented in about fifteen cases."

Question.—"Supposing a person to have died under the influence of strychnia poison in the first paroxysm, and his stomach to have been taken out and put into a jar on the sixth day after death, must strychnia have, by a proper analysis, been found in the body?"

Answer.—"Yes. If the strychnia be pure, such as is almost invariably found among medical men and druggists, the test is nitric acid, which gives a red colour, which in a great measure disappears on the addition of protochloride of tin.[55] If the strychnia be pure, it does not undergo any change on the addition of sulphuric acid, but on the addition of a mixture of bichromate of potash, with several other substances it produces a beautiful purple, which changes to varying shades until it gets to be a dirty red. There are several other tests. In this case the stomach was not, in my opinion, in an unfavourable condition for examination. The circumstances attending its position in the jar and its removal to London would give a little more trouble, but would not otherwise affect the result. If the deceased had died from strychnia poison it ought to have been found in the liver, spleen, and kidneys. I have seen this poison found in similar portions of animals which had been killed by it. I have also seen it found in the blood; that was by Mr. Herapath, of Bristol."

Question.—"Could the analyses be defeated or confused by the existence in the stomach of any other substance which would produce the same colours?"

Answer.—"No. Supposing that pyroxanthine and salicine were in the parts examined, their existence would not defeat the analysis.

Pyroxanthine is very unlikely to be found in the stomach. It is one of the rarest and most difficult to be obtained. The distinction between pyroxanthine and strychnia is quite evident. Pyroxanthine changes to a deep purple on the addition of sulphuric acid alone, and the bichromate of potash spoils the colour. In strychnia no change is produced by sulphuric acid. It requires the addition of the bichromate to produce the colour."

Question.—"Supposing the death to have been caused by a dose of strychnia, not more than sufficient to destroy the animal, would it be so diffused by the process of absorption that you would not be able by these tests to detect it in any portion of the system?"

Answer.—"No; I believe it would not. That question had occupied my attention before I was called upon to give evidence in this trial. My reason for stating that strychnia when it has done its work continues as strychnia in the system is, that those who say some change takes place, argue, that as food undergoes a change, so does poison; it becomes decomposed. But the change in food takes place in digestion; consequently its traces are not found in the blood. Substances like strychnia are absorbed without digestion, and may be obtained unchanged from the blood. They may be administered in various ways."

Question.—"In your judgment, will any amount of putrefaction prevent the discovery of strychnia?"

Answer.—"To say that it is absolutely indestructible would be absurd, but within ordinary limits, no. I have found it at the end of forty days. The emptier the stomach, the quicker the action of strychnia."

On *cross-examination* by the *Attorney-General*, the witness, who, to judge from the expressions that passed between them, assumed an antagonistic position to the prosecution, after admitting that perhaps half of his sixty experiments had been made in conjunction with Mr. Morley, and spread over thirty years; that some had been made after the Leeds case, and some in reference to

the present, and that he had been in consultation with the prisoner's attorney since the case at Leeds, to whom he had transmitted its details, he thus continued:—

"The general dose in these experiments was from half a grain to two grains; half a grain is sufficient to destroy life in larger animals. I have seen both a dog and a cat die of this dose, but not always. Some animals as a species are more susceptible than those of a different species, and among animals of the same species some are more susceptible than others. The symptoms in the experiments I have mentioned did not occur after so long a period as an hour. We have had to repeat the dose in some instances when half a grain was given. In the case of a cat, symptoms of spasm were produced, but the cat did not die; she had not swallowed the whole dose. I think I have known animals of the cat species killed with half a grain."

Question.—"Have you any doubt of it?"

Answer.—"Yes. I think it would be the minimum dose in an old strong cat. If given in a fluid state I think a smaller dose would suffice. Hurried breathing is one of the first symptoms, afterwards there are twitchings and trembling of the muscles and then convulsions."

Question.—"Is there any diversity in the intervals and order of the symptoms in animals of the same species?"

Answer.—"They certainly do not occur after the same intervals of time, but I should say they generally occur in the order I have described. There is some difference in the periods at which the convulsions take place. Some will die after less convulsions than others, but generally after four or five. In one or two instances an animal has died after one convulsion. In those instances a dose has been given equal in amount to another which has not produced the same effect. The order in which the muscles are convulsed varies to some extent. The muscles of the limbs are generally affected first. The convulsions generally occur simultaneously."

Question.—"Do you know of any case of strychnia in which rigidity after death was greater than the usual *rigor mortis*?"

Answer.—"I think not. I don't think there is any peculiar rigidity produced by strychnia."

Question.—"Have you never found undue rigidity in a human subject after death by strychnia?"

Answer.—"Considerably less."

Question.-"In the anonymous case (the Leeds), were not the hands curved and the feet arched by muscular contraction?"

Answer.—"Not more than is usual in cases of death from ordinary causes. The limbs were rigid, but not more than usual."

Question.—"In the face of the medical profession I ask you whether you signed a report stating that 'the hands were curved and the feet decidedly arched by muscular contraction,' and whether you meant by those words that there was no more than the ordinary rigidity of death?"

Answer.—"Certainly; I stated so at the time."

Question.—"Where? In the report?"

Answer.—"No; in conversation. Allow me to explain that a distinction was drawn between the muscles of the different parts of the body. I heard Mr. Morley's evidence with regard to experiments on animals, and his statement that 'after death there was an interval of flaccidity, after which rigidity commenced more than if it had been occasioned by the usual *rigor mortis*.'"

Question.—"You don't agree with that statement?"

Answer.—"I do not. I generally found the right side of the heart full."

Question.—"Does the fact of the heart in Cook's case having been found empty lead you to the conclusion that death was not caused by strychnia?"

Answer.—"Among other things, it does. I heard the evidence of Dr. Watson as to the case of Agnes Sennett, in which the heart was found distended and empty: also of Dr. Taylor, as to the *post-*

mortem of Mrs. Smyth. No doubt he stated that the heart in that case was also empty."

Question.—"And do those facts exercise no influence on your judgment?"

Answer.—"They would not unless I knew how the *post-mortem* examination had been made. If it was commenced at the head, the blood being fluid, the large drains would be opened, and the blood, from natural causes, would drain away."

Question.—"Do you know how the *post-mortem* examination was made in this case?"

Answer.—"No. Excuse me, I do. The chest and the abdomen, not the head, were first opened."

Question.—"The heart, then, was not emptied in the first instance?"

Answer.—"No."

Question.—"Then what occasioned the contraction of the heart?"

Answer.—"When the heart is emptied it is usually contracted."

Question.—"But how do you account for its contraction and emptiness?"

Answer.—"I cannot account for it."

Lord Campbell.—" Would the heart contract if there was blood in it?"

Answer.—"No."

Lord Campbell.—"When you find the heart contracted, you know, then, that it was contracted at the moment of death?"

Answer.—"It is necessary to draw a distinction between the two cavities. It is very common to find the left ventricle contracted and hard, while the right is uncontracted."

Lord Campbell.—"That is death by asphyxia?"

Answer.—"Precisely."[56]

By the Attorney-General.—"In Cook's case the lungs were described as not congested. Entosthema is of two kinds; one of them

consists of dilation of the cells, the other of a rupture of the cells. When animals die from strychnine, entosthema occurs. I do not know the character of the entosthema in Cook's case. It did not occur to me to have the question put to the witnesses who described the *post-mortem* examination."

Question.—"To what constitutional symptoms about Cook do you ascribe the convulsions from which he died?"

Answer.—"Not to any."

Question.—"Was not the fact of his having syphilis an important ingredient in your judgment upon his case?"

Answer.—"It was. I judge that he died from convulsions, by the combination of symptoms."

Question.—"What evidence have you to suppose that he was liable to excitement and depression of spirits?"

Answer.—"The fact that after winning the race he could not speak for three minutes."

Question.—"Anything else?"

Answer.—"Mr. Jones stated that he was subject to mental depression. Excitement will produce a state of brain which will be followed, at some distance, by convulsions. I think Dr. Bamford made a mistake when he said the brain was perfectly healthy."

Question.—"Do you mean to set up that opinion against that of Dr. Devonshire and Dr. Harland, who were present at the *post-mortem*?"

Answer.—"My opinion is founded in part on the evidence taken at the inquest, in part on the depositions. With the brain and the system in the condition in which Cook's were, I believe it is quite possible for convulsions to come on and destroy a person. I do not believe that he died from apoplexy. He was under the influence of morphia. I don't ascribe his death to morphia, except that it might assist in producing a convulsive attack. I should think morphia was not very good treatment, considering the state of excitement he was in."

Question.—"Do you mean to say, on your oath, that you think he was in a state of excitement at Rugeley?"

Answer.—"I wish to give my evidence honestly. Morphia, when given in an injured state of the brain, often disagrees with the patient."

Question.—"But what evidence have you as to the injured state of the brain?"

Answer.—"Sickness often indicates it. I can't say whether the attack of Sunday night was an attack of convulsions. I think that the Sunday attack was one of a similar character, but not so intense, as the attack of Tuesday, in which he died. I don't think he had convulsions on the Sunday, but he was in that condition which often precedes convulsions. I think he was mistaken when he stated that he was awoke by a noise. I believe he was delirious. That is one of the symptoms on which I found my opinion. Any intestinal irritation will produce convulsions in a tetanic form. I have known instances in children. I have not seen an instance in an animal. Medical writers state that such cases do occur. I know no name for convulsions of that kind."

Question.—"Have you ever known a case of convulsions of that kind, terminating in death, in which the patient remained conscious to the last?"

Answer.—"I have not. Where epilepsy terminates in death consciousness is gone. I have known four cases of *traumatic*, and five or six of *idiopathic tetanus*."

Question.—"You heard Mr. Jones make this statement of the symptoms of Cook after the commencement of the paroxysms:—'After he swallowed the pills he uttered loud screams, threw himself back in the bed, and was dreadfully convulsed. He said, "Raise me up! I shall be suffocated." The convulsions affected every muscle of the body, and were accompanied by stiffening of the limbs. I endeavoured to raise Cook with the assistance of Palmer, but found it quite impossible owing to the rigidity of the limbs. When Cook found we could not raise him up, he asked me to turn him over. He was then quite sensible. I turned him on to his side. I

listened to the action of his heart. I found that it gradually weakened, and asked Palmer to fetch some spirits of ammonia, to be used as a stimulant. When he returned, the pulsations of the heart were gradually ceasing, and life was almost extinct. Cook died very quietly a very short time afterwards. When he threw himself back in bed he clinched his hands, and they remained clinched after death. When I was rubbing his neck, his head and neck were unnaturally bent back by the spasmodic action of the muscles. After death his body was so twisted or bowed that if I had placed it upon the back it would have rested upon the head and feet!' Now, I ask you to distinguish in any one particular between those symptoms and the symptoms of tetanic convulsions."

Answer.—"*It is not tetanus at all; not idiopathic tetanus.*"

Question.—"I quite agree with you that it was not *idiopathic tetanus*. But point out any distinction that you can see between these symptoms and real *tetanus*?"

Answer.—"I do not know that there is any distinction, except that in a case of *tetanus* I never saw rigidity continue till death and afterwards."

Question.—"Can you tell me of any case of death from convulsions in which the patient was conscious to the last?"

Answer.—"I do not know any. Convulsions occurring after poison has been taken are properly called tetanic."

Question.—"Sir B. Brodie tells us that while paroxysms of tetanic convulsion last there is no difference between those that arise from strychnia and those from *tetanus* properly so called, but only in the course the symptoms take. What do you say is the difference?"

Answer.—"The hands are less violently contracted; the effect of the spasm is less in ordinary *tetanus*; the convulsion, too, never entirely passes away. I have stated that *tetanus* is a disease of days, strychnia of hours and minutes; that convulsive twitchings are in *strychnia* the first symptoms, the last in *tetanus*; that in *tetanus* the hands, feet, and legs are usually the last affected, while in *strychnia*

they are the first. I gave that opinion after the symptoms in the case of the lady at Leeds which were described by the witness Witham, and I still adhere to it. I never said that Cook's was a case of *idiopathic tetanus* in any sense of the word. It differed from the course of *tetanus* from strychnine in the particulars I have already mentioned."

The Attorney-General.—"Repeat them."

Answer.—"There was a sudden accession of the convulsions."

Question.—"Sudden—after what?"

Answer.—"After the rousing by Jones. There was also the power of talking."

Question.—"Don't you know that Mrs. Smyth talked and retained her consciousness to the end: that her last words were, 'Turn me over'?"

Answer.—"She did say something of that kind. No doubt those were the words she used. I believe that in poison *tetanus* the symptoms are first observed in the legs and feet. In the animals upon which I have experimented twitchings in the ears and difficulty of breathing have been premonitory symptoms."

Question.—"When Cook felt a stiffness and difficulty of breathing, and said that he should be suffocated on the first night, what were they but premonitory symptoms?" (*question evaded*).

Answer.—"Well, he asked to be rubbed; but as far as my experience goes with regard to animals——."

The Attorney-General.—"They can't ask to have their ears rubbed, of course."

Mr. Serjeant Shee.—"The witness was about to explain the effect of being rubbed upon animals."

Witness.—"In no single instance could the animals bear to be touched."

Question.—"Did not Mrs. Smyth ask to have her arms and legs rubbed?"

Answer.—"In the Leeds case the lady asked to be rubbed before the convulsions came on, but afterwards she could not bear it, and begged not to be touched."

Question.—"Can you point out any one point, after the premonitory symptoms, in which the symptoms in this case differ from those of strychnia *tetanus*?"

Answer.—"There is the power of swallowing, which is taken away by inability to move the jaw."

Question.—"But have you not stated that lockjaw is the last symptom in strychnia *tetanus*?"

Answer.—"I have. I don't deny that it may be. I am speaking of the general rule. In the Leeds case it came on very early, more than two hours before death, the paroxysms having continued for two and a half hours. In that case we believed the dose was four times repeated. Poison might probably be extracted by chemical process from the tissues, but I never tried it except in the case of one animal. I am not sure whether poison was in that case given through the mouth. We killed four animals in reference to the Leeds case, and in every instance we found strychnia in the contents of the stomach. In one case we administered it by two processes—one failed, and the other succeeded."

Re-examined.—"In making reports on cases such as that referred to (Leeds) we state ordinary appearances as well as extraordinary—facts without anything more."

Mr. William Herapath, examined by Mr. Grove, Q. C.—"I am a professor of chemistry and toxicology at the Bristol Medical School—have studied chemistry for more than forty years—toxicology for thirty. Have experimented on strychnia; have seen no case of a human subject during life, but have examined a human body after death. In one case I examined the contents of the stomach, and found strychnia three days after death. I obtained evidence of strychnia by the colour tests in that case. I have experimented on animals for strychnia in eight or nine cases, and analysed the bodies in two cases where I destroyed the animals myself—both cats. I gave the first one grain of strychnia in a solid form. The animal took

the poison at night, and I found it dead in the morning. It was dreadfully contorted and rigid, the limbs extended, the head turned round—not to the back, to the side—the eyes protruding and staring, the iris expanded so as to be almost invisible. I found strychnia in the urine which had been ejected, and also in the stomach, by the test I mentioned. I administered the same quantity of strychnia in a solid form to another cat. It remained very quiet for fifteen or twenty minutes, but seemed a little restless in the eyes and its breathing. In thirty-five minutes it had a terrible spasm, the extremities and the head being drawn together and the feet extended. I watched it for three hours. The first spasm lasted a minute or two. The saliva dropped from its mouth, and it forcibly ejected its urine. It had a second spasm a few minutes afterwards. It soon recovered and remained still, with the exception of a trembling all over. It continued in that state three hours. During two hours and a half it was in a very peculiar state. It appeared to be electrified all through; blowing upon it or touching the basket in which it was placed produced a kind of electric jump like a galvanic shock. I left it in three hours, thinking it would recover, but in the morning I found it dead, in the same indurated and contorted condition as the former animal. I examined the body thirty-six hours after death and found strychnia in the urine, in the stomach and in the upper intestine, in the liver, and in the blood of the heart. I have discovered strychnia in all other cases by the same tests, but I took extraordinary means to get rid of organic matter. *In all cases in which strychnia has been given I have been able to find it, but not only strychnia, but the nux vomica from which it is taken.* I have found nux vomica in a fox and other animals. The detection of nux vomica is more complicated than that of strychnia. In one case the animal had been buried two months. *I have experimented with strychnia mixed purposely with organic putrefying matter. I have found it in all cases, whatever was the state of decomposition of the matter.*"

Question.—"*Are you of opinion that where strychnia has been taken in a sufficient dose to poison it can and ought to be*

discovered?"

Answer.—"*Yes; unless the body has been completely decomposed—that is, unless decomposition had reduced it to a dry powder. I am of opinion, from the accounts given by Dr. Taylor and the other witnesses, that if it had existed in the body of Cook it ought to have been discovered. I am aware of no cause of error in the analysis, if the organic matter had been properly got rid of.* The experiments I made were in Bristol. I have made experiments in London, and found strychnia in the stomach, liver, and blood of an animal."

Cross-examined by the Attorney-General.—"I don't profess to be a toxicologist. I have principally experimented on the stomach till lately. I tried my chemical process on the 8th of this month with a view to the present case. The experiment here was on a dog. I experimented on the tissues of a cat at Bristol, and a dog in London. I found strychnia in the blood, the heart, and the urine of the cat, besides the stomach. One grain was given to the dog. It was a large dog. I have seen a cat killed with a quarter of a grain."

Question.—"*Have you not said, that you had no doubt strychnia had been taken, but that Dr. Taylor had not gone the right way to find it?*"

Answer.—"No; certainly not."

Question.—"Have you not said it to the present Mayor of Bristol?"

Answer.—"I have said, if it was there Dr. Taylor ought to have found it."

Question.—"Have you not said several times in his presence that you had no doubt strychnia had been given, but that Dr. Taylor had not found it?"

Answer.—"I had a strong opinion from the reports in the newspapers; it is very likely I might. I don't deny it."

To Lord Campbell.—"From the statements I saw in the newspapers: I was not engaged in the case, and I conceived I had a right to express an opinion, the same as others. I dare say I have

frequently said so in conversation. Hundreds of persons spoke to me, knowing I had made toxicology a study, and it is possible I may have said something like what you ask me about."[57]

Re-examined by Mr. Grove.—"What is the smallest quantity of strychnia that your process is capable of detecting?"

Answer.—"*I am perfectly sure I could detect the 50,000th part of a grain if it was unmixed with organic matter. If I put ten grains in a gallon, or 70,000 grains of water, I could discover its presence in the tenth part of a grain of that water.* It is more difficult to detect when mixed with organic matter. If a person had taken a grain, a very small quantity would be found in the heart, but no doubt it could be found. I made four experiments with a large dog to which I had given the one-eighth part of a grain. *I have discovered it by change of colour in the thirty-second part of the liver of a dog.*"

In reply to a request by Mr. Grove, Lord Campbell intimated that in the opinion of the Court experiments could not now be shown. This defect of evidence has been cured by the Vivisection Act, before referred to.

Dr. Henry Letheby, examined by Mr. Kenealy.—"I am a bachelor of medicine, professor of chemistry and toxicology in the London Hospital of Medicine, and Medical Officer of Health to the City of London. I have been engaged for a considerable time in the study of poisons and their action on the living animal economy. I have also been frequently engaged on behalf of the Crown in prosecutions in cases of this nature during the last fourteen years. I have been present during the examination of the medical witnesses, and have attended to the evidence as to the symptoms which have been described as attending the death of Cook. I have witnessed many cases of animals poisoned by strychnia, and many cases of poisoning by nux vomica in the human body, one of which was fatal. The symptoms described in this case do not accord with the symptoms I have witnessed in the case of those animals. They differ in this respect:—In the first place I never witnessed the long interval

between the administration of the poison and the commencement of the symptoms which is said to have elapsed in this case. The longest interval I have known has been three-quarters of an hour, and then the poison was administered under most disadvantageous circumstances. It was given on a very full stomach and in a form uneasy of solution. I have seen the symptoms begin in five minutes. The average time in which they begin is a quarter of an hour. In all cases I have seen the system has been in that irritable state that the very lightest excitement, such as an effort to move, a touch, a noise, a breath of air, would send the patient off in convulsions. It is not at all probable that a person, after taking strychnia, could pull a bell violently. Any movement would excite the nervous system, and bring on spasms. It is not likely that a person in that state could bear to have his neck rubbed. When a case of strychnia does not end fatally, the first paroxysm is succeeded by others, gradually shaded off, the paroxysms becoming less violent every time, and I agree with Dr. Christison that they would subside in twelve or sixteen hours. I have no hesitation in saying that strychnia is, of all poisons, either mineral or vegetable, the most easy of detection. I have detected it in the stomach of animals in numerous instances, also in the blood and in the tissues. The longest period after death in which I have detected it is about a month. The animal was then in a state of decomposition. I have detected very minute portions of strychnia. When it is pure, the 20,000th part of a grain can be detected. I can detect the tenth part of a grain most easily in a pint of any liquid, whether pure or putrid. I gave one animal half a grain, and I have the strychnia here now within a very small trifle. I never failed to detect strychnia where it had been administered. I have made *post-mortem* examinations on various animals killed by it. I have always found the right side of the heart full. The reason is that the death takes place from the fixing of the muscles of the chest by spasms, so that the blood is unable to pass through the lungs, and the heart cannot relieve itself from the blood flowing to it, and therefore becomes gorged. The lungs are congested and filled with blood. I have administered strychnia in a liquid and a solid form; I agree with Dr. Taylor that it may kill in six or eleven minutes when taken

in a solid state in the form of a pill or bolus. I also agree with him that the first symptom is that the animal falls on its side, the jaws are spasmodically closed, and the slightest touch produces another paroxysm. But I do not agree with him that the colour tests are fallacious. I do not agree that it is changed when it is absorbed into the blood, but I agree with its absorption. I think it is not changed when the body is decomposed. The shaking about of the contents of the stomach with the intestines in a jar, would not prevent the discovery of strychnia, if it had been administered. Even if the contents of the stomach were lost, the mucous membrane would, in the ordinary course of things, exhibit traces of strychnia. I have studied the poison of antimony. If a quantity had been introduced into brandy-and-water, and swallowed at a gulp, the effect would not be to burn the throat. Antimony does not possess any such quality as that of immediate burning. I have turned my attention to the subject of poison for seventeen or eighteen years."

Cross-examined by the Attorney-General.—"I am not a member of the College of Physicians or of Surgeons. I do not now practise. I have been in general practice for two or three years. *I gave evidence in the last case of this sort, tried in this court in 1850*" (the case of Ann Merritt). "*I gave evidence of the presence of arsenic. The woman was convicted. I stated that it had been administered within four hours of death. I was the cause of her being respited, and the sentence was not carried into effect, in consequence of a letter I wrote to the Home Office. Other scientific gentlemen interfered, and challenged the soundness of my conclusions before I wrote that letter. I have not since been employed by the Crown. There has not been a case that I know of. I have been employed in prosecutions.*"

By Mr. Justice Cresswell.—"I was present at the trial. I perfectly remember it." (See the report of this case, *post*.)

Cross-examination continued.—"I detected the poison. I said in my letter that I could not speak as to possibilities, but merely as to probabilities. I have experimented on animals for a great number of years. On five recently. I have never given more than a grain, and it has always been in a solid form—in pills or bread. In the case where

poison was administered under disadvantageous circumstances it was kneaded up into a hard mass of bread."

Mr. Baron Alderson.—"Did the animal bolt it or bite it?"

Witness.—"I opened the mouth and put it into the throat. About half an hour elapsed before the symptoms appeared in one case in which half a grain had been given. In another case death took place within thirteen minutes. I have noticed twitching of the ears, difficulty of breathing, and other premonitory symptoms. There are little variations in the order in which the symptoms occur. I have known frequent instances in which an animal has died in the first paroxysm. I heard the evidence of Mrs. Smyth's death, and I was surprised at her having got out of bed when the servant answered the bell. It is not consistent with the cases I have seen. That fact does not shake my opinion. I have no doubt that Mrs. Smyth died from strychnia. Cook's sitting up in bed and asking Jones to ring the bell is inconsistent with what I have observed in strychnia cases."

Question.—"If a man's breath is hurried, is it not natural for him to sit up?"

Answer.—"It is. I have seen cases of recovery of human subjects after taking strychnia. There is a great uniformity in its effects; that is, in their main features, but there is a small variation as to the time in which they are produced."

Question.—"What do you attribute Cook's death to?"

Answer.—"It is irreconcileable with everything with which I am acquainted."

Question.—"Is it reconcileable with any known disease you have ever seen or heard of?"

Answer.—"No."[58]

Re-examined by Mr. Serjeant Shee.—"We are learning new facts every day, and I do not at present conceive it to be impossible that some peculiarity of the spinal cord, unrecognisable at the examination after death, may have produced symptoms like those which have been described. I, of course, include strychnia in my answer, but it is irreconcileable with everything I have seen or heard

of. It is as irreconcileable with everything else; it is irreconcileable with every disease that I am acquainted with, natural or artificial. Touching an animal during the premonitory symptoms will bring on a paroxysm. Vomiting is inconsistent with strychnia. The Romsey case was an exceptional one, from the quantity of the dose. The ringing of the bell would have produced a paroxysm. I am still of opinion that the evidence I gave on the trial in 1851 is correct. I am not aware that there is any ground for an imputation upon me in respect of that evidence. I have no reason to think Government was dissatisfied with me. *I have been since employed in prosecutions, where I very much think the Crown was the prosecutor. After that case Dr. Pereira came to my laboratory, and asked me, as an act of mercy, to write a letter to him to show to the Home Office, admitting the possibility of the poison which I found in the stomach having been administered longer than four hours before death. I wrote the letter, drawing a distinction between what was possible and probable, and the woman was transported for life.*"

In addition to these analytical chemists, Professor Rogers, of the St. George's Medical School, London, described an experiment he had lately made on a dog to which he had given two grains of strychnia. He had not taken out its stomach and its contents, together with some of the blood, until three days after death, and had put off the analysis of the latter for *ten* days, when it had become putrid, and that of the stomach and its contents for a month or five weeks, yet found in both portions strychnia in large quantities. This witness maintained that unless the contents of the stomach in Cook's case had been lost, their being shaken would only make the process of detection more difficult, but admitted that if strychnia had been in his stomach it would be found smeared over its mucous membrane, which, it may be remembered, was not sent to Dr. Taylor.

Dr. Francis Wrightson, a pupil of Liebig, of Giessen, a teacher of chemistry at a school in Birmingham, described two similar experiments on animals, with the same results as Professor Rogers. He expressed his decided opinion that strychnia could be detected in a mixture of bile, bilious matter, and putrifying blood and in the tissues in extremely minute quantities indeed, and that five or six days after death he should expect to find it, if it had been given—unless the dose had been entirely absorbed. The clearness and decision with which this witness gave his evidence elicited the well-deserved commendation of Lord Campbell. On *cross-examination* by the *Attorney-General*, he was asked—

Question.—"Supposing that the whole dose was absorbed into the system, where would you expect to find it?"

Answer.—"In the blood."

Question.—"Does it pass from the blood into the solids of the body?"

Answer.—"It does, or I should rather say it is left in the solids of the body. In its progress towards its final destination, the destruction of life, it passes from the blood, or is left by the blood in the solid tissues of the body."

Question.—"If it be present in the stomach, you find it in the stomach; if it be present in the blood, you find it there; if left by the blood in the tissues, you find it there?"

Answer.—"Precisely so."

Question.—"Suppose the whole had been absorbed."

Answer.—"Then I would not undertake to find it."

Question.—"Suppose the whole had been eliminated from the blood, and had passed into the urine, should you expect to find it in the blood?"

Answer.—"Certainly not."

Question.—"Suppose the minimum dose which will destroy life had been taken, and absorbed into the circulation, then deposited in

the tissues, and then a part eliminated by the action of the kidneys; where would you search for it?"

Answer.—"In the blood, in the tissues, and in the ejections; and I would undertake to discover it in each of them."

Mr. Partridge, the professor of Anatomy at King's College, gave the following evidence, attributing the death of Cook to the granules found on his spine at the *post-mortem* examination:—

"These granules," said the witness, "would be likely to cause inflammation, and no doubt that inflammation would have been discovered if the spinal cord or its membranes had been examined shortly after death. It would not be likely to be discovered if the spinal cord was not examined until nine weeks after death. I have not seen cases in which this inflammation has produced tetanic form of convulsions, but such cases are on record. It sometimes does, and sometimes does not produce convulsions and death."

Question.—"Can you form any judgment as to the cause of death in Cook's case?"

Answer.—"I cannot. No conclusion or inference can be drawn from the degree or kind of the contractions of the body after death."

Lord Campbell.—"Can you not say from the symptoms you heard whether death was produced by *tetanus*, without saying what was the cause of *tetanus*?"

Answer.—"Hypothetically I should infer that he died of the form of *tetanus* which convulses the muscles. Great varieties of rigidity arise after death from natural causes. The half-bent hands and fingers are not uncommon after natural death. The arching of the feet in this case seemed to me rather greater than usual."

Cross-examined by the Attorney-General.—"Granules are sometimes, but not commonly, found about the spine of a healthy subject,—not on the cord itself; they may exist consistently with health. No satisfactory cases of the inflammation I have described have come under my notice without producing convulsions. It is a

very rare disease. I cannot state from the recorded cases the course of the symptoms of that disease. It varies in duration, sometimes lasting only for days, sometimes much longer. If the patient lives it is accompanied with paralysis. It produces no effect on the brain which is recognisable after death. It would not affect the brain prior to death. I do not know whether it is attended with loss of sensibility before death. The size of the granules which will produce it varies. This disease is not a matter of months, unless it terminates in palsy. I never heard of a case in which the patient died after a single convulsion. Between the intervals of the convulsions I don't believe a man could have twenty-four hours' repose. Pain and spasms would accompany the convulsions. I cannot form a judgment as to whether the general health would be affected in the intervals between them."

Question.—"You have heard it stated that from the midnight of Monday till Tuesday Cook had complete repose. Now, I ask you, in the face of the medical profession, whether you think the symptoms which have been described proceeded from that disease?"

Answer.—"I should think not."

Question.—"Did you ever know the hands completely clinched after death except in case of tetanus?"

Answer.—"No."

Question.—"Have you ever known it even in *idiopathic* or *traumatic tetanus*?"

Answer.—"I have never seen *idiopathic tetanus*. I have seen the hands completely clinched in *traumatic tetanus*. A great deal of force is often required to separate them."

Question.—"Have you ever known the feet so distorted as to assume the form of a club foot?"

Answer.—"No."

Question.—"You heard Mr. Jones state that if he had turned the body upon the back it would have rested on the head and the heels. Have you any doubt that that is an indication of death from tetanus?"

Answer.—"No; it is a form of tetanic spasm. I am only acquainted with *tetanus* resulting from strychnia by reading. Some of the symptoms in Cook's case are consistent, some are inconsistent with strychnia *tetanus*. The first inconsistent symptom is the intervals that occurred between the taking of the supposed poison and the attacks."

Question.—"Are not symptoms of bending of the body, difficulty of respiration, convulsions in the throat, legs, and arms, perfectly consistent with what you know of the symptoms of death from strychnia?"

Answer.—"Perfectly consistent. I have known cases of *traumatic tetanus*. The symptoms in those cases had been occasionally remitted, never wholly terminated. I never knew *traumatic tetanus* run its course to death in less than three or four days. I never knew a complete case of the operation of strychnia upon a human subject."

Question.—"Bearing in mind the distinction between *traumatic* and *idiopathic tetanus*, did you ever know of such a death as that of Cook according to the symptoms you have heard described?"

Answer.—"No."

Re-examined by Mr. Grove.—"Besides the symptom which I have mentioned as being inconsistent with the theory of death by strychnia, there are others—namely, sickness, beating the bed clothes, want of sensitiveness to external impressions, and sudden cessation of the convulsions and apparent complete recovery. There was apparently an absence of the usual muscular agitation. Symptoms of convulsive character arising from an injury to the spine vary considerably in their degrees of violence, in their periods of intermission, and in the muscles which are attacked. Intermission of the disease occurs, but is not frequent in *traumatic tetanus*. I don't remember that death has ever taken place in fifteen hours; it may take place in forty-eight hours during convulsions. Granules about the spine are more unusual in young people than in old. I don't know of any case in which the spine can preserve its integrity, so as to be properly examined, for a period of nine weeks. I should not feel justified in inferring that there was no disease from not

finding any at the end of that time. The period of decomposition varies from a few hours to a few days. It is not in the least probable that it could be delayed for nine weeks."

By the Attorney-General.—"Supposing the stomach were acted on by other causes, I do not think sickness would be inconsistent with *tetanus*."

With reference to the existence of these granules, *Mr. Oliver Pemberton*, anatomical lecturer at Queen's College, Birmingham, who was present with Professor Bolton when Cook's body was exhumed, in January, for the special purpose of arriving at a more satisfactory decision on this point than had been effected at the first *post-mortem* examination, was called for the defence. He gave it as his opinion, in which Professor Bolton agreed, that the spinal cord was not then in a condition to enable him to judge as to what was its state immediately after death; the upper part, where it separated from the brain, being green from decomposition, and the other part, though better preserved, not soft enough for that purpose. This point was, therefore, left in a far from satisfactory position.

A *Dr. G. Robinson*, of the Newcastle-on-Tyne Dispensary, also supported the spinal granules theory, and considered that from his habits of life Cook was predisposed to epilepsy. He admitted, however, on *cross-examination*, that "he had never seen symptoms of epilepsy proceed to anything like the extent as in Cook's case; never saw a body so stiff in epilepsy as to rest on its head and heels; nor such symptoms, except in tetanus, and that the extreme form of epilepsy was always accompanied by unconsciousness." "The granules," he thought, "were likely to have irritated the spinal cord, and yet no indications remain after death; they might have produced Cook's death."

Attorney-General.—"But do you think so?"

Witness.—"Putting aside the assumption of strychnia, I should say so."

Attorney-General.—"*Are not all the symptoms reported by Mr. Jones indicative of death by strychnia?*"

Witness.—"*They certainly are.*"

Attorney-General.—"Then it comes to this, that if there were no other cause of death suggested, you should say it arose from epilepsy?"

Witness.—"Yes. Epilepsy is a well-known disease which includes many others, and the convulsions of that disease sometimes assume tetanic appearances."

The last important medical witness called for the defence, *Dr. Benjamin Ward Richardson*, physician, of London, took the prosecution somewhat by surprise by attributing Cook's death to *Angina pectoris*, a cause not as yet hinted at. As the counsel for the Crown were not prepared with information requisite for an effective *cross-examination* on this point, at the close of the prisoner's case the Attorney-General asked leave to recall this witness, as he was then prepared with the books required for that purpose. The Court, however, refused the application, and the evidence therefore must be accepted with caution.

Dr. Richardson said:—"I am a physician, practising in London. I have never seen a case of *tetanus*, properly so called, but I have seen many cases of death by convulsions. In many instances they have presented tetanic appearances without being strictly tetanus. I have seen the muscles fixed, especially those of the upper part of the body. I have observed the arms stiffened out, and the hands closely and firmly clinched until death. I have also observed a sense of suffocation in the patient. In some forms of convulsions I have seen contortions both of the legs and the feet, and the patient generally expresses a wish to sit up. I have known persons die of a disease called angina pectoris. The symptoms of that disease, I consider,

resemble closely those of Mr. Cook. Angina pectoris comes under the denomination of spasmodic diseases. In some cases the disease is detectable upon *post-mortem* examination; in others it is not. I attended one case. A girl ten years old was under my care in 1850. I supposed she had suffered from scarlet fever. She recovered so far that my visits ceased. I left her amused and merry in the morning; at half-past ten in the evening I was called in to see her, and I found her dying. She was supported upright at her own request, her face was pale, the muscles of the face rigid, the arms rigid, the fingers clinched, the respiratory muscles completely fixed and rigid, and with all this there was combined intense agony and restlessness, such as I have never witnessed. There was perfect consciousness. The child knew me, described her agony, and eagerly took some brandy and water from a spoon. I left for the purpose of obtaining some chloroform from my own house, which was thirty yards distant. When I returned her head was drawn back, and I could detect no respiration; the eyes were then fixed open, and the body just resembled a statue; she was dead. On the following day I made a *post-mortem* examination. The brain was slightly congested; the upper part of the spinal cord seemed healthy; the lungs were collapsed; the heart was in such a state of firm spasm and solidity, and so emptied of blood, that I remarked that it might have been rinsed out. I could not discover any appearance of disease that would account for the death, except a slight effusion of serum in one pleural cavity. I never could ascertain any cause for the death. The child went to bed well and merry, and immediately afterwards jumped up, screamed, and exclaimed, 'I am going to die.'"

By the Attorney-General.—"I consider that the symptoms I have described were those of angina pectoris. It is the opinion of Dr. Jenner that this disease is occasioned by the ossification of some of the small vessels of the heart. I did not find that to be the case in this instance. There have been many cases where no cause whatever was discovered. It is called angina pectoris, from its causing such extreme anguish to the chest. I do not think the symptoms I have described were such as would result from taking strychnia. There is

this difference,—that rubbing the hands gives ease to the patient in cases of angina pectoris. I must say there would be great difficulty in detecting the difference in cases of angina pectoris and strychnia. As regards symptoms I know of no difference between the two. I am bound to say that if I had known so much of these subjects as I do now, in the case I have referred to I should have gone on to analysis to endeavour to detect strychnia. In the second case I discovered organic disease of the heart, which was quite sufficient to account for the symptoms. The disease of angina pectoris comes on quite suddenly, and does not give any notice of its approach. I did not send any note of this case to any medical publication. It is not at all an uncommon occurrence to find the hands firmly clinched after death in cases of natural disease."

By Mr. Serjeant Shee.—"There are cases of angina pectoris in which the patient has recovered and appeared perfectly well for a period of twenty-four hours, and then the attack has returned. I am of opinion that the fact of the recurrence of the second fit in Cook's case is more the symptom of angina pectoris than of strychnia poison."[59]

Dr. Wrightson was recalled, and in answer to a question put by Mr. Serjeant Shee he said it was his opinion that when the strychnia poison was absorbed in the system it was diffused throughout the entire system.

By the Attorney-General.—"The longer time that elapsed before the death would render the absorption more complete. If a minimum dose to destroy life were given, and a long interval elapsed to the death, the more complete would be the absorption and the less the chance of finding it in the stomach."

By Mr. Serjeant Shee.—"I should expect still to find it in the spleen and liver and blood."

CASES OF *TETANUS* BROUGHT FORWARD FOR THE DEFENCE.

In answer to the cases of undoubted poisoning by strychnia proved on the part of the prosecution, four cases of *tetanus* were brought forward on behalf of the prisoner, with the object of showing that the symptoms then exhibited were identical with those in Cook's case, and, therefore, raising the presumption that he might have died from ordinary tetanic convulsions, and not from those produced by strychnia.

The first of these cases was described by *Mr. Robert Edward Gay*, a member of the College of Surgeons, who had attended a patient of the name of *Forster* for *tetanus* in October, 1855. Apparently, at first the patient was suffering only from sore throat and its usual attendant pains in the neck and upper portion of the spine, for which he was duly treated. On the fourth day of his illness the muscular pains extended to the face, and particularly to the lower jaw, and by evening lockjaw had come on, with pains of the muscles of the bowels, legs, and arms. "He became very convulsed throughout the entire muscular system, had frequent involuntary contractions of the arms, hands, and legs; his difficulty of swallowing increased, and not a particle of food, solid or liquid, could be introduced into the mouth, the attempt to do so bringing on violent convulsions; so strong were they, that I could compare him to nothing but a piece of warped board." The head was thrown back, the abdomen thrust forward, the legs frequently drawn up and contracted; the attempt to feed him with a spoon, the opening a window, or placing the fingers on the pulse, brought on violent convulsions. While the patient was suffering in this manner, he complained of great hunger, repeatedly exclaimed that he was hungry, and could not eat. He was kept alive *to the fourteenth day* entirely by injections of a milky and farinaceous character. He was insensible on the 12th, and continued so till he died. There was no sore or hurt about his body, and Mr. Gay attributed his death to an

inflammatory sore throat, from cold and exposure to the weather, assuming a tetanic form, from the patient being a very nervous, excited, and anxious person. Mr. Gay, whilst satisfied that this was a case of *idiopathic tetanus*, admitted that he never met with such another case; that it was altogether progressive from the first onset; that although for a short time there was a remission of symptoms, they invariably recurred, and that the locking of the jaw was the very first symptom that made its appearance.

In another case, at the Royal Free Hospital, in 1843, on the 28th of July, a boy was brought in with the middle toe of his left foot smashed by a stone, which Mr. John Gay amputated. The accident had happened a week before, and the wound became very unhealthy. When the surgeon first saw him, his mouth was almost closed, and continued so until the 1st of August, but a small quantity of medicine could be introduced.

> "During the first three days," said *Mr. J. Gay*, "his paroxysms were of unusual severity; he complained of a stiff neck, and during the first night started up and was convulsed. On the following night he was again convulsed. At times the abdominal muscles, as well as those of the legs and back, were rigid, and the muscles of the face in a state of great contraction. He was in the same state the next day, but at two o'clock there was much less rigidity of the muscles, especially those of the abdomen and back. On the following morning the rigidity had gone, he opened his mouth and could talk; he was thoroughly relieved. He had no return of spasms till half-past five on the following day. He then asked the nurse to change his linen, and as she lifted him up in bed to do so, violent convulsions of the arms and face came on, and he died in a few minutes. About thirty hours elapsed between the preceding convulsion and the one which ended his life. Before the paroxysm came on the rigidity had been completely relaxed. Tartar emetic (containing antimony), which I gave on the second and third day, did not produce vomiting; the rigidity of the muscles of the chest would go far to prevent it.

> The wound might have rubbed against the bed when he was raised, but I don't think it possible. Some peculiar irritation of the nerves would give rise to the affection of the spinal cord. There may be various causes for this irritation of the spinal cord, which ends in *tetanus*, but it would be very difficult merely from seeing symptoms of *tetanus*, and in the absence of knowledge of how it had been occasioned, to ascribe it to any particular cause. No doubt the death took place in consequence of something produced by the injury of the toe."

The seriousness of the wound in this case, in comparison with any signs of wounds found on Cook's body, and the severity of the shock occasioned by such a painful accident, renders this example almost valueless.

In a third case, at the London Hospital, on the 22nd of March of 1856, a patient, aged thirty-seven, was brought in about half-past seven in the evening. When in the receiving room, he had one paroxysm, and another soon after when in the ward. After the first, his pulse was feeble and rapid, his jaws closed and fixed, an expression of anxiety on his countenance, and his features sunken; he was unable to swallow, and the muscles of the abdomen and the back were somewhat tense. After the second paroxysm, his body became arched for about a minute. He was quieter for a few minutes, had a third attack, and died. He had some old neglected sores of a chronic character, particularly at the right elbow, a peculiarly sensitive spot, and Mr. Ross, the house-surgeon, who attended the case, admitted that the disease had been coming on since the morning, that he had felt symptoms of lockjaw at breakfast, and had had successive attacks all the afternoon before coming to the hospital. Here again the case had been progressive until death, and commenced with lockjaw, the admitted signs of ordinary tetanus as distinguished from that due to poison.

The last case proved was that of *Catherine Wilson*, of Garnkirk, near Glasgow, who "was attacked with a fit," as she deposed, "in October last year at night, felt heavy all the day from the morning, but had no pain till night. My first pain," she said, "was in the stomach, and then I had cramp in the arm, and became quite insensible." By the administration of chloroform the spasms were relieved, and she recovered.

Dr. William Macdonald, of Edinburgh, who saw the case about an hour after the attack, admitted that lockjaw came on in about an hour or two after he was called in.

This witness was also put forward as a medical expert in cases of strychnia, and attributed Cook's death to "epileptic convulsions with tetanic complications," and was subjected to the following *cross-examination* by the *Attorney-General*:—

> "I believe," said *Dr. Macdonald*, "that all convulsive diseases, including the epileptic forms and the various tetanic complications, arise from the decomposition of the blood acting upon the nerves. Any mental excitement might have caused Cook's death. Cook was excited at Shrewsbury, and whenever there is excitement there is a consequent depression. I think Cook was afterwards depressed. When a man is lying in bed and vomiting he must be depressed."
>
> *Attorney-General.*—"This gentleman was much overjoyed at his horse winning, and you think he vomited in consequence?"
>
> *Witness.*—"It might predispose him to vomit."
>
> *Attorney-General.*—"I am not speaking of 'mights.' Do you think that the excitement of three minutes on the course on Tuesday accounts for the vomiting on Wednesday night.?"
>
> *Witness.*—"I do not. I find no symptoms of excitement or depression reported between that time and his death. The white spots found in the stomach of the deceased might, by producing an inflammatory condition of the stomach, have brought on the convulsions that caused death."

Attorney-General.—"But the gentlemen who made the *post-mortem* examination say that the stomach was not inflamed."

Witness.—"There were white spots, which cannot exist without inflammation. There must have been inflammation."

Attorney-General.—"But these gentlemen say there was not."

Witness.—"I do not believe them. Sexual excitement might cause epileptic convulsions with tetanic complications. The chancre and syphilitic sores were evidence that Cook had undergone such excitement. That might have occurred before he was at Shrewsbury."

Attorney-General.—"Might sexual excitement produce epilepsy a fortnight after it occurred?"

Witness.—"There is an instance on record in which epilepsy supervened upon the very act of intercourse."

Attorney-General.—"Have you any instance in which epilepsy came on a fortnight afterwards?"

Witness.—"It is within the range of possibility."

Attorney-General.—"Do you mean as a serious man of science to say so?"

Witness.—"The results might."

Attorney-General.—"What results were there in this case?"

Witness.—"The chancre and the syphilitic sores."

Attorney-General.—"Did you ever hear of a chancre causing epilepsy?"

Witness.—"No."

Attorney-General.—"Did you ever dream of such a thing."

Witness.—"I never heard of it."

Attorney-General.—"Did you ever hear of any other form of syphilitic disease producing epilepsy?"

Witness.—"No; but *tetanus*."

Attorney-General.—"But you say that this was epilepsy. We are not talking of *tetanus*."

Witness.—"You forget the tetanic complication."

Attorney-General.—"If I understand it right then, the sexual excitement produces epilepsy, and the chancre superadds tetanic complications."

Witness.—"I say the results of sexual excitement produce epilepsy."

Attorney-General.—"What would be the effect of morphia given a day or two previously; would it not retard the action of the poison?"

Witness.—"No. I have seen opium bring on convulsions very nearly similar."

Attorney-General.—"What quantity?"

Witness.—"A grain and a half. From my experience, I think if morphia had been given a day or two before, it would have accelerated the action of the strychnia. If this were a case of poisoning by strychnia, I should suppose that as both opium and strychnia produce congestion of the brain, they would act together and have a more speedy effect. If congestion of the brain was coming on when morphia was given to Cook on the Sunday and Monday nights it might have increased rather than allayed it."

Attorney-General.—"But the gentlemen who examined the body say there was no congestion after death."

Witness.—"But Dr. Bamford says there was."

Attorney-General.—"You stick to Dr. Bamford."

Witness.—"Yes; because he was a man of experience and could judge much better than younger men, and was not so likely to be mistaken."

Attorney-General.—"But Dr. Bamford says that Cook died of apoplexy. Do you think it was apoplexy?"

Witness.—"No; it was not."

Attorney-General.—"What then do you think of Dr. Bamford, who certified that it was?"

Witness.—"That was a matter of opinion, but the existence of congestion on the brain he saw."

Attorney-General.—"The other medical men said there was none."

Lord Campbell.—"That is rather a matter of reasoning than of evidence."

Having thus reported the medico-scientific evidence *pro* and *con*, we pass on to the moral evidence—the purchase of poison by the prisoner, and his acts during Cook's illness and subsequent to his death.

PURCHASE OF POISON BY PALMER.

The proof that Palmer purchased strychnia on two separate occasions immediately before the convulsive attacks of which Cook died rested on the evidence of two druggists' assistants at Rugeley. One of these, *Charles Newton*, assistant to *Mr. Salt*, swore that about nine o'clock on the Monday evening, the 19th of November, Palmer came to his master's shop, asked for three grains of strychnia, which he gave him, without charge, as he knew him as a medical practitioner of the town. Next morning, between eleven and twelve, *Roberts*, the assistant of *Hawkins*, another druggist in Rugeley, was asked by Palmer for two drachms of prussic acid, for which he brought a bottle with him. Whilst *Roberts* was preparing this, *Newton*, the former witness, came into the shop, and Palmer, putting his hand on *Newton's* shoulder, said he wished to speak with him, and together they stepped out into the street, when Palmer asked some questions about Mr. Edwin Salt going to a farm about fourteen miles from Rugeley. Whilst they were talking, a *Mr. Brassington* joined them, and began to speak to *Newton* about some accounts for Mr. Salt, on which Palmer went

back into Hawkins's shop and asked for six grains of strychnia and two drachms of Batley's solution of opium.

> "Whilst I was preparing them," said *Roberts*, "Palmer stood at the shop door with his back to me, looking into the street. I was about five minutes preparing them. He stood at the door till they were ready, when I delivered them to him—the prussic acid in the bottle he had brought, the strychnia in a paper, and the opium in a bottle. He paid, and took them away. No one else was in the shop."

As soon as Palmer had left, Newton came in, and spoke to Roberts about Palmer's visit, and no doubt was struck with the information he received. At that time he did not mention to his master Palmer's purchase of the strychnia because, he said, Palmer and Salt were not friends, and he was afraid that the latter might blame him for having given Palmer the strychnia. "I first mentioned it," said *Newton*, "to Boycott, the clerk to Mr. Gardner, the solicitor, at the Rugeley station, when I and a number of witnesses were assembled for the purpose of going to London. He took me to Mr. Gardner's. I told him what I had to say, and he took me to the solicitor of the Treasury." Counsel for the defence tried to elicit from him that he had given as his reason for not mentioning it before that he was afraid of being prosecuted for perjury. "No," he replied; "I did not give that as a reason, but I stated to a gentleman that a young man at Wolverhampton had been threatened by George Palmer because he had said at the inquest on Walter Palmer that he had sold the prisoner prussic acid, and he had not entered it in the book, and could not prove it. I stated at the same time that George Palmer said he could be transported for it. The inquest on Walter Palmer did not take place until five or six weeks after that on Cook."

Not only, however, did Newton[60] not mention this purchase of strychnia when before the coroner, but he did not state that on the 25th of November he was sent for about seven in the evening to Palmer's house, where he found the prisoner in his kitchen, sitting by the fire reading.

> "He asked me," he now said, "how I was, and to have some brandy and water. No one else was there. He asked me what was the dose of strychnia to kill a dog. I told him a grain. He asked me what would be the appearance after death. I told him that there would be no inflammation, and that I did not think it could be found. Upon that he snapped his finger and thumb in a quiet way and exclaimed, as if communing with himself, 'That's all right.' He made some other commonplace remark, which I do not recollect. I was with him altogether about five minutes."

Though he appears to have related the story of the dog at an earlier date, it was not until the Tuesday before the trial that he said a word to anyone about the purchase of the strychnia.

To contradict the evidence of Newton, the inspector of police at the Euston station was called to prove that the last train for Rugeley left at 2P.M., and that if Palmer went by the five o'clock express he would not get to Stafford until 8.45, and would then have nine miles to travel to reach Rugeley. It was, however, remarked by the Attorney-General that Newton's words were "about nine o'clock," and "that everyone knows how easy it is to make a mistake of half an hour or three quarters of an hour, or even an hour, if your attention is not called to the circumstances within a week or a fortnight, or three weeks afterwards." Not content with this evidence, counsel for the defence called one Jeremiah Smith, an attorney, of Rugeley, and intimate friend of the prisoner's mother, who swore that on the night in question he saw Palmer get out of a car coming in the direction from Stafford at ten minutes past ten,

and went with him to Cook's room. The exhibition made by this fellow in the box was disgusting. For some time he declared that he had never had anything to do with the applications for the enormous insurances on Walter Palmer's life; would not acknowledge his signature to them as a witness, and only after a most vigorous *cross-examination* admitted that he witnessed them on the application of the prisoner. He it was who made the application to the Midland Insurance Company for the policy of £10,000 on the life of Bate, the person whom Palmer represented as a gentleman of property with a fine cellar of wine, but whom the insurance agent found hoeing turnips in a field of Palmer's, and with six months' rent in arrear for the room in the farm-house which he occupied. The credit of Newton was set up by the desperate attempt of Mr. Jeremiah Smith.[61]

ACTS OF THE PRISONER DURING COOK'S ILLNESS AND AFTER HIS DEATH.

On Thursday, the 15th of November, Cook returned from Shrewsbury with Palmer to the "Talbot," at Rugeley, complaining of being poorly. It will be remembered that he had been sick at Shrewsbury after partaking of the brandy and water in Palmer's company. Next day he dined with Palmer, and came back to the inn between nine and ten at night, as the witness Barnes said, sober. Early the next morning (Saturday) Palmer was in his bedroom, and sent for a cup of coffee for him. Mills, who brought it up, did not see him drink it; but when soon after she went into his room she found he had vomited it in the chamber. Palmer was in and out frequently, and promised to send Cook some soup; for this he sent *Ann Rowley*, a charwoman to the "Albion Inn," who brought it to Palmer in his kitchen, left it there about five minutes with him,

whilst she went about her other work, and then, by Palmer's orders, took it to the "Talbot," with a message that Jerry Smith, a mutual friend who had dined with them on the Friday, had sent it.[62] Cook, seeming unwilling to take this, Palmer said he must have it. It was taken up again; Cook drank it, and shortly after vomited. Again, on the Sunday, Palmer sent a jobbing gardener in his employ with a covered cup of broth to the "Talbot," of which Mills, who took it up to Cook's room, tasted about two tablespoonsful, and was so sick that she had to go to bed. Whether Cook drank this or not was not distinctly proved, but the cup was afterwards seen empty in the kitchen of the hotel. What followed as to the pills sent by Dr. Bamford, and the others produced by Palmer, is already fully given in Mills's evidence. Immediately after Cook's death, Palmer was found by Barnes searching the pockets of Cook's coat and under his pillow, and the bank-notes which Cook had had only a few days before, his betting-book, which had been seen on his dressing-table, and the letters that had been on his chimney-piece, had disappeared.[63] Previously to this time Palmer had been very short of money, being pressed for small debts, but immediately afterwards was in funds, paying small bills, and depositing £50 in a local bank. On Tuesday evening (20th), when Cook was in such a serious state, Palmer sent for Cheshire, the Rugeley postmaster, and asked him to fill up the body of a cheque on Weatherby for £350 in Palmer's favour, which he said that he would take over to Cook to sign. That cheque was sent to Weatherby's that night, and returned by them to Palmer, as Weatherby, not having yet received the stakes Cook had won, was not in funds to meet it. That cheque was called for by the prosecution, but not produced by the prisoner. Again, on the Thursday or Friday after, between six and seven in the evening, Palmer sent for Cheshire. "When I arrived," said the witness, "I found him in the kitchen, and he immediately went out,

and shortly after returned with a quarto sheet of paper in his hand. He gave me a pen, and asked me to sign something. I asked what it was, and he replied, 'You know that Cook and I have had dealings together, and this is a document he gave me some days ago, and I want you to witness it.' I said, 'What is it about?' He said, 'Some business that I have joined in with him, and which is all for his benefit, and this is the document stating so.'" Cheshire refused, and Palmer, saying perhaps they would not dispute Cook's signature, took it away. This document was also called for, and not produced. [64]

On Friday, 23rd, *Mr. Stevens*, who had married the widow of Cook's father some years before, and was executor to his grandfather's will, arrived in Rugeley, saw Palmer, and asked him about his stepson's affairs. "There are £4000 of his bills out," said Palmer, "and I am sorry to say my name is to them, but I have got a paper drawn up and signed by him to show that I never had any money from them." Mr. Stevens expressed great surprise, and said, "I fear there will not be 4000 shillings to pay you." Then, after discussing his stepson's affairs, Mr. Stevens said, "Well, whether he has left anything or not, poor fellow, he must be buried," on which Palmer immediately said, "Oh, I will bury him myself, if that is all." Mr. Stevens at once refused, and expressed his intention of removing the body to London for interment, so as not to inconvenience the inn people. "Oh," said Palmer, "that is of no consequence, but the body ought to be fastened up; as long as the body is fastened up, it is of no consequence." Whilst Mr. Stevens was talking with the persons in the room, Palmer went out, and on his return, when asked by Stevens to recommend an undertaker, said, "I have been and done this. I have ordered a shell and a strong oak coffin." Mr. Stevens expressed his surprise, and insisted on giving instructions himself to the undertaker.

Later in the day, after dinner, on Mr. Jones reporting to Stevens, who had asked him to go up to Cook's room for that purpose, that he could not find any betting-book or papers, Palmer said, "Oh, it's no manner of use if you do find it." "No use," replied Stevens, "I am the best judge of that." Again said Palmer, "It's of no manner of use." "I am told it is," was the reply; "my son won a great deal of money at Shrewsbury, and I ought to know something about it." "It is of no use, I assure you," replied Palmer; "when a man dies, his bets are done with; and besides, Cook received the greater part of the money on the course." "Very well," replied Stevens, "the book ought to be found, and must be found," when Palmer said, in a quieter tone, "It will be found, no doubt." The room was then locked by Mr. Stevens's order, but the book was never found.

Mr. Stevens returned to London to see his solicitor, and on his way back met Palmer (who had been to London to pay Pratt £100, and caution him against giving any information about Cook's affairs), and told him his intention of having a *post-mortem* examination. Apparently agreeing with that, Palmer offered to introduce him to a local solicitor to conduct it, which was declined; but, added Mr. Stevens, "I said, 'Mr. Palmer, if I should call in a solicitor to give me advice, I suppose you will have no objection to answer any question he may put to you.' I altered my tone purposely; I looked him steadily in the face, but although the moon was shining, I could not see his features distinctly. He said, with a spasmodic convulsion of the throat, which was perfectly apparent, 'Oh no, certainly not.'" Later in the evening Palmer came to Mr. Stevens and renewed his conversation about the bills, hoping that affairs would be settled pleasantly, and was told by the stepfather that "they could be only settled in Chancery." Palmer, at that time, denied that he had attended Cook in a medical capacity.

On the 17th of November, *Ishmael Fisher*, who was Cook's usual racing agent, received a letter from Cook requesting him to pay Pratt £200, which he would repay him on the following Monday, when the Shrewsbury bets would be settled at Tattersall's. Much to his surprise, he was not employed as usual, and in consequence lost the money he had advanced, for on the 19th *Mr. George Herring*, another betting man, got a letter from Palmer to call on him at the latter's lodgings, in London, at half-past two that day. He did so.

> "I found Palmer there," said *Herring*. "He asked me what I would take. I declined to take anything. I then asked him how Mr. Cook was. He said, 'He's all right; his physician gave him a dose of calomel, and advised him not to come out, it being a damp day.' I don't know which term he used, 'damp' or 'wet.' He then went on to say, in the same sentence, 'What I want to see you about is settling his account.' While he was speaking he took out half a sheet of note paper from his pocket, and it was open when he had finished the sentence. He held it up and said, 'This is it.' I rose to take it. He said, 'You had better take its contents down; this will be a check against you.' At the same time he pointed to some paper lying on the table. I wrote on that paper from his dictation. I have here the paper which I so wrote. [The witness read the document in question, which contained instructions as to certain payments he should make out of moneys to be received by him at Tattersall's on account of the Shrewsbury races.] Palmer then said that I had better write out a cheque for Pratt and Padwick—for the former £450, and for the latter £350, and send them at once. I told him I had only one form of cheque in my pocket. He said I could easily fill up a draught on half a sheet of paper. I refused to comply with his request, as I had not as yet received the money. He replied that it would be all right, for that Cook would not deceive me. He wished me particularly to pay Mr. Pratt the £450. His words, as nearly as I can remember them, were, 'You must pay Pratt, as it is for a bill of sale on the mare.' I don't know whether he said 'a bill of sale,' or 'a joint bill of sale.' He told

me he was going to see both Pratt and Padwick, to tell them that I would send on the money. Previous to his saying this, I told him that if he would give me the address of Pratt and Padwick I would call on them, after I had got the money from Tattersall's, and give it to them. He then asked me what was between us. There were only a few pounds between us, and after we had had some conversation on the point, he took out of his pocket a £50 Bank of England note. He required £29 out of the note, and I was not able to give it; but he said that if I gave him a cheque it would answer as well. I gave him a cheque for £20 and nine sovereigns. When I was going away I do not remember that he said anything about my paying the money to Pratt and Padwick. He said on parting, 'When you have settled this account write down word to either me or Cook.' I turned round and said, 'I shall certainly write to Mr. Cook.' I said so because I thought I was settling Mr. Cook's account. He said, 'It don't much matter which you write to.' I said, 'If I address Mr. Cook, Rugeley, Stafford, it will be correct, will it not?' He said, 'Yes.' After leaving Beaufort Buildings I went to Tattersall's. I then received all the money I expected, except £110 from Mr. Morris, who paid me £90 instead of £200. I sent from Tattersall's a cheque for £450 to Mr. Pratt. I posted a letter to Cook from Tattersall's, and directed it to Rugeley. On Tuesday the 20th, next day, I received a telegraphic message. I have not got it here. I gave it to Captain Hatton at the coroner's inquest at Rugeley. In consequence of receiving that message I wrote again to Cook that day. I addressed my letter as before, but I believe the letter was not posted till the Wednesday. I have three bills of exchange with me. I know Palmer's handwriting, but never saw him write. I cannot prove his writing; but I knew Cook's writing, and I believe the drawing of two and the accepting of the three bills to be in his writing. I got them from Fisher and gave him cash for them." [The witness Boycott was recalled, and identified the signatures on the bills as those of Palmer and Cook.]

Examination continued.—"The bills are each for £200. One of them was payable in a month, and when it fell due on October 18, Cook paid the £100 on account. He paid me the remaining £100 at

Shrewsbury, but I cannot tell with certainty on what day. I did not pay the £350 to Padwick. I hold another bill for £500." [Thomas Strawbridge, manager of the bank at Rugeley, identified the drawing and endorsing as in the handwriting of Palmer. The acceptance, purporting to be in the writing of Mrs. Sarah Palmer, he did not believe to have been written by her.]

Examination continued.—"I am sure that the endorsement on the £500 bill is in Cook's writing. I got the bill from Mr. Fisher. I paid £200 on account of it to Palmer, and £275 to Mr. Fisher. The balance was discount. It was not paid at maturity. I have taken proceedings against Palmer to recover the amount."

On the 26th of November, the *post-mortem* examination was held, at which Palmer was present, and the incidents of the pushing of the jar containing the contents of the stomach and the cutting of its coverings occurred; and if the evidence of *Myatt*, the postboy, is to be taken as true, Palmer tried to bribe him to upset the fly in which Mr. Stevens and his solicitor's clerk were to take the jar to the Stafford station, *en route* to London,

James Myatt, examined by Mr. James.—"In November last I was postboy at the 'Talbot Arms,' Rugeley. I know Palmer, the prisoner, and I remember Monday, the 26th of November last. I was ordered on that night, a little after five o'clock, to take Mr. Stevens to the Stafford station in a fly. Before I started I went home to get my tea, and on returning from my tea to the 'Talbot Arms' I met the prisoner. He asked me if I was going to drive Mr. Stevens to Stafford. I told him I was."

Question.—"What did he say to you then?"

Answer.—"He asked me if I would upset them."

Question.—"Them? Had anything been said about a jar?"

Answer.—"He said he supposed I was going to take the jar."

Question.—"What did you say then?"

Answer.—"I said I believed I was."

Question.—"What did he say after that?"

Answer.—"He said—'Do you think you could upset them?'"

Question.—"What answer did you make?"

Answer.—"I told him 'No.'"

Question.—"Did he say anything more?"

Answer.—"He said—'If you could, there's a £10 note for you.'"

Question.—"What did you say to that?"

Answer.—"I told him I could not. I then said, 'I must go, the horses are in the fly ready for us to start.' I do not recollect that he said anything more about the jar. I said, that if I didn't go somebody else would go. He told me not to be in a hurry, for if anybody else went he would pay me. I saw him again next morning, when I was going to breakfast. He asked me then who went with the fly. I told him Mr. Stevens, and, I believed, one of Mr. Gardner's clerks."

Cross-examined by Mr. Serjeant Shee.—"Were not the words that Palmer used—'I wouldn't mind giving £10 to break Stevens's neck?'"

Answer.—"I don't recollect the words 'break his neck.'"

Question.—"Well, 'upset him.' Did he say, 'I wouldn't mind giving £10 to upset him?'"

Answer.—"Yes; I believe those were the words. I do not know that Palmer appeared to have been drinking. I don't recollect that he had. I can't say that he used any epithet, applied to Stevens—he said it was a humbugging concern altogether, or something of that. I don't recollect that he said Stevens was a troublesome fellow, and very inquisitive. I don't remember anything more than I have said. I do not know whether there was more than one jar."

Whilst the analysis of the contents of the jar was being conducted in London, the coroner opened an inquest at Rugeley. Palmer, now fully aware of his danger, determined to use his influence over the postmaster to get the earliest information of the results of the analysis, and to make a friend of Ward, the coroner.

With the latter object, he sent a hamper of fish and game to the coroner from London on the 1st of December, writing the direction himself, but not otherwise letting Ward know from whom they came, which he professed to wish to be kept secret. To Cheshire, the postmaster, with whom he had long been on very friendly terms, receiving from him his mother's and Cook's letters, on the 2nd of December he hinted the importance of his knowing anything that might pass through the post between Dr. Taylor and the local solicitor. In consequence, on the Wednesday following, he is told by Cheshire the substance of the letter, already quoted, written by the analyst to Mr. Gardner on the previous day. On this Palmer, on the 8th, writes to a poulterer at Stafford to have some game ready for his messenger, and sends Bate over for it, to take it, with the following note, to the coroner:—

"My dear Sir,—I am sorry to tell you that I am still confined to my bed. I don't think it was mentioned at the inquest yesterday that Cook was taken ill on Sunday and Monday night, in the same way as he was on the Tuesday, when he died. The chambermaid at the 'Crown' Hotel (Masters's) can prove this. I also believe that a man by the name of Fisher is coming down to prove he received some money at Shrewsbury. Now, here he could only pay Smith £10 out of £41 he owed him. Had you not better call Smith to prove this? And, again, whatever Professor Taylor may say to-morrow, he wrote from London last Tuesday night to Gardner to say, 'We (and Dr. Rees) have this day finished our analysis, and find no traces of either strychnia, prussic acid, or opium.' What can beat this from a man like Taylor, if he says what he has already said, and Dr. Harlands's evidence? Mind you, I know and saw it in black and white what Taylor said to Gardner; but this is strictly private and confidential, but it is true. As regards his betting-book, I know nothing of it, and it is of no good to anyone. I hope the verdict to-morrow will be that he died of natural causes, and thus end it.

"Ever yours, "W. P."

Bate goes to the poulterer, re-directs, and sends the game by a lad, and then finds his way to the inn, where the coroner is smoking, calls him out of the billiard-room, and privately gives him the letter.

On the 14th of December the adjourned inquest is to be held, and Dr. Taylor's evidence taken. On the previous day, therefore, Bate is again summoned by Palmer, and sent to borrow a £5 note of Thirlby, and on his return, Palmer being still ill in bed, is told by him to look in a drawer for another, but can only find one for £50. At this juncture the sheriff's officer arrives to arrest him on one of the overdue bills, Bate is sent out of the room, and on his return commissioned to take a note to the coroner, and to be sure that no one sees him deliver it. This he succeeds in doing between the "station" and the "Junction Hotel," where he slips it slily into Ward's hand. Not liking all this secrecy, Bate had hesitated at accepting the mission, and asked that some one else should be sent, when Palmer replied, "Why, George, as to this poor fellow Cook, he was the best pal I ever had in my life; and why should I have poisoned him?" and then added, "I am as innocent as you, George." The inquest proceeded, and in addition to the evidence of the symptoms attendant on Cook's death, Dr. Taylor gave his, and Roberts proved the purchase of strychnia only a day before Cook's death. Palmer was summoned, but professed to be too ill to come, and on the next day a verdict of wilful murder against him was returned, and a warrant issued for his transfer to Stafford jail. After a few days' detention in his own house, Palmer was conveyed to jail, in such a state of despondency that he appears to have determined to starve himself to death, and would probably have done so, but for the threat of compulsory measures by the Governor. Soon afterwards all his property was seized under a bill

of sale and sold, his racehorses alone realising four thousand guineas.[65]

THE DEFENCE.

Of Mr. Serjeant Shee's address to the jury in the defence of the prisoner, which occupied, without wearying, the attention of the Court during eight hours on the seventh day, only a brief analysis can be given. The main points on which he insisted were—*First*, the erroneous nature of the medico-scientific evidence in referring the symptoms exhibited in Cook's case to *tetanus* from *strychnia*, on which he was prepared to contradict it by witnesses of equal character and credit in the profession. *Secondly*, the probability, amounting as near as possible to a certainty, that if the death had been occasioned by strychnia, the presence of that poison should have been detected by the analysts. *Thirdly*, the similarity of the symptoms in the case to those of cases of *traumatic* or *idiopathic tetanus* of late occurrence, to be described by the doctors who had attended them. As the mass of evidence by which he sought to support these propositions has been already reported, it is needless to recur to it. We may therefore pass on to the moral evidence, only pausing to extract the noble passage descriptive of the mechanism of the human frame, with which he introduced the former subject, and his picture of Cook's state of mind from before his victory at Shrewsbury until his death.

"'A little learning is a dangerous thing.'

> "It appears to me there never was a case in which the adage was so applicable as it is in this. Of all the works of God, the one best calculated to fill us with wonder and admiration, and convince us of our dependence on our Maker, and the utter nothingness of ourselves, is the mortal coil in which we live, and breathe, and

think, and have our being. Every minute of our lives, functions are performed at our will, the unerring accuracy of which nothing but omniscience and omnipotence could have secured. We feel and see exactly what takes place, and yet the moment we attempt to explain what takes place, the instant we endeavour to get a reason for what we know, and see, and do, the mystery of creation—'God created man in his own image, in the image of God created he them'—arrests our course, and we are flung back on conjecture and doubt. We know in a sense—we suppose—that the soft medullary substance which is within the cavity of the head is the seat of thought, of sensation, and of will. We know that that soft medullary substance is continued down the middle of the back, protected by a bony duct or canal, within which it lies embedded, and we know that from the sides of that bony duct and from this medullary substance proceed an infinite variety of nerves (the conduits of sensation from all parts of the body to the soul) and of muscles connected and dependent on them, the instruments of voluntary motion. This we know; and we know that by that process all the ordinary actions of ourselves, at our will, are effected with the most wonderful precision. Sometimes, however, these nerves and muscles depart from their normal character, and instead of being the mere instruments of the soul, become irregular, convulsive, tumultuary, vindicating to themselves a sort of independent vitality, totally regardless of the authority to which they are ordinarily subject. When thrown into this state of excitement, their effects are known by the general name of convulsions. It is remarkable, unlike most other fine names, they are not of modern adaptation. The ancients had them to express the very same thing. The spasmodic and tetanic affections were known then, and as much about them hundreds and thousands of years ago as is known now. Tetanic convulsions have been divided in later times into two specific branches of tetanus—idiopathic and traumatic."

In opening the portion of his case that Cook's death was attributable to causes other than strychnia, Serjeant Shee adroitly

concealed the names of the diseases to which his witnesses were prepared to attribute it. Until, therefore, his cloud of witnesses had been passed through, the prosecution did not know, except from the *cross-examination* of their own medico-scientific witnesses, to what technical points they had to shape their reply.

In support of his contention that Cook's death could be fairly attributed to ordinary convulsions, the learned Serjeant gave the following graphic sketch of the state of his mind at the period of Shrewsbury races, and from then to his death:—

> "He went there in the imminent peril of returning from them a ruined man. His stepfather assured Palmer that there would not be 4000 shillings for those who had claims on his estate. From the necessity he was under of raising money at an enormous discount we may easily infer that he was in desperate difficulties, and that unless some sudden success on the turf should retrieve his fortunes, they were hopeless. His health was shattered, his mind distracted; he had long been cherishing hopes that Polestar would win, and so put him in possession of something like a thousand guineas. The mare, it was true, was hardly his own, for she had been mortgaged; and if she should lose, she would become the property of another person. Picture to yourselves what must have been the condition, mental and bodily, of that young man when he rose from his bed on the morning of the races. It is scarcely possible, as he went down to breakfast, that this thought must not have crossed his mind, 'My fate is trembling in the balance; this is the crisis of my destiny. Unless my horse shall win, to-night I am a beggar.' With these feelings he repairs to the course. Another race is run before Polestar is brought out. His impatience is extreme. He looks on in a state of agonising excitement. Will the minutes never fly? At last arrives the decisive moment; the time has come for his race. The flag is dropped; the horses start; his mare wins easily, and he, her master, has won a thousand guineas! For three minutes he is not able to speak, so intense is his emotion. Slowly he recovers his utterance, and then

how rapturous is his joy! He is saved, he is saved! Another chance to retrieve his position—one chance more to recover his character! As yet, at all events, he will not be a disgrace to his family and his friends. Conceive him to be, with all his faults, an honourable young man, and you may easily imagine what his ecstasy must have been. He loves the memory of his dead mother—he still reverences the name of his father—he is jealous of his sister's honour, and it may be that he cherishes silently in his heart the thought of some other being dearer still than all to whom the story of his ruin would bring bitter anguish. But he is not ruined; he will meet his engagements like an honourable man. There is now no danger of his being an outcast, an adventurer, a black-leg. He will live to redeem his position, and to give joy to those who love him. With such thoughts in his heart, he returns to his inn in a state of indescribable elation, and with a revulsion from despair that must have convulsed—though not in the sense of illness—every fibre of his frame. His first idea is to entertain his friends, and he does so. The evidence does not prove that he drank to excess, but he gave a champagne dinner; and we all know that is a luxurious entertainment, at which there is no stint and not much self-respect. That evening he did not spend in the society of Palmer; indeed, it is not clear in whose company he spent it. But we find him on the evening of Wednesday at the 'Unicorn' with Saunders, his trainer, and a lady. On Thursday he walks upon the course, and Herring remonstrates with him for doing so, as the day is damp and misty, and the ground wet. That night he is seized with illness, and he continues ailing until his death at Rugeley. Arrived at Rugeley, it is but natural to suppose that a reaction of feeling may have set in. Then the dark side of the picture may have presented itself to his imagination. The chilling thought may have come upon him that his winnings were already forestalled and would scarcely suffice to save him from destruction. It is when suffering from a weakened body, and an irritated and excited mind, that he is attacked by a sickness which clings to his system, leaves him without any rest, incapacitates him from taking food, distracts his nerves, and places him in imminent danger of falling a victim to any sudden attack of convulsions to which he may have a

predisposition. He relished no society so much as that of Palmer, whose residence was immediately opposite the 'Talbot Arms' Inn, where he was lying on his sick bed. For two days he had been taking opiate pills prescribed by Dr. Bamford. On Sunday night, at twelve o'clock, he started as from a dream in a state of the utmost excitement and alarm. He admitted afterwards that for two minutes he was mad, but he could not ascribe it to anything unless to his having been awakened by a squabble in the street. But do no such things happen to people of sound constitutions and regular habits? Do no such people awaken in agony and delirium because there is a noise under their windows? No; these are the afflictions of the dissipated and anxious, whose bodies are shattered and whose minds are distracted. Next day, Monday, he was pretty well, but not so well as to mount his horse or to take a walk in the fields. He could converse with his trainer and jockey, but he could take no substantial food, and drank not a drop of brandy-and-water. You will bear in mind that Palmer was not with him that day. In the middle of the night he was seized with an attack similar in character to that of the night preceding, but manifestly much milder, for he retained his consciousness throughout it, and was not mad for a moment. The evidence of Elizabeth Mills is conclusive on the point. At three o'clock on the following day (Tuesday) Mr. Jones, the surgeon of Lutterworth, arrived, and spent a considerable time—probably from three to seven o'clock—in his company. They had abundant opportunity for conversing confidentially, and they were likely to have done so, for they were very intimate, and Jones appears to have been on more familiar terms with Cook than was any other person, not even excepting Mr. Stevens. Nothing occurred in the entire and unbounded confidence which must have existed between Mr. Cook and Mr. Jones, to raise any suspicions in the mind of Mr. Jones; and at the consultation, which took place between seven and eight o'clock on Tuesday evening between Jones, Palmer, and Bamford, as to what the medicine for that evening should be, the fit of the Monday night was not mentioned. That is a remarkable fact. The Crown may say that it is remarkable, inasmuch as Palmer knew it, and said not a word about it; but I think that it shows that the fit

was so little serious in the opinion of Cook that he did not think it worth mentioning to his intimate friend."

In dealing with the "moral evidence," counsel *first* attacked the motive imputed by the prosecution, and sought to show from the correspondence, as well as from the conduct of the parties, that at the moment when Palmer was charged with killing Cook, he was his best and indeed the only friend whom he could look to to assist him in his severe financial troubles.

"Was it," he said, "to his interest that in the second week in November Cook should be killed, say by a railway accident? For some time they had been mixed up together in racing transactions, had made heavy losses during the late sporting season, and Cook at least—and most probably Palmer, as associated with him—was looking forward to the success of Polestar to save them from ruin. At that time Pratt, the bill discounter, was pressing for an extra £200 to stave off legal proceedings on the £2000 bill, to which his mother's name had been forged. To whom does Palmer apply? To Cook, who at once writes to his betting agent Fisher to advance and pay that to Pratt on the Saturday before the Monday's settlement at Tattersall's of the Shrewsbury winnings. Fisher having done this, was it not probable that Cook arranged with Palmer, that in order to get the use of this £200 for a few days, Herring, and not Fisher, should be authorised to collect the winnings and secure a sufficient payment to Pratt to stave off the action?" [Cook's letter of the 19th of November was accordingly cited as a proof of his anxiety to assist Palmer.] "Again, there was in Herring's hands a bill of Palmer's for £500, bearing his mother's forged acceptance. Was it likely that with this danger staring him in the face, Palmer would kill the only man from whom he could look for money? The transaction as to the bill for £500, secured on Cook's racehorses, discounted by Pratt, for which, as Pratt wrote him at once, Palmer would have to provide, was another reason for not killing his only friend."

In September Palmer had negotiated this bill with Pratt professedly for Cook's benefit, and had received from Pratt a crossed cheque to Cook's order for £385, and a wine warrant for £65, and at the same time, on his own account, £315 in cash, and the imputation by the Crown was that he forged Cook's endorsement and took the money. The improbability of his doing this, as Cook was certain, had he done so, to have complained of it during the months that elapsed between the giving of the bill of sale on his horses and his death, was urged by Mr. Shee, who ventured to offer as an explanation the suggestion that as Cook wanted cash on that day, Palmer gave him his £315, and with his consent endorsed Cook's name on the cheque and paid that to his own account. Again he dealt with the circumstance of Cook's cheque for £350, the body of which was drawn by Cheshire, and, as Palmer said, taken by him on the 20th November to Cook for him to sign in his sick room. That cheque, it will be remembered, was not produced, but

> "Weatherby, on whom it was drawn," said Serjeant Shee, "was under the impression that the signature was Cook's.[66] As it was not certain that Frail would have sent up to Weatherby the stakes against which it was drawn by the Monday, was it likely that, had Palmer meditated Cook's death at the time, he would have risked its being returned—as it was—and passing into the hands of Cook's executors, who would be certain to enquire into the matter, on Cook's sudden death? From the enquiries that had been instituted as to his brother's life policy, he knew himself to be an object of suspicion, and, if any foul play happened to Cook, all hope of recovering that would be gone. 'Their refusal,' wrote Pratt to him, 'altered the whole state of affairs, and Palmer must be prepared to pay his mother's acceptances for £4,000 due at the end of the month.' There was the pinch; the office would not pay; the £4,000 was becoming due; the holder of the bills saw that he was without

security, and, if anything occurred to increase the suspicions of the insurance office, which was very reluctant to pay, the £13,000 was lost for ever, lost beyond hope. Gentlemen, that £13,000 is sure to be paid, unless this man is convicted of murder; and that has a great deal to do with the clamour and alarm which have been excited. So sure as that man is saved, and saved I believe he will be, that £13,000 is paid. There is no defence, no pretence for a defence—the letters of the office make that plain. They took an enormous premium; knowing that the man was only 30, they took a premium for a man of 50—at least, the letters show that the premium was enormous—and I say that, as sure as this man is saved, that £13,000 is good for him, and will pay his creditors. Do not these facts show that in this October suspicions were hanging in menacing meteors about Palmer's head, which would come down with irresistible momentum and crush him upon suspicion of a sudden death by murder? Do you believe that a man who wrote what the effects of strychnia were in his manual would risk such a scene as a death-bed by it, in the presence of the dearest and best friend of Cook—a man whom he could not influence; a medical man, who liked him and loved him well enough when he knew he was ill to sleep in the same room with him, that he might be able to attend to him in case he wanted assistance during the night? Is that common sense? Are you going to endorse such a theory as that upon the suggestion of Dr. Taylor about the effects of strychnia produced upon his five rabbits? Impossible! perfectly impossible! as I submit to you. So sure as anything happened by foul play to Cook, he had no more chance of getting the £13,000 than the £180,000 from the Prince of Wales Insurance Office—none whatever. That was the only means he had at that time of extricating himself from these encumbrances."

Again, he tried to depreciate the evidence of Mills as to the symptoms of Cook's attacks, on the ground—not, indeed, that she had been tampered with by the prosecution—because then, he said, he was certain that she would not have been called—but "that she had been instructed in the various symptoms by the repeated

private examinations to which she had been subjected," dwelling on the omission from her evidence before the coroner that she had been so violently sick after tasting the broth, and on the other discrepancies in, and omissions from, her description of the symptoms when there, and when in court.

> "Upon all occasions," said the learned counsel, "I am most reluctant to attack a witness who is examined on his or her oath, and particularly if he be in a humble position of life. I am very reluctant to impute perjury to such a person; and I think that a man who has been as long in the profession as I have been must be put a little to his wits' end when he rushes upon the assumption that a person whose statements have, after a considerable lapse of time, materially varied, is, therefore, necessarily, deliberately perjured. The truth is, we know perfectly well, that if a considerable interval of time occurs between the first story and the second, and if the intelligent and respectable persons who are anxious to investigate the truth, but who have still a strong moral conviction—upon imperfect information—of the guilt of the accused person, will talk to witnesses and say, 'Was there anything of this kind?' or, 'Anything of that kind?' the witnesses at last catch hold of the phrase or term which has so often been used to them, and having in that way adopted it, they fancy they may tell it in court."

He also attacked the conduct of Mr. Stevens, the stepfather, for, as he said, "goading and irritating Palmer into incautious expressions, by insinuating that he had stolen a trumpery betting-book that could not be of use to anyone;" and attributed Palmer's anxiety to nominate a local solicitor to manage affairs to the nature of the pecuniary transactions, so much relying on honour, making them far more easy of adjustment by a friendly than by a hostile agent. As for Myatt, the postboy's, story of the bribe for upsetting the fly, he attributed that to a personal feeling against the "meddlesome old gentleman," as he called Stevens, and not to any

idea of destroying the probable proofs of his delinquency. His marked attention to Cook during his illness he attributed to the interest he necessarily felt in his life, and the sending of broth and other things from his own house to the wish to save expense at a time when neither of them were too well off. “Would he,” said Serjeant Shee, “dream of sending poisoned broth to an inn, where it was sure to be tasted by the cook?”

In addition to the scientific witnesses which he would call to rebut those of the prosecution’s, he would prove that Cook, previously to the Shrewsbury meeting, was suffering severely from a syphilitic state of throat, and applying to Palmer for remedies for it—that Palmer could not have been in Rugeley at the time at which Newton swore that he sold the strychnia to him, and that the incident at the “Raven,” at Shrewsbury, of the brandy-and-water was a fiction. To what this evidence of previous illness amounted, and how the two witnesses who were to negative Newton and disprove the scene at the “Raven” fared when put in the box, will be seen in the report of their examination.[67] Great stress was of course laid on Palmer’s not only calling in Dr. Bamford, but sending for Mr. Jones, Cook’s firmest friend, to witness what proved his last day of life, and on the improbability of Palmer tampering with the medicines under such professional supervision.

> “Is it conceivable that if Palmer meant to slay Cook with poison in the dead of night, he would previously have insured the presence in his victim’s chamber of a medical witness, who would know from his frightful symptoms that the man was not dying a natural death? He brings a medical man into his room, and makes him lie within a few inches of the sick man’s bed, that he may be startled with his terriffic shrieks, and gaze on those agonizing convulsions which indicate the fatal potency of the poison. Can you believe it? He might have dispatched him by means that defy detection, for Cook was taking morphia medicinally, and a grain or two more would

have silently thrown him into an eternal sleep;[68] but instead of this he sends to Lutterworth for Jones. You have been told that this was done to cover appearances. Done to cover appearances! No, no, no! You cannot believe it. It is not in human nature. It cannot be true. *You cannot find him guilty. You dare not find him guilty on the supposition of its truth. The country will not stand by you if you believe it to be true. You will be impeached before the whole world if you say that it is true. I believe in my conscience it is false, because, consistently with the laws that govern human nature, it cannot be true.*"

"The incident of his being found searching the clothes and under the pillow," said counsel, "ought not to be looked upon as suspicious, as Mills, who came into the room at the time, thought no suspicion of it, and there was nothing but the evidence of a kind and considerate character in his having ordered the shell and the coffin; nor was it possible to torture into a presumption of guilt the few words of irritation which may have fallen from him in the course of a conversation in which Mr. Stevens treated him with scorn, not to say with insolence." And then, alluding to the entry as to the effects of strychnia in one of his medical books, the learned Serjeant turned it most adroitly to his own purpose, as the basis of a peroration so telling in its language and perfect in its construction that it must be preserved intact.

"The Crown had, no doubt, originally intended to rely upon the prisoner's medical books as affording damning proof of his guilt; but I will refer to those volumes for evidences that will speak eloquently in his favour. In youth and early manhood there is no such protection for a man as the society of an innocent and virtuous woman to whom he is sincerely attached. If you find a young man devoted to such a woman, loving her dearly, and marrying her for the love he bears her, you may depend upon it that he is a man of humane and gentle nature, little prone to deeds of violence. To such

a woman was Palmer attached in his youth, and I will bring you proof positive to show that the volumes cited against him were the books he used when a student, and that the manuscript passages are in the handwriting of his wife. His was a marriage of the heart. He loved that young and virtuous woman with a pure and generous affection; he loved her as he now loves her first-born, who awaits with trembling anxiety the verdict that will restore him to the arms of his father, or drive that father to an ignominious death upon the scaffold." [The prisoner here covered his face with his hands and shed tears.] "Here in this book I have conclusive evidence of the kind of man that Palmer was seven years ago. I find in its pages the copy of a letter addressed by him while still a student to the woman whom he afterwards made his wife. It is as follows:—

"'My dearest Annie,—I snatch a moment from my studies to your dear, dear little self. I need scarcely say that the principal inducement I have to work is the desire of getting my studies finished, so as to be able to press your dear little form in my arms. With best, best love, believe me, dearest Annie,

'Your own William.'

"Now this is not the sort of letter that is generally read in courts of justice. It was no part of my instructions to read that letter, but the book was put in to prove that this man is a wicked, heartless, savage desperado; and I show you what he was seven years ago—that he was a man who loved a young woman for her own sake—loved her with a pure and virtuous affection—such an affection as would, in almost all natures, be a certain antidote against guilt. Such is the man whom it has been my duty to defend upon this occasion, and upon the evidence that is before you I cannot believe him to be guilty. Don't suppose, gentlemen, that he is unsupported in this dreadful trial by his family and his friends. An aged mother, who may have disapproved of some part of his conduct, awaits with trembling anxiety your verdict; a dear sister can scarcely support herself under the suspense which now presses upon her; a brave and gallant brother stands by him to defend him, and spares neither time

nor trouble to save him from an awful doom. I call upon you, gentlemen, to raise your minds to a capacity to estimate the high duty which you have to perform. You have to stem the torrent of prejudice; you have to vindicate the honour and character of your country; you have, with firmness and courage, to do your duty, and to find a verdict for the Crown if you believe that guilt is proved; but, if you have a doubt upon that point, depend upon it that the time will come when the innocence of that man will be made apparent, and when you will deeply regret any want of due and calm consideration of the case which it has been my duty to lay before you."

THE REPLY.

The greater part of the tenth day was occupied with the reply of the Attorney-General, dealing in the *first* part with the medico-scientific evidence brought forward for the defence, and contrasting it with that on the part of the prosecution, and in the *latter* part pressing home with all his force of criticism and power of language the suspicious acts of the prisoner before and after the death of Cook. Between *idiopathic* and *traumatic tetanus* he drew the distinction, "supported," as he said, "by the evidence of men who had seen, not here and there a stray case, but numerous instances of that disease, that the former was a disease of days, and even weeks, and not of hours or minutes." He pointed out that such were really the symptoms in the cases adduced for the defence, and ridiculed the notion that the old ulcers of the spring of the year, with which Dr. Savage had dealt successfully, could be assigned as the causes of this form of disease in Cook's case, and then criticised *seriatim* the other forms of convulsive disease to which the witnesses for the defence attributed it. After referring to the statements of Dr. Savage and Mr. Stevens as to the state of Cook's health prior to his

departure for Shrewsbury races, he thus dealt with the evidences of his state of health offered by the prisoner's witnesses:—

"It is said that at some former time he had exhibited his throat to some of the witnesses that were called, and had applied to Palmer for mercurial wash to apply to it, or to some of the ulcers. The precise period is not fixed, but it is perfectly clear that, though at one time he had adopted that course, under the recommendation of Dr. Savage he had got rid of it, and there is not the slightest pretence for saying that this man was suffering under a syphilitic affection of any kind; that fact was negatived distinctly and unequivocally by a man of the highest authority, a medical gentleman of eminence, under whose treatment the man got so rapidly well. It is a pretence, gentlemen, which has not the shadow of a foundation, and which I should be shrinking from my duty if I did not denounce as altogether unworthy of your consideration. There was nothing about the man, according to the statement of those who were competent to give you an opinion, which would warrant, for a single moment, the supposition that there was anything in any part of his body which could justify the notion of *traumatic tetanus*. Even if there were, the character which his symptoms assumed when the *tetanus* set in, is utterly incompatible, according to the evidence of all the witnesses, with a case of *traumatic tetanus*."

Then, after pointing out how the two cases of this disease put forward by the defence were cases of days and hours, and, not like Cook's, of minutes, he proceeded to deal with the suggestion of *idiopathic tetanus*.

"*Idiopathic tetanus?* Proceeding from what? They say that Mr. Cook was a man of a delicate constitution, subject to excitement; that he had something the matter with his chest; that, in addition, he had this diseased condition of his throat, and, putting all these things together, they say, that if he took cold, he might get '*idiopathic tetanus*.' We are launched into a sea of speculation and impossibilities. Mr. Nunneley, who came forward for the purpose of inducing you to believe this, goes through a bead-roll of the

supposed infirmities of Mr. Cook; talks about his exciteability, about his delicacy of chest, about the affection of his throat, goes through these various heads, and says that these things may have predisposed him to '*idiopathic tetanus*,' if he took cold. What evidence is there that he ever did take cold? Not the slightest in the world. From beginning to end he was never treated for cold by anybody, and never complained of it to anyone. *I cannot help saying that to me it seems a scandal upon a learned, distinguished, and liberal profession, that men should put forward such speculations as these, perverting facts, and drawing from them sophistical and unwarrantable conclusions with the view of deceiving a jury. I have the greatest respect for science, no man can have more; but I cannot repress my indignation and abhorrence when I see it thus perverted and prostituted to the purposes of a particular cause in a court of justice.* Do not talk to me about excitement, as Mr. Nunneley did the other day, being the cause of *idiopathic tetanus*. You remember the sort of excitement he spoke of, they are unworthy of your notice, and they were topics discreditable to be put forward by a witness as worthy of the attention of sensible men constituting such a tribunal as you are."

Again, on Mr. Nunneley's suggestion that it might be a case of general convulsions accompanied by tetanic symptoms, said the Attorney-General.—

"Well, but pause a moment, Mr. Nunneley; have you ever seen one single case in which death arising from general convulsions, accompanied by tetanic symptoms, has not ended in the unconsciousness of the patient before death? 'No, I never knew such a case—not one. But in some book or other I am told that there is such a case reported;' and he cites one, not for that purpose, I think, but with reference, to general convulsions being sometimes accompanied by tetanic symptoms and ending in death, from a very eminent author of the present day, Dr. Copland. Dr. Copland is living and Dr. Copland might have been called—was not called,

notwithstanding the challenge which I threw out. Why? Because it is infinitely better in such a case to call together from the east and west practitioners of more or less obscurity, instead of bringing to bear upon the subject the light of science which is treasured in the breasts of the eminent practitioners with which this city abounds."

Again, on Mr. Partridge's evidence of the probable effect of the granules on the spinal marrow,

"I called his attention," he said, "to what had evidently not been done before, namely, the symptoms of Mr. Cook's case, and asked him in simple, straightforward terms whether, looking at these, he would pledge his opinion, in the face of the medical world and the Court, that this was a case of arachnitis, and he candidly admitted that he would not assert it."

Against Dr. Macdonald's epileptic convulsions with tetanic complications, he cited the following from that gentleman's cross-examination:—

"Did you ever know a case of epilepsy, with or without tetanic complications, in which consciousness was not destroyed before the patient died? He said 'No, I cannot say I ever did, but I have read in some book that such a case occurred.' Is there anything to make you think this was epilepsy? 'Well, it may have been epilepsy, because I do not know what else to ascribe it to, but I must admit that epilepsy is characterised generally by unconsciousness.' Well, then, what difference would tetanic complications make? That he is unable to explain."

With the final suggestion of *Angina pectoris*, he could not deal so minutely as with the four preceding ones.

"The gentleman," he said, "who was called at the last moment would not have escaped quite so easily if I had had the books to

> which he referred under my hand, and been able to expose, as I would have done, the ignorance or presumption of the assertion he dared to make. *I say ignorance or presumption; or, what is worse, an intention to deceive. I assert it in the face of the whole medical profession, and I am satisfied I shall have a verdict in my favour.*"

He then concluded this part of his speech by calling attention to the fact, that three of the witnesses for the prisoner, Mr. Partridge, Dr. Robinson, and even Dr. Letheby, strongly as he was biased for the defence, agreed with Sir B. Brodie and the other medical witnesses for the Crown, that, "in the whole of their experience, learning, and information, they knew of no known disease to which the symptoms of Mr. Cook could possibly be referred—a fact the importance of which it was impossible to exaggerate."

Assuming, then, that all were agreed, that from the time that the final paroxysm set in, the symptoms were similar to those of *strychnia tetanus*, he dealt with the point which the defence had raised—which he admitted deserved their most attentive consideration—that there were points of difference, which had led some of the witnesses to the conclusion that they could not have resulted from that cause.

> "Let us see," he said, "what they are. In the first place, they showed that the period which elapsed between the supposed administration of the poison, and the first symptoms, was longer than they have ever observed in animals upon which they have experimented. The first observation which arises is this: that there is a known difference between animal and human life, in the power with which certain specific things act upon their organization. It may well be that poison administered to a rabbit will produce its effect in a given time. It by no means follows that it will produce the same effect in the same time on an animal of a different description. Still less does it follow that it will exercise its baneful influence in the same time on a human subject. The whole of the evidence on

both sides leads to establish this fact, that not only in individuals of different species, but in individuals of the same species, the same poison and the same influence will produce effects different in degree, different in duration, different in power. But again, it is perfectly notorious that the rapidity with which the poison begins to work depends mainly upon the mode of its administration. If it is administered in a fluid state it acts with great rapidity. If it is given in a solid state its effects come on more slowly. If it is given in an indurated substance it will act with still greater tardiness. Then what was the period at which this poison began to act after its administration, assuming it to have been poison? It seems, from Mr. Jones's statement, that Palmer came to administer the pills somewhere about 11 o'clock, but they were not administered on his first arrival, for the patient, as if with an intuitive sense of the death that awaited him, strongly resisted the attempts to make him take them; and no doubt these remonstrances, and the endeavours to overcome them, occupied some period of time. The pills were at last given. Assuming—which I only do for the sake of argument—that the pills contained strychnia, how soon did they begin to operate? Mr. Jones says he went down to his supper, and came back again about 12 o'clock. Upon his return to the room, after a word or two of conversation with Cook, he proceeded to undress and go to bed, and had not been in bed ten minutes before a warning came that another of the paroxysms was about to take place. The maidservant puts it still earlier, and it appears that as early as ten minutes before twelve the first alarm was given, which would make the interval little more than three-quarters of an hour. When these witnesses tell us that it would take an hour and a half, or two hours, we see here another of those exaggerated determinations to see the facts only in the way that will be most favourable to the prisoner. I find in some of the experiments that have been made that the duration of time, before the poison begins to work, has been little, if anything, less than an hour. In the case of a girl at Glasgow it was stated that it was three-quarters of an hour before the pills began to work. There may have been some reason for the pills not taking effect within a certain period after their administration. It would be easy to mix them up

with substances difficult of solution, or which might retard their action. I cannot bring myself to believe that if in all other respects you are perfectly satisfied that the symptoms, the consequences, the effects, were analogous, and similar in all respects to those produced by strychnia, you will conclude that in this case strychnia was not administered, and found your conclusion on the simple fact that a quarter of an hour more than usual may have elapsed before the pills operated. But they say the premonitory symptoms were wanting. They assert that in the case of animals the animal at first manifests some uneasiness, shrinks, and draws itself into itself, as it were, and avoids moving; that certain involuntary twitchings about the head come on, and that there were no such premonitory symptoms in Cook's case. I utterly deny the proposition. I say there were premonitory symptoms of the most marked character. He is lying in his bed; he suddenly starts up in an agony of alarm. What made him do that? Was there nothing premonitory there—nothing that warned him the paroxysm was coming on? He jumps up, says, 'Go and fetch Palmer—fetch me help! I am going to be ill as I was last night!' What was that but a knowledge that the symptoms of the previous night were returning, and a warning of what he might expect unless some relief were obtained? He sits up and prays to have his neck rubbed. What was the feeling about his neck but a premonitory symptom, which was to precede the paroxysms that were to supervene? He begs to have his neck rubbed, and that gives him some comfort. But here they say this could not have been tetanus from strychnia, because animals cannot bear to be touched, for a touch brings on a paroxysm—not only a touch, but a breath of air, a sound, a word, a movement of any one near will bring on a return of the paroxysm. Now, in three cases of death from strychnia we have shown that the patient has endured rubbing of the limbs, and received satisfaction from that rubbing. In Mrs. Smyth's case, when her legs were distorted, she prayed and entreated that she might have them straightened. The lady at Leeds, in the case which Dr. Nunneley himself attended, implored her husband between the spasms to rub her legs and arms in order to overcome the rigidity. That case was within his own knowledge, and yet in spite of it,

> although he detected strychnia in the body of the unhappy woman, he dares to say that Cook's having tolerated the rubbing between the paroxysms is a proof that he had not taken strychnia. Then there is the case of Clutterbuck. He had taken an overdose of strychnia, and suffered from the reappearance of tetanus, and his only comfort was to have his legs rubbed. Therefore, I say that the continued endeavour to persuade a jury that the fact of Cook's having had his neck rubbed proves that this is not tetanus by strychnia, shows nothing but the dishonesty and insincerity of the witnesses who have so dared to pervert the facts. But they go further, and contend that Cook was able to swallow. So he was before the paroxysms came on. But nobody has ever pretended that he could swallow afterwards. He swallowed the pills, and what is very curious, and illustrates part of the theory, is this, that it was the act of swallowing the pills, a sort of movement in raising his head, which brought on the paroxysm of which he died."

Having thus called attention to the fact, that against the three cases of undoubted poisoning by strychnia (those of Mrs. Smyth, Mrs. Dove, and Mr. Clutterbuck), the sufferers in which begged to be rubbed, all that could be set up was, that animals when thus poisoned could not bear to be touched, the Attorney-General dealt with the fact of the rigidity of Cook's body after death, on which Mr. Nunneley relied as a proof that it could not be a case of strychnia poisoning. He cited the evidence of Mr. Herapath, the very next analyst called by the defence, that in two of his experiments on animals "the bodies had been indurated and contorted," as well that of Dr. Taylor that one of the animals in his experiments was so rigid after death that it could be held out in an horizontal position in the air as though it were on its four legs on a plane surface. "What," he said, "are you to think of the honesty of this sort of evidence? "Again, on the question of the fulness or

emptiness of the heart, he thus accounted for the variation of the symptoms:—

> "It is obvious to any one who reflects for a single moment that the question whether the heart shall be found compressed, or the lungs congested must depend upon the immediate cause of death, and we know that in cases of tetanus death may result from more than one cause. All the muscles of the body are subject to the exciting action of this powerful poison, but no one can tell in what order those muscles will be affected, or where the poisonous influence will put forth the fulness of its power. If it acts on the respiratory muscles, and arrests the play of the lungs, and with it the breathing of the atmospheric air, the result will be that the heart will be left full. But if some spasm seizes on the heart, contracting it and expelling from it the blood that it contains, and so produces death, the result will be that the heart will be found empty. So that you never have perfect certainty as to how these symptoms will manifest themselves after death; but that is again put forward as if the fact of the heart being empty is a conclusive fact of the death not having taken place from strychnia. Yet those men who come here as witnesses under the sanction of scientific authority, must have heard both these cases spoken to by medical gentlemen who had examined those two unfortunate patients after death, and who told us that in both cases they found the heart empty. That gets rid of that matter. As death takes place from one or other of these causes, so will be the appearance of the heart, the brain, and the body after death. There is nothing in this for a single moment to negative the conclusion which you would otherwise arrive at from the other symptoms."

For the difficulty which he admitted arose from the non-discovery of strychnia by the analyst, he assigned another reason besides that of the condition of the stomach and other parts from the negligence imputed to those who had conducted the *post mortem* examination—namely, the probable smallness of the fatal

dose. In all the cases of experiments on animals in which the poison had been detected, the doses had been one or even two grains, yet half a grain would prove fatal; and where so little as that had been given in experiments, Dr. Taylor and Dr. Rees had failed to detect it. On the partisanship of Mr. Herapath, sitting by the side of the prisoner's counsel, prompting questions, and on his assertion that he believed that Cook had been killed by strychnia and that Taylor could and ought to have detected it, his remarks were those rather of a French Public Prosecutor than an Attorney-General.

> "I do not say that alters the fact; but I do say that it induces one to look at the credit of those witnesses with a very great amount of suspicion. I reverence a man who, from a sense of justice and a love of truth—from those high considerations which form the noblest character of man—comes forward in favour of a man against whom the world may turn in a torrent of prejudice and aversion, and who stands and states what he believes to be the truth. But I abhor the traffic in testimony to which, I regret to say, men of science sometimes permit themselves to condescend."

Whether Newton was believed or not—and he showed how his statement was confirmed by Roberts's account of Palmer's conduct at the time of the second purchase of poison, he urged that of the latter fact there could be no doubt, and asked what was done with that strychnia. That Palmer obtained this strychnia was not controverted, and what he did with it was not attempted to be satisfactorily accounted for.

> "Purchased for whom? for what? If for a patient why is he not produced? If for any other purpose, let us at least have it explained. Has there been a shadow of an explanation? Alas, I grieve to say, none at all. Something was said, in the outset of the case, about dogs that had been troublesome in the paddocks, but that was in September. If there was any recurrence of this, why are not the

grooms here to prove this? Some one must have assisted Palmer to destroy these dogs. Where are those persons? Why are they not called? Not only are they not called, they are not even named. My learned friend does not venture to breathe even a suggestion."[69]

As for the witness called to disprove the incident of the brandy and water at Shrewsbury, his solitary evidence, that of one of the prisoner's associates, he urged, would not stand for a moment against those of the witnesses who had spoken for the prosecution. As for the attempt to prove that Palmer could not have been in Rugeley at the time when Newton swore that he purchased the strychnia, Mr. Jeremiah Smith's antecedents, the disgraceful part he had played in the insurance transactions, let alone his exhibition in the witness-box, he added, deprived his evidence of credit.

Again, antimony was undoubtedly discovered in the body, and yet no one is known to have given it to Cook, unless Palmer did so in the broth, the toast and water, and the coffee that he pressed him to take, and provided for him. On the question of motive so anxiously laboured by the defence, it was enough simply to repeat, the amounts of the debts pressing on Palmer, and to bear in mind how drowning men will catch at a straw. Cook's bets, which Palmer had collected, staved off immediate pressure; and had not Mr. Stevens, whose conduct as Cook's relative the Attorney-General earnestly defended, insisted on the *post-mortem*, and thus brought about the inquest and this inquiry, it was possible that the insurance office might have paid the policy on Walter's life, and the forged bills been thus redeemed in time to save exposure. Cook also was valueless to help Palmer to keep these bills alive; even Pratt, the 60 per cent. money-lender, would not discount his acceptance for £500 without the security of a bill of sale on his horses.

Better acquainted with turf doings than his opponent, the Attorney-General smiled at the idea, that because a man was another's confederate on the turf therefore he made himself responsible for his debts, or that Cook, with all his friendship for Palmer, would beggar himself for his sake.

> "Joint engagement they had but one, the £500 bill secured on Sirius and Polestar, and it was to meet this, and free his horses, that Cook gave £300 out of his receipts at Shrewsbury to Palmer to send up to Pratt, and wrote to Fisher to advance the other £200. No £300 was sent up, and the £200, with the bets collected by Herring, went not to free this bill, but to stop Pratt's action on the forged bill of £2000 of Palmer's. It was no doubt true that after a man's death, his bets were irrecoverable and his betting-book useless. It was, however, useful to enable Palmer to give a list of bets to Herring to collect, the proceeds of which were turned to his own use, and the previous collection of which Palmer withheld from Stevens. In the same way would have gone the cheque for £350 for the stakes—whether a forgery or not—but for the accident of their not having paid over in time. Had Cook lived, the closely approaching claim on his £500 acceptance, which he believed to have been settled, would have revealed the whole transaction." [Again, the Attorney-General pressed for the production of the £350 cheque filled up by Cheshire.] "Why should Cheshire be asked to fill it up? Just about this time Palmer was to meet Dr. Bamford and Jones in consultation—why not ask Mr. Jones, the trusted friend of Cook, tell him the same story as he did Cheshire, and not send for the latter? From the day that this cheque was drawn till he was arrested on the bill, Palmer had undisturbed possession of his own papers—from the day of his arrest till his trial the papers had been in safe custody. Why, then, is it not produced? Can you help drawing the inference that the transaction will not bear the light? Look, again, at the claim of £3000 or £4000 of bills on Cook's estate, the document Cheshire refused to witness, which is also not produced—the letter to Pratt that he must have Polestar, and the instructions not to give any

information on Cook's affairs. Can you doubt that they were all part of one fraudulent and flagitious design, for the full completion of which the death of Cook was a necessary thing?"

Palmer's conduct at the *post-mortem*, the tampering with the cover of the jar—by whom?—his anxiety to upset Mr. Stevens when in charge of it, because, it had been urged, of "his prying meddlesome curiosity;" his presents and letters to the coroner; his prompting Cheshire to tamper with the letter from Dr. Taylor; his anxiety to know, and to let the coroner know, that strychnia had not been found; his suggestion to call Smith (what a witness Jeremiah would have made!); his assertions of previous epileptic fits, and his hope "that the verdict to-morrow would be that he died of natural causes, and thus end it," were all dwelt upon: "little things, if taken individually, but taken as a whole," said the Attorney-General, "as I submit to you, leading irresistibly to the conclusion of the guilt of this man."

In concluding this masterly speech, though in some parts too like fighting for a verdict, the Attorney-General criticised the assertion by Serjeant Shee of his belief of the prisoner's innocence:—

"You have, indeed, had introduced into this case one other element, which I own, I think, had better have been omitted. You have had from my learned friend the unusual, I think I may say the unprecedented, assurance of his conviction of the innocence of his client. I can only say upon that point that I think it would have been better if my learned friend had abstained from giving such an assurance. What would he think of me if, imitating his example, I should at this moment declare to you, on my honour, as he did, what is the intimate conviction which has followed from my own conscientious consideration of this case? My learned friend also, in his address, of which all admired the power and ability, adopting a

course which is sometimes resorted to by advocates, but which, in my mind, involves more or less a species of insult to the good sense or good feeling of the jury—endeavoured to intimidate you, by an appeal to your consciences, from discharging firmly and honestly the great and solemn duty which you are called upon to perform. My learned friend told you that, if your verdict in this case should be 'guilty,' the innocence of the prisoner would one day be made manifest, and that you would never cease to regret the verdict which you had given. If my learned friend were sincere in that—and I know that he was, for there is no man in whom the spirit of truth and honour is more keenly alive—if he said what he believed, I can only answer that it shows how, when a man enters upon the consideration of a case with a strong bias on his mind, he is liable to err. I think then that my learned friend had better have abstained from making any assurance which involved his conviction of the prisoner's innocence. I think, further—in justice and consideration to you—that he should have abstained from representing to you that the voice of the country would not sanction the verdict which you might give. I say nothing of the inconsistency which is involved in such a statement, coming from one who but a short hour before had complained in eloquent terms of the universal torrent of passion and of prejudice by which he said that his client would be borne down; but in answer to my learned friend I say this to you:—Pay no regard to the voice of the country, whether it be for condemnation or for acquittal; pay no regard to anything but to the internal voice of your own consciences, and to that sense of duty which you owe to God and man upon this occasion, seeking no reward except the comforting assurance that when you look back to the proceedings of this day you will feel that you have discharged to the utmost of your ability and to the best of your power the duty which it was yours to perform. If on a review of this whole case, comparing the evidence on one side and on the other, and weighing it in the even scales of justice, you can come to the conclusion of innocence, or can even entertain that fair and reasonable amount of doubt of which the accused is entitled to the benefit, in God's name acquit him; but if, on the other hand, all the facts and all the evidence lead your minds,

with satisfaction to yourselves, to the conclusion of his guilt, then—but then only—I ask for a verdict of ‘guilty’ at your hands. For the protection of the good, for the repression of the wicked, I ask for that verdict by which alone—as it seems to me—the safety of society can be secured, and the demands, the imperious demands of public justice, can be satisfied.”

THE JUDGE’S CHARGE.

As the learned Judge’s charge occupied the whole of the eleventh and until half-past four on the twelfth day, and was necessarily protracted by his reading in detail nearly all the voluminous evidence to the jury, it would be impossible to give it in full. I shall, therefore, limit this report to such of his observations, as have not already been given in the notes to the evidence of the various witnesses to whom they applied.

Contrasting the practice in foreign countries of raising the probability of guilt, from the fact of the previous commission by a prisoner of other crimes against other persons, and even of a totally different character to that with which he then stands charged, Lord Campbell warned the jury that they must deal with him now as if he were an entirely innocent man, and confine their attention solely to the evidence bearing on the crime itself. He warned them also that the expression of his counsel’s opinion, that the prisoner was innocent, meant no more than the plea of “Not Guilty,” and that the most inconvenient consequences would follow from regarding it in any other light. Neither was it necessary, as a point of law, that the poison by which it was charged that the murder was effected, should be found in the body, or seen to be administered. They must look to the medical evidence to see whether the death was from that poison, or from natural causes, and to the moral evidence, whether that showed that the prisoner not only had the opportunity,

but that he actually availed himself of that opportunity, and administered the poison. He then proceeded to read over the evidence, commencing with that showing the indebtedness of Palmer to Pratt, in which Cook had no liability, and then taking up the joint liability of Palmer and Cook to the same person in connection with the loan secured on Cook's horses. With reference to the former transactions he called attention to Palmer's letter to Pratt, "not to let Cook's friends know what money Cook had ever had from him," remarking, "that it was written at a time when the stepfather was making inquiries of a nature certainly very disagreeable to Palmer." On the latter correspondence he called attention to the cheque for £375, sent by Pratt for Cook, on which Palmer wrote the endorsement, and admitted "that it was very properly argued for the defence, that it was possible that Cook had authorised some one else to write it;" but coupled with it the circumstance that on the 13th of November Palmer was in a state of embarrassment, and that on the 20th he could pay Armshaw two £50 notes, and that on the 22nd he could pay a further £50.

After next reading the evidence of Wright, the attorney of Birmingham, to show how heavily Palmer was indebted to his brother, besides to Pratt, and alluding to the bill of sale of all his property, he laid great stress on the non-production of the cheque on Weatherby for £350, the production of which would have settled the question whether or not it was forged with the intention of appropriating it to his own use. Mr. Serjeant Shee here interposing with the remark that Weatherby thought the signature genuine, Lord Campbell replied:—

> "Mr. Weatherby said the body of the cheque was not in Cook's handwriting, and he had paid no attention to the signature. You, gentlemen, must consider the evidence with regard to this part of the case. The cheque is not produced, though it was sent back by

> Weatherby to Palmer. It is not produced" [here the judge read the evidence of the search for papers at Palmer's]. "It might have been expected that the cheque so returned to Palmer, who professed to set store upon it, and to have given value for it, would have been found, but it is not forthcoming. It is for you to draw whatever inference may suggest itself to you from this circumstance."

The judge then alluded to the fact of Palmer remaining in the neighbourhood after suspicion had been excited against him, as of importance, and worthy of being taken into consideration, though, as he added, "he might have done so, perhaps, thinking that from the care he had taken nothing would be discovered against him," and that neither the bills nor the document by which Cook was said to have admitted his liability on them were produced, and closed this portion of the evidence.

On the incident of the brandy-and-water at Shrewsbury, the learned judge remarked, "What a mysterious circumstance it was, that Cook, after he had stated his suspicions, still retained his confidence in Palmer—was still constantly in his company—during the few remaining days of his life, still sent for him whenever in distress; and, in fact, seemed to a great extent to be under his influence." In a subsequent part of his charge, when dealing with the evidence for the defence, he contrasted the evidence of Myatt in contradiction to that of Brooks and Fisher, and left the jury to draw their own conclusion which they would believe. Cook's letter to Fisher to pay Pratt the £200 was also here read and commented on, and the jury left to infer why he did not go to London as he proposed, and why he put the collection of his bets in Herring's hands instead of Fisher's—"if he did so."

Coming now to the illness at Rugeley, he said, "he was bound to declare that not one fact had been adduced to prove that Mills had been bribed, or that Mr. Stevens had read over the newspaper

to her, to influence her evidence in a particular direction: it was a gratuitous assertion, unsupported by evidence, and distinctly denied." Whether the difference of Palmer's dress when he ran over, as described by Mills or Barnes, was of sufficient importance, was a question for the jury, and also whether Mills's deposition before the coroner, and her evidence in Court (the deposition was read) was not substantially the same. On the letter from Palmer calling in Jones, cited by the defence as a proof of innocence, he said:—

> "It is important, however, to consider at what period of Cook's illness Jones was sent for, and in what condition he was when Jones arrived. Palmer's assertion in the letter was, that Cook had been suffering from diarrhœa, and of this statement we have not the slightest confirmation in the evidence. When Jones, looking at Cook's tongue, observed it was not the tongue of a bilious attack, Palmer's reply was, 'You should have seen it before.' What reason could Palmer have for using these words, when there is not the slightest evidence of Cook having suffered from such an illness?" Then, having had Jones's deposition before the coroner read, he added, "It is for you to say whether in your opinion this deposition at all varies from his evidence given here: I confess that I see no variation, and no reason to suppose that his evidence is not the evidence of sincerity and truth."

After observing that the evidence of Dr. Savage showed that previous to his departure for Shrewsbury Cook was in better health than he had been for a long time, the learned judge read the evidence of Newton, and his deposition before the coroner. Remarking on his omitting to mention the first purchase of strychnia until the Tuesday morning, when coming to London, he said:—

"You will observe that though there has been an omission, there is no contradiction. You are then to consider what is the probability of his inventing this wicked lie—a most important lie, if lie it be. He had no ill will towards the prisoner at the bar, he had never quarrelled with him, and had nothing to get by injuring him. I cannot see any motive for his inventing a lie to take away the life of the prisoner. No inducement was held out to him by the Crown. He says himself that no inducement was held out to him, and that at last he disclosed this circumstance from a sense of duty. If you believe his evidence, it is very strong against the prisoner." And then, reading the evidence of Roberts and remarking that he was not cross-examined or in any way contradicted, he added—"If you couple that with the statement of Newton—believing that statement—you have evidence of strychnia having been procured by the prisoner on the Monday night before the symptoms of strychnia were exhibited by Cook; and by the evidence of Roberts, undenied and unquestioned, that on Tuesday six grains of strychnia were supplied to him. Supposing you should come to the conclusion that the symptoms of Cook were consistent with strychnia, then a case is made out for the Crown. The learned counsel did not favour us with the theory he had formed in his own mind with respect to that strychnia. There is no evidence—there is no suggestion—how it was applied; what became of it.[70] That must not influence your verdict, unless you come to the conclusion that Cook's symptoms were consistent with death by strychnia. *But if you come to that conclusion, I should shrink from my duty—I should be unworthy to sit here—if I did not call your attention to the inference, that if he purchased that strychnia, he purchased it for the purpose of administering it to Cook.*"

Then, after vindicating the conduct of Mr. Stevens in relation to the loss of the betting-book, Lord Campbell alluded to the pushing of the jar, at the *post-mortem*, as probably an accident, and its removal as "nothing more than the pushing, were it not coupled with evidence afterwards given, which might lead to the inference

that there was a plan to destroy it and prevent the analysis of its contents." He saw no reason to doubt the evidence of the postboy, and did not believe that Stevens had given Palmer such provocation as to induce him to offer Myatt a bribe to upset him. "That is not indeed a decisive proof of guilt, but it is for you to say whether the prisoner did not enter on that contrivance to prevent an opportunity of examining the jar, which might contain evidence against him."

Cheshire's evidence as to filling up the cheque, and being asked to witness Cook's signature, as if he was present, to the document professing to admit his liability on Palmer's bills; his subsequent dealing with Dr. Taylor's letter to Mr. Gardner; Palmer's letter to the coroner stating the result of the analysis; his presents to the coroner; and his instructions to Bate not to let anyone see him deliver his letter to Mr. Ward, together with the instructions to Herring about Cook's bets, were then carefully reviewed before entering on the medico-scientific evidence offered on the part of the prosecution.

The evidence of this class of witnesses has been so fully reported, that it is needless to repeat the Judge's passing comments on their descriptions of the symptoms of tetanus as consistent with those in Cook's case, and with those exhibited in the cases of undoubted poisoning by strychnia, detailed by the medical men who had attended the several patients. With reference to the results of the analysis by Drs. Taylor and Rees, and of the effect of their evidence, the learned Judge made the following comment on their experiments on animals:—

> "There is here a most important question for your consideration. Great reliance is placed by the prisoner's counsel, and very naturally so, upon the fact that no trace of strychnia was detected in the stomach of Cook by Dr. Taylor and Dr. Rees, who alone analysed it and experimented upon it. But, on the other hand, you must bear in

mind that we have their own evidence to show that there may be and have been cases of death by strychnia in which the united skill of these two individuals has failed to detect the presence of the strychnia after death. Both Dr. Taylor and Dr. Rees have stated upon their oaths that in two cases where they knew death to have been occasioned by strychnia—the poison having, in fact, been administered with their own hands—they failed to discover the slightest trace of the poison in the dead bodies of the animals on which they had experimented. It is possible that other chemists might have succeeded in detecting strychnia in those animals and strychnia also in the jar containing the stomach and intestines of Cook; but, however this may be, it is beyond all question that Dr. Taylor and Dr. Rees failed to discover the faintest indications of strychnia in the bodies of two animals which they had themselves poisoned with that deadly drug. Whatever may be the nature of the different theories propounded for the explanation of this fact, the fact itself is deposed to on oath; and, if we believe the witnesses, does not admit of doubt." With regard to the letter from Dr. Taylor to Mr. Gardner, stating that neither strychnia, prussic acid, nor opium had been found in the body, his lordship said, "this letter was written before Cook's symptoms had been communicated to them; but they had been informed that prussic acid, strychnia, and opium had been bought by Palmer on the Tuesday. They searched for all these poisons, and found none. The only poison they found was antimony, and they did not, therefore, in the absence of symptoms, attribute death to strychnia, as they could not at that time; but they say it might have been produced by antimony, as they say that the quantity found in the body was no test of the quantity taken into the system."—"For the discovery of strychnia Dr. Taylor experimented upon the bodies of animals which he had himself killed by this poison, but in them no strychnia could be found. I do not know what interest Dr. Taylor could be supposed to have to give evidence against the prisoner. He was regularly employed by the Crown, and knew nothing of Palmer until he was called upon by Mr. Stevens, and the jar was given to him. He could have no enmity against the prisoner and no interest whatever to misrepresent facts." [On being

reminded that Dr. Taylor's experiments on the two rabbits were not made until after the inquest,] "that," said Lord Campbell, "makes no difference. If that experiment was made this morning the fact would be the same. Against Dr. Rees there is not even the imputation of having written an indiscreet letter to a newspaper. Yet Dr. Rees concurs with Dr. Taylor, that these rabbits were killed by strychnia; that they did whatever was in their power, according to their skill and knowledge, to discover strychnia, as they did with the contents of the jar, and that no strychnia could be discovered. As to antimony, he corroborates the testimony of Dr. Taylor. Antimony is a component of tartar emetic; tartar emetic produces vomiting, and you will judge from the vomiting at Shrewsbury and Rugeley whether antimony may have been administered to Cook at those places. Antimony may not have produced death, but the question of its administration is a part of the case which you must most seriously consider."

Having then read the evidence of Professor Brande, Dr. Christison, and Dr. John Jackson, Lord Campbell, at eight o'clock, reserved the evidence for the defence to the next day.

On resuming his charge the next morning, Lord Campbell commenced by a brief summary of his previous remarks.

"The evidence for the prosecution certainly did present a serious case against the prisoner. It appeared that in November last he was most seriously embarrassed, and that he had to make payments for which he was entirely unprepared. There were actions against himself and his mother, and he had no credit left in any quarter. Cook by the races at Shrewsbury became master of £1000, and the inference had been drawn that Palmer formed a design of appropriating it to his own purposes, in order to relieve himself from his embarrassments. Again, it was proved that the prisoner drew a cheque in the name of Cook which was a forgery, for the purpose of appropriating to himself Cook's property. What would have been the effect of the survival of Cook under those

circumstances it would be for the jury to consider. No doubt, if Cook had lived, that cheque would have been brought forward, and would have led to an exposure of all Palmer's delinquencies. With respect to the joint liability of Cook and Palmer, it was said that it was disadvantageous to Palmer that Cook should die; but there seemed to be some doubt whether it was not the intention of Palmer to possess himself of the whole of Cook's property, and in that case he had a direct interest in his death. Then as to the medical evidence which had been adduced for the prosecution. The jury had heard the evidence of able and honourable men, who said that the deceased did not die a natural death, and that the symptoms were consistent with death by strychnia, and not consistent with death by ordinary *tetanus*. There was no point of law which required that the strychnia should be found in the body of the deceased, and it would therefore be for the jury on this point to consider whether the evidence of the prosecution was sufficient, or whether they could rely upon the answer which had been put in by the defence. There was direct evidence that the prisoner procured the poison of strychnia on Monday and Tuesday. What he did with it was not for him in that place to affirm. It was impossible for the jury not to pay attention to the conduct of the prisoner before and after the death of Cook, and they would not fail to consider, as part of those circumstances, his very remarkable proceedings in reference to the betting-book, which had never been discovered."

He then proceeded to consider the evidence tendered by medical and scientific experts for the defence.

"Then as to the evidence which had been put in for the defence, the jury had had before them gentlemen of great ability and high honour, who had given in detail the results of their experience. With that evidence he would now proceed to deal." [The learned judge read in extenso the voluminous evidence of Mr. Nunneley, the surgeon, of Leeds.] "The jury had heard the manner in which Mr. Nunneley had given his evidence, and they must form their own

opinion of it. Certainly he seemed to display an interest in the case not altogether consistent with the character of a witness. He differed very much from several witnesses who were examined for the prosecution, and particularly in reference to rigidity being produced by strychnia after death. These and similar questions were for the jury. The next witness who was examined was Mr. Herapath, of Bristol, a very eminent analytical chemist, who had paid great attention to the subject of poisons. That gentleman said that where there had been death by strychnia it ought to be discovered. But it appeared, on cross-examination, that he had expressed an opinion, on another occasion, that Cook died from strychnia, but that Dr. Taylor had not taken the proper means to find it. After adverting to the evidence of Mr. Rogers, his lordship read that of Dr. Letheby, of the London Hospital, the medical officer of the City of London, of whom he said that he seemed to prove that cases of this sort were very variable, and that he admitted that the Romsey case was an exception. Now, while these exceptional cases existed, it could hardly be said that the principles laid down by Dr. Letheby were sufficient to rebut the evidence in chief. His lordship next referred to Mr. Gay's case of the omnibus conductor. This, he said, was a case of idiopathic tetanus. The jury would say, on comparing it with the symptoms in Cook's case, whether his was also a case of idiopathic tetanus. The great weight of evidence seemed to show that Cook's was not a case of idiopathic any more than it was a case of traumatic tetanus. Mr. Gay's case differed altogether from that of Cook, and as far as he could see there was no analogy between them. Passing next to the evidence of Mr. Ross, and to his case of a man, who died from ulcers, his lordship remarked that he did not see why this case was brought before the Court unless to prove that Cook's was of the same sort. This was a case, whether of idiopathic or traumatic tetanus, in which it was sought to prove that death was caused by bruises on the body. But there were no bruises of any sort about Cook, and therefore the analogy failed. In reference to the important evidence of Dr. Wrightson, who said he had detected strychnia in putrifying blood and decomposed matter, and that strychnia did not under such circumstances decompose, he must say that this witness

was a scientific and honourable man, and had spoken throughout with proper caution. According to Dr. Wrightson, the discovery of the poison should have been proved, but at the same time his evidence did not overthrow the case for the prosecution; and it would be for the jury to say whether, in the event of poison actually being in the body, the tests employed to detect it were sufficient. Referring to the evidence of Mr. Partridge, his lordship said that the witness had stated that the symptoms in Cook's case did not correspond with what he should have expected to have found from strychnia, but he spoke from his own experience, and he admitted that the symptoms were very variable; and he did not seem, therefore, to speak with any degree of certainty upon the subject. Mr. Gay's case of a boy who suffered from tetanus from an injury to his toe was, his lordship thought, not at all analogous to that of Cook; nor was that of the young woman who had an attack of tetanus without any apparent cause, and recovered, as deposed to by Dr. McDonald. The last witness had given his opinion that Cook died from epileptic convulsions, accompanied with tetanic complications, and this he thought might have been produced by mental or sensual excitement. The jury would see to what length this witness went, and it would be for the jury to say what weight they attached to his evidence. Having adverted to several cases adduced by the defence, and which his lordship considered bore no analogy to Cook's, he read the evidence of Dr. Robinson, of Newcastle-on-Tyne, who ascribed the death to epilepsy. He then passed on to Dr. Richardson, who narrated the particulars of a remarkable case of angina pectoris, to the symptoms of which disease he said Cook's bore a remarkable resemblance. The witness, his lordship said, seemed a most respectable man, and he said that the symptoms in this case were consistent with those arising from strychnia, and that if he had known as much of strychnia at that time as he did now, he should have searched for it in that case. It would be for the jury to consider whether Cook's symptoms were consistent with strychnia, and if so, that ought to lead them as to the opinion they should form on the case. His lordship having adverted to the evidence of Catharine Watson, the girl who was attacked with tetanus in

Scotland, and to other witnesses who were recalled, said this was all the medical evidence that had been adduced by the counsel for the defence of the prisoner. But then, gentlemen, said Lord Campbell, comes that most important question, whether the symptoms of the deceased were consistent with death by poisoning with strychnia. You will say whether your opinion upon that subject is altered by the evidence given on the part of the prisoner. Several of the witnesses called by the prisoner seem to admit (although, of course, you will form your own judgment upon it) that those symptoms were consistent with strychnia, although, in the absence of evidence to show that strychnia was administered, they could not come to such a conclusion."

Lord Campbell's subsequent remarks on the witnesses who were called to contradict those for the prosecution as to the state of Cook's health, the incident of the brandy and water at Shrewsbury, and the possibility of Palmer arriving in Rugeley from London at the time spoken to by Newton, have already been given in previous notes. In conclusion, he said,

"The conduct of the prisoner in requesting to have the body fastened up, with respect to the betting book, and the tampering with the coroner, remained unanswered, as did also the bribe offered to the postboy. No explanation was offered as to the strychnia purchased by the prisoner on the Tuesday morning, the proof of which stands uncontradicted; no evidence has been given of any purpose to which it was to be applied, and no explanation of what became of that poison. The case was now before the jury. They must not act upon suspicion, or even strong suspicion, and they must only pronounce a verdict of guilty if their minds were made up. If, however, they could come to the conclusion that he was guilty, they would return such a verdict unfettered and undeterred by any intimidation."

Mr. Serjeant Shee objected to the question put to the jury by the judge. He submitted that the question, whether the symptoms of

Cook's death were consistent with death by strychnia was a wrong one, unless coupled with the words "and inconsistent with death from natural causes," and that the question should then be "whether the medical evidence established beyond all reasonable doubt that the death of Cook was attributable to strychnia."

Baron Alderson.—"That is the question that has been put."

Mr. Serjeant Shee submitted that the question whether the symptoms were consistent with strychnia ought not to have been put.

Lord Campbell.—" I have told the jury that, unless they think the symptoms described agree with the supposition that the deceased died from strychnia, they must acquit the prisoner."

Baron Alderson.—"That has been stated in the speech."

After some further remarks from Mr. Serjeant Shee, Lord Campbell told the jury that not only must they be satisfied that the symptoms described agreed with the supposition that the deceased died from strychnia, but that it was administered by the prisoner.

The jury retired at 2.20, and at 3.45 returned a verdict of guilty, and Lord Campbell passed sentence of death, to be carried out at Stafford jail.

The prisoner heard the sentence perfectly unmoved. At one time he drew himself up, as if about to make some remark, but did not attempt to speak. He stood quite calm, and when his Lordship had concluded, turned round and walked from the dock with the same coolness as he had shown during the whole of his protracted trial.

Contrasting the procedure in this memorable trial with what it might and no doubt would have been in a criminal court in France, Mr. Justice Stephen makes the following remarks:—"Not less remarkable than the careful way in which all topics of prejudice were avoided was the extreme fulness and completeness of the

evidence as to facts really relevant to the case. Nothing was omitted which the jury could properly want to know, nor anything which the prisoner could possibly wish to say. No case could set in a clearer light the characteristic features of English Criminal Law —namely, its essentially litigious character, and the way in which it deals with scientific evidence. A study of the case will show, first, that evidence could not be more condensed, more complete, more clearly directed to the point at issue; secondly, that the subjection of all the witnesses, and especially the scientific witnesses, to the most rigorous cross-examination is absolutely essential to the trustworthiness of their evidence. The clearness and skill with which the various witnesses, especially those for the defence, were cross-examined, and forced to admit that they could not really distinguish the symptoms of Cook from those of poisoning by strychnia, was such an illustration of the efficiency of cross-examination as is rarely indeed afforded."

"The defence was by far the least impressive part of the trial, but that was mainly because there was nothing to say. It was impossible to suggest any innocent explanation of Palmer's conduct. It was proved to demonstration that he was in dire need of money in order to avoid a prosecution for forgery; that he robbed his friend of all he had by a series of devices which he must instantly have discovered if he had lived; that he provided himself with the means of committing the murder just before Cook's death; and that he could neither produce the poison he had bought, nor suggest any innocent reason for buying it. There must have been some mystery in the case which has never been discovered. Palmer, at and before his death, was repeatedly pressed to say whether he was guilty or not, and told that everyone would believe him guilty if he did not emphatically deny it. He could only say Cook was not poisoned by strychnia, and I have reason to know that he was

anxious that Mr. Herapath should examine the body for strychnia, though aware that he could detect the 1-50,000th part of a grain. He may have discovered some way of administering it which would render detection impossible, but it is difficult to doubt that he used it; for if not, why buy it?"[71]

THE LEEDS POISONING CASE.

Before Baron Bramwell, Northern Circuit, York, *July 16, 17, and 18, 1856.*

For the Prosecution: Mr. Overend, Q.C., Mr. G. Hardy, and Mr. L. H. Bayly.

For the Defence: Mr. Bliss, Q.C., Mr. Serjeant Wilkins, and Mr. Middleton.[72]

William Dove, aged 30, was indicted for the murder of his wife, on the 1st of March, 1856, at Leeds.

EARLY LIFE OF THE PRISONER.

The prisoner, the son of a respectable leather manufacturer at Leeds, had been, from his childhood to his seventh year, more than usually fractious, mischievous, ill-natured, and irrational in his tricks: putting lighted candles more than once in a basket and locking them in a cupboard: pouring some kind of spirits on his bedroom curtains and setting them on fire: chasing his sisters with a red-hot poker and threatening to burn them: hanging a cat by its tail out of window: cutting himself with knives and writing his name with his blood: an irregular and inapt scholar, especially in his religion.[73] The usher at his first school, where he was from the

age of ten to thirteen years, regarded him "as a boy of very low intellect, great inability of mind, great want of moral power, evil and vicious propensities. Once, when he had got a pistol, he told his schoolfellows he was going to shoot his father—a dull boy, and a had boy. I then thought him insane, but did not feel myself in a position to object to his being flogged."[74] Mr. Highley, the master of this school, spoke strongly of Dove's bad conduct, which he attributed to his reasoning powers being very limited. "He appeared," said the witness, "to have no idea of any consequences; to be deprived of reason. I am satisfied he was labouring under an aberration of intellect."[75] Having been expelled from his school, his father took the opinion of a Mr. Lord, a schoolmaster, as to what was best to be done with the boy. "I could make no impression on his heart or his head," said Mr. Lord. "He could not appreciate what I said. He listened, but I could make no impression —get no rational answers. When I heard of his engagement I told his future wife's brother-in-law that inquiry ought to be made about Dove on account of his unaccountable irrational conduct." By Mr. Lord's advice, he was sent to learn farming, for more than five years, with a Mr. Frankish. Here again his mischievous and cruel propensities were exhibited—putting vitriol on the tails of some cows, burning half-grown kittens with it, putting it into the horse-trough, and setting fire to the gorse. He was as unapt a scholar at farming as at religion and grammar. Again, when he went to another farmer for a year, he was the same dull unpractical pupil. He was now sent to America for a short visit, returning with travellers' stories of his adventures of unusual wildness and incredibility. Still, however, he was deemed by his father capable of being trusted with a farm, where his mischievous and extravagant conduct astonished his servants, and made them regard him as "not of a sound mind."[76] At this time, 1852, he married, quarrelling or

playing with his wife like a child, and changed his farm more than once, without apparent reason. Other witnesses spoke to the incoherence of his conversation: of his lying on the ground and crying without a cause; complaining of noises in his house; trying to reap his own corn in a green state; exhibiting conjuring tricks, and talking of having put a spell on the steward of the proprietor of one of his farms. Eventually, in consequence of his intemperate habits, he had to give up farming and remove into the outskirts of Leeds, where he lived on an annuity of £90 a year, left to him by his father, who died in 1854. With nothing to do, he became an habitual drunkard, aggravating his eccentricities, stimulating his mischievous propensities, and stupefying himself as to the consequences of his actions to himself.[77] With such propensities, it may be conceived that his wife led a wretched life; that quarrels were frequent; that at one time he threatened her with a pistol; and that eventually, after a very few years, they occupied separate beds, and rarely met, except at meals. Unfortunately for both of them, an arrangement for a separation was broken off by the interposition of injudicious friends, and until the beginning of 1856 they endured their miserable life together.

HISTORY OF THE CASE.

It was at this time that the enquiries into the death of Cook at Rugeley were filling the newspapers, and the evidence on the inquest became matter of popular discussion. Among Dove's friends was one Harrison, known as the Witchman of Leeds, who, according to his own account, was "a dentist, a water caster, a caster of nativities, and a believer in the stars." On hearing this man read, in a public-house, the results of the analytical examination of Cook's body by Dr. Taylor, as related at the inquest, and that

gentleman's statement of the difficulty, if not impossibility, of discovering strychnia by chemical analysis, Dove appears to have been forcibly struck by the revelation. He asked Harrison either to make or get him some strychnia, and, when he refused, said he could get it elsewhere. Probably at that time the idea of poisoning his wife was first entertained by him. Unfortunately he had no difficulty in obtaining the necessary poison, as he was intimately acquainted with Mr. Morley, the surgeon of Leeds, who had attended the Dove family for many years, and was a constant visitor to his surgery. Subsequently, therefore, to his acquiring knowledge of what had happened in Palmer's case, he had repeated conversations with one of Mr. Morley's pupils about strychnia; and on the 10th of February, on the plea that his house was infested by rats, and that he was worried by his neighbour's cats, he obtained from him ten grains of this deadly poison. This he placed about the house in a careless way, and destroyed a cat, the body of which he buried in the midden. Again on the 17th he got four or five grains more of strychnia, promising the pupil who gave it to him the skin of a grey cat which he professed to be about to poison with it. At this time, the pupil was of opinion that Dove noted whereabouts on the shelf the bottle of strychnia was placed. A few days after he was seen by Mr. Morley's coachman in the surgery alone, with the gas turned up, which, as the coachman came near, he turned down, and in an apparent flurry, meeting him at the door, gave as his excuse that he had come to light his pipe.[78] The suggestion of the prosecution was that at this time, knowing where the bottle of strychnia was kept, he took the opportunity of helping himself to some more of the poison. During all this time it was evident, from his conversations on strychnia and the impossibility of its detection, that he had studied Palmer's case.

Previously to Sunday, the 24th of February, Mrs. Dove had not been well, but on that day appeared quite recovered. On the Monday, however, when she went upstairs with her servant to make the beds, she was suddenly taken ill, staggered, became paralysed, twitched and jumped, and when put on the bed, on the slightest touch either of her body or the bedclothes, had renewed convulsions. Dove, who was downstairs, was sent for, and went for the doctor, to whom he said that his wife had been ill all night, and asked if his wife died would there be a coroner's inquest?[79] After two or three hours the convulsions passed away, and the patient remained free from pain. Dove's attention to his wife was suspiciously marked. He gave her medicine with his own hands; called in a neighbour to attend to her, and seemed greatly distressed at her condition. Three days after, a second attack of the same nature occurred, and again he told the doctor he was sure his wife would die. She was seen to cry bitterly, and heard to say that she was sure the medicine, of the bitter taste of which she complained, was killing her. Next evening a third attack came on, with the same symptoms. And on the 28th Dove predicted that she would have another attack about ten that evening; at that hour he gave her the medicine, and in half an hour afterwards another and more severe attack came on, so severe that she said, "Oh dear, I thought it was all over." In all these attacks after a time the spasms and convulsions passed away, and she was apparently only suffering from exhaustion after them, and otherwise quite well. On Saturday Dove, who had gone out, returned much in liquor, and at 8 P.M. gave her her medicine. "It is very disagreeable," she said, "hot and bitter." He washed out the glass and wiped it as usual, saying, "I always wash it out; medicine is always such nasty stuff." Within half an hour of taking this dose an attack more than usually violent

came on, and after a series of spasms and convulsions the poor creature died about twenty minutes to eleven that night.

Struck with the resemblance of the symptoms of Mrs. Dove's attacks to those due to poisoning by strychnia, and hearing from his pupil of the purchase of that drug by the prisoner, Mr. Morley, who had attended her, decided on having a *post-mortem* examination. This Dove, who had on her first attack asked Morley's pupil whether Mr. Morley would have a *post-mortem* examination if his wife died, tried to prevent, on the plea of his having promised his wife that it should not be allowed, and his horror at the desecration of her body. Mr. Morley, however, obtained the consent of Dove's mother, and persevered. On the examination of the body by himself and Mr. Nunneley, the surgeon, and the subsequent chemical analysis of its different parts, every test proved the presence of strychnia in large quantities. During the examination of the body, blood to the extent of a crown piece fell on the floor of the room, and a week after the spaniel of a woman who was cleaning the room was supposed to have licked it, and as she left on the completion of her work, was attacked with violent spasms, fell on its back, and died at once. On the examination of its body strychnia was also detected. The prisoner, who after his wife's funeral had wandered about, asking Harrison and other persons whether it was safe to go back, and talking about the possibility of the wife having taken the strychnia by accident, as he had carelessly placed it in his razor case, and put it about in the house, was subsequently arrested and put upon his trial. It is needless to give in detail the evidence of the persons by whom the above facts were proved, which were hardly traversed by counsel for the defence. The testimony with reference to the symptoms and the results of the *post-mortem* examination cannot, however, with safety be abridged, seeing the importance attached to this case in Palmer's trial.

THE SYMPTOMS.

Ann Fisher, who took her daughter's place in the house in consequence of the latter's illness, said—

"On Saturday and Sunday Mrs. Dove appeared pretty well, and on the latter day went to church. On Monday, February 25, after breakfast, she complained of her legs, and said she felt curious, and fell in the bedroom whilst helping witness to make the beds. Witness caught her in her arms, and called up Dove, who went for Mrs. Witham (next door neighbour), and witness put Mrs. Dove to bed. *She started, and twitched, and jumped, and, even if witness touched the bedclothes, or walked across the room, complained that it made her worse.* Mr. Scarth (Morley's assistant) came and gave some medicine, and she felt better. The jerkings continued from two to two and a half hours. She lay on her right side, and her breathing was rather difficult: she was quite sensible the whole time. She seemed better in the afternoon, and pretty well the next morning. On Wednesday, the 27th, *she had another attack, beating, jumping, and starting; complained about her legs and back being very bad: said there was a stiffness in them; they seemed paralysed, and she could not move them about. She lay on her side, and her breathing was* very bad when she had these attacks on her. She was better after the medicines on the two occasions on which I gave them to her myself. I cannot recollect Thursday, but on Friday night, about 10 P.M., I was called up into the bedroom. Dove was dressed, standing by the bedside holding her hand. *Her back was quite arched, and she was making a great noise in her inside. She said, 'Oh dear, I thought it had been my last.' Her breathing was very difficult. She complained about her jaws being stiff.* I stayed with her till about 2 A.M., and she was better, and I went to bed. Next morning she said she was very poorly, and could not take any coffee. She had had no rest all night. She took some coffee afterwards, and had a little rest. In the afternoon Mrs. Witham was with her. She appeared much better then, washed herself *and rubbed her legs, which seemed to ease her*.

She became worse at 8.30 P.M. The bell was rung: Mrs. Wood and Mrs. Witham were with her. Dove was out—had gone out about a quarter to half an hour. *She then moaned and screamed; her body was quite arched and her feet projected right from her body, and she was in that state till twenty minutes to eleven, when she died.* Before she died she grasped the hands of Mrs. Wood and Mrs. Witham, who were holding hers, so hard that it hurt them. Dove came back at about ten: she was then in great agony. As soon as he saw me, he told me he was going to Mr. Morley's for medicine, and that if Mrs. Wood wanted to go home, I was to go up and take her place. When he returned with the doctors, she was dead."

Mrs. Witham,[80] the next door neighbour who attended the deceased almost daily, confirmed Mrs. Fisher's account of the earlier symptoms, and gave the following details of the night of her death:—

"On Saturday, March the 1st, I saw her again about 2.30 P.M. She seemed better, and I remained with her till about six. At 3.30 P.M. I gave her her medicine. Mr. Morley came at four, when she seemed well. I got the food he ordered for her, and she seemed better than I had seen her before. Dove was there, and when I told him I had given her the medicine, he said she ought not to have it until about five. I was sent for again later to sit with her until Mrs. Fisher came, as Dove was going for medicine. *He was rubbing her legs*, and asked her to kiss him, which she did. Shortly after, he gave her her medicine. He went to the washstand, and came back with a glass in one hand, with the medicine and water in the other. He was at the washstand time enough to pour out the medicine. Mrs. Wood was present. After she had taken it, Mrs. Dove complained that it was very hot, and asked for a lozenge. *Dove took the glass to the washstand, and said he always washed it out after giving the medicine.* He then left, as he said, to get more medicine. In about a quarter of an hour *she complained of her back: her head was thrown back. I took hold of her hand, and she grasped it so tightly I could*

not get it away. Her eyes looked fixed. I put my hand to them: they did not move. Her features were very much distorted, and her teeth clinched. We both took hold of her hands, which she grasped so tightly that I could not bear it. Mrs. Wood was going to rub her back. She said, 'Oh, don't; lift me up,' and I and Mrs. Wood tried to do so. Her back was arched, her body quite stiff, her legs stretched out. I did not notice her feet. We lifted her up, and put a pillow under her back. She rested on her shoulders, and the bottom part of her back, until the pillow was placed under her. The symptoms grew more violent, but she could speak. Her breathing was loud and difficult. She shrieked several times—a sort of scream. In about half an hour she could speak no longer. We could not be positive if she was sensible, and at twenty minutes to eleven she died. Dove came in after she had ceased to speak, threw off his coat, and was going to rub her legs, when I said she could not bear it. Mrs. Wood said something to him, and he left the house immediately. When the doctors came she had been dead some minutes."

On *cross-examination* the witness said—

"That when she gave her the medicine about three o'clock, deceased complained that it was bitter, as witness found it was on tasting it: (it contained aloes). That when the attack came on she appeared to lose her senses very soon, her eyes being fixed, and not speaking: this was in about an hour. She spoke until half an hour after her attack, but not until forty minutes. She was in better health and spirits on the Saturday than she had been all the week. *She was rubbed after each fit, and it seemed to relieve her. The jumpings and twitchings went on, on the Saturday, and she was then some hours still, and then they began again.*"

Mrs. Wood added the following particulars of the last attack:—

"I went at twenty minutes to eight on the Saturday evening and found her sitting up; her husband and Mrs. Witham were with her. About eight she asked her husband for her medicine; he went out of

the room to get it, and returned in about a minute with it, and gave it to her. She said it was very bitter, very hot, and very nasty, and that she thought she would get better if the attack did not return. I recommended her to try and put it off. *In about a quarter of an hour after taking the medicine she began to be ill. I asked Mrs. Witham to go round and take her hand, saying, 'this Gird is coming on.' She was propped up with pillows. In a short time she said, 'Off the bed' and repeated it three times. I thought at that time she wished to get off the bed. Mrs. Witham said, 'Oh no, we cannot.' I do not think she was sensible after she said 'Off the bed' the first time.* She died at twenty minutes to eleven. Dove went for the doctors; when he returned she was dead."

Mr. Scarth, Morley's pupil, who attended on the 25th of February, at the request of the prisoner, in Mr. Morley's absence, said—

"I found Mrs. Dove in bed *with very minute twitchings of the muscles of the face and arms, and her teeth closed—hands clinched—head thrown slightly back, and the shoulders likewise, and her feet stretched straight out with the legs*. Again I saw her at seven on the Thursday night, *the symptoms were the same, but her principal complaint was of pain in the shoulders and back. Her shoulders were thrown back.* The attack passed off whilst I was there in about five minutes. I gave her the draught prescribed by Mr. Morley, and the convulsions ceased and did not return, and I ordered her the repetition of the draught."

This witness had the cat dug out of the midden, in which the prisoner said he had buried it, and was present when Mr. Morley and Mr. Nunneley experimented on it.

MEDICAL AND ANALYTICAL EVIDENCE.

Mr. George Morley, a surgeon at Leeds, who had always attended the Dove family, was called in to the deceased in December, 1855, when he found her suffering from disordered digestion and nervous excitement. She improved, and he subsequently only saw her at long intervals till the 25th of February; on that day, he said—

> "I found her in bed, and only observed *twitchings of the arms twice*. She told me she had had an attack in the morning with pains in the back and limbs, and had been often before so, and that she suffered from an excitable temperament. I thought it an hysterical attack, as she was at the age for them. Saw her every day during the week, and on the Wednesday and Thursday again *saw slight jerking of the arms*. On the Friday and Saturday she was decidedly better, and I did not alter my opinion of her case until the Saturday night, as I had often seen such symptoms arise from hysteria. I made the medicines antispasmodic and sedative: they would check the symptoms, and for a time seemed to do so. On Wednesday I proposed seeing another doctor, when Dove said she would not recover, and I warned him not to say so in her hearing, and that he had better call in a physician. Next day I received a note from him declining the proposed consultation, as his wife had perfect confidence in me. On Saturday I received a message that she was worse, and that I was to bring Dr. Hobson with me. Dove came afterwards to my house, and said he thought she would not recover, and that he should object to a *post mortem* examination. I said I thought there would be no need of one, and that she would recover. He said his wife objected to it strongly. He seemed excited, as with drink, but quite rational. We were too late to see Mrs. Dove alive. From what Mr. Scarth told me I took measures for a *post mortem* examination.
>
> "I now attribute the symptoms I have heard described to the poison of strychnia—from the symptoms and what I found in the body—finding in the body no organic disease to account for death. *The symptoms do not correspond with those of any other disease,*

but do with those produced by strychnia. In hysteria the symptoms are more irregular; they do not assume a tetanic character; there is more disturbance of the mind; and such attacks are never fatal. Tetanic affections are stiffening of the limbs, rigidity, and stretching out of the limbs, arching back of the trunk, stiffening of the neck and jaw. The symptoms of hysteria might be some of those symptoms. No one but might be found in hysteria, but not all together. The symptoms are separately and conjointly in accordance with poisoning by strychnia. On Monday, March 3rd, *forty-two* hours after death, by authority of the prisoner's mother, I made a *post mortem* examination in conjunction with Mr. Nunneley, and drew up the following joint report."

It is unnecessary to give in detail the first portion of this report, in which, from a most careful examination of all parts of the body, it was evident that the death could not be attributed to any known organic disease. With the exception of a slight appearance of congestion in the intestines, every part of the body was in a healthy state, and the stomach contained only usual food. The report then continued:—

"No appearance of irritation from any mineral or other irritant poison, nor any odour of any poison recognizable by smell. Hence we searched for strychnia. We divided the stomach and its contents into three parts:—(1.) The brown pulpy mass in the stomach; (2.) The mucous and all other matters that could be removed from the stomach; (3.) The stomach itself. By the usual tests we obtained strychnia from each of these. The spirituous extracts were also unusually bitter. In the contents of the intestines we found only faint traces. We obtained the body of the cat, that had been poisoned some time before, and proved that it is possible to discover strychnia in a dead body some time after death. The result was decidedly the same evidence as we had from the human body."

The report then gave the details of the processes by which the strychnia had been detected. (1.) Taste; (2.) Nitric acid, producing a red colour (*the test for brucia*); (3.) Acetic acid and solution of chloride of gold, producing a yellowish-white precipitate (*of doubtful value*); (4.) Concentrated sulphuric acid and solution of bichromate of potash, both in powder and in solution, producing the purple colour; (5.) The application of the same tests to strychnia itself with the same results, by each of them separately, and repeated with such variations as could detect any error that might have crept in, and the conclusion to which the analysts came that the stomach contained strychnia enough to cause death.

The report then described the effects of administering portions of the spirituous extracts proved to have contained strychnia to several animals, five in number. In the cases of four of these, two rabbits, one mouse, and a guinea-pig, the liquid was given by inoculation through small openings either in the cellular tissues beneath the skin, or into one of the mucous cavities of the body; and in the case of one of the mice, by the mouth. In three cases death followed at the respective intervals of two, twelve, and fifty minutes after the introduction of the poison; and in one case—that of a rabbit—although for a time it remained nearly dead, it afterwards revived, and eventually recovered. In the case of the pig, the effects were much more slight; the spasms were not so violent as to throw it down and entirely disable it, but on the following day it was found dead, with the muscles rigid, and the hind legs extended, as if from poison. "*The symptoms preceding death, in all the cases, were, disturbed respiration, general distress, convulsive twitchings and jerkings, tetanic spasms, a peculiar out-stretching of the legs, and general rigidity, exactly those commonly produced by strychnia.*" The same effects, for the sake of comparison, were produced in a parallel series of experiments on animals with

ordinary strychnia, which, as a series, were not more severe, or more rapidly fatal. “These experiments,” said the analysts, “which add the test of physiological effect to that of the chemical reagent, directly confirm our analysis, and taking them in connection with the analyses and with the symptoms observed during life, and with the appearances noted after death, they afford, in our opinion, the most complete proof that the death of Mrs. Dove was from the poisonous effects of strychnia, and from no other cause.”

The witness then spoke from his own personal knowledge of cases of poisoning by strychnia, and continued:—

> “I cannot refer the death to any other cause, nor the symptoms during life, as described by the witnesses Witham, Fisher, and Wood. *There is no other substance that will produce such symptoms and appearances.* I tried similar experiments on a little dog, with the same results. *Strychnia is not a cumulative poison. The effect of of it passes off entirely by a gradual subsidence of the spasms. In part the strychnia is absorbed in the blood, in part it passes off by the secretions, part remains in the stomach, its carbon, hydrogen, and other constituents broken up. If not decomposed, it would act on other animals.* The series of symptoms produced by strychnia were complete. I have no doubt that each of the several attacks were produced by strychnia. Several of the medicines I sent to Mrs. Dove were bitter, containing aloes and gentian, and hot, containing ammonia and ether. *The effects of strychnia would follow from in a few seconds to an hour and a half, depending on the constitution of the person, and state of the stomach, and how the strychnia was administered.* Assuming that Mrs. Dove took no food or tea, I should refer the time at which she took the strychnia to the time at which she took the medicine. That would be the natural time for the attack; she would be attacked in a quarter to half an hour after taking it. The strychnia I had in my surgery was a soft white powder, fine, but not so fine as salt. There is a form of pure crystallised strychnia more like salt. I should judge that she had

taken two to three grains to produce the results of Saturday night. You might take two or three grains between your finger and thumb: a quarter of a grain would kill a dog. I have examined one of the bottles of medicine which I sent to Mrs. Dove; it is the same as I sent."

The witness also related the following conversations with the prisoner:—

"During the *post-mortem* examination, I had a conversation with the prisoner at his mother's. He asked me what we had found in the analysis—had we found poison? I said the analysis was not complete, and could not give any answer till it was. I said we had not found any natural causes of death. He asked me, 'If poison was found, what would the jury say? ' I replied, that 'They could only say it was taken by accident, or intentionally, or given to her by some one.' He wished me to let him know before the inquest if we had found poison. I had inquired about his getting poison, and asked him how often. He replied, 'Only once, and that he had it to kill mice, as well as cats; had placed it in his razor-case, and told his wife that it was the poison Palmer used; that it was a deadly poison, and she must not touch it.' I never told him there should be no examination."

On *cross-examination* by Mr. Bliss, after speaking to his having attended the Dove family for many years, but seen but little of the prisoner before he came to Leeds, the witness said—

"When the conversation about strychnia took place, the prisoner asked me if I suspected him, and said, 'Should I have done it openly if I had intended to do it? Should I have come to your surgery for it or have talked openly about it to other people? Could I have been so cruel?' That was the first time that I named strychnia to any relative. I examined the little dog and have no doubt it died of strychnia. They brought me a piece of carpet and the board on which was

blood, but I discovered no strychnia. I could not; the quantity was too small. I think the stains in the carpet and on the board could not have contained strychnia enough to have poisoned the dog. I discovered very little blood in the intestines. Strychnia is exceedingly bitter. One part in 40,000 would be bitter, less would be perceptibly bitter. There was a considerable quantity of fæces in the intestines, and three or four ounces of digested food. Mrs. Dove's medicines were alkaline. I saw Mrs. Dove every day from Monday to Saturday, and she told me her ailments. I found nothing in the body to account for death but the strychnia taken on Saturday. Strychnia is not soluble in alkali. The symptoms I have heard to-day, prior to those on Saturday, are additional to what I saw. Hysteria would have left no symptoms. There was nothing inconsistent with strychnia having been administered before in the appearances of the body. The engorged state of the lungs and the condition of the brain favoured that view. *I say this guardedly.* She might with this condition of body have been better on Saturday, as congestion would pass away quickly. I found no symptoms on Saturday of the brain or lungs being engorged. She was better in health, in spirits, and in appetite. Mrs. Witham's and Mrs. Fisher's statements have changed my opinion. The symptoms they describe are all to be found separately in hysteria. Mr. Scarth's account also influenced me, which I did not hear until after her death. It was my opinion at the time that she was affected with hysteria. *In a paroxysm from strychnia it is possible that a patient might wish to be rubbed, but it is not what I should 'à priori,' look for. Touch sometimes renews the spasms, but it depends upon the stage. The desire not to be touched is a symptom of strychnia.* After hearing of her symptoms I prescribed a liniment to be rubbed. *It consisted with the dose of strychnia said to have been administered that she should be better on Saturday.* The effect of hysteria would be to gorge the vessels of the brain and lungs. *Not shrinking from touch was consistent with strychnia, but a desire not to be touched was an indication of it.*"

On *re-examination*, the witness said—

> "*There are several cases in which persons labouring under strychnia had desired to be rubbed.* Parts of the body might fall on the floor as well as the blood.
>
> "*By a Juror.*—If strychnia were put in the medicine it would not alter the colour of it, it might have left a powdery deposit. I never knew a case of hysteria cause death with such external appearances as in Mrs. Dove's case."

Mr. Thomas Nunneley, professor of surgery in the Leeds College of Medicine, who was examined in Palmer's case on behalf of that prisoner, and then maintained that if Cook had been poisoned by strychnia it would have been found in his body by the chemical and other tests as late as the sixth day after his death, confirmed the statements in the joint report, and the opinion of Mr. Morley, that Mrs. Dove had died from the effects of strychnia. His experiments on strychnia in the cases of animals had been carried on for over thirty years, and he was of opinion that, "though he should not have anticipated the improvement spoken of on the Saturday, yet that it was not inconsistent with her having taken strychnia on the Friday." On *cross-examination* by Mr. Bliss, he gave the following evidence:—

> "I found nothing on dissection that could not be referred to the strychnia taken on the Saturday night—the intensity of that attack might have produced the appearances in the brain and lungs. Hysteria will simulate the appearances of other diseases, and among them of tetanus. I did not examine the fæces and tissues of the body, but I should expect to find strychnia in the tissues if taken six days before. My attention was not called to its having been taken before Saturday, but even if it had I think I should have found it. This case and the one in London (Palmer's) have advanced our knowledge in the discovery of this poison far beyond what it was before. *It*

accords with my experience that a person suffering from strychnia would not bear to be rubbed."

Re-examined.—"I attribute the symptoms exhibited before Saturday to strychnia. They are not so in accordance with any disease as with strychnia."

Dr. Christison, the eminent writer on poisons, also agreed with Mr. Morley and Mr. Nunneley as to the cause of the symptoms. He admitted that "it was just possible to attribute them to hysteria, but had never seen such a combination of symptoms in an hysteric case. He thought it was unusual for a person to be insensible before death in a case of strychnia, but he had seen it lately in the case of an animal killed by that poison—the symptoms were exactly those which would be produced by an overdose of strychnia in the prior attacks."

Dr. Hobson, who had seen the deceased with Mr. Morley a few minutes after her death, "saw nothing either in her countenance or position that he thought particular, and admitted that all the symptoms described before those of Saturday might be accounted for in an aggravated form of hysteria, but would not expect a person who suffered under such a form of hysteria to be conscious, nor did he attribute these symptoms to that disease."

Mr. Teal, who had been in practice in Leeds for thirty-four years, agreed "in the symptoms being entirely in accord with strychnia, and though he had seen hysteria simulate strychnism, he had never seen it entirely resemble the entire group of symptoms represented in this case; had he heard only of the symptoms before Saturday, he should have considered them in strict accordance with the effects of that poison; and even if he had heard of hysteric symptoms before, he should have suspected strychnia, but would not deny the possibility of their being consistent with hysteria." In

reply to a juryman, he added the following evidence on the probable reason for the state of the prisoner's mind:—

> "Excessive drinking without producing *delirium tremens* might cause the conduct of the prisoner, described by Harrison,[81] as to spirits and noises. He might have any delusions when under the influence of drink, but when sober such a man might be sound in mind and without delusions, and when partially drunk might have delusions without suffering under *delirium tremens*."

Mr. Richard Hey, who had been in practice in York for twenty-seven years, and concurred with the other medical men, on *cross-examination*, said—

> "I have had experience in hysteria, and have seen cases in which many of the symptoms would be the same as those described. The freedom from affection of the brain would lead me to suspect it to be strychnia. I think the violent twitchings and spasms, and the extreme pain they produced, would make a very marked distinction from the effects of hysteria. I have never seen instances of screaming out from pain in hysteria. I have heard of screaming out. They complain of pain, but not violent pain. *The spasm consequent on strychnia would, I imagine, induce a patient to be rubbed as in ordinary spasms and cramp, but I never saw spasms so intense as in those spoken of in strychnia. One of the most marked symptoms in strychnia, in aggravated cases, is not being able to bear to be touched, but it is not so in slight attacks.*" *Re-examined.*—"I never knew touching or walking across a room not bearable in hysteria, or pain in the jaws, or all these things combined in hysteria."

The last witness called by the prosecution, *Mr. William Hey*, who had been in practice in Leeds for thirty-seven years, was equally of opinion that the symptoms were inconsistent with any known disease, but consistent with the effects of strychnia, and with nothing else. "Had he heard only the evidence of the

symptoms down to Friday night, her hysterical temperament, and her recovery on the Saturday, he should not have attributed them to hysteria, but he should have thought it a most extraordinary case."

THE PRISONER'S ACTIONS AND STATEMENTS.

In addition to the acts and statements of the prisoner reported in the "Early Life of the Prisoner" and the evidence already given, *Miss Fisher* deposed to his very violent threats against his wife, especially when in liquor; his telling her on one occasion "to mind her own business, or he would do her job for her"; his threatening her with a knife and striking her, and telling her "he would give her a pill"; and to his wife saying, in his presence, "If I should die, it is my wish, Elizabeth, that you should tell my friends to have my body examined"; to his writing a letter to the witchman Harrison, asking him "to torment his wife when at Manchester, as she was not a right woman"; and telling the witness that Harrison had told him that his wife's days would end in February. He also told another witness (*Elizabeth Thornhill*, a charwoman) that Harrison had told him that his wife would not live long, and that he would marry the lady next door (Mrs. Witham).

Whilst the inquest was proceeding he asked Mrs. Witham how it was going on, and when she said to him, "It is a very suspicious thing that you gave her the medicine at eight o'clock and that she became ill a quarter of an hour after," he replied, "If they ask me if I gave the medicine, I shall say I did not; and if they ask if she took it herself, I shall say I do not know."

To *Margaret Gray*, another witness, he stated on the Friday that his wife was ill of spasms, and he did not think she would live over Saturday night.

To *Mary Hicks* he more than once stated that he was sure his wife would die, and that Mr. Morley would want a *post mortem* examination, as he did in his father's case, but that he would object to it, as he had promised his wife to do; that he should probably soon marry again; and when Mrs. Hicks told him to go back, as his wife might have another attack, he said she would not until half-past ten or eleven, and made no reply when again asked if the attacks were periodical. On the Sunday morning after his wife's death, he told this witness that there was to be an inquest, and when she asked why, said, "Oh, we live in a bad neighbourhood, and have not lived happily together. It is all nonsense." To the Rev. H. T. Sturgeon, the clergyman of Burley, whom he asked to visit his wife, and to whom he professed to be very anxious about her spiritual welfare, he assigned as his reason for not calling in further advice (as recommended by Mr. Morley) his fear of offending that gentleman. To a man of the name of *Rose*, a baker, whose name even he did not know, and whom he met by accident in a dram shop on the Thursday before his wife's death, he said that he thought his wife would die, and told him "not to come to him till he saw her death in the paper, and then, if he lighted on a woman that would suit him, to bring her down to his house, as he could not do without one if his wife died."

To *Harrison*, the watchman, on the Thursday after his wife's death, when giving him a card for her funeral, he said there was an inquest on her. When Harrison asked why, the prisoner said, "Can they detect a grain or a grain and a half of strychnia?" "Why," replied Harrison, "have you given her any?" "No," replied Dove; "but I got some of Morley's man to kill cats, and some might have been spilt and she have got it." Again Harrison saw him the next day, when he said, "Mr. Morley has told me they have found poison in my wife. Could they take me if I go back?" "I should," replied

Harrison. “If you are innocent, go back; what occasion have you to be frightened? They will not take you if you are innocent,” and Dove then went away.

To his wife’s mother, *Mrs. Jenkins*, who came to his house after her daughter’s death, he said at breakfast on the Friday, the day of the adjourned inquest, “Do you know that a sprinkle of oil of almonds will kill a person? Arsenic you can detect in a body after 20 years. Belladonna you cannot; one is a mineral, the other a vegetable. There is a poison like this”—taking up a piece of salt —“in a man you can detect it, in a woman you cannot.” He told her also that he could not think but that he should marry again. When he talked about the poisons another person, a *Mrs. Risdon*, was present.

To *Mr. Scarth*, a pupil of Mr. Morley’s, who, in consequence of the latter’s engagement, was the first to see her on the 25th of February, he put the question whether Mr. Morley would require a *post mortem* examination if his wife died. Scarth replied that Mr. Morley generally did on all his patients who died suddenly, when the prisoner said, “I will not consent.” “Probably,” said Scarth, “as you did when your father died.” “His wife,” replied Dove, “would not consent.”

On the close of the case for the prosecution, Mr. Bliss called on the counsel to put into the box the remainder of the witnesses whose names were on the back of the bill, and Mr. Hardy, in the absence of his leader, declining to take this responsibility, Baron Bramwell, on the authority of the case of *R.* v. *Woodhead*, ruled that the prosecutor need not do so, but was bound to have the witnesses in Court so that they might, if required, be called by the defence.[82]

THE DEFENCE.

Though the defence of the prisoner was mainly rested on the question of his sanity, Mr. Bliss urged on the jury that the circumstantial evidence against him was inconclusive, turning the openness of the prisoner's acts and conversations, and his attention to his wife during her attacks, to the best advantage. On the question of his sanity, in addition to the mischievous and cruel acts that had been elicited in cross-examination, he cited as further proof his belief in witchcraft and his frequent consultations with the witchman Harrison, and his request to that person to torment his wife, professedly to force her to return to his bed. The witchman, said counsel, not contemplating the murderous result, encouraged him, and held out such promises of future happiness that the desire ripened into practice, and the wife was murdered. Even after detection was inevitable, the confidence of the dupe remained unimpaired, and he firmly believed that the witchman could rescue him from his doom. As a proof of this insane belief the following letter written in his own blood, which had been found in his pocket when in jail, was read:—

> "Dear Devil,—If you will get me clear at the assizes, and let me have the enjoyment of life, wealth, tobacco, more food and better, and my wishes granted till I am sixty, come to me to-night. I remain, your faithful subject,
>
> "WILLIAM DOVE."

MEDICAL EVIDENCE FOR THE DEFENCE.

In support of the plea of insanity, in addition to the witnesses already referred to in the introduction to this case, three medical witnesses of tried experience in lunacy, *Dr. Caleb Williams* (for 30 years the medical attendant at the York Asylum), *Dr. Pyeman Smith* (of the Leeds Lunatic Asylum), and *Mr. John Kitchen* (of The

Retreat, at York), were called for the defence, whose evidence, it is only fair, should be given in some detail.

Dr. Williams, who had been in Court during the whole trial, and had also examined the prisoner with *Mr. Kitchen* a few days before the trial, was decidedly of opinion, from the evidence he had heard, that the prisoner was of unsound mind, and that his violent emotions and his belief in supernatural agency were indications of it.

> "Taking into account," said the witness, "that he had written and said similar things before about selling his soul to the devil, I think that his letter to the devil was not simulated. It appears to be written with blood. I had conversation with him about that letter when I saw him, and he told me it was written under satanic influence. The result of that conversation was that, in my opinion, it was not simulated. I have no doubt that his illusion, that he had sold himself to the devil, was a real one. I believe his incantations spoken of were connected with his belief in supernatural agency; and I think his saying that he had put a spell on the steward arose from the same belief.[83] The letter to his schoolmaster, in which he declared his sanity, is very like what is done by insane persons—they declare they are sane. His talking to various persons about strychnia showed the weakness of his mind. The effect of drink on a lunatic are to make him violent and dangerous. Persons liable to insanity would exhibit a tendency and inclination to drink. *I think from what I have heard he has not the power of controlling his emotions and passions. None of them at all times.*[84] *There would be periods when he would have control over some.* The circumstance of his shooting the cat showed an uncontrollable impulse to injure or take life; and seeing it was not expended in injuring the man, he shot the cat. The effect of confining a person for several weeks on strictly sober diet, who has before been subject to get drunk, would be to reduce him to a calm condition. The Castle diet is sober (Dove's prison). *From all I have heard and seen, I consider his powers of*

mind, during the fatal week were probably influenced by his notions regarding supernatural agency, and that consequently he was the subject of a delusion. During that week, labouring under such delusions, he might retain his power of adapting means to an end, and of judging of the consequences. He could not under those delusions have the power of resisting any impulse."

On cross-examination by Mr. Overend, after repudiating the notion that his evidence was tinged by religious objections to capital punishment, the witness said:—

"I should not call administering poison five or six times an *impulse*, but a *propensity*—an uncontrollable *propensity* to destroy life, and give pain. For the time it would be a permanent condition of the mind, and might select the special object, and constantly seek opportunities of carrying out the *propensity*. *I think a person with such a propensity would not know that he was doing wrong. I think he might fear the consequences, and know that punishment would follow. He would know, probably, that he was breaking the law. I say that, because he would have a very incorrect appreciation of right and wrong. He would not know at the time that he would be hanged. I found that opinion on the occupation of the mind by the insane propensity. It is uncertain whether he would know it before he did it. He might after he had done it.* He might do a murder secretly, because he could not otherwise do it. A *propensity* of that kind generally acts without a motive. One of the peculiarities is that a person seeks no escape: in certain cases acknowledges his crime. The *propensity may come on suddenly: an impulse comes on suddenly—a propensity more frequently comes on slowly, and starts from a considerable time*. If a man gives way to his passions, and commits a rape, I call that a *vice*, and not a *propensity*. Supposing a cruel man, who wishes to get rid of his wife, quarrels with her, in the abstract that is a *vice*. Supposing a man to have taken every precaution against discovery, and pains to procure poison for his wife, and to prepare for her death, I should think that a *vice*, and not

a *delusion*. Supposing a man of cruel disposition had formed a dislike to his wife, and wanted to get rid of her, and had nursed that dislike into a *propensity* to kill. I should call that *an insane propensity*. I don't say that every man who dislikes his wife, and wishes to get rid of her, is insane. When he acquires the propensity to kill, and cannot control it, he is insane."

Question.—"If a person lived with his wife, hated her, and determined to, and did kill her, what is the difference between that determination which is *vice*, and that *propensity* which is *insanity*?"

Answer.—"The prisoner's history would be required to determine whether it was *vice* or *insanity*."

Question.—"Supposing a man was determined to kill his wife, and he nurses the thought for six months, till the desire becomes uncontrollable, when does the desire become insanity?"

Answer.—"When by nourishing such an idea, the mind becomes diseased, and he cannot control his acts—that applies to other things."

Question.—"If a man dwells on the possession of a woman till he cannot control his desire, would that be *vice* or *insanity*?"

Answer.—"It might be insanity, and might apply to rape.[85] In insanity there is a tendency to thieve. Theft is one of the indications of moral insanity; and a man may desire to possess another man's goods, till he cannot control his acts. He is then insane. If a man permits himself to indulge a passion till he becomes uncontrollable, that is *moral insanity*, and he is not responsible. Consulting a sorcerer, and all superstitious beliefs, are indications of a weak mind. Belief in clairvoyance and dreams is not necessarily an indication of insanity. A belief in spiritual rappings, I should infer, was an indication of a weak mind. Talking to persons about strychnia, and his wife's death, I think indicated a feeble state of mind."

On *re-examination*, *Dr. Williams* said—

"Imitativeness is one of the characteristics of insanity, and hearing strychnia and Palmer's trial very much talked about would be very likely, in a weak mind, to produce imitation. You must know a man's history before you can say whether his acts proceed from vice or insanity. Madness very frequently developes itself in great cunning and foresightedness when reasoning on false premises. I have frequently known insane persons to attempt to escape from the asylum, and to have shown great cleverness in their preparations for it extending over several days."

Question.—"Suppose you had heard the case of a man put to you who wished to get rid of his wife, and had from his childhood displayed cruelty of disposition—had threatened to shoot his father; said he heard supernatural noises, sometimes treated his wife kindly, and sometimes cried like no other man, would you have any doubt that he was insane?"

Answer.—"No! and not fit to be at large. I should have no difficulty, as a medical man, in certifying that he was a lunatic. Lunatics have often displayed great ingenuity in committing theft and concealing it. The passion of lust frequently becomes a disease of the mind. When the prisoner gave his cows linseed to take one night, to fatten them for market the next morning, that I should deem an indication of an unsound mind."

In reply to questions by the Judge, the witness said:—

"It would require a longer period than a month to establish disease and an uncontrollable propensity to commit a crime. If a man committed a crime, having thought of it for a month, I should not say he was of unsound mind. The difference would depend on length of time. Some men's minds, previously weak, would take a shorter time, and very exciting causes would shorten the time; but there must be an appreciable period, and an interval for the mind to pass into a morbid condition from the continual contemplation of one object. The period is necessarily very uncertain, from the variable effect of emotions and circumstances on the mind."

The Judge.—"Suppose, at the time when he shot the cat, a policeman had come in, would he have shot it?"[86]

Answer.—"No. The presence of the policeman would probably have controlled him; he would probably have expended the impulse on some person or something else. Unless the person is exceedingly violent, the presence of a policeman would have some influence to control him."

Question.—"*Whenever a man commits a crime, is it because he is uncontrolled by existing circumstances?*"

Answer.—"*It is.*"

The Judge.—"*Then what is the difference between such a man and the case you put?*"

Answer.—"*In the case I put the impulse is uncontrollable, because his mind would be so occupied with his purpose.*"

The Judge.—"Is it true of everybody, whether sane or insane, that when intent on an act they forget the consequences?"

Answer.—"An insane man would be more likely to forget consequences. Sane and insane persons would talk about occurrences. How and what they talked about would depend on their judgment."

The witness wished to say with regard to the question as to shooting the cat, that he thought the impulse of destruction was so strong at the time, that he could not control it, and must have shot something.[87]

Dr. Pyeman Smith, the proprietor of a private lunatic asylum at Leeds for the past 15 years, though, from what he had heard and seen, he was prepared to declare that Dove was of unsound mind during the fatal week, and had been so for the last 20 years, admitted, on *cross-examination*, that he did know right from wrong during that period. He, however, *on re-examination*, qualified this admission.

"A decided lunatic," said the witness, "very often knows right from wrong, and yet may be regardless of any consequences from his acts. *He may be utterly unable to refrain from doing an act, though he knew it was wrong. I cannot say the prisoner was utterly unable to refrain from wrong during the fatal week. Circumstances might enable him to refrain—other circumstances.*"

To the Judge.—"Not a greater degree of punishment. I have already said he was entirely regardless of circumstances."

Mr. Bliss objected to this line of examination by the judge.

The Judge.—"I am entitled to, and in my opinion bound to, and I will put the questions."

Witness then continued—

"*Not possessing the poison would be a circumstance which would have prevented him.* I believe, during the week, it was from unsoundness of mind that he was regardless of consequences."

Mr. John Kitchen, superintendent of The Retreat at York, where the patients averaged a hundred, also agreed with the previous medical witnesses, that Dove was of unsound mind during the fatal week. He, however, admitted that "*during that period he knew right from wrong, had some knowledge of the difference—some knowledge that he was committing murder—and that if found out he would be punished*." This admission he sought to explain away, *on re-examination*, protesting that what he meant was "that Dove knew he was killing his wife, but did not know he was doing a wrong act—that he would know in proportion as he knew the difference between right and wrong."

Question by a juryman.—"Do you adopt the theory of Dr. Smith as to irresistible propensity in mania?"

Answer.—"In general terms I do."

Question.—"Do you adopt it in this case?"

Answer.—"I do not. I account for the murder, if he committed it, on different principles. We have a man of deficient mental powers; besides that he is insane; he is liable to do any absurd, cruel, or vicious or irrational action that presented itself to his mind, as his life shows. Supposing him to be insane, I should apply the term *vicious* or *malignant* to him. We have heard, in evidence, that he was brought up by pious parents, put to the best schools, and was unable to receive the smallest amount of education. We see him carried away to do the most foolish things. Where he loves, he loves with a foolish intensity; and where he hates, he hates with a foolish malignity: and if a woman puts herself into the power of such a man as his wife, what has happened is just what might have been expected."

To Mr. Overend.—"*I think he knew right from wrong—that it was wrong to steal or murder.* If he murdered, I should expect him to deny it in that form of insanity. In one form of insanity, impulsive madness, they own their crime. This case was only partly impulsive, and I should not expect him to divulge it. If he thought of this crime before he committed it, he would know it was wrong. He probably would learn it was wrong in his childhood. It is impossible to say when he committed the act he knew it was wrong. I don't know when he would know it was wrong. I can give no opinion about it."

On re-examination, he said:—

"There are dangerous wards in some asylums, but I should not expect to find the greatest number of impulsive cases in that ward. Sometimes impulsive lunatics are dangerous. The keepers have an influence over them—a mental influence. They formerly worked on their fears, and thus kept patients under control. There is a madness which consists in a *propensity* to kill. If a stranger was left with such a one in a room alone, I should expect him to exercise his *propensity* and kill him; and yet, probably, that patient would yield his keeper

obedience. Probably the fear of some chastisement would induce fear of his keeper."

THE JUDGE'S CHARGE.

The greater portion of Baron Bramwell's charge was necessarily occupied by reading over and commenting on the evidence produced by the prosecution—that the death of the wife had been due to the administration of strychnia, and that the prisoner had opportunities of administering it. The evidence on these points has been already so fully reported that it is needless to give this portion of his exhaustive summing-up. His remarks on the rule of law on the plea of insanity, and on the nature of the insanity suggested by the medical witnesses, are too valuable to be omitted.

"The rules of law," said the learned Baron, "are that it must be clearly proved that, at the time of committing the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he did know it, that he did not know he was doing wrong. If the accused was conscious of the act he did, he is punishable; and what you have to consider is, had he sufficient degree of sanity to know he was doing wrong? With respect to delusions the law is the same. According to the law, as I lay it down to you on the highest authority, to exempt a man from the penal consequence of his act, the act being contrary to the law, you must be of opinion that at the time he did the act he was not conscious that it was one he ought not to do; for if he was conscious that it was contrary to law, he is punishable. You must be satisfied that he had not a sufficient degree of reason to know that he was doing an act that was wrong—of course that means an act prohibited by law: because a man might imagine that the thing was a right thing to do, and it might not be contrary to law. He might think it right to take from the rich and give to the poor. But if he did it, not knowing it

was wrong, he must not know that the thing which he did was what the law would punish him for. It is not necessary for me to justify the law, or for you to approve it. We have only to administer it. Don't, however, suppose for a moment that I doubt the reasonableness of it.

"Let me put a case to you. A man labours under a delusion. He thinks I have done him wrong—have traduced his character. He waylays and murders me. Why should he be acquitted? Suppose he was wronged, that would not justify his taking away my life. Suppose, again, a person imagined some part of his person to be made of glass, or had swallowed something, or got something wrong in his inside. Imagine that man deliberately waylaying a person, knowing that he possessed property, to take it from him, and afterwards to conceal what he had done, and to act in every other respect as a rational man. Why should he be held irresponsible for this because he was irrational in other respects?

"Why should punishment be administered at all? It was not inflicted on a man who had committed a crime because he had inflicted that upon others, but in order to hold out an example to deter other people. If you punish an insane man, you hold out no example, because you are punishing a man who thinks he is doing right. But take the case of a man who is labouring under a delusion —under an evil propensity. If you punish him when he does wrong, or any other person with a similar propensity to commit that offence, and he knows, that when he indulged in it, or that when somebody else did, he was punished for it, that will deter him from repeating or from doing that act. Take the case of a man who has a strong propensity to thieve—a strong desire on him to do it; his intellect not very strong, and he knows that he is punished if he does such an act: do not you think, if he is punished, it will deter him from doing it again? There cannot be a doubt that it is so; and if you were to announce to all the world, that a man who has a strong propensity to an evil, that a person in his condition, shall not be punished, you take away from such persons the only thing that would deter them from committing the evil. Take a man of a weak

mind and strong animal propensities, and it will not deter him from committing such an act."

Again, after going carefully through the evidence in the case, and pointing out the application of the different classes of proofs, the learned Baron said that "he thought none of the instances of strange conduct adduced when the prisoner was a boy evidence of insanity more than might be found in the conduct of a perverse, ill-conducted boy;" and contrasted the opinions of the witnesses as to his being almost an idiot with the letters written by him, which exhibited no traces of mental incapacity.[88] In commenting on the opinions of the medical men of experience in insanity, he adopted the judgment of Dr. Lushington in the Dyce Sombre case, "that the facts to which they depose, and not their opinions alone, were of weight;" and added "that he sincerely believed that the jury were as capable of judging as these mad doctors."

"Two of them," continued the learned judge, "were of opinion that the contemplation of a crime constituted insanity, if it were only contemplated enough. Then it was said that a man who had a propensity to vice, to cruelty, to crime, was insane. Take the case of a man found guilty at these assizes of a crime. It is found that he has twice been convicted before and in prison half a dozen times, and that he has a general propensity to commit crime. In such a case, why should not Dr. Williams come forward and say, "You are wrong. He is insane; you ought not to punish him." If they believed these experts you would take away protection from the community, because they would have a check less to prevent the commission of crime. It would be affectation in him to say that he did not set a value on this scientific evidence. But he would rather take his own independent opinion, than that of others, on the facts. But it was not for him to do more than comment, and for the jury to judge of its value—of the conduct of the prisoner, of his letters, and of the arguments before them."

After a brief consideration the jury returned a verdict of "guilty, but recommended him to mercy on the ground of his defective intellect." Sentence of death was passed on him, and he was executed at York.

THE PRISONER'S CONFESSIONS.

A day or two before his execution Dove dictated two long and extraordinary statements of his connection with the "Witchman," and the part played in the tragedy by this dangerous man, which contrast strongly with the evidence given by Harrison himself, and probably disclose facts which that person was glad to conceal at the time of his examination.

In the first of these statements he details his earlier interviews with the "Witchman" on the subjects of recovering lost cattle, removing strange noises from his house, and the bewitching of his live stock, in which Harrison appears to have played off on him the common tricks of his trade. His confidence in this fellow was unfortunately largely increased by his prophecying that Dove's father would die before a certain Christmas Day—he died on Christmas Eve—and led him to consult the "Witchman" about his wife when he first conceived his violent hatred towards her.

> "About August, 1855," he says, "I had some unpleasantness with my wife, and went over to Harrison at Leeds, told him of it, and he promised to make it all right. He told me I must let him know by letter how things went on. In two days after this I wrote him that my wife was no better, and that he must do something to make peace. I sent this by Fisher, a porter at the railway station, to post. Mrs. Dove knew I had written, but not what about. She therefore sent the servant to Fisher, got back the letter, took out what I had written, and put in a blank sheet.[89] I did not know this at the time, but, hearing some whispering, wrote another letter, and posted it myself

about two o'clock. At three I went myself to Harrison, who told me he had received a blank sheet, and asked why, and I told him. I then informed him of the unpleasantness and unhappiness with my wife, and he said 'You will never have happiness till she is out of the way.' I said 'How do you know that.' He said 'Come upstairs and I'll tell you, for I've got your nativity marked out.' [Upstairs he showed him a paper with the signs of the Zodiac, and hieroglyphical forms and numbers, which he describes at length.] Harrison then read out of a book my destiny. Between twenty-seven and thirty-two all would go against me. I should have nothing but misfortunes; that at thirty-two the sun and moon would come into conjunction, and then everything would be in my favour; that at thirty-two I should lose my wife, marry again, and have a child, and an addition to my fortune; and that for my sake he did not care how soon it was here, for until then I should never be a happy man; that after 'thirty-two' everything would go well for a few years. He made other remarks as to different periods of my life."

Then follow the usual enquiries about the kind of person that was to be his second wife.

"I saw Harrison again in November about my wife's temper. He said never mind, 'she will die before the end of February or March, I am not certain which.' When he told me my wife would die soon I said 'You have told me before she would die at thirty-two.' He replied 'Before thirty-two, but I did not say how much before.' In a few days afterwards (after December 21) I went to the 'New Cross Inn,' and Harrison came in with a newspaper and read about Palmer's case. I then asked him whether strychnia could be detected, and he said 'No, nor any other vegetable poison.' I then said 'What other vegetable poisons are there that cannot be detected? and he said 'Digitalis, belladonna, particularly if crystallised; he could not remember more then.' I then asked him to get or make me some strychnia, as we were much annoyed in our

new house with cats, but he refused. I told him I would get some elsewhere.

"I went to him again in January last about my wife. I told him about my wife's temper and her being poorly then, and he again said, 'She won't live long; she will never get better. As I told you before, she will die in February.'

"I had no further communication with Harrison until the 6th of March, when I sent for him to the 'New Cross Inn,' and told him my wife had died, and that an inquest was to be held. He asked, 'Why?' I said, 'My wife died very suddenly, and Mr. Morley cannot account for it, and it is known that I had strychnia in the house. Mr. Morley thinks some may have been spilt, and my wife got at it accidentally.' I then said, 'You told me strychnia could not be detected, but I have seen in the *Materia Medica* that it can;[90] what is your opinion now? Can a grain to a grain and a half be detected, for there is a great difference on the subject? Professor Taylor says it cannot be detected twenty-four hours after death in the human body.' Harrison said, 'What, have you poisoned your wife?' I replied, 'No, I should be very sorry to.' Nothing more passed then.

"On Friday, the 7th, whilst the inquest was going on, I went to the back door of Harrison's house, about 3 P.M., and said to him 'that several witnesses had been called, and I was suspected of poisoning my wife,' and added, 'How will the case go?' He said, 'It will be a very difficult case, but I can get you out.' I said, 'You only say you can; but tell me, will you?' and he replied, 'Set yourself altogether at rest; I will.'"

In the *second* statement he gives details of his administration of the strychnia, declaring that even when he got the second portion of that poison from Mr. Morley's pupil he had no intention of poisoning his wife, but only intended it for the cats. His first attempt was with the jelly his sister Jane had sent, of which, it may be remembered, the wife, on the score of its bitterness, took only a spoonful. He then goes on:—

"On the Saturday, after Fisher left,[91] I took the paper containing the strychnia out of my razor-case and put it in my waistcoat-pocket, and then went to my mother's house. In the afternoon I had previously called at Mr. Morley's for my wife's medicine. It was an effervescing draught, in two bottles. At my mother's that evening I took the cork out of one of the bottles and touched the wet end of it with the strychnia. On that Saturday evening my wife took some of the draught in Mrs. Witham's presence. Mrs. Witham tasted it, and said it tasted bitter. The draught was not shaken that night before taken. My wife did not suffer from the effects at all. On my way from my mother's that night I threw away the remainder of the strychnia. I cannot tell you the feelings of my mind when I put the strychnia into the jelly and the mixture. I did not think at the moment as to its effects and consequences. On the Sunday following, which was the 24th of February, I went to the surgery; and there being no person there at the time, I took perhaps ten grains of strychnia and folded them in paper, and when I got home placed it in the stable. On the Monday morning I gave my wife her medicine—the effervescent mixture—about half-past nine, and at ten she had the attack mentioned by Mrs. Fisher and Mrs. Witham. At the time she took it she complained very much of the bitterness, and said she would tell Mr. Morley about it. There were three or four doses left in the bottle after that draught was taken, and I broke the bottle in my wife's presence, fearing Mr. Morley might taste it. The mixture was changed on the Monday; the mixture then given was very bitter. On Tuesday night or Wednesday morning I applied the wet end of the cork of the medicine-bottle to the strychnia, as before. I think there might be from half to a grain of strychnia on the cork when I put it into the bottle. I shook the mixture up. There were only two or three doses in the bottle. I don't remember my wife having an attack on the Wednesday. She took her medicine that day. On Thursday I got another bottle of medicine from Mr. Morley, and I again applied the wet end of the cork to the strychnia as before. About the same quantity adhered. The last dose of that medicine was taken on Friday night about ten, and my wife was taken

seriously ill in half an hour, but she had no arching of the back, as far as I can remember. Mrs. Fisher is mistaken in that point, but her statement in other respects is true, I believe. On that Friday night I got another bottle of medicine from Mr. Morley's, directed to be taken four times a day. I did not put any strychnia into that bottle, or upon its cork. Mrs. Witham gave a dose out of that bottle in the afternoon of Saturday.[92] The strychnia was in the stable, where I had first placed it, and there was none in the razor-case on that day, nor during any part of that week. I was drinking at Sadlefee's public-house on that Saturday, and was more or less affected with drink all that afternoon and evening. About three in the afternoon I went to the stable and took a grain and a half of strychnia out of the stable and put it in another paper, which I placed in my waistcoat-pocket. I put that strychnia into the wine-glass which contained a little water—I believe the water left in the glass by Mrs. Witham after giving my wife the third dose in the afternoon, but I have no recollection as to the time I put the strychnia into the glass. I gave the mixture in the evening, as stated by Mrs. Witham and Mrs. Wood in their evidence. I poured the mixture into the glass which contained the water and strychnia. I did not put the strychnia into the wine-glass in the presence of Mrs. Witham and Mrs. Wood. I know that I put it in before, but cannot tell how long before giving the medicine. I did not, when I gave the medicine on the occasions mentioned, think of the consequences; but when I saw my wife suffering on the Saturday night, it flashed across my mind that I had given her medicine, and that she would die from the effects. I was muddled before this, and did not know what I was doing. When the thoughts of her death crossed my mind, I regretted what I had done, and believe that if Mr. Morley had come in at that moment I should have told him what I had given her, so that he might have used means to restore her. I cannot disguise the anguish I felt when I returned from Mr. Morley's and found her dead. Palmer's case first called my attention to strychnia, but I never should have thought of using that or any other poison for the purpose of taking my wife's

life but for Harrison, who was always telling me that I should never have any happiness till my wife was out of the way."[93]

TRIAL OF SILAS BARLOW FOR THE WILFUL MURDER OF ELIZA SOPER.

Before The Honorable Mr. Justice Denman, *at the* Central Criminal Court, *November 27, 1876*.

For the Prosecution: Mr. Poland and Mr. Beasley.
For the Defence: Mr. Fulton and Mr. Grubbe.

HISTORY OF THE CASE.

The prisoner, an engine driver on the South-Western Railway, about a year before the trial, on being left a widower, had formed a connection with the deceased, who, with their infant, came to lodge at the house of a Mrs. Wilson, in Leopold Street, Vauxhall, in August, 1876, under the name of Smith, where she was occasionally visited by the prisoner, who passed as her husband. Apparently they lived together on kindly terms, and were in fairly comfortable circumstances. On the 3rd of September the prisoner visited her about half-past eight in the evening, and stayed an hour. Up to that day the deceased had been in good health. As soon, however, as the prisoner had left, she came down from her room, knocked at the landlady's door, and complained to her that she was very sick from the sarsaparilla which he had given her. "Her lips were white, she was very nervous, and appeared hardly able to stand," said Mrs. Wilson. "I had never seen her so before. She went upstairs, and when I went to bed I went to her. She was retching

very much, and sitting in a chair. I then went away. Next morning I saw her; she came downstairs and said she was very bad—worse. She could not stand, and had to lean against the wall. During the day she became better."

THE SYMPTOMS.

The prisoner came again on the Sunday following, the 10th, at the same time as before.

"The deceased," said Mrs. Wilson, "was at the street door, talking to me, with her baby, and in perfect health. They went up into their room, and in about an hour the prisoner knocked at my room door and said his wife had had two fits. I ran upstairs and found her lying across the bed; the prisoner was in the room. She was in a kind of fit or convulsion. I sent the prisoner for some brandy and water. She became a little conscious, and taking me by the hand said '*Don't touch me*.' She had been unconscious, *but the moment she was touched she went into convulsions*. *Her feet and hands were clenched, and she was drawn quite backwards, her back forming an entire arch.* She was *not conscious* then. The prisoner was holding her all the time. About half past ten I sent him for Dr. Miller, who came at once, and applied mustard plasters, remaining with her about five minutes, and the prisoner going back with him for medicine. She was slightly conscious when Dr. Miller came, and more so afterwards. Her feet were quite *white(?)*[94] *the toes being drawn backwards to the soles of the feet*. I did what the doctor told me, but it did not do her any good. I tried to give her the medicine, but she could not take it, *and went off in a swoon*. She had licked the spoon. She then had dreadful convulsions, one in particular, when it took the prisoner and me to hold her. Her neck was drawn backwards and quite arched. After that she became quite conscious, and said it was the nasty sarsaparilla that made her ill. The prisoner said 'Oh no. I have taken more of it than you.' He also said 'I have

given her two pills and taken two myself.' She complained of a dreadful pain in her heart, *and continued unconscious, coming to herself a little at times, but very slightly*. The convulsions were dreadful, and she died about two o'clock on the eleventh. She seemed to drop instantly after a dreadful convulsion. I gave her two doses of the medicine the doctor sent. I had not seen any sarsaparilla in the room."

On cross-examination by Mr. Fulton, after stating that she had never heard any quarrels between the prisoner and the deceased, she gave the following further particulars as to the symptoms:—

"In the evening, when I was called in, her eyes were partly closed during the convulsions; her breathing very hot (hard?) and at most suspended; her teeth entirely clenched and also her hands during the convulsions. She wanted to be sick shortly before her death; her lips were pale, and remained so until her death. The prisoner tried to move her, when she became sick, and she went into convulsions. He helped to hold her, and said he could not imagine what was the matter with her; seemed distressed, and sat on the bed holding her. To all appearance he was kind to her but not affectionate. *She was more unconscious than conscious during the whole time.* About twelve o'clock she *appeared quite conscious*. She had to move herself so that she could be sick, and caught hold of the bed head, and then went again into convulsions. *Virtually she was unconscious the whole time.* Dr. Miller came a second time, and she told him she had had some fearful fits, but I cannot recollect whether I said anything about the 'arching.' There was none when he saw her, but *her feet were curved*, and I told him about the 'shakings,' I mean the 'convulsions.' I first heard from the coroners officer that she had died of strychnia. I had previously told him the symptoms attending her death, but don't remember telling him of the 'arching.' He said there was every appearance of her having died from strychnia."

MEDICAL EVIDENCE.

James Miller, medical assistant at the Vauxhall dispensary, before that with Mr. Scott, a general practitioner, and previously an insurance agent, gave the following account of the case:—

"About twenty minutes to eleven on the 10th of September I was called by the prisoner to his wife, who he said had had two fainting fits. I found her lying on the bed, dressed, and quite conscious. She lay very quietly. She said she had severe pain in the legs, and that she had fainted twice. I asked her if she had complained during the week. She said only of pains in the head. I found the calves of her legs very rigid, her feet turned slightly inwards, the toes of each foot inclined towards the other as she lay, cramp in the lower limbs, her arms quiet. She beat her breast at times. Her hands were partly closed, her heart very excited, and her breathing slightly laboured. Her heart continued excited all the time I was there, about five minutes. I asked her what she had taken. She said a cup of tea in the morning and a herring at tea. She said she had pain in her head all the last week. *I believed she was suffering from epilepsy.* On leaving, the prisoner returned with me; I made up a bottle of medicine, antispasmodic, which he took away with him. I never saw her again alive."

On cross-examination he said—

"He did not notice any such 'arching' as the witness Wilson spoke of, nor did she mention it to him as one of the symptoms. Nor should he call what he saw of the feet 'arching.' He had only seen one case of epilepsy before—that was twelve months ago—and the symptoms in it were very similar to what he saw in the deceased. He saw the body immediately after death; there was no 'arching' of it then. If there had been he should have seen it. She was lying, with her clothes on, on the bed. If there had been any marked rigidity of the body he should have observed it; that was a quarter of an hour after death."

Re-examined by Mr. Poland.—"She had her clothes on when he saw her, and part of her body might have been covered with the bedclothes. In the case of epilepsy he referred to, the person died in six hours. *He prescribed no pills, only the mixture.*"

Proof was then given of the finding in the prisoner's room of six bottles of medicine, a box with two pills,[95] and a packet of powder in dirty paper, and of their delivery to Dr. Lees, and subsequently to Dr. Bernays for analysis. It was not, however, until suspicions were aroused by other circumstances (the finding of the body of the infant in the river) that a *post-mortem* examination was held by Dr. Lees, and the contents of the stomach and other interior parts of the body analysed by him, and subsequently handed to Dr. Bernays for the same purpose. In one of the bottles Dr. Bernays found a distinct sediment of Prussian blue, pointing clearly to the use of some vermin killer. Subsequently two kinds of these dangerous preparations were submitted to and analysed by him.

ANALYTICAL EVIDENCE.

Dr. Lees, M.D., of the Brixton Road, on the 18th of September made a *post-mortem* examination of the body in conjunction with a Dr. Lewis. They found *no morbid appearances to indicate the cause of death*—the limbs were somewhat rigid, the body fairly nourished, and the stomach showed no sign of irritant poison.

"It contained," said the witness, "six ounces of a thin reddish fluid. I put the stomach and contents into a jar, and the viscera into another. I received the bottles from the constable and the paper of powder, and saw some pills at the inquest. Among the bottles was one of the larger ones, which appeared to have contained a few ounces of good sarsaparilla—it was empty and rinsed out. One bottle contained about two grains of dried powder, adhering to the

bottle. I added to the bottle a few drachms of water, two drachms of spirits of wine, thirty drops of hydrochloric acid, and two grains of dried powder. My purpose up to that time was to test for strychnia, but it was frustrated. What I had done was not sufficient to enable me to form an opinion. I had previously analysed a portion of a two-ounce phial, containing half a drachm or thirty drops of a reddish brown fluid—half a spoonful. I first tested five drops, and obtained clear evidence of strychnia. I was enabled to separate from the rest a substance that yielded strychnia. I used three separate tests; the second time with ten drops, and obtained needle-shaped crystals. I showed the colour to Dr. Bernays. I did not test the bottle for any other purpose. I left the rest (five drops) in the bottle and corked it up. Half a grain of strychnia is a fatal dose. I have been in practice fourteen years, and am of opinion that if Mrs. Wilson's description of the symptoms is correct, they were consistent with death from strychnia. They only resemble the disease known as *idiopathic tetanus*. If Mrs. Wilson's description is correct, the symptoms were not consistent with anything I know except death by strychnia—it came on so rapidly. If strychnia were administered in solution, the symptoms would come on in a very few minutes. *Strychnia occasionally produces irritation of the stomach.* The symptoms of poisoning by it are the rapid occurrence of twitchings in the limbs and rigidity of the muscles of the limbs, *usually commencing in the lower extremities*; the sense of weight on the chest, the extension of the spasms to the muscles of the trunk, the arching back of the head, the intervals of consciousness, the absence of any great difficulty in swallowing, and death in six hours. Mr. Miller's evidence is consistent with death from strychnia."

The cross-examination was, as in Mrs. Wilson's case, directed to the eliciting admissions in favour of the opinion, at first adopted by Mr. Miller, that the death was due to epilepsy.

"Leaving out the 'arching'" (opisthotonos), said the witness, "I should hesitate to say she died of strychnia; it is a leading symptom,

> and also that the intellect was clear at intervals. *Vomiting is not usual in epilepsy.* It was *eight days* after death that I examined the body. There was then *no rigidity beyond what I might expect in death*. The lungs were congested, the heart flabby and decomposed, spongy from putrefaction, and containing a little coagulated blood. Taking the appearances of the whole *post-mortem* examination, *there were no marked ones to account for death*."

Dr. A. J. Bernays, professor of chemistry at St. Thomas's Hospital, to whom the bottles and powder found in the room, the jars with the stomach, intestines, and viscera, and a bottle supposed to contain vomit,[96] had been handed on the 28th of October, reported the results of his analysis of their contents.[97]

"In the organs (the lungs, heart, liver, kidneys, intestines, spleen, and blood) he found no poison of any kind. The stomach was inflamed, and there was a *trace of strychnia*, but of no other poison. In one bottle of medicine, opium, myrrh, but no strychnia, were found, and in another only peppermint and asafœtida. The powder was innocuous, consisting of old mustard and fenugreek. In one nearly empty bottle was found a distinct sediment of Prussian blue, one of the usual ingredients in 'vermin powder.' He was satisfied that what Dr. Lees showed him on a watch glass was strychnia; on testing, it was found to contain the 1000th part of a grain. On the 31st of October the inspector brought two packets labelled *Battle's Vermin Killer*. *Poison. Lincoln*—a light blue powder, a threepenny and a sixpenny packet. The first consisted of fifteen grains, containing wheat flour, Prussian blue, and crystallised strychnia. The second packet, of the same composition as the first, weighed thirty grains. The amount of strychnia was—in the threepenny packet 10·69 per cent., in the sixpenny packet 10·06 per cent., corresponding to 1·6 grains in the smaller packet. On the 9th November a threepenny and sixpenny packet of *Butler's Gloucestershire Vermin and Insect Killer for killing rats and mice, &c.*, was received, marked poison. The weight of the two was fifty-six grains. It was a grey powder, containing flour, soot, and barium carbonate, but no strychnia; but another packet of the same contained flour, soot, strychnia, but no barium carbonate. These 'vermin killers,' if used at all, should never be made or sold except by the legitimate pharmaceutists of the country, and under proper precautions."

Mr. Justice Denman.—"A very proper suggestion for the consideration of the legislature."

Mr. Thomas Stephenson, M.D., lecturer in chemistry at Guy's Hospital, agreed with Dr. Lees and Dr. Bernays, and had no doubt of the correctness of their experiments.

It was also proved by the prisoner's brother-in-law that the prisoner was in the habit of taking sarsaparilla, and that whilst the prisoner lodged with him, the witness had been using *Battle's Vermin Killer*, as he was troubled with mice in his room. This he had bought at a shop in the Vauxhall Road, but he did not recollect having any of it left, or of the prisoner using it in his room. The prisoner had left Mrs. Wilson a few hours after the woman's death, saying he was going to telegraph down the line and would be absent till the evening. He did not return until about nine on the morning of the 11th, when he said his cousin would take the child, which Mrs. Wilson dressed and gave to him, and never saw it again until the 15th, when it was lying dead in a public-house at Battersea, having been found drowned in the river. He also promised Mrs. Wilson that he would attend the woman's funeral, but did not, and told her on one occasion that he always had strychnia by him.

For the defence Mr. Fulton urged that the evidence of the "arching" of the body was very vague, and rested only on the word of Mrs. Wilson, who had not mentioned this important symptom either to the doctor or the coroner's constable, and that without that symptom the death might be accounted for by epilepsy, and the first opinion of Dr. Miller justified. He endeavoured to minimise the evidence of the analysts, and argued that the conduct of the prisoner in his attendance on his wife was a strong proof of his innocence. "Motive," he said, "there appeared to be none, as from his wages the prisoner was quite able to bear the expense of the mother and child."

The jury, however, returned a verdict of "guilty," and the prisoner was executed on the 2nd of December, admitting the justice of his sentence, and that he was a party to the death of the child, but saying others were in it.

CHAPTER V.

STRYCHNIA AND BRUCIA.

Contained in St. Ignatius's bean—False Angostura bark—*Nux Vomica*, &c. —Properties of strychnia—Facility of detection. *Tests*: (1) Microscope—(2) Taste—(3) Color test; ditto in other alkaloids, in bile, and in resinous and saccharine matters—(4) Physiological test (Marshall Hall)—(5) Bichromate of potash—(6) Picric acid—(7) Sulphuric acid and sodium nitrite—(8) Mercuric chloride. Preparations of strychnia: *Vermin killers* —Battle's, Gibson's, Miller's, Marsden's, Barber's, Hunter's, Keating's —*Brucia—Igasuria—Igasuric acid*. *Doses of strychnia*: medicinal, fatal, recovery—*Nux vomica*. *Fatal period* for strychnia—*Symptoms* in man, commencement of symptoms, if given in powder, in solution, in pills. *Explanation of symptoms*: by hysteria, tetanus, epilepsy, gritty granules on spinal cord—Angina pectoris. *Post-mortem* appearances—Treatment —Antidotes—Dr. Taylor's evidence—Ptomaine—Did Cook die from morphia?—*Granular preparations* at St. Thomas's Hospital.

SEVERAL species of Strychnos, of the natural order Loganiaceæ, contain, mainly in their seeds, the alkaloids Strychnia and Brucia in the proportion of one to one and a half per cent. The plants yet proved to contain these two alkaloids are:—*Strychnos nux-vomica* (bark and seeds), *Strychnos Ignatia* (Faba amara, or St. Ignatius's

bean), *Strychnos Tieute* (the Upas tree of Java), *Strychnos toxifera* (main source of woorara or curare, the arrow poison of the South American Indians), and *Strychnos Ligustrina* and *Colubrina* —"snakewood"), a tree of Asia. *S. potatorum* —"clearing nut") and *S. pseudokina* are not poisonous.

In commerce, "Nux vomica," "Faba amara, or St. Ignatius's bean," "false Angostura bark" (the bark of Strychnos nux-vomica), and an extract called "curare," are met with. The last is made by mixing the juice of the bark of Strychnos toxifera and another species with pepper and acrid plants; as its effects depend upon "*curarine*," another alkaloid, and not upon strychnia, it will not enter much into our subject.

"*Faba Amara*," St. Ignatius's bean, contains 1·2 per cent. Strychnia and some Brucia.

"*False Angostura Bark*" contains Strychnia and Brucia, gives a light yellow powder, intensely bitter, and turned red by nitric acid.

Nux Vomica, a flattened circular seed, from half to one inch diameter, generally concavo-convex, with a slight central prominence. Colour greyish-brown; silky from radiating hairs. Substance tough and horny; powder light brown, with an odour like liquorice, and an intense and persistent bitter taste. Nitric acid gives with the powder and with the extract an orange-red colour, owing to the presence of *brucia*. The aqueous infusion gives a precipitate with tannin, and an olive-green tint with neutral ferric chloride.

STRYCHNIA, $C_{21}H_{22}N_2O_2$, occurs in commerce in opaque white rhombic prisms (the "right square octahedra" of the British Pharmacopœia are not met with), inodorous, having a sp. gr. of 1·36. One part of strychnia dissolves in 7000 parts of cold, in 2500 parts of boiling, water; in 1250 parts of ether; in 1000 of carbon disulphide; in 200 of *absolute* alcohol; in 120 parts of cold, and 10 parts of hot, rectified spirit; in 181 parts of amylic alcohol; in 164

of benzene; and 7 of chloroform. Creasote and essential and fixed oils also dissolve strychnia (Blyth).

It sublimes in needle shaped crystals, or sometimes, if too quickly heated, in drops, at 169° C.; melts at 221° C., finally darkening and carbonizing.

Its bitter taste is its most prominent physical characteristic. I have verified the statement that one grain of strychnia in a gallon (70,000 grains) of water is distinctly perceptible. One grain in 30,000 is markedly bitter.

Its salts are crystallizable, and also bitter, lævo-rotatory in solution, mostly colourless, neutral to test-paper, generally soluble with facility in water, hence more rapidly poisonous than the free alkaloid. *Strychnia sulphates* occur in large four-sided prisms, octahedrons, or needles, according to the amount of water of crystallization. *Strychnia nitrate* crystallizes in silky needles, easily soluble in water. The *sulphate* is officinal in the French, the *nitrate* in the German, Austrian, Swiss, Norwegian, and Dutch Pharmacopœias. The acetate and hydrochloride are met with in commerce, but are not officinal. *Strychnia* itself, the free alkaloid, is prescribed in the British Pharmacopœia. *Liquor strychniæ* is a solution of the hydrochloride.

Separation.—Strychnia is probably the easiest of the alkaloids to detect, on account of its stability and the delicacy of its reactions. One half-millionth of a grain in the pure state is discoverable by the colour tests (Pharm. Journ., July, 1856). Putrefaction does not change it, for Richter detected it in tissues after *eleven years* (Sammlung Klin. Vorträge, 69, 562), and other observers in decomposed or buried bodies after five to eight weeks. And yet there are few analysts who have not on some occasion failed to find it (see p. 147.) A very small quantity, about a grain, may destroy life. Even of this, only a portion is absorbed; the rest is

eliminated by vomiting (when it occurs), and by the urine and fæces; the absorbed portion is diffused with great rapidity through a large mass of blood and tissue; the result is that we are looking for *one part* of the poison in about a *million times* its weight of impurities—almost worse than the needle in the haystack. Matters are still more difficult if the theory be true that an alkaloid, in killing, itself suffers change (see pp. 128 and 133)—an idea that Dr. Letheby and Mr. Nunneley strongly repudiated in the Palmer defence, though the latter witness had to admit that he himself had once failed to detect strychnia in an animal to which he had administered it. Dragendorff records several negative results without apparent cause. Taylor (Med. Jur., 1873, Vol. I., 414) mentions cases of non-discovery by Dr. Reese of Philadelphia, Mr. Horsley of Cheltenham, by himself in the organs of an animal hypodermically poisoned; and also a case in which *five grains* had been taken, and only a little over a grain was found. Sonnenschein (Casper's Handbook) in one case found a quantity in the stomach, but none in the tissues; yet it had caused death. All these facts greatly support the theory that the alkaloid is itself changed in causing death.

However this be, if the stomach has failed to yield strychnia, the whole of the rest of the organs, the blood, and the muscles—in fact, as much of the body as can be managed—should be extracted with hot redistilled methylated spirit acidified with a little acetic acid. It is easy to fit up an arrangement with a stoneware pan, a wooden cover, and a coil of tin pipe, through which steam can be passed, and thus the alcohol can be kept warm for two or three hours without much loss. Strain the whole through a cloth, distil off most of the alcohol, evaporate on a water bath at about 70° C., and treat the extract as described in the general process for alkaloids. To facilitate the purification, the alcoholic solution may be precipitated

by acetate of lead (*avoiding much excess*), filtered, the lead removed from the filtrate by adding sufficient sulphate of potash in solution and allowing it to settle, and the clear liquid evaporated as before. Much syrupy matter, which occasions trouble, is thus removed.

The ether-chloroform solution (p. 5), by spontaneous evaporation, leaves the strychnia in "rosettes, veined leaves, stellate dotted needles, circles with broken radii, and branched and reticulated forms" (Guy and Ferrier, Forens. Med., 1881, 568). If not yet pure enough to crystallize, advantage may be taken of the fact that while most of the impurities are charred by warm concentrated sulphuric acid, strychnia is very little affected. A few drops of this acid are therefore added to the residue, then it is warmed for ten or fifteen minutes on the water-bath, finally diluted to about ten cubic centimetres, filtered, the filter washed with water, and the filtrate treated again with ammonia and ether-chloroform. The residue left by the latter, on spontaneous evaporation, will now be pure enough for the following

TESTS.—1. The microscopic appearances are so various as to be somewhat indefinite; Guy's description has been already given. If *no* crystals are found, strychnia and most other alkaloids are unlikely to be present. But if crystals *are* obtained, they frequently, on further examination, prove to be some inorganic salt or an ammonium compound, leading to wrong conclusions, if the microscope be trusted too much.

2. Dissolve in water with a trace of acid, and divide on several watch-glasses, as described in the introduction. If one portion be cautiously *tasted*, and there be no bitterness, strychnia is very improbable.

3. Proceed at once to the *colour test*. Transfer a portion of the residue, dissolved in a drop of acetic acid, to a white porcelain dish

or plate; dry gently on the water-bath; moisten it with about two drops of pure concentrated sulphuric acid; *strychnia gives no coloration*; with the point of a knife place a minute quantity of finely-powdered peroxide of manganese (the precipitated hydrate is often recommended, but the natural peroxide answers better, being more gradual in its action) on the side of the dish; slant the dish so as to allow the liquid to come in contact with the powder. At the moment of contact a *deep rich blue* colour is produced if $^{1}/_{20000\text{th}}$ of a grain of strychnia be present. The blue colour rapidly changes into *purple*, *crimson*, *rich red-brown*, then fades into *bright orange-red*, which last tint remains for some hours. By cautiously stirring with a glass rod, the succession of colours can be brought out again at another spot. One or two other qualified observers should always be summoned to witness the experiment, for two reasons; *first*, that they may testify at the trial, if necessary, to the certainty of the conclusion; *secondly*, because the sense of colour is differently developed in different people, and, if the hues are faint, one is apt to imagine what one expects to find. But if two or three, without prompting, see the same appearances, the chance of error is removed.

Applied in this way, the succession of colours is *absolutely peculiar to strychnia*. But, as objections have been made that these can be produced from other substances, they may as well be discussed and disposed of.

(*a*) *Curarine* (from Strychnos toxifera) has a bitter taste, is almost insoluble in ether and chloroform; hence it is not usually extracted by the above alkaloidal process, but remains behind in the aqueous liquid. With sulphuric acid and peroxide of manganese it gives the same colours as strychnia, but the changes are slower. *With sulphuric acid alone*, it yields a pale violet colour, changing to dirty red, and finally to rose. Its physiological effects are opposite

to those of strychnia—so much so that it has been proposed as an antidote.

(*b*) *Pyroxanthine* (a rare substance, obtained in very small quantity from wood spirit), *salicine* (from the willow), and *piperine* (from pepper), give *with sulphuric acid alone* a deep-red colour, destroyed or spoilt by peroxide of manganese. (Nunneley, in Palmer's trial.)

(*c*) If sugar and bile should be present together, sulphuric acid will develope a purple colour very like the strychnia test. Bile would also give bitterness. But it must be remembered that bile, without sugar, will not give the colour, that sugar will not be extracted by the ether-chloroform, and that the colour will appear immediately on the addition of the acid alone, whereas strychnia remains then uncoloured.

(*d*) Many resinous and saccharine matters are coloured by sulphuric acid, but can be got rid of by warming with the acid as described above.

So that none of these can be mistaken for strychnia. This important test depends upon the action of nascent oxygen; hence any substance which yields oxygen will give the colours more or less satisfactorily. Bichromate of potash, potassium ferricyanide, peroxide of lead, peroxide of cerium (Sonnenschein), have been employed, but most of them give colours of their own, and none are so good as peroxide of manganese. It is only necessary that the manganese should be finely pounded and not too much added. The action is slower and more lasting than with bichromate.

Letheby's galvanic test is interesting, and has the advantage of not introducing any extraneous substance into the matter under examination, so that another alkaloid can be tested for afterwards. I have found it better to place the drop of supposed strychnia solution, acidified with a drop of dilute sulphuric acid (10 per cent.

strength) on a white plate, to place on its opposite sides two small pieces of platinum foil pressed closely against the plate, touching the drop, and approaching within a quarter of an inch of one another, and to touch them simultaneously with the terminals of a battery of *two* Grove's or other cells. In the region of the positive terminal the same colours manifest themselves as with peroxide of manganese. If no colour is shown at once, the battery should be removed, as further galvanic action may decompose any other alkaloid that may be present. The test is not so delicate as sulphuric acid and peroxide of manganese.

It is said that the presence of much *morphia* will interfere with the above test. But morphia, again, is not extracted completely by the ether-chloroform; and I have not found it to hinder the reaction if performed carefully.

Brucia in ordinary quantities, quinine, cinchonine, veratrine, and santonine do not interfere. In strychnia poisoning, morphia should always be sought for, as it is used as an antidote. If found, its interference may be obviated thus. Dissolve the supposed strychnia in water with a little acetic acid, add an equal volume of *ether*, and then ammonia in slight excess, and shake well. The strychnia will dissolve in the ether, the morphia will remain in the aqueous liquid. On evaporating the ether, the strychnia will be isolated.

4. Dr. Marshall Hall's *physiological test* is very delicate. With some small animal—preferably a frog—proceed as mentioned in the introduction (p. 6). Tetanic spasms are caused. But other poisons, ptomaines, and even the mechanical injury, may produce irritation and perhaps convulsions, so that the test is dangerous, except as confirmatory or negative.

5. *Bichromate of potash* solution gives with strychnia, at once or on standing, a yellow precipitate, appearing under the

microscope as rectangular plates and prisms. (See Guy and Ferrier's Forensic Medicine, p. 567.)

6. A sublimate of strychnia touched with a drop of dilute *picric acid* solution, strength 1 in 250, gives microscopic arborescent crystallizations of peculiar *curved* forms. (*Ibid.*)

7. Treated with concentrated sulphuric acid and then with a crystal of sodium nitrite, strychnia gives a dirty yellow colour, changed by an alcoholic solution of potash to a fine orange-red, by an aqueous solution to brownish green, and finally to dirty red-brown. (Arnold, Arch. d. Pharm. 3, 20, 561.)

8. Mercuric chloride produces a white precipitate, as also does potassium sulphocyanide. All the general reagents for alkaloids precipitate strychnia. If, however, the reaction with sulphuric acid and manganese have come out properly, all the other tests are superfluous; if it has *not* been obtained, none of the other tests will be of use.

Preparations.

Name.	Composition.	Approximate Amount of Strychnia.	Approximate Amount of Brucia.
Liquor Strychniæ, B.P.	Aqueous solution of strychnia hydrochloride	4 grs. in 1 fl. oz.	None.
Tinct. Nucis Vom.	Nut extracted with spirit	0·15 per cent.	0·15 per cent.
Extractum Nuc. Vom., English Pharm., &c.	Spirituous extract evaporated	3 to 4 per cent.	3 to 4 per cent.

Extractum Nuc. Vom., Germ. Pharm.	Aqueous extract evaporated	½ to 1 per cent.	1½ to 3 per cent.
Extr. Fab. Ignatiæ, American.	From St. Ignatius's bean	5 per cent.	Very little.

Vermin Killers.

1. *Battle's* seems to vary in composition. Tardieu found in a packet of 19 grains, 1½ grain of strychnia, or 7·7 per cent., the rest being *Potato* starch and Prussian blue. Woodman and Tidy (For. Med. p. 329) found 23 per cent. strychnia, with sugar, flour, and Prussian blue. Bernays found 10·7 per cent. of strychnia, with flour and Prussian blue. (Barlow's case.)

2. *Butler's* contains flour, soot, and about 5 per cent. strychnia. Sometimes it contains Prussian blue, and sometimes carbonate of barium in place of strychnia.

3. *Gibson's* contains half a grain of strychnia in each powder.

4. *Miller's Rat Powder* contains oatmeal, and about 6 per cent. of nux vomica (equal to 0·023 strychnia and 0·067 brucia). (Blyth, Man. of Prac. Chem. p. 317.)

5. *Marsden's Vermin and Insect Killer*: one packet contains ¾ grain strychnia. (Lancet, April 19, 1856.)

6. *Barber's* "*Magic Vermin Killer Powders*" weigh 28 grains and contain 10 per cent. of strychnia. "Hunter's Infallible" also contains it.

In *Keating's Insect Powder* I have found no strychnia nor arsenic.

BRUCIA.

$C_{23}H_{26}N_2O_4$,$4H_2O$, is probably derived from strychnia by the substitution of two molecules of methoxyl (CH_3O) for two atoms of hydrogen (Shenstone, Chem. Soc. Journal, Feb., 1883), hence might be named *dimethoxystrychnia*. But efforts to change it into strychnia have, as yet, been unsuccessful. All plants containing strychnia contain also brucia. In *false Angostura bark* the latter much predominates. It occurs in needles or 4-sided monoclinic prisms (rarely in tables), colourless, intensely bitter, lævo-rotatory to a less extent than strychnia, but more soluble in water, alcohol, &c., hence remaining in the mother liquors in the preparation of strychnia. Insoluble in pure ether. It melts at 151° C. (Blyth), and produces a scanty amorphous sublimate near its temperature of decomposition. The salts are neutral, easily soluble in water, and crystallize in needles (the acetate with difficulty). Its physiological action is the same as strychnia, but six or seven times weaker.

With the general reagents for alkaloids brucia gives precipitates. With *concent. nitric acid* it gives a deep-red colour, changing to orange, and finally to yellow. A trace of stannous chloride (protochloride of tin) turns the red solution purple: excess bleaches it.[98] This test is very delicate. In former times commercial strychnia always contained brucia, hence the coloration by nitric acid was even looked upon as a test for strychnia (see p. 125, and p. 156). But, as the strychnia now sold is generally pure, it gives no colour with nitric acid in the cold. Therefore, if both strychnia and brucia are found in a product extracted from the animal tissues, it follows that *Nux Vomica*, or one of the plants, or their preparations, has been used, and not the pure alkaloid. The microscope in this case will generally detect some of the vegetal tissue or hairs in the stomach.

Concent. sulphuric acid, followed by bichromate of potash, gives with brucia a red-brown colour passing to green and yellow

(Guy).

Whenever strychnia is found, brucia should also be looked for.

IGASURIA, a supposed third alkaloid of the Strychnos tribe, has been shown by Shenstone to be a mixture of strychnia and brucia (Chem. Soc. Journal, Sept. 1881, p. 457).

Strychnic or Igasuric Acid, obtained by Pelletier and Caventun from Nux Vomica and from St. Ignatius' Bean, is probably identical with malic acid.

DOSES.

Medicinal dose of strychnia $^1/_{30}$ to $^1/_{12}$ grain. *Fatal dose*: smallest recorded ½ grain (Dr. Warner, "Poisoning by Strychnia," p. 138), ¼ grain (Guy; also case of Agnes Sennett, p. 121, *ante*), but a child of two or three years was killed by $^1/_{16}$ grain (Christison): average for adults, ½ to 2 grains (Taylor).

Recovery has taken place after 3 grains (Taylor), 4 grains (Lancet, 1863, i. 54), 3 to 7 grains (Husemann), 7 grains (Med. Gaz., xli., 305), "20 grains or more" (? Guy and Ferrier's Forens. Med., 1881, p. 574), 40 grains (Med. Times and Gaz., 1865, p. 267). If these statements are correct, they must be accounted for either by vomiting, early and vigorous treatment, or impurity of the alkaloid.

Poisonous symptoms have sometimes occurred in adults, and frequently in children, from medicinal doses.

Fatal close of nux vomica: of the powder, 30 grains is the smallest (= ⅓ grain strychnia), (Hoffmann, Med. Rat. System, 2, 175), of the alcoholic extract, 3 grains (Christison on Poisons, p. 642).

Brucia is not used in medicine. *Fatal dose* rather uncertain, probably three to ten grains.

FATAL PERIOD FOR STRYCHNIA:—Shortest, five minutes (Dr. Gray on Strychnia, 1872, p. 55); longest, six hours after three grains (Taylor, Guy's Hosp. Reports, Oct., 1857, p. 483); average, two hours. *For nux vomica*:—Shortest, fifteen minutes; longest, three hours or more (Guy); average, two hours (Taylor), one hour (Guy).

Symptoms commence at various intervals after taking, according to dose, form, and constitution. The beginning may be (1) almost immediate (Mad. Merghelynk, 1870, Taylor's Med. Juris., p. 408), (2) in five minutes (case of Dr. Warner, also Dr. Gray on Strychnia, 1872, p. 55), (3) in fifteen minutes (trial of Dove, p. 242), (4) about an hour (Palmer's trial, p. 102), (5) forty minutes (Lond. Med. Repository, xix., 448), up to two and a half hours (Wormley, Microchemistry of Poisons, p. 538). Hence no conclusion can safely be drawn from this feature (see Dr. Letheby's evidence in the Palmer trial, p. 166). Probably Dr. Todd's statement in the same trial is the most correct average:—"Symptoms in ten minutes, if in solution and a large dose; otherwise in a half to one hour."

The different action of powder and solution is shown in the following experiments on two full-grown rats:—

1. Half a grain of *powdered* strychnia—First convulsion in twenty minutes, death in two and a half hours.

2. Same quantity *dissolved* in sufficient acid—Effect almost immediate; death in half an hour. In the stomach, liver, and brain, strychnia was separately detected.

Pills, especially if hard, would be very slow in action. The most intense effect is produced by hypodermic injection.

SYMPTOMS IN MAN:—Bitter taste in the mouth, feeling of suffocation, jerkings and twitchings of head and limbs, then tetanic convulsions of nearly all the muscles. Body stretched out stiff, finally arched back so as to rest on the head and the heels (opisthotonos), spasmodic and difficult breathing, usually a peculiar grin (risus sardonicus). *After a time the jaw becomes tightly fixed* (trismus or lockjaw), the fingers are clenched, the feet arched inwards (incurvated), the eyes prominent and staring. The spasm lasts from a half to two minutes, then there is an interval of comparative rest. The pupils are generally *dilated* during the fit, *contracted* in the interval. A touch, a change of position, or a sudden noise, will usually cause a renewal of the spasm. In severe cases the convulsions recur at diminishing intervals, increasing in violence till death occurs from exhaustion or suffocation. Vomiting is very rare. Taylor says "the jaw is not always fixed during a paroxysm: the patient can frequently speak and swallow" (Med. Juris., 1873, p. 404). Woodman and Tidy (Forens. Med., 1877, p. 330) say that this symptom is invariably present. Guy and Ferrier are cautious, and state that the effort to drink often causes rigid spasms of the jaw, but that the "jaw is not always fixed, even in the fit" (Guy and Ferrier's Forens. Med., 1881, p. 573). On the whole, fixing of the jaw is usual but not invariable. In the Palmer and Dove trials the patients spoke or shrieked during the paroxysms.

As to impatience of touch, Mr. Morley's dictum in the Dove trial expresses the truth: "*Not* shrinking from touch is *consistent* with strychnia, but a desire not to be touched is an *indication* of it. Several cases of strychnia had desired to be rubbed." See also the cases of Mrs. Smyth and Mr. Clutterbuck, pp. 122 and 123.

Consciousness, in the immense majority of cases, is preserved to the last. If, as in Mrs. Dove, insensibility occurs, it is due to the exhaustion. In this trial Dr. Christison said "it is unusual to be

insensible before death from strychnia." Farquharson (Therapeutics, p. 264) states that "the cerebral functions remain unimpaired almost up to the close." This is agreed to by all authorities.

The symptoms of strychnia poisoning have been explained away by the defence as "hysteria," "idiopathic tetanus," "epileptic convulsions with tetanic complications" (Dr. Macdonald in Palmer's trial), "angina pectoris" (Dr. Richardson), "apoplexy" (Dr. Bamford's certificate). Gritty granules on the spinal cord, sexual or other excitement, cold and damp, drink, &c., were in that trial assigned as causes. As to "gritty granules," the expression is not clear; such granules as occurred in Cook have been found in many *post-mortems*, where they certainly did not cause the death. Sexual excitement was out of the question in this case. Drink does not cause tetanus. The cold and damp were hardly sufficient reasons, as no symptoms of chill were noticed. Apoplexy is distinct, as in this the *brain* would show the disease.

Hysteria, *epilepsy*, and *idiopathic tetanus* (tetanus which is "constitutional," or not occasioned by external injury) produce in some cases insensibility; strychnia, as a rule, does not. They are also *continuous* in symptoms. *Traumatic tetanus* is caused by a wound or injury, rarely by ulcers or syphilitic sores (see p. 113). If there be none of these it cannot, of course, be traumatic tetanus. *Hysteria* is exceedingly variable, and simulates many other diseases: it is generally the result of excitement. But it does not produce opisthotonos. *Epilepsy* has never such symptoms as strychnia occasions: it rarely supervenes without some history of hereditary tendency, and it is always attended by unconsciousness (p. 151). *Idiopathic tetanus* may occur from a cold (see a case of Dr. Todd's, Lond. Med. Gaz., Nov., 1850), or from no assignable cause. It is very close to strychnia in symptoms, but the latter is

much more rapid: the shortest recorded fatal period for natural tetanus being twelve hours —"even here the early symptoms had been probably overlooked"—Sir B. Brodie), the usual about eight days. In both kinds of tetanus the jaw is usually the *first*, in strychnia the *last* part to be affected. *Angina pectoris* Dr. Richardson himself disposed of, as in the case he mentions he says that had he known more at the time he would have suspected strychnia (see Palmer's trial, p. 176). The symptoms of this disease, as given in the leading works, differ much from strychnia poisoning.

Post-Mortem Appearances.—Neither characteristic nor uniform (Guy and Ferrier). As a rule, the body is relaxed at death, and stiffens afterwards (Taylor), but occasionally the reverse is the case (*Reg.* v. *Vyse*, Central Criminal Court, 1862).[99] Sometimes the rigidity, as in Cook's case, remains for months. Clinching of the hands, arching of the feet, are nearly always present, but they may likewise be noticed in cases of natural death (Casper, quoted by Taylor, Med. Jur., p. 406; also Prof. Partridge's evidence in the Palmer trial, p. 172—"half-bent hands and fingers, not uncommon after natural death"). *Brain, spinal cord, and lungs almost invariably congested.* Blood dark and fluid. In some cases the heart is full of blood, especially on the right side, but occasionally it is empty and contracted. Stomach generally healthy, rarely congested. Casper found a dark violet colour of the muscles of the throat and gullet; this was the only peculiarity he noticed, and even this has not occurred in other cases. On the whole, the diagnosis must depend mainly on the symptoms during life, though the congestion mentioned above is a valuable corroborative from the post-mortem. Involuntary evacuation of urine and fæces generally occurs, but is usual in all painful deaths.

Treatment and Antidotes.—The question will often arise in a trial whether the best means were taken of saving the patient. In Tawell's trial it was actually suggested that the water poured down the throat may have caused the death by choking! If emetics are used, they are all more or less poisons. If the stomach-pump be employed, it will cause irritation and exhaustion. Nevertheless, where a violent poison has been given, the only hope is in strong remedies—to empty the stomach by emetics or the pump, to give tannin or animal charcoal, and to generally sustain nature during the operations. As the inquiry is, "What caused death?" the defence will frequently endeavour to fasten the responsibility on the remedial measures. *These would not of themselves be fatal*, unless disease or poison had previously brought the patient to a nearly dying state; whether it be disease or poison will be otherwise determined.

The direct antidote to strychnia is *chloroform*. In animals I have noticed a large percentage of recoveries. Woodman and Tidy (Forens. Med., p. 332) give the majority of recoveries to this agent. [100] I believe that most cases could be saved if, on the approach of the convulsions, they could be put *vigorously under the action of chloroform*. Chloral hydrate, nicotine, opium, &c., have been also tried with scanty success. Tannin precipitates strychnia, as well as most other alkaloids; hence may be useful as an adjunct. When the jaw is fixed, liquids can only be given through a tube; even teeth have been taken out to effect this. Enemata may also be used. Artificial respiration should be cautiously tried. Curara and Calabar Bean are dangerous and not effective.

Death or recovery is always rapid; if a person lives over five or six hours, the case is hopeful (Woodman and Tidy).

One or two considerations remain. Dr. Taylor's evidence in the Palmer trial, though in most points it has been corroborated by

subsequent authorities, contained the following statements that require rectifying:—

(1.) "*The colour tests are fallacious*" (pp. 144 and 147). They are quite decisive if properly performed, and the precautions remembered.

(2.) "*I know of no process which can detect strychnia in the tissues*" (p. 133). This has been repeatedly done by the same method as is used for the stomach. Dr. Taylor himself admits it in his later works (see Med. Juris., 1873, p. 415). No operator now neglects the tissues. They should always be forwarded for analysis at the same time as the stomach, but in separate jars.

If indications be obtained, the question will occur—"Could they be due to Selmi's ptomaine, resembling strychnia?" If we consider that in an immense multitude of cases of suspicion, where there is no clue, strychnia is tested for but *not found*, it is evident that this natural imitation of the alkaloid must be decidedly rare. So that the overwhelming probability, if the colour test has been obtained, is that strychnia itself is present.

In conclusion, Palmer afterwards is said to have more or less admitted that he poisoned Cook, "*but not with strychnia*." Though the word of such a man is of little value, there are others who have been of this opinion. Mr. Justice Grove is reported to have expressed some hesitation afterwards on this point. Mr. Nunneley, who, although he showed too much partizanship in the trial, yet may be said to have certainly had great experience with animals, asserted that the symptoms did not quite coincide with strychnia. Others followed in this train. The assertion is certainly wrong, but Dr. Guy (Forens. Med. 1881, p. 525) has made a suggestion that may be noticed. After quoting Dr. Shearman's case of a patient who had taken one and a-half grain of *morphia* acetate, and who was seized with "twitching of the limbs and face, difficulty in

swallowing, spasms of the arms, legs, and abdomen, partial opisthotonos, and great activity of the reflex function" (Med. Times and Gazette, March 7, 1857); another case from orfila, when *twenty-two* grains of morphia hydrochloride had caused lockjaw, tension of the abdomen, and occasional convulsions; and Castaing's case, when twenty-six grains of morphia acetate, and twelve grains of tartar emetic, had been purchased, and the victim had "vomiting, purging, convulsions, lockjaw, rigid spasms of the neck and abdomen, inability to swallow, loss of sensibility in the legs, contracted pupils, and stertorous breathing," Dr. Guy goes on to say that as Cook had probably three grains of morphia acetate within seventy-two hours, and had previously been reduced by tartar emetic, his death may have been due to *morphia* and not to strychnia. But setting aside the second and third cases where the dose was so large, Cook's symptoms did not on the whole agree with those of Dr. Shearman's patient. The dose in the time was not larger, but the effects on Cook were immensely more severe. If these be examples of morphia in its worst and most anomalous aspect, it certainly cannot dispute with strychnia for the responsibility of Cook's death.[101] See also Dr. Todd's remark, p. 117.

The three preparations of "gritty granules" on the spinal cord in the museum of St. Thomas's Hospital, "in which the patients are said to have died from tetanus" (Mr. Nunneley's evidence, p. 152, also Dr. Macdonald's evidence, p. 180), are in section N, numbers 113, 114, and 115. They are described in the catalogue as—

> "113. Several small patches of earthy matter on the arachnoid of the medulla spinalis."
>
> "114. A spinal cord. There are numerous large plates of bone on the arachnoid of the lumbar portion, and of the cauda equina."

"115. A similar preparation. The plates of bone extend as high as the upper dorsal vertebræ."

Mr. Charles Stewart, professor of comparative anatomy and curator of the museum at St. Thomas's, tells me that these are calcareous, but not true bone, that they are not uncommon in post-mortems where they have had nothing to do with death, and that if the above had died from tetanus it would probably have been recorded in the catalogue. As there is no mention of the cause of death, it is certain that it had no reference to the so-called "granules."

The assertion of Mr. Morley (Dove's Case, p. 245), that strychnia is decomposed into its elements, is obviously incorrect, probably an error of the reporter.

See also an interesting case lately reported (J. de Pharm. et de Chimie, November 1882), where strychnia was found, and also arsenic, in the stomach, liver, and brain.

Dr. John Harley tells me that he finds *hemlock juice* the best antidote to the convulsions of all kinds of *tetanus*. He has had many successful cases. Messrs. Mavor, veterinary surgeons, find this remedy most efficacious with horses, in which animal *tetanus* is very common.

CHAPTER VI.

TRIALS FOR POISONING BY ARSENIC.

NOTWITHSTANDING the difficulties thrown in the way of the purchase of arsenic by the "Sale of Arsenic Regulation Act" of 1852, the cases of poisoning by the use of this drug have been so numerous, that it has been difficult to select examples without greatly extending the bulk of this volume. I have, therefore, limited the full reports in this chapter to two, namely:—(1). The case of Miss Madeline Smith for the imputed murder of her lover, Pierre Emile L'Angelier in Glasgow, tried before the "Lords of the Justiciary," the chief criminal court of Scotland, in Edinburgh, on the 30th of June, 1857, a case full of interest and doubt, the mystery of which will probably never be disclosed; and (2) that of Ann Merritt for the murder of her husband, tried at the Old Bailey, March 8th, 1850, on the verdict in which arose a notable difference of opinion between leading medical and other experts, and the chief medical witness, as to the possibility of fixing, with any definiteness, the time at which the arsenic found in the body had been administered; resulting in the eventual commutation of the capital sentence by Sir George Grey, the Home Secretary. This was the case referred to by the Attorney-General in his cross-

examination of Dr. Letheby in Palmer's trial. For the trial of Madeline Smith I have relied on the Report reprinted with additions and corrections from "The Scotsman," by far the most accurate that I have read. To my copy is an Appendix of the *whole* of the letters, including those suppressed in Court, published in New York at the Astor Press. Happily it is not necessary to dwell on their disgusting details.

TRIAL OF MADELINE SMITH.

Before the LORD JUSTICE CLERK (*the* HON. JOHN HOPE), LORD IVORY, *and* LORD HANDYSIDE, *at* EDINBURGH, *30th June and following days, 1857*.

For the Prosecution: The Lord Advocate (Jas. Moncrieffe), The Solicitor-General (E. F. Maitland), and Mr. Donald Mackenzie.

For the Defence: The Dean of Faculty, Mr. John Inglis (now Lord Justice General), Mr. G. Young (now Lord Young), and Mr. H. Moncrieff.

By the indictment the Prisoner was charged with administering or causing to be administered to Emile L'Angelier,[102] arsenic or some other poison, in coffee, cocoa, or some other food or drink, on the 19th or 20th of February, and on the 22nd or 23rd of February last, with intent to murder, and on the 22nd or 23rd of March, whereby he died on the day last named, and was thus murdered by the Prisoner. To which the Prisoner pleaded "Not Guilty."

THE HISTORY OF THE CASE.

Pierre Emile L'Angelier, a Frenchman by birth, had been employed in Scotland since the year 1843, when he was with a firm of nurserymen at Dundee. How long he stayed with them was not proved, but according to his own statement he was one of the National Guard in the Revolution in Paris in 1848. He was always a poor man, and in 1851, when again in Scotland, was in such straits that he was living at a tavern in Edinburgh on the charity of its proprietor. When there he was at times in very low spirits, crying at night, and speaking of committing suicide, getting out of bed and walking about the room weeping, and on one occasion on the point apparently of throwing himself out of the window of his room had he not been prevented by his companion. Some love affairs—one with an English lady, another with a lady in Fife—were the causes he assigned for his melancholy and depression. In a letter, probably of this date, he wrote, "I never was so unhappy in my life. I wish I had the courage to blow my brains out." In 1852 he was in the employ of another nurseryman at Dundee, still harping on his disappointment in love, complaining bitterly of the last lady's intended marriage with another—gloomy, moody, dull, and threatening to stab himself. Vain of his person, he was always talking of his success with ladies, and of what he should do if he was again jilted. On one occasion, when speaking of the use of arsenic for improving the coats of horses, and asked if he was not afraid of poisoning them, he said, "Oh, no: so far from doing that, he had taken it himself, without any bad effects." From this employment he went to that of Messrs. Huggins and Co., of Glasgow, where he was looked upon as a steady, industrious clerk, "a well-behaved, well-principled, religious man." Whilst with this firm he pressed a young friend to introduce him to Miss Smith; and thus sprang up the attachment which led to the catastrophe.

Miss Madeline Smith, to whom L'Angelier was introduced towards the end of 1854, was the daughter of an architect of position in Glasgow, and had lately returned from an English boarding-school. She was attractive in person, and just of the age to fall violently in love with such a plausible, goodlooking man as L'Angelier. As her parents naturally had little liking for a merchant's clerk as their daughter's husband, the love affair that arose at once after the introduction was carried on clandestinely by a voluminous correspondence, in which more than 200 letters passed from her to the deceased in the brief period of their attachment, and such stolen interviews in or out of her father's house as could be arranged with the connivance of one of his servants. According to the theory of the prosecution, L'Angelier was an accomplished and deliberate seducer, who at last gained his purpose on the 6th of May, from which date Miss Smith's letters to her lover speak plainly of matters of which even married persons would be reticent, and are couched in language suitable only to married persons. She was clearly in L'Angelier's power, who wished to marry her, and made more than one arrangement for an elopement. Towards the end of 1856, however, her affection for him began to cool, and with reason. She had accepted the attentions of a Mr. Minnoch, with the full consent of her parents, and shortly after actually fixed the day for her marriage with him. The danger of her situation pressed upon her. L'Angelier, when he knew of this, was not the man to sit tamely under such a slight, or to let another person marry one of whom he knew so much to her discredit. She wrote him to return her letters, begged and prayed him to do so, and let the engagement drop, to which she never could get the sanction of her parents. He refused. He had heard a rumour of the Minnoch engagement, and he threatened to send the letters to her father. Still it was not revenge that he wanted; he wanted his wife. Her letters at this time give the most painful proofs of the state of

mind into which she had fallen. “On her bended knees,” she wrote, begging “him not to expose her, for her mother’s sake,” and “the dread of her father’s anger.” “As you hope for mercy at the judgment day, do not inform on me; do not make me a public shame. There is no one I love. My love was all given to you. My heart is empty, cold. I am unloved. I am despised. I told you I had ceased to love. It is true.” Such was her letter, presumably of the 11th of February, 1857. At this time she was engaged to Minnoch, and the day of the marriage, if not actually fixed, had been talked about. She begged for an interview. In the postscript to this sad letter, she added: “I will take you within the door; the area gate will be open. I shall see you from my window, twelve o’clock. I will wait till one o’clock.” The exact date of this letter could not be proved, as it had been delivered and not posted. It was dated only Tuesday evening, twelve o’clock; and however ingenious was the argument of the Lord Advocate, it failed to satisfy the court that it produced an interview on the 11th which led to another on the 19th —the day on which, according to the Crown, she first administered the poison to her lover, from which arose the first of his illnesses, as described by Mrs. Jenkins, his landlady.

Previously to the trial, the following explanation of the connection with L’Angelier had been given by the prisoner, in her examination before the Sheriff Substitute of Lanarkshire on the 31st of March, “when,” he said, “she answered his questions without hesitation, and with great appearance of frankness and candour.”

DECLARATION OF THE PRISONER.

“I am a native of Glasgow, 21 years of age, and reside with my father at No. 7, Blythswood Square, Glasgow. For about two years I have been acquainted with P. Emile L’Angelier, who was in the

employment of Huggins & Co., in Bothwell Street, and resided at 10, Franklin Place. He recently paid his addresses to me, and I have met him on a variety of occasions. I heard of his death on the afternoon of the 23rd of March from my mother. *I had not seen him for about three weeks before his death*, and the last time I saw him was on a night about half-past ten o'clock. On that occasion he tapped at my window, which is on the ground floor and fronts Main Street. I talked to him from the window, which is stanchioned outside, and I did not go out to him, nor did he come into me. This occasion, which, as already said, was the last, *was about three weeks before his death, and was the last time I saw him*. He was in the habit of writing notes to me, and I was in the habit of replying to them. The last note I wrote *was on the Friday before his death, the 20th of March*. (Identifies note and envelope.) *In consequence of that note I expected him to visit me on Saturday the 21st, at my bedroom window, in the same way as before, but he did not come and sent no notice. There was no tapping at my window on the Saturday night, nor on the Sunday following.* I went to bed on the Saturday night about eleven, and remained in bed until the usual time of getting up next morning, being eight or nine o'clock. In the course of my meetings with him, he and I had arranged to get married, and at one time we had proposed September last as the time and subsequently the present month of March. It was proposed we should reside in furnished lodgings, but we had not made any definite arrangement as to time or otherwise. He was very unwell, and had gone to the Bridge of Allan for his health, and he complained of sickness; but I have no idea what was the cause of it. *I remember giving him some cocoa from my window one night, some time ago, but I cannot specify the time particularly. He took the cup in his hand and barely tasted it, and I gave him no bread with it.* I was taking some cocoa myself at the time, and had prepared it myself. (Identifies note No. 2, which she wrote and sent to post.) *As I had attributed his illness to want of food, I proposed, as stated in the note, to give him a loaf of bread, but I said that merely in a joke, and in point of fact I never gave him any bread.*

I have bought arsenic on various occasions. The last I bought was a sixpenny-worth, in Currie's, the apothecary's shop in Sauchiehall Street. Prior to that I had bought other two quantities of arsenic for which I paid sixpence each—one of these in Currie's, and the other in Murdoch's, the apothecary's shop in Sauchiehall Street. I used it all as a cosmetic, and applied it to my face, neck, and arms, diluted with water. The arsenic I got at Currie's on Wednesday, 18th March, and used it all on one occasion, having put it all in the basin where I was to wash myself. I had been advised to this use of arsenic by a young lady of the name of Giubilei, the daughter of an actress, whom I had met at school at Clapton near London.[103] I had also seen it recommended in the newspapers. I did not wish any of my father's family to know that I was using arsenic, and therefore never mentioned it to anyone, and I do not suppose that they or any of the servants noticed it in the basin. When I bought the arsenic at Murdoch's, I am not sure whether I was asked or not what it was for; but I think I said for a gardener, to kill rats or destroy vermin about flowers, and I only said this because I did not wish them to know that I was going to use it as a cosmetic. I do not remember whether I was asked as to the use I was going to make of the arsenic on the other two occasions. I likely made the same statement about it as I had done at Murdoch's; and on all three occasions, as required in the shops, I signed my name to a book in which the sales are entered. On the first occasion I was accompanied by Mary, a daughter of Dr. Buchanan, of Dumbarton. For several years past Mr. Minnoch, of the firm of W. Houldsworth & Co., has been coming a good deal about my father's house; and about a month ago he made a proposal of marriage to me, and I gave him my hand in token of acceptance, but no time for the marriage has been fixed;[104] and my object in writing the note, No. 1, before mentioned, was to have a meeting with Mr. L'Angelier to tell him I was engaged to Mr. Minnoch.[105] (Identifies two notes and an envelope bearing the Glasgow post-mark of 23rd January, as written and sent by her to L'Angelier.) On the occasion that I gave L'Angelier the cocoa, I think that I used it must have been known to

the servants and members of my father's family, as the package containing the cocoa was lying on the mantelpiece in my room, but no one of the family used it, as they did not like it. The water that I used I got hot from the servants. On the night of the 18th, when I used the arsenic last, I was going to a dinner party at Mr. Minnoch's house. I never administered, or caused to be administered, to Mr. L'Angelier arsenic or anything injurious. And this I declare to be truth."

With this brief introduction, let us proceed to the details of his various illnesses, due, as the prosecution inferred, to arsenical poisoning.

THE SYMPTOMS.

Mrs. Jenkins, at whose house L'Angelier came to lodge in the July of 1856, and continued there till his death, spoke of her lodger as of civil habits, but wont to stay out at night, for which purpose he had the use of a latch-key. His health was usually good; but about the middle of February, 1857, he had a severe attack of illness, and another on the 23rd, of which she gave the following account:—

"One night he wished a pass key, as he thought he would be late out. I went to bed and did not hear him come in. I knocked at his door about eight the next morning and got no answer. I knocked again, and he said, 'Come in, if you please.' I went in. He said, 'I have been very unwell; look what I have vomited.' I said I thought it was bile. It was a greenish substance. There was a great deal of it. It was thick stuff, like gruel. I said, 'Why did you not call me?' He said that while on the road coming home, he was seized with a violent pain in his bowels and stomach, and when he was taking off his clothes, thought he should have died on the carpet, and no human eye would have seen him. 'I was not able,' he said, 'to ring

the bell.' He asked me to make a little tea, and said he would not go out. I emptied what he had vomited, and advised him to go to a doctor, and he said he would. He took a little breakfast and then went to sleep for an hour, when I went back to him, and he said he was better, and would go out. Mr. Thuau, who lodges in my house, saw him. He went out between ten and eleven—his place of business is two streets off. He returned about three in the afternoon, said he had been to a doctor and brought a bottle of medicine with him. He took the medicine and complained about feeling very thirsty.

"His illness made a great change in his appearance. He looked yellow and dull, and before that his complexion was fresh. He became dark under the eyes, and the red of his cheeks seemed to be more broken. He complained of being very cold after he came in. He lay down on the sofa, and I laid a railway-rug over him. I did nothing for his feet. He never was the same after his illness. When asked how he felt, he was accustomed to say, 'I never feel well.' On a Monday morning, about four o'clock, he called me. He was vomiting. It was the same kind of stuff as before in colour and otherwise. There was not quite so much of it. He complained on this occasion likewise of pain in the bowels and stomach, and of thirst and cold. I did not know he was out the night before. He did not say anything about it. I put more blankets on him, jars of hot water to his feet, and made him some tea. I gave him also a great many drinks—toast and water, lemon and water, and such like—because he was thirsty. I called again about six in the morning. He did not rise until the forenoon. Dr. Thomson came to attend, fetched by Thuau, and left a prescription for powders, of which he took one or two. He said they were not doing him the good he expected; 'the doctor always said he was getting better, but he did not feel well;' 'he did not feel getting better.' He was eight days away from business at that time. Some time after he went to Edinburgh, and returned to Glasgow on the 17th of March, and stayed till the 19th, when he went away, as he said, to the Bridge of Allan.

"He went away about 10 A.M., and said he would not be home before Wednesday night or Thursday morning next week. A letter came for him on the 19th like those that used to come, and I gave it to Thuau. I don't remember any coming on Friday, but one more, like a lady's writing, on Saturday, which I also gave to Thuau. (Identifies envelope as like that of letter received on Saturday, but not another which was shown her.) L'Angelier was much disappointed at not getting a letter before he left, and said, 'If I get a letter, perhaps I shall be home to-night.'

"I next saw L'Angelier on Sunday night, about eight. He said the letter sent had brought him home. I told him it had come on Saturday afternoon. He did not say where he had come from. I understood he had been at the Bridge of Allan. He looked much better, and said he was so. He went out about 9 P.M., and asked for a latch-key, as he might be late. I was to call him early. It was about half-past two next morning when I next saw him; he did not use the latch-key, but rang the bell violently. When I opened the door, he was standing with his arms on his stomach. He said, 'I am very bad. I am going to have another vomiting of that bile.' The first time I saw the vomitings, I said it was bile. He said he was never troubled with bile. He said he never thought he should have got home, he was so bad on the road. He did not say how he had been bad. The first thing he took was a little water. I filled up the tumbler, and he tried to vomit. He wished a little tea. I went into the room (with it?), and before he was half undressed he was vomiting severely. It was the same kind of matter as I had seen before. There was a light. The vomiting was attended with great pain. I asked him whether he had taken anything to disagree with his stomach. He said he had taken nothing since he was at the Bridge of Allan. He was chill and cold, and wished a jar of hot water to his feet, and another to his stomach. I got these for him, and two blankets and mats. He got a little easier. About four o'clock he was worse, and on my proposing to go for a doctor said he was a little better, and I need not. About five he was worse again, and his bowels became bad. He had been vomiting only up to this time. I went for Dr. Steven, who could not come so

early, but told me to give him twenty-five drops of laudanum, and put a mustard blister on his stomach, and if he did not get better he would come. At L'Angelier's request, I went again, and the doctor came, who immediately ordered him mustard. I said to him, 'Look at what he has vomited.' He said, 'Take it away, it is making him faint.' I got the mustard, and the doctor put it on, and I think gave him a little morphia. I said to L'Angelier, 'This is the worst attack you have had.' The doctor stayed about a quarter of an hour or twenty minutes. I took him into the dining-room, and asked him what was wrong; he asked me if he was a person that tippled. I said, 'No,' and that this was the second time this had occurred, and asked what was the reason. The doctor said this was matter for explanation. The first time I went back, L'Angelier asked what the doctor had said. I said he thought he would get over it, and L'Angelier replied, 'I am far worse than he thinks.' About nine, when I drew the curtains, he looked very ill, and I asked if there was no one he wished sent for. He asked to see Miss Perry, of Bamfield Street. I sent for her. He said he thought that if he could get five minutes' sleep he should be better. These were the last words I heard him use. I went back into the room in about five minutes; he was then quite quiet, and I thought he was asleep. The doctor then returned, and I told him so. He went into the room, felt his pulse, lifted his head, and said he was dead."

Nothing of importance with reference to the symptoms of his attacks was elicited in cross-examination. His first illness, according to the witness, was a great deal worse than the second. It was in January that he first complained of ill health. He then first complained of his tongue; then a boil came out on his neck, and shortly after another. She did not think that he ate what suited him, and especially too many vegetables, to which he said he was accustomed in France. On the morning of his death he complained about his mouth being sore. The doctor gave him some water, and he said it was choking him, or that it was going into his chest.

When in bed that morning he always had his arms out on the bed clothes. She did not remember his hands being clenched. His right hand was clenched when he died. The remainder of the cross-examination related to the dress he usually wore, and the search by the officers for his papers.[106]

MEDICAL EVIDENCE.

Dr. Thomson, a physician in Glasgow, who had known L'Angelier for two years, gave the following evidence as to his health up to about the 10th of March:—

> "He consulted me professionally, the first time, fully a year ago, when he had a bowel complaint, of which he got better. Next time was on the 3rd February this year for a cold and cough, and boil on his neck, for which I prescribed. The next week after I saw him, when another boil had appeared. *On the 23rd of February* he came to me. He was very feverish, and his tongue was furred, and had a patchy appearance, from the fur being off in various places. He complained of nausea, and had been vomiting. He was prostrate, his pulse was quick, and he had general symptoms of fever. I prescribed for him (taking his complaint to be bilious derangement) an aperient draught. He had been ill, I think, for a day or two, but he had been taken worse the night before he called on me—during the night of the 22nd and the morning of the 23rd. He was confined to the house for two or three days. I visited him on the 24th, 25th, and 26th of February, and on the 1st of March met him. The aperient draught I prescribed contained magnesia and soda. On the 24th I prescribed powders containing rhubarb, soda, chalk of camomile, and ipecacuanha. On the 24th he was much in the same state. He had vomited the draught I had given him on the 23rd, and I observed that his skin was considerably jaundiced; and from the whole symptoms I called the disease a bilious fever. On the 25th he was rather better, and had risen from his bed to the sofa, but was not

dressed. On the 26th he felt considerably better and cooler, and I did not think it necessary to repeat my visits till I happened to be in the neighbourhood. *It did not occur to me that these symptoms arose from the action of any irritant poison. If I had known that he had taken an irritant poison, these were the symptoms I should expect to follow.* I don't think I asked him when he was seriously taken ill. I had not seen him for some little time before, and certainly he looked very dejected and ill; *his colour was rather darker and jaundiced, and round the eye the colour was rather darker than usual*. I saw him again eight or ten days after the 1st of March. He called on me, but I have no note of the day; he was much the same as on the 1st of March. He said he was thinking of going into the country, but did not say where. I did not prescribe for him then. On the 26th of February, I think I told him to give up smoking. I thought it was injurious to his stomach. I never saw him again in life."

"On the morning of the 23rd of March, Mr. Stevenson and Mr. Thuau called on me, mentioned his death, and wished me to go and see his body, and see if I could give an opinion as to the cause of his death. They did not know that I had not seen him alive in his last illness. I went to the house. The body was laid out on a stretcher on the table. *The skin had a slightly jaundiced hue.* I said it was impossible to give a decided opinion, and requested Dr. Steven to be sent for, who had been in attendance. I examined the body with my hands externally, and over the region of the liver the sound was dull; and over the region of the heart the sound was natural. I saw what he had vomited, and made inquiry as to the symptoms before death. Dr. Steven, when he arrived, corroborated the statements of the landlady, as far as he was concerned. No resolution as to a *post-mortem* examination was come to that day, but in the afternoon I stated to Mr. Huggins and another gentleman, who called on me, that the symptoms were such as might have been produced by an irritant poison, and that it was such a case that, had it occurred in England, a coroner's inquest would be held."

On *cross-examination*, the witness said—

"*At the time I attended L'Angelier, in February, there were no symptoms that I could definitely say were not due to a bilious attack, they were all the symptoms of such an attack. There was no appearance of jaundice. I have heard of that as a symptom of irritant poison.* It is in Dr. Taylor's work on poisons. *The jaundice I saw was quite consistent that he was labouring under a bilious attack, and could easily be accounted for that way.*"

Dr. Steven, physician of Glasgow, who was called in by Mrs. Jenkins on the 23rd of March, at the commencement of the fatal attack, carried on the case to the death of the deceased:—

"I was applied to," said the Witness, "early in the morning of the 23rd of March last, by Mrs. Jenkins, to see her lodger, who she told me was suffering from a severe bilious attack. Being unwell myself I was unwilling to go, but advised her to give him hot water and drops of laudanum. She came to me again about seven. I went, thinking, as he was a Frenchman, he might not be understood. I found him in bed, very much depressed. His features were pinched, and his hands. He complained of coldness and pain over the region of the stomach. By pinched, I mean shrunk and cold, or inclined to become cold. He complained of general chilliness and his face and hands were cold to the touch. He was physically and mentally depressed. I spoke to him and observed nothing peculiar in his voice. I did not expect a strong voice, and it was not particularly weak. That was when I first entered the room. But his voice became weaker. He complained that his breathing was painful, but it did not seem hurried. I dissuaded him from speaking, had extra clothes put on his bed, gave him a little morphia (mustard?) to make him vomit, but he seemed to have vomited all he could. He had a weak pulse. I felt the action of the heart corresponding to it. That imported that the circulation was weaker at the extremities. The feet were not cold. Hot bottles were put to them, and also above his body for his hands. He was not urgently complaining of thirst. He seemed afraid of drinking large quantities for fear of making himself vomit. He

asked particularly for cold water, and was unwilling to take whisky, which the landlady talked of giving him. He said he had been vomiting and purging. I saw a utensil filled with the matter vomited and purged. I ordered it to be removed and a clean one put in its place, that I might see what he had vomited. I did not see it. I believe it was kept for some time, but I said it might be thrown away: that was after his death. He said, '*This is third attack* I have had: the landlady says it is bile, but I never was subject to bile.' He seemed to get worse while I was there. He several times said, 'My poor mother,' and how dull he felt at being so ill away from friends. I applied a mustard poultice to his stomach. I stayed I suppose half-an-hour. I called again about a quarter past eleven. The landlady met me and said he had been quite as bad as in the morning. I went into the room and found him dead. He was lying on his right side, with his back towards the light, his knees drawn a little up, one arm outside the bedclothes and the other in. They were not much—not unnaturally drawn up. He seemed in a comfortable position, as if sleeping. About mid-day I was sent for again; Dr. Thomson was there when I went in. I asked him if there was anything in his previous illness, with the symptoms I mentioned, which would account for the cause of death, but we were entirely at a loss to account for it. I declined giving a certificate unless I made an examination, and Dr. Thomson and I made one the next day. We subsequently made a second examination after the body was exhumed."

The witness then described how the stomach and its contents were carefully preserved and sent to Professor Penny for analysis (see Appendix A., p. 355).

ANALYTICAL EVIDENCE.

Dr. Penny, the Professor of Chemistry in the Andersonian University, Glasgow, then read the following report of his analysis

of the parts of the body handed to him by Dr. Thomson, made at the request of one of the procurators fiscal of the country.

(1.) *Contents of Stomach.*

"The liquid measured 8½ ounces. On being allowed to repose, it deposited a white powder, which was found on examination to possess the external characters and all the chemical properties peculiar to arsenious acid, that is, the common white arsenic of the shops. It consisted of hard, gritty, transparent, colourless crystalline particles; it was soluble in boiling water, and readily dissolved in a solution of caustic potash. It was unchanged by sulphide of ammonium, and volatised when heated on platina foil. Heated in a tube it gave a sparkling white sublimate, which, under the microscope, was found to consist of octahedral crystals. Its aqueous solution afforded, with ammonio-nitrate of silver, ammonio-sulphate of copper, sulphuretted hydrogen, and bichromate of potash, the highly characteristic results produced by arsenious acid. On heating a small portion of it in a small tube with black flux, a brilliant ring of metallic arsenic was obtained, with all its distinctive properties. Heated with dilute hydrochloric acid and a slip of copper foil, a steel-gray coating was deposited on the copper; and this coating, by further examination, was proved to be metallic arsenic.

"Another portion of the powder, on being heated with nitric acid, yielded a substance having the peculiar characters of arsenic acid. A small portion of the powder was also subjected to what is commonly known as 'Marsh's Proof,' and metallic arsenic was thus obtained, with all its peculiar physical and chemical properties. These results show, unequivocally, that the said white powder was arsenious acid—that is the preparation of arsenic which is usually sold in commerce, and administered, or taken as a poison, under the name of arsenic or oxide of arsenic.

"I then examined *the fluid contents of the stomach*. After the usual preparatory operations, it was subjected to the following processes:—

"(1.) To a portion of the fluid Reinsch's process was applied, and an abundant steel-like coating was obtained on copper foil. On heating the coated copper in a glass tube, the peculiar odour of arsenic was distinctly perceptible, and a white crystalline sublimate was produced, possessing the properties peculiar to arsenious acid.

"(2.) Another portion was distilled, and the distillate subjected to Marsh's process. The gas produced by this process had an arsenical odour, burned with a bluish-white flame, and gave with nitrate of silver the characteristic reaction of arseniuretted hydrogen. On holding above the flame a slip of bibulous paper moistened with a solution of ammonio-nitrate of silver, a yellow colour was communicated to the paper. A white porcelain capsule depressed upon the flame was quickly covered with brilliant stains, which on being tested with the appropriate reagents, were found to be metallic arsenic. By a modification of Marsh's apparatus, the gas was conducted through a heated tube, when a lustrous mirror-like deposit of arsenic in the metallic state was collected; and this deposit was afterwards converted into arsenious acid.

"(3.) Through another portion of the fluid a stream of sulphuretted hydrogen was transmitted, when a bright yellow precipitate separated, having the chemical properties of trisulphide of arsenic. It dissolved readily in ammonia; it remained unchanged in hydrochloric acid; and it gave, on being heated with black flux, a brilliant ring of metallic arsenic.

"(4.) A fourth portion, being properly acidified with hydrochloric acid was distilled, and the distillate subjected to 'Fleitmann's' process. For this purpose it was boiled with zinc and a strong solution of caustic potash. Arseniuretted hydrogen was disengaged and was recognised by its odour, and its characteristic action on nitrate of silver."

(2.) *Stomach.*

"I examined, in the next place, the stomach itself. It was cut into small pieces, and boiled for some time in water containing

hydrochloric acid, and the solution, after being filtered, was subjected to the same processes as those applied to the contents of the stomach. The results in every case were precisely similar, and the presence of a considerable quantity of arsenic was unequivocally detected."

(3.) *Quantity of Arsenic.*

"I made, in the last place, a careful determination of the quantity of arsenic contained in the stomach and its contents. A stream of sulphuretted hydrogen gas was transmitted through a known quantity of the prepared fluid from the said matters, until the whole of the arsenic was precipitated in the form of trisulphide of arsenic. This sulphide, after being carefully purified, was collected, dried, and weighed, and the weight corresponded to a quantity of arsenious acid (common white arsenic) in the entire stomach and its contents equal to 82 grains and seven-tenths of a grain, or nearly one-fifth of an ounce. The accuracy of this result was confirmed by converting the sulphide of arsenic into arseniate of ammonia and magnesia, and weighing the product. *The quantity here stated is exclusive of the white powder first examined.* The purity of the various materials and reagents employed in this investigation was most scrupulously ascertained."

Conclusions.

"Having considered the results of this investigation, I am clearly of opinion that they are conclusive in showing (1), That the matters subjected to examination and analysis contained arsenic, and (2), That the quantity of arsenic found was considerably more than sufficient to destroy life.

"All this is true, on soul and conscience.

"FREDERICK PENNY,

"*Professor of Chemistry*."

April 6, 1857.

Examination resumed.—"It is not easy to give a precise answer to the question 'How much arsenic would destroy life?' Cases are on record in which life was destroyed by two and four grains; four or six grains are generally sufficient to destroy life, and the amount I determined as existing in the stomach was 82 grains. On the 31st of March I attended the exhumation of M. L'Angelier's body. I saw the coffin opened, and the portions of the body removed, which were carefully preserved, in jars of which I never lost sight, and I analysed the contents, and prepared the following

Report.

"On Tuesday, 31st March last, I was present at a *post-mortem* examination of the body of P. E. L'Angelier, made by Drs. Corbet, Thomson, and Steven, in a vault in the Ramshorn Church, Glasgow.

"At my request, portions of the following organs were removed from the body, and properly preserved for chemical analysis and examination: (1.) Small intestine and contents; (2.) Large intestine; (3.) Liver; (4.) Heart; (5.) Lung; (6.) Brain. These articles were taken direct to the Laboratory of the Andersonian Institution, and were there delivered to me by the parties named. I have since made a careful analysis and chemical examination of all the said matters, with the following results:—

(1.) *Small Intestine and Contents.*

"The portion of the small intestine contained a turbid and reddish-coloured fluid, measuring four ounces. On standing for several hours in a glass vessel, this liquid deposited numerous and well-defined octahedral crystals, which, being subjected to the usual chemical processes for the detection of arsenic, were found to be arsenious acid. Arsenic was also detected in the small intestine.

(2.) *Large Intestine.*

"This organ yielded arsenic, but in less proportion than in the small intestine.

(3.) *Liver, Brain, and Heart.*

"Arsenic was separated from the liver, brain, and heart, but in much less proportion than from the small and large intestines.

(4.) *Lung.*

"The lung gave only a slight indication of the presence of arsenic.

Conclusions.

"(1.) That the body of the deceased contained arsenic.

"(2.) That the arsenic must have been taken by or administered to him while living."

The witness then spoke of the examinations he had made into the arsenic sold by the two chemists, *Murdoch* and *Currie*, at whose shops the prisoner had stated she had purchased it, for the purposes of a cosmetic. In that sold at *Murdoch's*, 91·1 per cent. was pure white arsenic, and in that from *Currie's*, 94·4 per cent., and the remainder inorganic matter; in *Murdoch's* carbonaceous, in *Currie's* indigo and carbonaceous matter. The quantity of indigo in this arsenic was extremely small, and capable of being removed by peculiar and dexterous manipulation, so that the arsenic would appear white to the unassisted eye. If of this an amount sufficient to cause death had been given, and prior to death great vomiting had taken place, the witness would not expect to find any portion of the

indigo: the quantity was so small, that it would not colour wine of any sort. In the case of *Murdoch's* arsenic, however, as it was mixed with carbonaceous particles, if that had been given and settled down from the contents of the stomach as in this case, he should have expected to find such particles—not, however, if it had been given a month before. Of the twelve bottles and two packages of medicines, and the cake of chocolate found at L'Angelier's lodging, and submitted to him for analysis, none, except a weak solution of aconite were poisonous, and that was so weak, that had the whole two ounces in the phial been swallowed, it would not have destroyed life. Of the use of prussic acid or arsenic as a cosmetic he had never heard, and believed that both would be dangerous, and the latter might produce constitutional symptoms of poisoning. He had heard of its use as a depilatory, but then mixed with other matters, as lime, and it was not arsenious acid, but usually the yellow sulphide, that was used for this purpose.

On *cross-examination by the Dean of Faculty*, the witness said:—

> "In the entire stomach and its contents there was arsenic equal to 82, 7-10th grains, exclusive of the white powder first examined, which, after being dried, weighed 5, 2-10th grains, and was arsenious acid. I did not determine the quantity of arsenic in the liver, heart, or brain, and can give no notion of the quantity that might be in those organs. In the small intestine it must have been considerable, because when its contents were allowed to repose arsenious acid crystallised out of that liquid and deposited abundantly on the sides of the vessel,—which indicated that the liquid had as much arsenic as it could hold in solution at that temperature. I can't give any idea of the quantity in the small intestine. It was decidedly appreciable. It would be a mere matter of guess, and I should not like to guess in so serious a matter. If the deceased, when attacked by symptoms of arsenical poisoning,

vomited often, and in large quantities, it would depend on the mode of administration whether a quantity would be carried off. If given in solid food, and in a solid state, a large portion of the arsenic would be ejected from the stomach if all the food were vomited; but if the arsenic were stirred up with the liquid, and thereby thrown into a state of mechanical suspension, I should not expect that so considerable a portion would be ejected by vomiting. By solid food I mean bread and the like. In the case of the arsenic being taken in a fluid, I could not say what proportion might be ejected. I should not be surprised to find that as much had been ejected as retained. Judging from what I found in the body, the dose must have been of a very unusual size. There are cases on record in which large quantities of arsenic have been found in the stomach and intestines —larger than in the present. I think there is a case where two drachms—120 grains—were found. In the cases I refer to the arsenic was taken voluntarily, with the intention to commit suicide. It would be very difficult to give a large dose in a liquid. By a large dose you exclude many vehicles in which arsenic might be administered. Nothing which I found indicated the time when the arsenic must have been taken. The ordinary period between the administration of the poison and the symptoms being manifested is eight to ten hours in the cases on record: that is the extreme time. There are some cases in which they show themselves in half an hour. We have cases in which death resulted in a few hours, and cases in which death has been delayed two days. As to the arsenic bought at *Currie's* shop, the greater part of the colouring matter might be removed. If you were to throw water on the arsenic, and agitate the two together, and after the arsenic has subsided you throw off the liquor, a portion of the colouring matter is thrown off, and if you keep the vessel shaken in a particular way you may coax the greater part of the colouring matter away. *Murdoch's* arsenic was coloured with carbonaceous matter—it had the colour of coal soot. I cannot tell from examination whether the arsenic found was given in one dose or in several. It would be very dangerous to use arsenic externally in any way. There are cases in which it has been rubbed on the whole skin, and the symptoms of poisoning produced—

vomiting, pain, but not death. My impression is, from general reading, that it produces eruption on the sound skin.[107] If cold water were used, I should not like to wash in it. I cannot give any other answer."

To the Lord Justice Clerk.—"There are cases in which inflammation of the intestines has been produced by the external application of arsenic."

To the Dean.—"Arsenic is an irritant poison; it is absorbed into the blood, I presume, with great rapidity, and through the blood it reaches all the organs in which we find it."

To the Lord Advocate.—"In administering large doses of arsenic many vehicles are excluded. Cocoa or chocolate is a vehicle in which a large dose might be given. There is a great difference between giving rise to suspicion and actual detection. I have found by actual experiment, that when 30 to 40 grains of arsenic are put into a cup of warm chocolate, a large portion of the arsenic settles down in the bottom of the cup, and I think a person drinking such poisonous chocolate would suspect something when the gritty particles came into his mouth; but when the same and even a larger quantity were boiled with the chocolate, instead of being stirred or mixed, none of it settles down.[108] I could not separate the soot from *Murdoch's* arsenic, but a very large quantity of it might be separated. Supposing a person subjected to repeated doses of arsenic, I have no evidence on which to form an opinion whether the last dose would be more rapidly fatal."

To the Dean.—"In the case of chocolate being boiled with arsenic in it, a larger portion dissolves and does not subside. That is what I find by actual experiment. Coffee or tea could not be made the vehicle of so large a dose of arsenic."

To the Lord Justice Clerk.—"The period in which the arsenic produces its effect varies in different individuals, and according to the mode of administration. Pain in the stomach is one of the first symptoms, and vomiting usually accompanies the pain, but it may

be very severe before the vomiting actually begins. Ten, fifteen, or twenty grains might be given in coffee."

Professor Penny, subsequently (on the fourth day), gave the following account of experiments made by him with arsenic purchased from *Murdoch's* and *Currie's* shops:—

"Some of the arsenic I purchased from *Murdoch's*, which was mixed with soot, I gave to a dog, and I had no difficulty in detecting the soot in the stomach of that dog after death. I administered arsenic, coloured by myself with indigo, to another dog, and had no difficulty in detecting the indigo in that case by chemical tests. To another dog I administered arsenic purchased at *Currie's*, which it will be remembered was mixed with indigo. After death I detected black particles in the stomach of that dog, but I could not undertake to identify the arsenic found with the arsenic given: I mean I found carbonaceous particles, but that I could not undertake to say that these particles were of themselves sufficient to identify any of the particular poison administered. But as I administered it myself, it must have been the same—at least, I know of no other source. I could detect no arsenic in the brains of the dogs. I found solid arsenic in the stomach, as well as in the texture of the stomach."

By the Court.—"Is it the fact that there is less arsenic found in the brains of animals than of human beings?"

Witness.—"I am not aware. In the one case I detected blue colouring matter of indigo, in the other carbonaceous particles."[109]

By the Dean.—"Did you make yourself acquainted with the nature of the colouring matter of *Currie's* arsenic before administering it to the dog?"

Witness.—"I did."

The Dean.—"Did the black particles you found correspond to the constituents of the colouring matter?"

Witness.—"They have a close resemblance to them, both in physical appearance and in chemical properties."

The Dean.—"Were they not in physical appearance and chemical properties, identical?"

Witness.—"They were."

Professor Christison, to whom, on the 11th of May, Dr. Penny had delivered similar portions of the body to those on which he had experimented, together with portions of the deposits from the stomach and intestines, made a chemical analysis of the white powder, and the fluids obtained from the stomach, and the small intestine, and of a portion of the liver. As from these he obtained unequivocal proofs of the presence of arsenic, he did not, at that time, proceed further. Subsequently, however, on the 28th of May, he analysed a portion of the great intestine, and was satisfied of the presence of arsenic; and in a portion of the brain he found "traces of arsenic, but not satisfactory evidence, which might be owing to the small quantity of material he had to analyse."

"The fluid from the stomach," he said, "appeared to indicate a considerable quantity in the system—more than sufficient to destroy life. The symptoms of arsenic poisoning are variable. Sometimes they pass off quickly, sometimes continue for weeks or months. When they continue, they are indigestion, loss of strength, emaciation, sometimes diarrhœa, lassitude of the limbs. If there appeared erosions with elevated edges in the intestines, I should have been led to suspect the existence of some affection of the intestines previous to the final attack. The appearances exhibited by the *post-mortem* examination were such as the witness would expect from arsenic."

By the Lord Advocate.—"If you had been consulted in a case of this kind,—that on the 18th or 19th of February a person having gone out in good health returns, is attacked during the night with great pain in the bowels, severe vomiting of a green viscous fluid, accompanied by intense thirst and purging, and after the lapse of two or three days and partial recovery the patient is again seized

with the same symptoms, though in a somewhat modified form, and that after the second attack he had continued affected with great lassitude, change of colour, low pulse, and that after going from home for ten or fourteen days, had again returned and been attacked the same night with those symptoms in an aggravated form, and had died within eight or ten hours of his return, and that on a *post-mortem* examination the results were found of which you are aware in this case:—I wish you to give me your opinion, as a man of science and skill, what conclusion you would draw as to the cause of the previous illness and death?"

Witness.—"I could have no doubt that the cause of death was poisoning by arsenic, and such being the case, I should have entertained a strong suspicion in regard to his previous illness, because his death would have prevented me from taking the means of satisfying my mind on the subject by a careful examination of all the circumstances."

The Lord Advocate.—"Are the symptoms consistent with what you would expect if continuous poisoning was taking place?"

Witness.—"They are those which have occurred in parallel cases of the administration of doses singly insufficient to cause death."

Of the samples of *Murdoch's* and *Currie's* arsenic, which Dr. Penny had delivered to him, "The former," he said, "contained the due proportion of soot; the latter was not coloured with the indigo prescribed by the Act—was not of a bluish, but greyish black colour, imperfectly mixed, and easily removeable by washing with cold water, which cannot easily be done with good indigo. The proportion was a thirty-sixth, and not a thirty-second, as the Act directs."[110]

The *cross-examination* of this witness was first directed to the probability of the colouring matter in the arsenic being detected in the portions of the body analysed.

"My attention," said Professor Christison, "was not directed to colouring matter in arsenic. I got only one article in which it might have been found—the small intestine. The others had been subjected to a previous analysis. I was not asked to attend to the colouring matter. I did not see it, and did not search for it. Supposing soot or indigo to have been given with the arsenic, I think it might have been found in the intestines by careful examination. I can't say it would have been found: many circumstances go to the possibility of its being found. Many component parts of soot are insoluble: it might have been removed by frequent vomiting. It is very difficult to remove soot from arsenic entirely. Indigo would have been found more easily from the peculiarity of its colour, and the chemical ingredients are so precise. *Currie's* arsenic is not coloured with true indigo; it is waste indigo, or what has been used by the dyer. I don't know how it is prepared. I did not analyse the colouring matter of *Currie's* arsenic. I ascertained it was not the indigo directed by the Act to be used, and I ascertained the quantity. I separated the colouring matter from the arsenic, and subjected it to the action of sulphuric acid. Charcoal (more properly—*carbon*) is one of the constituents of good indigo, and necessarily of waste. The chief constituent of soot is charcoal also."

The remainder of his *cross-examination* was directed to the amount of arsenic found in the stomach, and the symptoms of, and the period at which the effects are exhibited.

"I was informed by Dr. Penny that he had found more than eighty grains in the stomach. There was also the white powder in addition. If there was great vomiting and purging, the quantity of arsenic administered must have been much greater than that found in the stomach and intestines. Much would depend whether means were taken to promote vomiting. If hot and cold water were freely given, that would facilitate the discharge of the poison. It is impossible to say the proportion ejected. I think it would be reasonable to suppose that as much would be vomited as remained:

it might, without any extravagant supposition, be taken at four or five times as much." *Symptoms.*—"There was nothing in the symptoms mentioned in the last illness in this case inconsistent with death being produced by a single dose of arsenic. The ordinary symptoms of this kind are not unlike those of malignant cholera. *I think all the symptoms in this case might have occurred from malignant cholera. If there was a sense of choking and soreness of the throat, I think these are more symptoms of arsenic.* I don't think they have occurred in cholera. I think the ulcers in the abdomen might indicate the previous existence of inflammation in the duodenum, called duodenitis. It might be a disease that would present the outward symptoms of bowel complaint or cholera." *Appearance of effects of arsenic.*—"The ordinary time that elapses between the administration of arsenic and death is from eighteen hours to two days and a half. The exceptions to this are numerous. Some of them are very anomalous as to the shortness of the intervals. The shortest are two and two-and-a-half hours: these have been ascertained; but it is not always possible to ascertain when it has been administered. I had a case lately in which it was five hours. There are also cases in which it was seven and even ten hours. It does not appear that the size of the dose affects this; it does not depend upon the amount taken, within certain bounds, of course; but I speak of the case as arsenic is usually administered. There are a good many cases of large doses. I think the dose in this case must have been double, probably more than double, the quantity found in the stomach. A dose of 220 grains may be considered a large dose. I can't say if, in cases of as large a dose as this, they are intentionally administered: in great proportion of cases of suicide, the dose is generally found to be large—easily accounted for by the desire to make certain of death."

The Dean.—"In a case of murder no such large quantity would be used? It is in cases of suicide that double-shotted pistols are used and large doses given."

Witness.—"But murder, even by injuries, and also by poison, is very often detected by the size of the dose. In all cases of poisoning

by arsenic there is always more used than is necessary. I cannot recollect how much has been used, but I know very well that what is found in the stomach in undoubted cases of poisoning by others has been considerably larger than what is necessary to cause death: because the very fact of poison being found in the stomach at all, as in the case of arsenic, shows that more has been administered than is necessary, as it is not what is found in the stomach causes death, but what disappears from the stomach."

The Dean.—"But do you know any case in which so great a dose as the present was administered?"

Witness.—"I cannot recollect at the present moment. In cases of charges of murder by arsenic it is scarcely possible to get any information as to the actual quantity used."

The Dean.—"You have information here in this charge of murder."

The Witness.—"You have information as to what was in the stomach."

The Dean.—"And you are enabled to draw an inference."

Witness.—"Of course: my inference is drawn by a sort of probability, but that is not an inference on which I am entitled to found any positive statement."

The Dean.—"Well, let me put this question. Did you ever know any person murdered by arsenic having 88 grains of it found in his stomach and intestines?"

Witness.—"I don't recollect at the present moment."

The Dean.—"Or anything approaching to it?"

Witness.—"I don't recollect, but I would not rely on my recollection as to a negative answer."

The Dean.—"You are not, at all events, able to give an example the other way."

Witness.—"Not at present. As far as my own observation goes, I can say that I never met with 80 grains in the stomach of a person

who had been poisoned by arsenic. I can't say what is the largest quantity I have found."[111]

The Dean.—"If a person designs to poison another the use of a large quantity of arsenic, greatly exceeding what is necessary, is to be avoided?"

Witness.—"It is a great error. In some articles of food it is easy to administer a large quantity of arsenic, and in others it is difficult to do so. It is very rare for persons to take meals after arsenic has been administered; but there is a case of a girl who took arsenic at eleven A.M., and at two P.M. made a pretty good dinner. It was a French case, and the words as translated are, that she made a very good dinner, though it was observed she was uneasy previously. The author who notices that case notices it as a very extraordinary one. She died in thirteen or fourteen hours after the administration. It was a rapid case."

By the Lord Advocate.—"The amount of matter vomited is sometimes very little; and sometimes very large doses have been thrown off by vomiting. There is one case in which half an ounce was taken and no vomiting ensued. I think chocolate and cocoa would be a vehicle in which a considerable dose might be given. Active exercise would hasten the effect of arsenic; a long walk would do so. Exercise accelerates the effects of all poisons except narcotic. That a man should take poison at the Bridge of Allan, come to Coatbridge, walk eight miles to Glasgow, and reach that in good health and spirits, I should think very unlikely. Cases of protraction for five hours have occurred in persons who had gone to sleep after taking it. From half an hour to an hour is the usual time between administration and the symptoms manifesting themselves. The administration of previous doses predisposes the system to the effects of poison, and makes its action more rapid and violent. If the individual had recovered entirely, this would not be so much the case; but if he still laboured under the derangement of the stomach, I should look for violent effects."

On the fifth day Professor Christison was recalled, and gave the following evidence as to the use of arsenic as a cosmetic, its taste, and its supposed presence naturally in the bodies of human beings.

By the Lord Advocate.—"With regard to the use of arsenic as a cosmetic, do you think it possible to use it, by putting it in a basin of water and washing the face with it?"

Witness.—"It would be very unsafe indeed. I should expect it to produce inflammation, probably, of the eyes and nostrils, and perhaps of the mouth. It might get into the mouth, and it would be very difficult to keep it out of the eyes and nostrils; and if it once got in, as it is a rather insoluble solid, it would be difficult to wash it out. A preparation made from common arsenic is sometimes used as a depilatory. The old name is 'Arasma Cacoran,' because it is used by the Turks. It is essentially a sulphuret of arsenic and a sulphuret of lime. It is only used for removing hairs from the skin, and not for the complexion."

By the Dean.—"The common arsenic of the shops, you say, is an insoluble solid."

Witness.—"It is said in general terms to be so. *It is sparingly soluble in cold water.* It is not absolutely insoluble, however, in cold water. *About the 500th part might be dissolved in cold water by violent agitation, and if the arsenic were to be boiled in the first instance, about a 32nd part would remain in cold water. Cold water is the worst of all things to hold arsenic in suspension. Only the fine parts of the powder would be held in suspension. The coarse arsenic sold in the shops would fall to the bottom.*"[112]

The Dean.—"Suppose water were used to wash the face and hands without drawing up the arsenic from the bottom, you would not expect any serious consequences to result?"

Witness.—"I can only say, that I should not like to do it myself. I do not know absolutely what would follow; but, on account of the risk, any person who would do so would do a very imprudent thing."

By the Lord Advocate.—"Arsenic, though strictly heavier than water, would remain in suspension?"

Witness.—"The finer parts of the powder would, but not long. I never made any experiment, but should say it would be for a very short time. I should say, speaking on mere hazard, in the course of three or four minutes there would be scarcely any of the arsenic remaining in suspension, and there would only remain what had dissolved. I am speaking, as I said, without having experimented."

By the Court.—"*Has arsenic any taste?*"

Witness.—"Your lordship is aware that there is a great deal of dispute about that. After the strong affirmative of its having no taste which I published, a greater authority than I—*Professor Orfila of Paris—still adhered to the description that it had a taste.* All I can say about that is, that experiments were made by myself and two other medical gentlemen, as far as it was possible to make them with so dangerous a substance, and we found the taste to be very slight indeed; *if anything it was rather sweetish, but all but imperceptible*."

To the Court.—"Then there can be no doubt that large quantities of arsenic have been swallowed repeatedly by persons without observing?"

Witness.—"The experiments were made by myself and two other medical gentlemen, and so far as we went we all agreed as to the result. Professor Orfila maintained that it had a taste, though he referred to my experiments. But I think I may add, that it has struck me as very strange, that neither Orfila nor any others who have doubted these observations of mine on the matter, said that they had made any experiments themselves. Orfila does not say so. He merely expresses his belief, notwithstanding what I have stated."

By the Court.—"If taken in coffee or cream, then, the arsenic, having, if any, a sweetish taste, would not be perceptible?"

Witness.—"Not at all. I could put that in a clearer point of view by a preliminary observation, namely, that several persons who have taken arsenic largely without knowing at the time what they were

taking observed no taste; some observed a sweetish taste, and others what they called an acrid taste. With regard to acrimony, however, there were two fallacies. One was that they confounded the acrimony with the roughness of taste in the mouth, and secondly with the burning effects slowly developed by the poison afterwards."

By the Dean.—"In these cases you have spoken of, in what medium was the arsenic given?"

Witness.—"Sometimes in simple vehicles, such as coffee and water, and sometimes in thicker substances, such as soup. I think there are some instances where some roughness was observed in the case of porridge, but I cannot speak exactly as to the vehicles. I do not think the vehicle had much effect on the different tastes. I cannot state the quantity administered."

The Dean.—"Are these cases in which you were personally concerned?"

Witness.—"Strange to say, I have only been personally concerned in two cases of poisoning by arsenic. I have of course been often in cases like the present. It only came twice under my personal observation. It is the opinion of Orfila that the taste of arsenic is an acrid and not a corrosive taste."

The Dean.—"Exciting salivation, is it not?"

Witness.—"Yes, that is a pretty correct translation of the French word. The word acrid is a professional word, but Orfila uses the word *âpre*, which rather means rough."

The Dean.—"Yes, in his 1st vol., p. 377, he uses the word, but at p. 357 you will find he says the taste is *âcre et corrosive*."

Witness.—"I was not aware of that. 'Notwithstanding the experiments of Dr. Christison,' I think he says, 'the taste of arsenic is acrid.' He did not say he made the experiments himself, or give his authority. Orfila is a high name in the medical world; none higher of modern date in the department of medico-legal chemistry."

The Dean.—"Will you tell me the nature of the experiments you made with the two other medical gentlemen?"

Witness.—"We tasted the arsenic both in a solid and a liquid state, and allowed both kinds to pass as far back along the tongue as it was possible to do with safety, so as to spit it out afterwards. We allowed it to remain on the tongue about two minutes, and washed the mouth carefully."

The Dean.—"Can you give me any idea how much arsenic there was in your mouth on that occasion?"

Witness.—"About two grains. One of the gentlemen, the late Dr. Duncan, kept two grains in his mouth a long time. We allowed it to remain on the tongue generally two minutes, a time quite sufficient to ascertain the taste."

By the Lord Advocate.—"Is it a common thing in cases of this sort to ascertain the quantity of arsenic?"

Witness.—"No. In the great majority of criminal cases it is not ascertained within presumption."

By the Lord Justice Clerk.—"Are you aware that a great chemist maintained that there was arsenic naturally in the bodies of all human beings?"

Witness.—"I have heard that; but he afterwards surrendered his opinion."

By the Dean.—"There has been a great shifting of opinion among medical men as to the probable effect of arsenic, has there not?"

Witness.—"Not during the last 35 years. Prior to that our information as to the effects of arsenic was very vague."

By the Dean.—"Was it not generally thought at one time that there was naturally arsenic in the human stomach?"

Witness.—"It may be so, but it is quite new to me."

Robert Telfer Corbett, physician in Glasgow, and senior surgeon in the infirmary, who had assisted at the *post-mortem* examination and joined in the report, was called on the fourth day, and gave the following evidence.

"So far as he could judge without analysis the deceased had died from the effect of poison. The morbid appearances presented were of two kinds—one showing the result of recent action, the other of action at a period antecedent to it. The last of these appearances consisted of several ulcers, each about the $^{1}/_{16\text{th}}$ of an inch in diameter, with elevated edge, on the upper part of the duodenum. They might have been characteristic of the effect of irritant poison at the distance of a month, but it is impossible to fix any date. I think they were such as irritant poison, administered a month before, would have produced. They were of longer standing than immediately antecedent to death. In the duodenum and intestines the body had in colour and otherwise the appearances characteristic of arsenical poisoning. Inflammation and ulceration are the effect of inflammation; jaundice, I mean the yellow tinge of the skin, is an occasional, but not a necessary symptom of death by arsenic, but not a common one. Extreme thirst is one of the symptoms, and shows itself very early. It is not characteristic of British cholera in its earlier stages. The exact time a dose of arsenic takes to exhibit its symptoms is from a half to one hour—that is the average time. Longer periods have been known but are very unusual. They depend more on the mode in which the poison is given, and the state of the stomach, than on the quantity administered. If a person had been the subject of repeated doses, the irritability of the stomach would make it more likely to operate quickly. I have read of cases of murder where large quantities of arsenic have been found in the stomach. I can refer to cases in which details were not given, but the quantity was said to be large."

The *cross-examination* of this witness was mainly directed to his assertion that the yellowness of the skin seen in jaundice, and, as he added, of the conjunctiva of the eye also, was a known symptom in arsenical poison, but he admitted that the statement in Dr. Taylor's book was his only authority: he only "knew it to be a secondary symptom from arsenical poisoning in his routine." He

admitted also that the ulcers on the duodenum might arise from some enteric fever, and that any cause of inflammation might produce them.

On *re-examination by the Lord Advocate*, he repeated that from his reading and study he knew jaundice to be an occasional symptom of arsenical poisoning. To a question whether "in a person during life who immediately after taking food had been seized with severe pain and intense thirst, he should think, because he had a yellow colour, that might not be the effect of arsenical poisoning?" he replied "that might or might not be," and "that the appearance of jaundice would not sway him materially one way or the other." This witness, though he had made many *post-mortem* examinations, had only once before done so in a case of arsenical poisoning. With this witness the medical evidence for the prosecution was closed.

It will be convenient, as in Palmer's case, to give in this place the evidence of the medical witnesses, called, at a subsequent period, for the defence.

MEDICAL EVIDENCE FOR THE DEFENCE.

Two physicians were called for the prisoner, with the object of proving (1), that arsenic could be used without danger as a cosmetic; (2), that the symptoms in L'Angelier's last illness were consistent with the suggestion that he died of some form of cholera.

Dr. James A. Lawrie, a physician of Glasgow, many years in practice, who was first called, said—

> "He had taken a quarter or half-an-ounce of arsenic, bought at *Currie's*, and washed his hands freely with it, and on the previous Saturday had tried the same experiment with a half-an-ounce on his face, but washed his face afterwards with cold water. The effect was

the same as using a ball of soap with sand—it softened the skin. He filled the basin with the usual quantity of water, and mixed the arsenic with it. It was a practice he should have no fear of repeating, and would not hesitate in using, if he had a case that required it, such as vermin on the skin. In consequence of the insolubility of arsenic, he did not think that increasing the quantity of arsenic would make any difference in the effect."

On the second point this witness said:—

"I treated one case of poisoning by arsenic. Some years ago during the prevalence of cholera, I was asked to see a gentleman about seven or eight in the evening, and the account was that he had been ill since three or four in the morning. I found him labouring under premonitory symptoms of cholera, and I prescribed for him. I returned about ten, and found the symptoms very much aggravated, and the vomiting and purging still continued. His voice was not affected, and the vomiting was not the same as in cholera. It was a reddish yellowish matter, and I requested it to be set aside. I thought it was not a case of cholera, and asked him what he had taken. He said only his ordinary food, wine, &c., but nothing else. The symptoms went on still further, and I called a consultation of other medical men. He still said he had taken nothing. I was satisfied from the aggravation of the symptoms that something else was the matter, and at last he died about three in the morning. I next day learnt that he had purchased half-an-ounce of arsenic the day of his death. I had the vomit and contents of stomach analysed, and discovered arsenic in great quantities. Extreme thirst, as far as I know, is an early symptom in poisoning by arsenic—but not equally so in cholera, it belongs to a later stage in cholera."

Dr. Douglas Maclagan, of Edinburgh, who had had some experience in arsenical poisonings, and devoted much of his time to chemistry, had the same opinion as Dr. Lawrie of the

innocuousness of arsenic as a cosmetic (mainly from its insolubility).

"Unless there was some ulceration or abrasion of the skin, or it was kept long in contact with it. In warm water it would dissolve to a greater extent than in cold—in which some such proportion as only one 400th part would dissolve, and if you required to dissolve any great quantity it must, according to Dr. Taylor, be boiled violently for half-an-hour, and then it retains about 1-40th of its weight after the water cools."

The Dean.—"Will the presence of organic matter in a fluid interfere with its solvent power upon arsenic?"

Witness.—"As a rule, it generally will. There does not appear to be any difference between tea, coffee, or water when poured upon arsenic. They dissolve but a very small quantity, I do not know how you can determine whether cocoa or chocolate is a sufficient solvent or not. You cannot filter them so as to determine the quantity. There is a great deal of organic matter in the ordinary chocolate or cocoa, it ought to be entirely organic matter, except so far as it is water." (The Witness then gave an account of a case of a girl whom he attended, who took arsenic by accident, mistaking it for an effervescing powder.) "We all know the ordinary symptoms of arsenical poisoning. Most of them are very similar to, almost identical with, the symptoms of cholera. In the case of slight quantities of arsenic, it would appear that the symptoms very closely resemble those of what are called bilious or British cholera. In fatal cases they are more like malignant or Asiatic cholera."

The Dean.—"Can you diagnose a case of arsenical poisoning by the symptoms?"

Witness.—"I believe you may. In the first place the vomiting would be bloody, from the violent irritation and the pouring out of a bloody mucus into the stomach—after that has been emptied of all its contents. I suppose there would be more affections of some of the mucous membranes, an unaccountable occurrence of an extensive inflammatory redness about the eyes, and the occurrence

of nervous symptoms, such, for instance, as paralysis of the limbs. But these are not necessary symptoms. A person may be suffering from the effects of arsenic without these being produced if the quantity is small."

The Dean.—"You never saw jaundice as a symptom of arsenical poisoning?"

Witness.—"I am not entitled to speak on my own experience, as I never saw it. There is a single line in Taylor's book, which says, that it has been observed, and which refers to the remarks of Dr. Marshall on Turner's case." (Extract read.)

The Dean.—"Is that a description of jaundice?"

Witness.—"It is a description of at least one symptom of jaundice, yellowness of the skin; but it is rather strange that it does not mention the most common of all signs of jaundice, yellowness of the eyes. One looks to the eye first in a case of jaundice, because you see it best there."

The Dean.—"Do you think that a sensation of choking and a feeling of irritation of the throat are symptoms of arsenical poisoning?"

Witness.—"Certainly."

The Dean.—"Would that occur in a case of British cholera?"

Witness.—"I have seen persons who are affected with choleraic symptoms complaining of being sore about the throat, but it is generally the soreness arising from what they first vomit, and after that it is the muscular soreness."

Cross-examined by the Lord Advocate.—"What is it that causes the yellow outline of the eyes and skin?"

Witness.—"The absorption of the choleraic matter into the blood."

Lord Advocate.—"I presume there is nothing in a case of arsenical poisoning that produces that?"

Witness.—"It is certainly very remarkable that we have so many cases of arsenical poisoning where the jaundice shows itself: we have eruption of those same parts of the duodenum according with

arsenical poisoning. I am not so certain that jaundice is a symptom of arsenical poisoning."

The Lord Justice Clerk.—"But if you saw the appearance of the eye was much darker than usual, would that lead you to think there might be jaundice?"

Witness.—"Oh, certainly."

The Lord Justice Clerk.—"I knew a case of apparent jaundice arising from a cake of yellow soap."

The Lord Advocate.—"Suppose you were told that in a case the body after death had a yellow appearance, and it was found to be the effect of arsenical poisoning, would you not be surprised at that?"

Witness.—"No, not at the yellowish aspect of the skin, but I would not expect that there would be marked jaundice."

The Lord Advocate.—"And if you found any symptom of that kind, where repeated doses of poison had been taken during the period from the time when the patient took ill, what would you say?"

Witness.—"If such a case did occur, I should say that there would be some connection between the cause of death and the occurrence of the jaundice."

Lord Advocate.—"In regard to the vomiting, is there not a great difference in different kinds of arsenical poisoning?"

Witness.—"Generally the vomiting is severe."

Lord Advocate.—"You state that the presence of organic matter detracts from the power of holding arsenic in solution: would you say the same as to holding it in suspension?"

Witness.—"Certainly not."

Lord Advocate.—"Is great thirst a symptom of arsenic?"

Witness.—"Generally it is, and generally an early and persistent symptom."

Lord Advocate.—"Is it so in cholera?"

Witness.—"I should say that I have seen thirst very early in cholera. I think it is usually so. I do not know any injurious effect

that would result if the face were washed with water containing arsenic, if you kept your mouth and eyes shut, but I do not recommend it."

To the Dean.—"I cannot say how much arsenic would be held in suspension by an ordinary cupful of chocolate and cocoa. It must depend upon the kind of chocolate. Cocoa in this country is generally thin, but chocolate in France is generally as thick as porridge. It is not so in this country."

EVIDENCE OF THE OPPORTUNITIES FOR THE ADMINISTRATION OF POISON.

On the *first* charge, that of administering poison on the 19th or 20th of February, it was urged on the jury that there was no reliable evidence that the lovers had met on either of these days, that Madeline Smith had at that time poison in her possession, or that the illness which L'Angelier was supposed to have had at that time showed arsenical symptoms. On the 17th of February L'Angelier told Miss Perry, the confidante of their loves, that he expected to meet Madeline on the 19th, and, from some other circumstances—what they were is not stated—when on the 2nd of March he told her how ill he had been, falling on the floor of his room, she said that "she knew that he referred to the 19th of February." Mrs. Jenkins, however, could not fix the date of this attack: it might have been eight or ten days before the second illness (February 23), and, like his illness in January, she believed it to be due to bile, the symptoms being something the same as her own but more violent, on both occasions accompanied by a good deal of purging and vomiting. From Dr. Thomson's evidence, however, it appears that his first illness in that year, which Dr. Thomson places on the 3rd of February, was due to a cold, with cough and boils, for which he prescribed. The only attempt that Miss Smith made to purchase

poison before that date was that of sending the page boy to Dr. Yeaman's to buy some prussic acid, which the doctor refused to sell to her. The Lord Advocate admitted that he could not prove that she had arsenic in her possession before that illness. "It would not do," said the Lord Justice Clerk in his charge, "to infer, from her having arsenic afterwards, that she had it also on the first occasion."[113]

On the second charge, that of administering poison on the 22nd or 23rd of February, the following evidence was offered. On the 21st of February Miss Smith openly purchased an ounce and a half of arsenic of the chemist Murdoch, ostensibly for the purpose—a false one, as the evidence proved—of killing rats at her father's country house. It was mixed with soot, of which she some days afterwards spoke to the chemist, saying she thought arsenic was white. If, therefore, the lovers met on the 22nd, or 23rd, she had poison in her possession. Whether L'Angelier went out on the night of the 22nd, his landlady could not say:[114] she did not hear him come in, but, when she went into his room early the next morning, she found him suffering from his second attack of illness for which Dr. Thomson attended him, and from which he recovered in about eight days. That the symptoms were those of arsenical poisoning was hardly to be doubted, and though Dr. Thomson at the time attributed them to billious derangement, he said, that, "had he known that L'Angelier had taken an irritant poison, those were the symptoms he should expect to follow." The evidence that the lovers had met on the night of the 22nd, or morning of the 23rd, rested on a letter, which not only did not bear any date or day of the week, but the post-mark on which was so obliterated that the post-office official could not fix any date, though he thought he could see the "M" of March on the stamp, which counsel on both sides agreed in considering an error. In that letter Miss Smith wrote: "I am so sorry to hear you are ill. I hope to God you will soon be better—— you

did look bad on Sunday night and Monday morning. I think you got sick with walking home so late, and the long want of food; so, next time we meet, I shall make you eat a loaf of bread before you go." This letter the Lord Advocate assumed to be written on Wednesday, the 25th of February, and to refer to the meeting on the night of the 22nd and morning of the 23rd. To Miss Perry, on the 9th of March, L'Angelier spoke of having had a cup of coffee and chocolate from Miss Smith, which Miss Perry understood to refer to two occasions, and added, "I can't think why I was so unwell after getting that coffee and chocolate from her." "It ought not to be forgotten," said the Lord Justice Clerk, "that the contents of the stomach on these two illnesses had not been examined, and therefore it was merely an inference that they were caused by arsenic—an inference drawn from the fact that on the 22nd of March he died from that poison." With reference to the purchase of arsenic, the learned Judge added: "He attached little importance to the statements of the druggists as to what was said by the prisoner about rats; without stating some such objects she would not have got it at all; and it was not to be supposed, if she had wanted it as a cosmetic, that she would tell the druggist. Did she see the deceased on the Sunday night, before the arsenic was administered? Mrs. Jenkins did not see him go out of the house that night, and he asked the jury to consider whether there was, on the whole, apart from the correspondence, evidence that they had met together that night? If there was no proof that the administration took place on the 22nd of February, then there was great force in the observation that the foundation of the case for the prosecution had been shaken."

On the third charge—that of poisoning on the 22nd or 23rd of March, the following facts were proved. On his return to work, after his second illness, L'Angelier was so altered in health, his complexion wan, with a dark, hectic spot on each cheek, that leave

of absence was given to him, for the first time since he had been in this employ. Miss Smith had advised him to take rest and change, and L'Angelier had apparently told her that he should go to the Bridge of Allan. On the third of March, however, Miss Smith writes that her family are going to the same place, and the next day suggests that he should go to the South of England. On the 5th of March he writes her a painfully earnest letter on the reports about her intended marriage with Mr. Minnoch, concluding: "Mind, I insist on having an explicit answer to the question you evaded in my last." Next day the prisoner purchases another sixpenny-worth of arsenic, not again of Murdoch, but of Currie, and this time the excuse is that the house in Blythswood Square is so overrun with rats, that it is to be shut up and the servants sent away till the vermin is eradicated. This again was pure invention on her part. The family went to the Bridge of Allan, whence on Tuesday, the 10th of March, the prisoner wrote to L'Angelier that they would be home again in Glasgow on the next Monday or Tuesday, when she would write to arrange an interview, adding, "I long to see you, to kiss and embrace you, my only sweet love." Before this the Minnoch marriage had been arranged, and the day talked about, if not definitively fixed. Again on the 13th she wrote him: "I think we shall be home on Tuesday, so I shall let you know, my own beloved sweet pet, when we shall have a dear, sweet interview; when I may be pressed to your heart, and kissed by you, my own sweet love. A fond, tender embrace; a kiss, sweet love! I hope you will enjoy your visit here." It had been previously arranged between them that L'Angelier should not come to the Bridge of Allan until her family had left.

During this visit of the Smiths to the Bridge of Allan, L'Angelier was taking his leave of absence. On the 6th of March he left for Edinburgh, and returned to Glasgow on the 17th, and,

finding no letter for him, stayed at home all the next day waiting for it. On the 19th he left for the Bridge of Allan, where he was to stay for a week, his friend Thuau undertaking to forward his letters. On the 19th, after he had left, a letter came, and Thuau forwarded it that night, and it reached Stirling at nine the next morning. That letter was not to be found. In his tourist's bag, however, the envelope of it was discovered, and, from a letter which he wrote to Miss Perry on the 20th, in which he said, "I should have come to see some one last night, but the letter was too late," it may be fairly assumed that it contained the wished for appointment for the Thursday night. On the 18th the prisoner bought her third packet of arsenic at Currie's. Several dead rats, she said, had been found, and it was feared some large ones still remained. This time she had a female companion with her, and, as she had to Murdoch expressed her surprise at the arsenic she had previously purchased not being white, she again used the same expression at Currie's. This arsenic was coloured with indigo. On the 21st the last of the long series of letters reached L'Angelier's lodgings, and was forwarded at once by Thuau. "Why, my beloved, did you not come to me?" she wrote. "Oh, my beloved, are you ill? Come to me. Sweet one, I waited and waited for you, but you came not. I shall wait again to-morrow night—same hour and arrangement." That letter, which was found in his pocket, was received by him after nine on Sunday morning. He left the Bridge of Allan shortly after evening service began, and was at his lodgings by eight o'clock that evening. To accomplish this L'Angelier had walked to Stirling, taken the train from there to Coatbridge, where a Mr. Ross found him, and, after some refreshment at the station, walked with him to Glasgow, apparently quite well, and walking briskly.[115] When he arrived at his lodgings he appeared greatly improved in health since he left on the previous Thursday, was in high spirits, and said that the letter had brought

him back. He left his lodgings about nine o'clock, is seen soon after sauntering in the direction of Blythswood Square, but not near the Smiths' house, as it was the hour there for family prayers. To wile away the time he calls on a Mr. M'Alister, who is not at home, and from that time till he came back to his lodgings, after midnight, all trace of him is lost. At two o'clock the next morning the door-bell rang violently; his landlady went down, and found L'Angelier at the door, standing with his arms across his stomach. He was suffering from his fatal illness, already too bad to be able to use his pass key. How that attack progressed, and what its symptoms were, and what was the result of the *post-mortem* and analytical examinations, has already been reported.

"Here," said the learned Judge, "the proof stops. And, supposing you are quite satisfied that the letter brought him to Glasgow,[116] are you in a condition to say, with satisfaction to your own consciences, that, as an inevitable and just result of that, you can find it proved that they met that night?[117] That is the point in the case. That you may have the strongest moral suspicion that they met—that you may believe that he was able, after all their clandestine correspondence, to obtain the means of an interview, especially as she complained of his not coming on the Thursday, said she would wait again to-morrow night, same hour and place, and talked of wishing to clasp him to her bosom—that you may suppose it likely that, although he failed to keep his appointment on Saturday, she would be waiting on Sunday, which was by no means an uncommon evening for their appointment—*all that may be very true, and probably you will think so; but remember you are trying this case upon evidence that must be satisfactory, complete, and distinct.*

"A jury may safely infer certain facts from the correspondence. They may even safely infer that meetings took place, when they

find these meetings either mutually appointed or arranged for by the parties. But it is for you to say here whether it has been proved that L'Angelier was in the house that night. If you can hold that that link in the chain is supplied by just and satisfactory inference—remember, I say just and satisfactory—and it is for you to say whether the inference is just and satisfactory in order to complete the proof. If you really feel that in your own minds, you may have the strongest suspicion that he saw her; for really no one need hesitate to say that, as a matter of moral opinion, the whole probabilities of the case are in favour of it. But if that is all the amount that you can derive from it, the link still remains awanting—the catastrophe and the alleged cause of it are not found together. And therefore you must be satisfied that you can here stand and rely upon the firm foundation, I say, of a just and sound, and perhaps I may add, inevitable inference. That a jury is entitled often to draw such an inference there is no doubt; and it is just because you belong to that class of men to whom the Lord Advocate referred, namely, men of common sense, capable of exercising your judgment upon a matter which is laid before you to consider, it is on that very account that you are to put to yourselves the question, 'Is this a satisfactory and a just inference?' If you find it so, I cannot tell you that you are not at liberty to act upon it, because most of those matters occurring in life must depend upon circumstantial evidence, and upon the inference a jury may feel bound to draw. But it is an inference of a very serious character—it is an inference upon which the death of this party by the hand of the prisoner must depend."[118]

CONDUCT AND STATEMENTS OF THE PRISONER AFTER L'ANGELIER'S DEATH.

In her declaration Miss Smith stated that she heard of L'Angelier's death on the afternoon of Monday, the 23rd. On the Wednesday evening she was out at a party, and at eight o'clock the next morning she had left the house. In consequence Mr. Minnoch, and a brother of the prisoner, thinking apparently that she had gone to her father's country house, took the rail to Greenock, and the steamer thence to Row, on board which they found her a little after two in the afternoon. She said she was going to Rowaleyn, and they went on with her, and from thence brought her to Glasgow in a carriage. "When we met her on the steamboat," said Mr. Minnoch, "I asked her why she had left her house and her friends in such distress at her absence. She made no reply. I requested her not to do so among so many people. I renewed my inquiry afterwards at Rowaleyn. She said she felt distressed that her parents should be so much annoyed at what she had done." The suggestion on the part of the prosecution was, that from conscious guilt she was fleeing from justice—on the part of the prisoner, that she was fleeing from the shame of an exposure of her love passages with L'Angelier. "But," said the learned judge, "my opinion is, that having made a statement already about getting arsenic for the gardener to kill rats, and knowing that if it had been discovered that he got no arsenic for such a purpose, unpleasant consequences might follow, she wished to see him, in order to make an arrangement by which that statement might be borne out. The steamer in which she went only sailed from Helensburgh to Gairloch and back, and therefore escape by it was nearly impossible; and, in point of fact, he did not believe she had any intention of attempting it."

Previously, however, to this unexplained flight from home, she had been visited by the French consul, a mutual friend of the lovers, to whose searching questions in the presence of her mother

she gave most decided answers. As this witness's evidence was greatly relied on by counsel for the prisoner, it is reported in full.

M. Auguste Vauvert de Meau, the French Consul at Glasgow, who had known L'Angelier for three years, was acquainted with the prisoner's family, and aware from L'Angelier's own statements of the correspondence between the lovers, gave the following evidence:—

> "I remember L'Angelier coming to my office a few weeks before his death and speaking about Miss Smith. I said she was to be married to some gentleman, and when I mentioned the public rumour, he said it was not true, but, if it was, he had documents in his possession that would be sufficient to forbid the banns. I did not see her after that time. I thought that, having been received by Mr. Smith in his house, I was not at liberty to speak to him; but after L'Angelier's death I thought it was my duty to mention the fact of the correspondence having been carried on between them, in order that he might take steps to exonerate his daughter in case of anything coming out. In the evening of the death of L'Angelier, I called on Mr. Smith and told him that L'Angelier had in his possession a great number of letters from his daughter, and that it was high time to let him know this, that they might not fall into the hands of strangers, numbers of people might go to his lodgings and read them. I went to Mr. Huggins's office (L'Angelier's employer). He was not in, but I saw two gentlemen, and told them what I had been told to ask (to get back the letters); but they said that they could not give them up without Mr. Huggins's consent, and I then asked them to keep the letters sealed up till they were disposed of. I think this was on the Tuesday after L'Angelier's death. Shortly after I saw Mr. Smith. In consequence of rumours I went to his house and saw Miss Smith in the presence of her mother. I apprised her of the death of L'Angelier. She asked me if it was of my own will that I came to tell her; I told her it was not so, but at the special request of her father. *I asked her if she had seen L'Angelier on the Sunday night; she told me that she did not see him.* I asked her to put me in

a position to contradict the statements which were being made as to her relation with L'Angelier, and asked her again if she did not see him on Sunday evening or Sunday night, and she told me she did not. I observed to her that L'Angelier had come from the Bridge of Allan to Glasgow on a special appointment with her, by a letter written to him. *She told me she was not aware that he was at the Bridge of Allan before he came to Glasgow, and that she did not give him an appointment for Sunday evening, as she wrote him on Friday evening giving him an appointment for Saturday: she had expected him on the Saturday, but he did not come, and she had not seen him on Sunday.* I put the question to her five or six times in different ways. I told her that my conviction was that she must have seen him on Sunday, that he had come on purpose to Glasgow on a special invitation by her to see her; and I did not think it likely, admitting that he had committed suicide, that he had done so without knowing why she had asked him to come to Glasgow."

The Lord Justice Clerk.—"Did you know of this letter yourself?"

Witness.—"I heard there was such a letter. I said to her that the best advice that a friend could give to her under the circumstances was to tell the truth about it, because the case was a very grave one, and would lead to an inquiry on the part of the authorities, and that if she did not say the truth in these circumstances, perhaps it would be ascertained by a servant, or a policeman, or somebody passing the house who had seen L'Angelier, that he had been in the house, and this would cause a strong suspicion as to the motive that had led her to conceal the truth. *Miss Smith then got up from her chair and said, 'I swear to you, Mr. Meau, that I have not seen L'Angelier not on that Sunday only, but not for three weeks or six weeks,' I am not sure which.*"

The Lord Justice Clerk.—"And the mother was present?"

Witness.—"Yes. I repeated this question five or six times, but her answer was always the same. I asked her with regard to the letter inviting L'Angelier to come and see her, how it was that, being engaged to another gentleman, she could have carried on a

clandestine correspondence with a former sweetheart? she said it was to get back her letters."

The Lord Advocate.—"Did you ask her whether she was in the habit of meeting L'Angelier?"

Witness.—"Yes. I asked her if it was true that L'Angelier was in the habit of having appointments with her in her house; and *she told me that he had never entered that house, meaning the Blythswood Square house, as I understood*.[119] I asked her how, then, she had her appointments to meet him? She told me that he used to come to a street at the corner of the house (main street), that he had a signal by knocking with his stick, and that she used to talk to him."

The Lord Advocate.—"Did she speak about her former correspondence with him at all?"

Witness.—"I asked her if it was true she had signed letters in his name, and she said she had done so."

The Lord Justice Clerk.—"Do you mean that she added his name to hers?"

Witness.—"I meant whether she signed her letters with L'Angelier's name, and she said 'Yes.' I did not ask her why."

Cross-examined by Mr. Young.—"I went to live at Helensburgh in 1845. M. L'Angelier visited me, and once he came on a Saturday to my lodgings there, and on Sunday we went on the Luss Road. I went up to my room, and L'Angelier not coming in for his dinner, I called for him out of temper. I then found that he was ill, and was vomiting down the staircase. He once complained to me of being bilious. This was a year ago. He complained of once having the cholera. Last year he came to my office and told me he had had a violent attack of cholera, but I don't know whether that was a year or two years ago. I think it was a journey he was to have made that led him to speak of having had the cholera. I don't recollect whether he was unwell at that time. I know that when he came to my house he always had a bottle of laudanum in his bag, but I don't know if he used it. I once heard him speak of arsenic; it must have been in the winter of 1854. It was on a Sunday. I don't recollect how the

conversation arose, but it lasted half an hour. Its purport was how much arsenic a person could take without its injuring him. He maintained that it was possible to do it, by taking small quantities. I don't know what led to the conversation, and should be afraid to make any statement as to the purpose for which it was to be taken. L'Angelier stated to me he had once been jilted by an English lady, a rich person, and that on account of the deception he was almost mad for a fortnight, and ran about, getting food from a farmer in the country. He was easily excited: when he had any cause of grief he was affected very much."

By the Lord Justice Clerk.—"After my marriage I had little intercourse with L'Angelier. I thought that he might be led to take some harsh steps with Miss Smith, and as I had some young ladies in my house, I did not think it was proper to have the same intercourse with him as when I was a bachelor."

The Lord Advocate.—"What do you mean by 'harsh steps?'"

Witness.—"I was afraid of an elopement. By 'harsh' I mean 'rash.' This was after L'Angelier had given me his full confidence as to what he would do if her father did not consent to the marriage."

The Lord Justice Clerk.—" Did you understand that Miss Smith had engaged herself to him?"

Witness.—"I understood so from what he said."

The Lord Justice Clerk.—"When you used the expression 'you thought it right to go to Mr. Smith about the letters, in order that he might take steps to vindicate his daughter's honour, or prevent it from being disparaged,' did you relate to him her engagement and apparent breach of it? Had you in view that the letters might contain an engagement which she was breaking, or that she had made a clandestine engagement?"

Witness.—"I thought that these letters were love letters, and that it would be much better that they should be in Mr. Smith's hands than in those of strangers."

The Lord Advocate.—" What were L'Angelier's usual character and habits?"

The Lord Justice Clerk.—"Was he a steady fellow?"

Witness.—"My opinion of L'Angelier's character at the moment of his death was, that he was a most regular young man in his conduct, religious, and in fact most exemplary in all his conduct. The only objection which I heard made to him was that he was vain and a boaster—boasting of grand persons that he knew. For example, when he spoke of Miss Smith, he would say, I shall forbid Madeline to do such a thing, or such another thing—to dance with such a one or such another."

The Lord Justice Cleric.—"Did he boast of any success with females?"

Witness.—"Never."

The Lord Justice Clerk.—"Did he seem jealous of Miss Smith paying attention to others?"

Witness.—"No; of others paying attention to her."

The Lord Justice Clerk.—"It was not on account of any levity in his character that you discouraged him visiting you after your marriage?"

Witness.—"No. I thought his society might be fit for a bachelor, but not for a married man."

The Lord Justice Clerk.—"Do you understand the word 'levity'?"

Witness.—"Yes; lightness, irregularity. There had been a long cessation of intercourse between us before his death. The photograph (*shown him*) is a good likeness; he was between 28 and 30 years of age. I think I got accidentally acquainted with him in a house in Glasgow."

At the close of the case for the prosecution the Lord Advocate proposed to put in certain entries in a pocket book of L'Angelier's to support the first and second counts of the indictment, which, after argument, was refused by the Court. (See Appendix C., p. 359.)

THE DEFENCE.

In accordance with practice of the Scotch Courts the counsel for the prisoner had the last word; and good use did the Dean of Faculty make of his privilege. The Lord Advocate's policy had been to depict the character of the prisoner in the vilest colours—as the seducer, rather than the seduced, or, at any rate, for a long period the willing accomplice in all his acts. The Dean dealt not less hardly with the character of L'Angelier.

> "We find him," he said, "according to the confession of all those who observed him narrowly, vain, conceited, pretentious, with a great opinion of his own personal attractions, and a very silly expectation of admiration from the other sex. That he was successful to a certain extent in conciliating such admiration may be the fact; but, at all events, his own prevailing ideas seem to have been that he was calculated to be very successful in paying attention to ladies, and that he was likely to push his fortune by such means. Accordingly, once and again we find him engaged in attempts to get married to women of some station at least in society. We heard of one disappointment which he met with in England, and another we heard a great deal of connected with a lady in Fife; and the manner in which he bore his disappointments on those two occasions is perhaps the best indication and light we have to the true character of the man. He was not a person of strong health, and it is extremely probable that this, among other things, had a depressing effect on his spirits, rendering him changeable and uncertain—now uplifted, as one of the witnesses said, and now most deeply depressed—of a mercurial temperament, as another described it, very variable and never to be depended upon. Such was the individual with whom the prisoner unfortunately became acquainted. The progress of their acquaintance is soon told. My learned friend the Lord Advocate said the correspondence must have been improper, because it was clandestine: yet the letters of the young lady at that first period breathe nothing but gentleness and propriety. The correspondence in

the commencement shows that if L'Angelier had in his mind originally to corrupt and seduce the prisoner, he entered upon the attempt with considerable ingenuity and skill; for the very first letter of the series which we have contains a passage in which she says, 'I am trying to break myself of all my bad habits: it is you I have to thank for this, which I do sincerely from my heart.' He had been suggesting to her improvement in conduct or something else. He had thus been insinuating himself into her company. She had yielded, no doubt, too easily to the pleasures of this new acquaintance, but pleasures apparently of a most innocent kind at this period. Yet it seems to have occurred to her mind at a very early period that it was impossible to maintain this correspondence with propriety or her own welfare; for so early as April 1855 she wrote him—'I think you will agree with me in what I intend proposing, that for the present this correspondence had better stop. I know your good feeling will not take this wrong. It was meant quite the reverse. By continuing it, harm may arise, by discontinuing, nothing can be said.' And from then to September it did cease."

Unfortunately the correspondence was renewed, discovered, and stopped by her father until April, 1856, when it is re-opened by a letter, of the 30th of that month, from Helensburgh, in which she writes:—"P(papa) has not been in town a night for some time; but the first night he is off I shall see you. We shall spend an hour of bliss. There shall be no risk: only C. H. (Haggart) shall know." This letter was followed by that of the 3rd of May, inviting him on Tuesday, the 6th, to come to the garden gate, and adding, "Beloved of my soul, a fond embrace, a dear kiss till we meet! We shall have more than one, love, dearest." Signed, "From thy ever devoted and loving wife, thine for ever, MINI."

"Alas," said the Dean, "the next scene is the most painful of all. In the spring of 1856, the corrupting influence of the seducer was successful, and the prisoner fell. This is recorded in a letter bearing

the post-mark of the 7th of May, which you have heard read. And how corrupting that influence must have been, how vile the acts that he resorted to for accomplishing his nefarious purpose, can never be proved so well as by looking at the altered tone and language of the unhappy prisoner's letters. She had lost not her virtue merely, but, as the Lord Advocate said, her sense of decency. Think you that without temptation, without evil teachings, a poor girl falls into such depths of degradation? No. Influence from without—most corrupting influence—can alone account for such a fact. And yet through the midst of this frightful correspondence, there breathes a spirit of devoted affection towards the man that had destroyed her—that strikes me as most remarkable."

Then, after alluding to the precautions with which she sought to surround her interviews with L'Angelier at the Blythswood Square house; to the evident proofs that an elopement was projected, and to the strong probability that no interview took place without Haggart's connivance, and that, therefore, the interviews at this time must be limited to the two spoken of by that witness, he urged that up to the month of February, 1857, he was entitled to say, "without a shadow of evidence to the contrary, that they were not in the habit of coming into personal contact."

"We now," continued the Dean, "come to a very important stage of the case. On the 28th of February Mr. Minnoch proposes, and if I understand the theory of my learned friend's case aright, from that day the whole character of the girl's mind and her feelings changed, and she set herself to prepare for the perpetration of what he has called one of the most foul, cool, deliberate murders that ever was committed. I will not say that such a thing is impossible, but I will venture to say it is very highly improbable. He will be a bold man to fathom the depths of human depravity, but this at least experience teaches us, that perfection even in depravity, is not rapidly attained, and it is not by such short and easy stages as the prosecutor has been able to trace in the career of Madeline Smith, that a gentle loving

girl passes all at once into the savage grandeur of a Medea, or the appalling wickedness of a Borgia. Such a thing is not possible. There is a certain progress in guilt, and it is quite out of all human experience that, from the tone of the letters, there should be a sudden transition—I will not say from affection for a particular object—but to the strange desire for removing, by any means, the obstruction to her wishes and purposes that the prosecutor imputes to the prisoner. Think, in your own minds, how foul and unnatural a murder it is—the murder of one who, within a very short space, was the object of her love—an unworthy object—an unholy object; but yet while it lasted—and its endurance was not very brief—it was a deep, unselfish, absorbing, devoted passion. And the object of that passion she now conceived the purpose of murdering. Such is the theory that you are desired to believe. Now before you will believe it, will you not ask for demonstration? Will you be content with conjecture? Will you be content with suspicion, however pregnant, or will you be so unreasonable as to put it to me in this form, that the man having died of poison, the theory of the prosecution is the most probable? Oh, gentlemen, is that the manner in which a jury should treat such a case? Is that the kind of proof on which they should convict on a capital offence?"

The Dean, then, took up *seriatim* the three charges, examining the evidence on each in detail, making on each the criticisms, already reported in the previous summary of the evidence, showing how the first charge had failed even in the opinion of the prosecutor: how doubtful, to say the least, it was that the interview on which the second charge was based had taken place, and the weakness of many of the proofs on which the charge of murder was rested. Passing, then, to the suggestion of suicide, he continued—

"I might stop here, for nothing could be more fallacious than the suggestion of the Lord Advocate, that it was necessary to explain how this man came by his death. His lordship will tell you that a defendant has no further duty than to repel the charge and stand on

the defensive, and maintain that the case for the prosecution is not proved. No man probably can tell at the present moment—I believe no man on earth can tell—how L'Angelier met his death. Nor am I under the slightest obligation even to suggest to you a possible manner in which that death may have been compassed without the intervention of the prisoner. Yet it is but fair, when we are dealing with so many matters of conjecture and suspicion, that we should, for a moment, consider whether that supposition on which the charge is founded is preferable in itself, in respect to its higher probabilities, to other suppositions which may be fairly made. The character of this man, his origin, his early history, the nature of his conversation, the numerous occasions on which he spoke of suicide, naturally suggest that as one mode by which he may have departed this life. Understand me, I am not undertaking to prove that he died by his own hand—but I think there is more to be said for suicide than for the prisoner's guilt. But I entreat you to remember that that is no necessary part of my defence. But of course I should be using you very ill—should be doing less than my duty to the prisoner—if I had not brought before you the whole of that evidence which suggests the extreme probability of that man dying by his own hand at one time or other. From the very first time at which we see him, even as a lad, in the year 1843, he talks in a manner to impress people with the notion that he had no moral principle to guide him. He speaks over and over again of suicide at Edinburgh, Dundee, and elsewhere—ay, the prisoners letters shew that he had made the same threat to her[120]—that he would put himself out of existence. And is it half as violent a supposition as the supposition of this foul murder, that upon this evening—the 22nd of March—a fit of that kind of madness which he himself described, came over him, when he met with disappointment—finding, it may be, that he could not procure access to an interview which he desired—assuming that he came to Glasgow for that purpose—assuming even that he mistook the evening of the meeting, and expected to see her on the Sunday—can anything be more probable than that, in the excited state in which he

then was, he should have committed the rash act which put an end to his existence."[121]

Again, in answer to the motive imputed by the prosecution; re-reading the letter of the 10th of February, in which on her bended knees Miss Smith besought him, "as he hoped for mercy at the judgment, not to inform on her—not to expose her;" asked him "to pardon her if he could; to pray for her as the most wretched, guilty, miserable creature on the earth;" told him "she could stand anything but her father's hot temper;" when she wrote, "Emile, you will not cause my death. If he is to get your letters, I cannot see him any more; and my poor mother, I will never kiss her. It would be a shame to them all. Emile, will you not spare me? Hate me, despise me, but do not expose me." The Dean said—

"Is that the language of deceit? Is that the mind of a murderess, or can any one affect that frame of mind? Can you for one moment listen to the suggestion that that letter covers a piece of deceit? No, no. The finest actress could not have written that to him, unless she had felt it; and is that the condition in which a woman goes about to compass the death of him whom she has loved? Is that the frame of mind?—shame for past sins, burning shame, dread of exposure, grief at the injury she had done her parents? Is that the frame of mind that would lead a woman—not to advance another step on the road to destruction, but to plunge at once into the depths of human wickedness? The thing is preposterous, and yet it is because of her despair, as my learned friend called it, exhibited in that and similar letters, that he says she had a motive to destroy this man. What does that mean? It may mean, in a certain improper sense of the term, that it would have been of advantage to her that he should cease to live. That is not a motive in any proper sense of the term. If some advantage resulting from the death of another be a motive to the commission of murder, a man's eldest son must always have a motive to murder him that he may succeed to his estate; and I

suppose the youngest officer in any regiment of Her Majesty's army has a motive to murder all the officers in his regiment—the younger he is, and the further he has to ascend the scale, the more murders he has a motive to commit. Away with such nonsense! A motive to commit a crime must be something a great deal more than the mere fact that the result of that crime might be advantageous to the person committing it. You must see the motive in action—you must see it influencing the conduct—before you can deal with it as a motive; for this, and this only, is it a motive in the proper sense of the term—that is to say, it is moving to the perpetration of the deed. But let me ask you what possible motive there could be, even in the most improper and illegitimate sense of the term—I mean what possible advantage could she expect from L'Angelier's death so long as the letters remained? Without the return of her letters she gained nothing. Her object, her greatest desire, that for which she was yearning with her whole soul, was to prevent the exposure of her shame. But the death of L'Angelier, with those letters in his possession, instead of insuring that object, would have been perfectly certain to lead to the immediate exposure of everything that passed between them. Shall I be told that she did not foresee that? I think my learned friend had been giving the prisoner credit for too much talent in the course of his observations on her conduct. But I should conceive her to be infinitely stupid if she could not foresee that the death of L'Angelier, with those documents in his possession, was the true and best means of frustrating the then great object of her life. Shall I be told that the motive might be revenge? Listen to the letter, Tell me if it is possible that in the same breast with these sentiments, there should link one feeling of revenge! No; the condition of mind in which the poor girl was throughout the months of February and March, is entirely inconsistent with any of the hypotheses that have been made on the other side—utterly incredible and wholly irreconcileable with the perpetration of such a crime as is here laid to her charge."[122]

Passing on, then, to the incident of her sudden flight from her home, when she heard of L'Angelier's death, the Dean repudiated the notion that she was absconding from justice. She had left Glasgow early in the morning, and at half-past three in the afternoon was found on board a steamer going from Greenock to Helensburgh. Any one going by rail could easily have overtaken her.

> "If her flight means anything," he said, "it means flying from what she could not bear—the wrath of her father, and the averted countenance of her mother. But she came back again without the slightest hesitation, and upon the Monday morning there occurred a scene as remarkable in the history of criminal jurisprudence as anything I ever heard of, by which that broken spirit was altogether changed. The moment she was met by a charge of being implicated in causing the death of L'Angelier, she at once assumed the courage of a heroine. She was bowed down, and she had fled, while the true charge of her unchastity and shame was all that was brought against her; but she stood erect and proudly conscious of her innocence when she was met with this astounding charge of murder. You heard the account that M. de Meau gave of that interview with her in her father's house on the Monday. That was a most striking statement, and given with a truthfulness obviously that could not be surpassed. What was the import of that conversation? He advised her, as a friend, if L'Angelier was with her on that Sunday night, for God's sake not to deny it. And why? Because, he said, it is certain to be proved. A servant, a policeman, a casual passenger, is certain to know the fact, and if you falsely deny it, what a fact that will be against you. What was the answer? In answer to five or six suggestions of M. de Meau, she said at length that she would swear that she had not seen him for three weeks. If she did not see him on the Sunday that was true."

On the purchases of arsenic, the Dean called the attention of the jury to the improbability of her having purchased it at the time

when she was urging L'Angelier not to go to the Bridge of Allan whilst she was there with her family, and to her throwing it away on the 17th of March, and then buying more on the 18th; —"throwing it away, it was said, when just coming within reach of her victim, and then buying more, with circumstances of openness and publicity inconsistent with the hypothesis of any legitimate object? Why expose herself to the necessity of a repeated purchase, when she had got enough to poison twenty or a hundred men."

"But," continued the Dean, "the possession of this arsenic is said to be unaccounted for, as far as the prisoner is concerned. It might be so; it may be so; and yet that would not make out the case for the prosecution. She says she used it as a cosmetic. This might be startling at first sight to many of us here, but after the evidence you have heard it will not amaze you. At school her story, which has so far been borne out by evidence, shows that she read of the Styrian peasants using it for strengthening their wind, improving their complexions. No doubt they used it internally, and not externally as she did, but in the imperfect state of her knowledge that was a fact of no significance. L'Angelier, too, was well aware of the same fact. He stated to more than one witness—and if he stated falsely, it is only one of a multitude of lies proved against him—that he used it himself. It is not surprising if L'Angelier knew of this custom that he should have communicated it to the prisoner, and that she should have used it externally, for an internal use is apparently a greater danger, which may have suggested to her to try it externally, and there is no reason to suppose, that if used as she used it, it would produce any injurious effects. No doubt we have medical men coming here and shaking their heads and looking wise, and saying that such a use of arsenic would be a dangerous procedure. That is not the question. The question is whether the prisoner could use it without injurious effects, and that she could do so is proved by the experiments of Dr. Laurie and Dr. Maclagan. The publication in *Chambers's*, *Blackwood's Magazine*, and *Johnston's* "*Chemistry of Common Life*," of information on the uses of arsenic, had reached

not the prisoner alone, but a multitude of other ladies, and had incited them to the same kind of experiments. The two druggists—*Robertson* and *Guthrie*—spoke to the fact of ladies having come to their shops seeking arsenic for such purposes on the suggestion of these publications. It cannot, therefore, be surprising to you to learn that when the prisoner bought this arsenic, she intended to use it, and did actually, afterwards, use it for this purpose."[123]

Then, citing the behaviour of Eliza Fenning, in the well-known disputed, and even now disputed case, as a parallel instance of such behaviour as the prisoner showed when taxed with the charge of murder:[124] repudiating the doctrine that juries have nothing to do with the consequences of their verdict, and that all questions of evidence must be weighed in the same scale, whether the crime be capital, or a mere case of pocket picking, and appealing to the jury not to raise their rash and imprudent hands to tear away the veil Providence has been pleased to place over this mystery, the Dean closed his most effective speech.

THE JUDGE'S CHARGE.

The most material comments of the Lord Justice Clerk have been already so fully quoted as notes to the several portions of the evidence, or to the points made by the counsel for the defence, that it will now suffice to give his concluding summary of the case.

"The first charge is that she administered arsenic on the 19th or 20th of February. Probably you may come to the conclusion, on the evidence of Miss Perry and others, that he did see her on that occasion; but she was not proved to have had arsenic or any other poison in her possession; and what I attach very great importance to is, that there is no medical testimony, by analysis of the matter vomited, that that illness did proceed from the administration of

arsenic. If the doctor had examined the vomit and proved that there was arsenic there, I am afraid the case would have been very strong against her as having given him coffee or something before his illness on that occasion. But it is not proved that that illness arose from the administration of poison. Arsenic she had not, and there is no proof of her having possessed anything deleterious. Therefore I have no hesitation in telling you that charge has failed.

"The second charge stands in a somewhat different position in regard to the evidence, although in one respect it is similar to the first, for it is not proved that the illness arose from the administration of arsenic or any other poisonous substance. But then the way in which you can connect the prisoner with a meeting on that occasion is much stronger. Still if you should think you can acquit her of the first charge, and that there is too much doubt to prove the second proven, then you will observe how much this weakens the case that has been raised by the prosecution on the motives for revenge, on the change in the tone of the letters, and the desire to allure him again to her embraces and fascinations, which could not be accounted for except on the supposition of some such murderous design. In that view undoubtedly the foundation of the case is very much shaken, and will not lead you to suppose that the purpose of murder was cherished on the 22nd.

"Then as to the charge for murder, the question for you to consider is a simple one. No matter how the prisoner is surrounded with grave suspicions, and with many circumstances that seem to militate against the notion of innocence upon any theory that has been propounded, still are you prepared to say that the interview of the 22nd March has been proved against her? She had arsenic before the illness of 22nd February, and I think you will consider the excuse of using arsenic as a cosmetic of the same stamp as those which she stated to the druggists. She bought arsenic again on the 6th of March, and it certainly is a very odd thing that she should buy more arsenic when she came back on the 18th. Because unless you are to take the account to be sure, that she used it as a cosmetic, she has it before the 22nd, and that is a dreadful fact if you are quite

satisfied that she did not get it and use it for the purpose of washing her hands and face. It may create the greatest reluctance in your mind to take any other view of the matter than that she was guilty of administering it somehow, though the place where may not be made out, or the precise time of the interview. But on the other hand you must keep in view, that arsenic could only be administered by her if an interview took place with L'Angelier, and that interview, though it may be the result of an inference that may satisfy you morally that it did take place, still rests upon an inference alone, and that inference is to be the ground, and must be the ground, on which a verdict of guilty is to rest. You will see, therefore, the necessity of great caution and jealousy in dealing with any inference which you may draw from this. Probably none of you may think for a moment that he did go out that night, and that without seeing her, and without knowing what she wanted to see him about, if they met, he may have swallowed 200 grains of arsenic on the street, and may have carried it about. On the other hand, if he did not commit suicide, keep in view that that will not of itself establish that the prisoner administered the arsenic. The matter may have remained most mysterious—wholly unexplained. You may not be able to account for it on any other supposition, but still that supposition or inference may not be a ground on which you can safely and satisfactorily rest your verdict against the prisoner.

"Now then I leave you to consider the case with reference to the views that are raised by this correspondence. I do not think you will consider it so unlikely as was supposed that this girl, after writing such letters, may have been capable of cherishing such a purpose. But still, though you may take such a view of her character, it is but a supposition that she cherished this murderous purpose—the last conclusion that you ought to come to merely on supposition and inference and observation on this wavering correspondence of a girl in the circumstances in which she was placed. It receives more importance, no doubt, when you find the purchase of arsenic just before she expected, or just at the time that she expected L'Angelier. But still these are but suppositions. Now the great and invaluable

use of a jury after they direct their attention seriously to the case with the attention you have done, is to separate firmly—firmly and clearly in your own minds—suspicions from evidence. I don't say that inferences may not be completely drawn, but I have already warned you about inferences in the ordinary matters of civil life, and in such a case as this.[125] If you cannot say, 'We satisfactorily find here evidence of the meeting, and that the poison must have been administered by her at that meeting,' whatever may be your suspicion, however perplexing may be the probability against her, and however you may have to struggle to get rid of it, you perform your best and bounden duty as a jury to separate suspicion from truth, and to proceed upon nothing that you do not feel established in evidence against her."

After retiring for half an hour, the jury by a majority in each charge found the prisoner *Not Guilty* on the first, and a verdict of *Not Proven* on the second and third charges, in which findings the Lord Justice Clerk expressed his entire concurrence.

APPENDIX A., *p.* 307.

POST-MORTEM EXAMINATIONS.

Evidence of Dr. Hugh Thomson, M.D.

"At the request of Messrs. W. B. Huggins & Co., of this city, we, the undersigned, made a *post-mortem* examination of the body of the late M. L'Angelier, when the appearances were as follows:—The body, viewed externally, presented nothing remarkable, except a tawny hue on the surface. The incision made on opening the belly and chest revealed a considerable deposit of subcutaneous fat. The heart appeared large for the individual, but not so large as, in our opinion, to amount to disease. Its surface presented, externally, some opaque patches, such as are frequently seen on the organ without giving rise to symptoms. Its right cavities were filled with dark fluid blood. The lungs, the liver, and the spleen appeared quite healthy. The gall-bladder was moderately full of bile, and contained no calculi. The stomach and the intestines, externally, presented nothing abnormal. Being tied at both ends, it was removed from the body. Its contents, consisting of about half a pint of dark fluid resembling coffee, were poured into a clean bottle, and the organ itself was laid open along its great curvature. The mucous membrane, except for a slight extent of the lesser curvature, was then seen to be deeply injected with blood, presenting an appearance of dark red mottling, and its substance was remarked to be salt (soft?), and easily torn by scratching with the finger-nail. The other organs of the abdomen were not examined. The appearance of the mucous membrane, taken in connection with the history as related to us by witnesses, being such as, in our opinion, justified a suspicion of death having resulted from poison, we considered it proper to preserve the stomach and its contents in a sealed bottle for further investigation by chemical analysis, should such be determined on. We, however, do not imply that, in our opinion, death may not have resulted from natural causes, as, for example, severe internal congestion, the effect of exposure to cold after much bodily fatigue, which we understand the deceased to have undergone. Having no legal authority for making this *post-mortem* examination, we restrict it to the organs where we thought likely to find something to account for the death.

"*28th March, 1857*, on soul and conscience,

"Hugh Thomson,
"James Steven."

SECOND POST-MORTEM OF THE EXHUMED BODY,

April 3, 1857.

"By virtue of a warrant from the sheriff of Lanarkshire, we, the undersigned, proceeded to the *post-mortem* examination of the body of M. L'Angelier within the vault of the Ramshorn church on the 31st of March ultimo, in the presence of two friends of the deceased. The body being removed from the coffin, two of our number, Drs. Thomson and Steven, who examined the body on the 24th ultimo, remarked that the features had lost their former pinched appearance, and that the general surface of the skin, instead of the tawny or dingy hue observed by them on that occasion, had become rather florid. We two likewise remarked that, with the exception of the upper surface of the liver, which had assumed a purplish colour, all the internal parts were little changed in appearance; and we all agreed that the evidences of putrefaction were much less marked than they usually are at such a date—the ninth day after death, and the fifth after burial. The duodenum, along with the upper part of the small intestine, after both ends of the gut had been secured by ligatures, was removed and placed in a clean jar. A portion of the large intestine, consisting of part of the descending colon and the sigmoid flexure, along with a portion of the rectum, after using the like precaution of placing ligatures at both ends of the bowel, was removed and placed in the same jar with the duodenum, and a portion of the small intestine. A portion of the liver, about a one-sixth part of that organ, was cut off and placed in a clean jar. We then proceeded to open the head in the usual manner, and observed nothing calling for remark beyond a greater degree of vascularity of the membranes of the brain than ordinary. A portion of the brain was removed and placed in a fourth clean jar. We then adjourned to Dr. Penny's rooms, taking with us the vessels containing the parts of the

viscera above mentioned. The duodenum and portion of small intestine were found together to measure thirty-six inches in length. Their contents poured into a clean glass measure were found to amount to four fluid ounces, and consisted of a turbid, sanguinolent fluid, having suspended in it much flocculent matter, which settled towards the bottom, whilst a few mucus-like masses floated on the surface. The mucous membrane of this part of the bowels was then examined. The colour was decidedly redder than natural, and this redness was more marked over several patches, portions of which, when carefully examined, were found to be eroded. Several small whitish and somewhat gritty particles were removed from its surface, and being placed on a clean piece of glass, were delivered to Dr. Penny. A few small ulcers, about the one-sixteenth of an inch in diameter, and having elevated edges, were observed on it, at the upper part of the duodenum. On account of the failing light, it was determined to adjourn till a quarter past eleven next day—all the jars, &c., being left in the custody of Dr. Penny. Having again met at the appointed time, we proceeded to complete our examination. The portion of the largest intestine, along with the portion of the rectum, measuring twenty-six inches in length, being laid open, was found empty. Its mucous membrane, coated with an abundant, pale, slimy mucus, presented nothing abnormal, except on the part lining the rectum, on which were observed two vascular patches, about the size of a shilling. On decanting the contents of the glass measure, we observed a number of crystals adhering to its interior, and at the bottom a notable quantity of whitish sedimentary matter. Having now completed our examination of the various parts, we finally handed them all to Dr. Penny.

"The above we attest on soul and conscience,

"H. THOMSON.
"J. STEVEN."

APPENDIX B., *p.* 319.

ON THE QUANTITY OF POISON FOUND IN THE STOMACH OF A PERSON MURDERED BY ARSENIC.

EXTRACT FROM LETTER FROM PROFESSOR CHRISTISON TO THE *Edinburgh Medical Journal*, DECEMBER, 1857.

"The purpose of the present brief communication is to state a case which annihilates the defence of the prisoner, so far as the large quantity of arsenic found in the stomach of the deceased may have been thought to support it.

"Dr. Mackinlay, of Paisley, very lately reminded me of a case of poisoning with arsenic, in which we were both concerned in 1842. A person came under a charge of poisoning with arsenic, and was indicted. But, on account of some informality, this indictment fell to the ground, and the trial was necessarily delayed. Meanwhile, during the delay, the general evidence was thought defective, and the trial was dropped. There could be no doubt, however, that murder had been committed. The arsenic was administered in whisky-punch with sugar, the arsenic being kept in suspension by constant stirring. The person survived at least five, possibly seven, hours, and frequently vomited a yellowish or greenish liquid. Nevertheless, I found a little spirit in the contents of the stomach; and I collected thirty grains of arsenic in substance from the stomach and its contents.

"Drs. Mackinlay and Wylie, of Paisley, who examined the dead body, and also discovered arsenic in the stomach, had scraped off a quantity of the powder of this substance from the inside upon a watch-glass. I was not made aware at the time how much had been

thus obtained; but Dr. Mackinlay now informs me that the quantity was sixty grains. Here, then, is a case exactly like that of L'Angelier. Ninety grains of arsenic, and this in substance, were found within the stomach alone. If to this be added, as in Dr. Penny's analysis in L'Angelier's case, the probable arsenic dissolved and suspended in the contents of the stomach, and that imbibed by the textures of the stomach itself, it is impossible to estimate the total quantity in the stomach at less than 100 grains. But there was also arsenic in the intestines; and, indeed, it had actually caused purging.

"How large a quantity, then, must have been given in that instance! How strangely easy is it for a determined designing murderer to administer secretly those large quantities of a substance, whose weight should render it difficult to be mixed, and whose roughness should betray its presence when abundant! How difficult for the stomach to discharge it by vomiting. I draw no conclusion as to the question of Madeline Smith's innocence or guilt. In common with the public at large, I am well satisfied that she escaped condemnation. But, as I have been supplied, through the kindness of Dr. Mackinlay, with the means of completing a fact, closely touching a ground of defence, which, at the time it was brought forward, I regarded as hypothetical and baseless, and which may be made much of again, were it allowed to stand, as it has hitherto done, I have thought it my duty to make the true state of the question known."

APPENDIX C., *p.* 342.

L’ANGELIER’S DIARY.

At the close of the fifth day, after putting in the bulk of the letters, the Lord Advocate proposed to read entries in L’Angelier’s pocket-book from the 16th of February to the 14th of March, 1857, in support of the first and second charges. They were undoubtedly in his own handwriting, and statements of what he did on those days. It was objected that the book was not regularly kept, that the corroborative evidence was not sufficient, and that two of the entries were contradicted by witnesses who had been examined. The Court took time to consider, and on the next morning delivered the following judgments.

The Lord Justice Clerk.—“The admission of hearsay evidence was an established rule in the law of Scotland, but under those restrictions and conditions, which went in many circumstances to its entire rejection. What was now proposed to be admitted was this—certain memoranda or jottings made by the deceased, in which certain things were said to be contained, which went directly to the vital part of this charge. The Dean of Faculty felt so strongly that he did not scruple to state what the purport of one of these was, in order to show the immense materiality of the point. It was certainly most important for the Court to take care that the rules of evidence were not relaxed merely because it appeared that the matter tendered was of the highest importance to the case. Before evidence could be received and allowed to go to a jury, it must be shown that such evidence was legally competent to be tendered against the prisoner. That was the rule also in civil cases. It was of vital importance in considering whether this evidence was admissible, to ascertain in what circumstances, and, if possible, from what motive, and at what periods these entries were made. Now it was a most remarkable fact that there was no entry regarding the prisoner, or the circumstances connected with her, before the 14th of February; and at that very time the purpose on her part of breaking off the engagement with him and of demanding her letters back had been

communicated to the deceased; and his purpose and resolution not to give up the letters and to keep her to her engagement were avowed and made known, as it appeared from evidence prior to that date. Then he had a purpose in writing these memoranda—a purpose obviously to strengthen his hold over the prisoner, not only by refusing to give up the letters at that time and afterwards, but probably with the view to hold out that he had a diary as to their interviews and communications, so as to endeavour to effect his object of preventing the marriage, and of terrifying her into giving up her engagement with Mr. Minnoch. He (the Lord Justice Clerk) made this observation not merely with regard to the weight and credibility of these entries, but with regard to their admissibility; because in the case of hearsay evidence one could ascertain from the witnesses the time the statement was made, all the circumstances and all the apparent motives which could be collected as to the statement being made by the deceased. But when we could not know with certainty the motive with which the man made the entry, or, perhaps, as in this case, could perceive reasons why he made the entry as against her, intending to prejudice her in one way, not of course with reference to such a trial as this, but with reference to her engagement, he thought it could not be said that this came before the Court as a statement recorded by him as to indifferent matters, or as to matters in which he might have not had a strong purpose in making the statement. Further, it might be a record of a past act. He felt the force of what the Lord Advocate had said, that supposing in this book there had been an entry that this man purchased arsenic, would not that have been available in favour of the prisoner. An illustration of this point had been suggested to him by a person whose authority and experience were of the very highest. Take an action of divorce against the wife where the paramour was dead; would an entry in any diary of his that he had enjoyed the embraces of this woman on such a night in the absence of her husband be proof against the wife? He thought not. What was proposed in this case was to tender in evidence a thing altogether unprecedented, according to the research of the Bar and the Bench, of which no trace or indication occurred in any book whatever, viz., that a

memorandum made by the deceased should be proof of the fact against the panel in a charge of murder. He was unable to admit such evidence; it might relax the sacred rules of evidence to an extent that the mind could hardly contemplate. One could not tell how many documents might exist and be found in the repositories of deceased persons; a man might have threatened another, he might have hatred against him, and be determined to revenge himself, and what entries might he not make in a diary for this purpose? He had a faint recollection of a case in 1808—the trial of a man Patch for murdering Page, or of Page for murdering Patch—in which some letter of the murdered man, prior to his death, was used; but he had been unable to find the case, and he had no notion if it was of the character he had alluded to. However, in the meantime, as the point was perfectly new, and as it would be a departure from what he considered to be an important principle in the administration of justice, he thought this evidence could not be received."

Lord Handyside.—"The special point is, whether the entries of certain dates—two in number—are to be read and made evidence for the prosecution, as regards the first and second charges in the indictment. The whole of these entries have been written with a lead pencil. I notice this to make the observation that ink and penmanship afford to a certain degree a means of ascertaining whether entries are made *de die in diem*, thus having the character of entries made daily; or, on the contrary, of several entries having the appearance, by change of ink or of pen, of being made at one time, and so after recollection. Where all the entries are in pencil, there can be no security as to the time when the entries are, in point of fact, inserted, and that they are not *ex post facto*; or that the original entries have been expunged, and others substituted in their place—whether this be a correction of memory, or with purpose and design of another character. The party making such entries in pencil has entire power over what he has done or chooses to do." Then alluding to the fact that no authority for such evidence could be found, which entitled the objector to the evidence to throw on the tenderer the burden of showing that it ought to be received, the

learned judge continued—"I think the question one of great difficulty—at least I have found it so. Had the writer of the memorandum been living, they could not have been made evidence—of themselves they were nothing. They might have been used in the witness-box to refresh the memory, but the evidence would still be parole. What would be regarded would be the oath of the witness to the facts, time and person; and if distinct and explicit, though resting on memory alone, the law of evidence would be satisfied, irrespective of any aid by memorandums and letters, though made at the same time. It is the oath of the witness to the verity of his oral statement in the box which the law requires and regards. But if the writer has died, is this circumstance to make such memorandums thenceforward admissible as evidence by their own weight? Are they, the handwriting being proved, to be treated as written evidence? That would be a bold proposition. Death cannot change the character originally impressed on the memorandums, and convert them from inadmissible to admissible writings. They are private memorandums, seen by no eye but the writers as such, subject to no check upon the accuracy of their statements, whether arising from innocent mistakes or from prejudice or passing feeling. I do not say that they are to be supposed false and dishonest, for the idea is repugnant, from the consideration that it would be idle to falsify and invent when memorandums are intended to be kept secret by the writer. But it is quite conceivable that vanity might lead to statements being made wholly imaginary, with a view of the subsequent exhibition of the book, and were its admissibility as evidence set up by death, it might become a fearful instrument of calumny and accusation. I speak just now of private memorandums, diaries, and journals, taken in the abstract. As to other writings of a deceased person, such as letters, I do not say these may not become admissible as evidence by reason of death, though during life they could not be used. They thus become analogous to words spoken—to representations made and conversations held—by a deceased person, the proper object of hearsay evidence. It was contended that the principle on which hearsay evidence is admitted would extend to anything written by a deceased person. It is assumed to be a

declaration in writing of what if spoken would have been admissible on the testimony of the person hearing it. And on the first view it would seem that the written mode is superior to the oral, from the greater certainty that no mistake is committed as to the words used. But this would be a fallacious ground to rest on, for words written would require to be taken without explanation or modification; whereas words spoken to another are subject to the further inquiry by the party addressed as to the meaning of the speaker in order to a better and more thorough understanding of the subject of communication, the object of making it, and the grounds on which the speaker's statements rest. And all these things may be fought out in the examination of the witness who comes into court to give this hearsay evidence. The value of hearsay evidence, and the weight to be given to it, come thus to depend much on the account which the witness gives of the circumstances under which the communication was made to him, as to the seriousness of the statement and what followed upon it in the way of inquiry and reply. Now a mere writing in the way of a memorandum or entry in a book in the sole custody of the writer till his death can be subject to no such tests. Its very nature shows that it is not intended for communication. It may be an idle, purposeless piece of writing, or it may be a record of unfounded suspicions and malicious charges, treasured up by hostile and malignant feelings in a moody, spiteful mind. These views impress me strongly with the danger of admitting a private journal or diary as evidence to support a criminal charge. I think the question now before us must be decided as a general point. As such I take it up. If I were to confine myself to the special and peculiar circumstances of this case, I should see much perhaps to vindicate the court in the reception of the evidence tendered. There is to be found in the letters which have already been made evidence much to give corroboration or verification to some at least of the entries in the pocket-book. But I feel compelled to close my mind against such considerations, and to look above all to a general and, therefore, safe rule by which to be guided. I have come, therefore, to be of the opinion that the production tendered as evidence in the

case in support, as I take it, of the first and second charge, ought to be rejected."

Lord Ivory said the opinions just delivered had relieved his mind of a burden of responsibility under which he laboured, and which he was ill able to bear. He had given the most anxious, serious, and repeated consideration to this matter. He had found little or nothing in the way of authority, and no dicta so precisely bearing on the case as to be of any avail. But judging in the abstract, applying the rules as applied to other cases, endeavouring to find a principle by comparison of the different classes and categories in which evidence had been distributed and in which it had been received, he felt himself totally unable to come to a conclusion that the evidence of this document should be excluded from the jury. As his opinion could not in the least degree influence the judgment, he should be sorry to add anything that would even seem to be intended to detract from the authority of the judgment now given; least of all should he be disposed to follow such a course in a capital case, where the judgment was in favour of the prisoner. He would content himself, therefore, with simply expressing his opinion. It appeared to him that this document should have been admitted *valeat quantum*, and that the jury should have considered its weight, and credibility, and value.

TRIAL OF ANN MERRITT.

Before The Lord Chief Baron Pollock *and* Mr. Justice Cresswell, *at the* Central Criminal Court, *March 8, 1850*.

For the Prosecution: Mr. Bodkin *and* Mr. Clark.

For the Defence: Mr. Clarkson, *by the intervention of the Sheriffs of London and Middlesex*.

Ann Merritt was indicted for the murder of her husband, James, by poison, at Clapton, on the 25th of January.

Merritt, who was a turncock in the employ of the East London Waterworks, had been at work in his usual health, with the exception of a slight cold, on Wednesday, the 23rd of January. When, however, a fellow-workman called upon him about nine the next morning, he was told by the prisoner that her husband was sick in the yard, and in a minute or two afterwards Merritt came in and told his comrade that he had been drinking some broth and a cup of hot tea upon it, and expected that it had turned his stomach. They started off to work, and on the way Merritt complained of being very thirsty, and went into a public-house and had some rum-and-water before they separated for their respective jobs. He seems, however, to have soon returned home unwell, as between ten and eleven a neighbour (Mrs. Gillett), who lived next door, who had been previously called in by eight o'clock in the morning, saw the deceased in his house very ill, and the prisoner emptying some thick gruel into a basin from a saucepan, and pouring water on it. The gruel had been made from oatmeal fetched from a corn-chandler's by the witness's son, at the prisoner's request, who had given as a reason for making it that her husband had returned so very thirsty. This gruel the deceased was seen eating at a quarter past eleven, and very soon after vomiting. However, at one o'clock, Merritt went out again to work with his comrade, but soon after felt so sick and ill that he asked his friend to do his work for him, and returned home. When his friend returned to Merritt's house with his tools, between five and six in the evening, the prisoner told him to go upstairs and see "Jem," as he was very ill, and wanted to see him. This witness went up to the deceased's bedroom, followed by the prisoner, and found Merritt in bed complaining of being very sick, feeling cramp in his limbs; at which the deceased said, "he did

not wonder, as what with the weather and the work they had to do, it was enough to kill a horse." No more was seen of the parties until half-past nine at night, when Mrs. Gillett was again called in by the prisoner, and found the husband in bed retching violently, and complaining of a burning pain in his chest and stomach. Between ten and eleven Mr. Toulmin, the doctor, was called in, and at half-past twelve the husband died.[126]

MEDICAL AND ANALYTICAL EVIDENCE.

Mr. Toulmin, a general practitioner at Clapton, was first examined. He was called in between ten and eleven on the Thursday night, and found the deceased in bed sick, complaining greatly of pain in his stomach and cramps in his legs, his pulse very weak, and his skin below the natural temperature; he prescribed for him, and left. Subsequently he made a *post-mortem* examination of the body on the 28th, by the coroner's order, with the assistance of Mr. Welch, a neighbouring surgeon, to which the prisoner at first objected. When the stomach was opened, it contained a *thickish matter slightly pink*, which was poured into a stoppered bottle and sent with the stomach to Dr. Letheby for analysis. On its coats there were red spots, such as are observed in persons who have died of irritant poison.

Dr. Henry Letheby, professor of chemistry at the London Hospital, to whom the stomach and its contents had been forwarded, gave the following evidence, which, in consequence of the dispute which subsequently arose on his statement as to the time at which the fatal dose was taken, is given in full:—

> "I first experimented," said the witness, "on the contents of the bottle (the fluid found in the stomach), and detected 8½ grains of white arsenic. By one course of experiments I reproduced the

arsenic in a metallic form—it is in this tube (produced). The earthen jar contained part of a human stomach. I noticed a peculiar appearance in it, which I have noticed in cases of poisoning by arsenic—*there was a small portion of whitish powder adhering to the lining of the stomach*, too small a quantity to enable me to ascertain what it consisted of. I then examined the intestines that were in the jar; I subjected them to a chemical analysis, and the result was the detection of a very small quantity of arsenic. There was also in the jar a part of a human liver. I subjected about a quarter of a pound of it to experiment, and obtained a quantity of metallic arsenic (produced); *it was too minute a quantity to weigh*. That in the stomach was the only quantity I weighed; that would be sufficient to cause death. I had the opportunity of witnessing a case where 2½ grains killed; the general quantity would be 8 grains; I look upon that as an average dose. It would generally be fatal. Vomiting is almost invariably the consequence of arsenic introduced into the stomach. A person attacked by that would be likely to throw up a portion of the arsenic. Looking at the quantity I found, and the parts in which I found it, *in my judgment the arsenic I found had been taken not more than two or three hours before death*, but that is a matter of opinion; a dose might have been given before. It would depend upon many circumstances how soon it would find its way into the liver."

Cross-examined.—Question.—"About two grains of arsenic you say would cause death; do you mean taken together?"

Answer.—"Yes, or less; 2½ grains have done so. I know nothing of this transaction but from the examination. I found a very small portion in the liver, perhaps one tenth of a grain in a quarter of a pound. A liver weighs about 5 pounds, and supposing the arsenic to be equally diffused, there would be twenty times that quantity—equal to 2 grains. *My observation with reference to the time it had been taken was in reference both to the stomach and the liver.*"

Question.—"Are the data at all safe?"

Answer.—"Yes; I will tell you why. I found in the stomach 8½ grains of arsenic, and there was not much in the intestines. *I*

conclude, therefore, that there had not been time for it to have passed into the intestines, which would have been the case if it had been taken long before death. But there was only a trace in the intestines, so I conclude that it was taken a very short time before death. That furnishes datum to me to form a judgment on the subject of hours. Food remains five hours before it passes into the intestines. I am able to say that the contents of the stomach pass into the intestines in four, eight, or ten hours, from experiments I have performed on living subjects. *I have not the least doubt.* I saw the intestines; they were in the jar. They did not appear to have been influenced by arsenic; they were slightly red, and there were traces of arsenic. I have reduced something that was in the intestines into a metallic state. I experimented on it, and found it was arsenic. It was destroyed in the experiment to which I was obliged to submit it to prove it was arsenic. It was not likely that I should find it in the liver without some being in the intestines. The time would not depend on the constitution of the person. Digestion depends upon the constitution, but I am speaking of the average. Digestion is more or less rapid according to the constitution of the person who has received the subject matter. I have heard of cases in which matters which would not digest have remained three or four days, but those were solid matters. *I think liquids pass into the stomach* (*intestines*?) *under all circumstances in five hours as* (*after*?) *they are imbibed.* There is a valve which prevents solid matters from passing into the stomach till they are digested. *The arsenic was in a liquid state, all except a little white powder on the side of the stomach.* I am obliged to have recourse to an average to form an opinion as to how long it would take. We have no means of dealing with an independent case except by an average."

By Mr. Bodkin, Q.C.—Question.—"What did the contents of the stomach look like?"

Answer.—"Thick gruel. They were filtered, and I examined the filtered portion, *and my opinion is that the arsenic had been taken two or three hours*."[127]

PURCHASE OF POISON BY THE PRISONER.

This was proved by the son of a chemist of the name of Brown, of whom the prisoner purchased two pennyworths of arsenic on the 19th of January, which, at her request, he enclosed in two separate papers, each marked "poison," as she said that one of them was for her sister who lived some distance off. The papers had something of the appearance of those of effervescing powders.

CONDUCT AND STATEMENTS OF THE PRISONER.

Mrs. Gillett gave some remarkable evidence as to the statements and conduct of the prisoner during the night of her husband's fatal illness and after his death.

> "When the prisoner called me in a little after nine in the evening, I found her husband in bed retching violently, and I gave him water half-a-dozen times, and then went for Dr. Toulmin. At five o'clock that day the prisoner said she was going for the doctor, to tell him to send her husband something for the bile, but that he did not want her to do so. A second time during the evening she told me she wanted to do this, and that he would not let her, and that she had applied to a neighbouring doctor, but that he had refused to come, and only sent some pills. After her husband died she said, 'How true were Dr. Toulmin's words,' that, 'when her husband once took to his bed, he would go off like the snuff of a candle.'" [Dr. Toulmin had no recollection of ever having made such a statement.] "Next day the secretary of the Benefit Society to which her husband belonged called and had some conversation with her. Before that she had spoken to me about the Benefit Society, and said if her husband died she should have the full benefit of it. On the day of the *post-mortem* she asked me if I had asked Dr. Toulmin what was the cause of death, and I said, from what I heard, it was poison; when she said, 'Do you think I am guilty?' I replied, 'I do not doubt you.' Then she

walked about in an agitated manner and appeared distressed. On the day of the inquest she said to me, 'You know, Mrs. Gillett, that Annie (her little girl) ate the rest of the gruel.' I said 'Don't say so; I did not see any of you eat it.' She said, 'If I did not *Ashby* did, and he ought to be the first witness' (*Ashby* said he did not see the deceased or anyone eat it). On the day of the adjourned inquest she asked me if poison had been found, and when I said 'Yes' she said 'I am innocent; he was a good husband, and it is not likely I should do such a thing. Dear creature; if that is the case he has done it with his own hands.' I replied 'It is not likely, as he purchased a new pair of boots the morning before his death.' Whilst we were talking *Andrews*, the summoning officer, came in, and she said to him 'Mrs. Gillett knows that I ate the rest of the gruel,' and I replied 'I know nothing about it, or who ate it.'[128] On the 31st of January in her house she said to me 'Do you think if I had any hand in his death I should not have let him live to to-day and then have received the full benefit from the society.'"[129]

On cross-examination the witness protested that she had repeated these conversations before, and was almost certain she had done so before the coroner and the magistrate. When she said 'I did not doubt her,' she meant that she had not the slightest suspicion of her guilt. The witness had introduced the subject of the burial club. The prisoner was kind and affectionate to her husband, and attentive during his illness, and much distressed. The witness had heard the deceased complain of the difficulties into which his wife had plunged him, and on the Monday before he was taken ill they had quarrelled.

Other statements of a most unfavourable character were improperly extracted from her by *Coward*, the inspector of police. As the Lord Chief Baron said, with well-deserved reproof, he had evidently prepared a proceeding, and framed certain questions, which would enable him to observe the demeanour of the prisoner

when she was confronted with a witness ready in attendance, in order to give his own view of her conduct afterwards to the jury.

> "I," said this witness, "saw the prisoner on the 2nd of February in her house, and told her I had come to ask a few questions, which she might answer or not as she pleased, but that it would be my duty to repeat her answers to the magistrate; that I should like to have some women present to hear, and accordingly sent for two of her neighbours, and when they had come I asked her 'Did she know of any arsenic being in the house?' 'No.' 'Did her husband use it in his business?' 'No.' 'Had she purchased any lately?' 'No.' *Brown* was then brought in, and she turned pale and agitated. I told her *Brown* had told me she had, and she said 'That was true, and she would tell me what for.' On the way to the police court she said 'she purchased it for herself, but thought better of it afterwards.' I asked her what had become of it afterwards, and she said 'she had emptied it into one paper.' She then changed the conversation, and said that her husband was very fond of soda and acid powders, and that a woman had told her that he had said he was very troubled in his mind, and did not know whether he should not jump into the river or Clapton pond."
>
> *On cross-examination* he excused the presence of the women, on the ground that he wanted to see if *Brown* could identify the prisoner; that she wanted to say more but that he stopt her, and told her to tell the magistrate.

Of this last statement of the inspector, the Lord Chief Baron added in his charge—

> "That it appeared to him to be a piece of hypocrisy, which accorded with all the rest of his conduct. He wished it to go forth to the public, and that the police themselves should understand, that such proceedings savoured of an excess of zeal which was perfectly unjustifiable, and which ought not to be looked on in any other light than discreditable."

To *Clarke*, a police constable, she said, whilst in custody, that "she supposed she should be hung—they had told so many lies about it—she bought the arsenic for her husband." To the female searcher at the police-station she said that she did not know on what charge she was brought there; and then, when told it, added, "I know he was poisoned, but not by whom." And when told that *Mrs. Gillett* was the principal witness against her, declared that she was forsworn. On the second examination at the police-court, she told the gaoler that "she wished the magistrate to know something about the case. All she had said was true, except as to not buying the poison. She had placed it in the same cupboard with her husband's powders after taking off the papers marked 'poison.' If he had taken it, it must have been by mistake, and she threw the remainder of the poison and all his powders into the fire. She intended to have taken it herself if he went on as he had done."

THE PRISONER'S STATEMENT.

> "I have nothing to say except that I never intended my husband to take the poison. When I bought it I intended to take it myself, if he had come home as he had done several times before. I could not live with him had he gone on so. I thought no more of it till the Sunday, when I thought he might have taken it instead of the soda, and then I burnt it. What I said about hanging was this—'If I am to be hanged this moment I am innocent of anything to my husband.' I have nothing more to say."

Mr. Clarkson, for the defence, after alluding to the difficulties under which he laboured in consequence of the prisoner not having made any preparations for her defence, and the brief having only been handed to him as the case was opened, attacked the evidence of Coward in language which the Lord Chief Baron entirely

adopted, and asked the jury to dismiss it from their consideration. He also characterised the declarations of the prisoner as told by witnesses clearly unfavourable to her. “With regard to the testimony of Dr. Letheby, if they relied on it, it would be necessary,” he said, “to come to the conclusion that the prisoner had continued administering poison to the deceased during the whole of the day—as it was proved that he was ill as early as eight in the morning. But he asked the jury if her conduct would justify such a conclusion. Her story might be true, and if the deceased took the poison through her culpable negligence in putting it in the cupboard with his soda powders, the offence would not be murder, but manslaughter.”

The strong remarks of the Lord Chief Baron on the conduct and evidence of Coward have already been given, and as the remainder of his charge consisted only of an analysis of the evidence, and its application to the different points of the case, it is needless to report it. As was characteristic of this kind judge, every point that could be made in favour of the prisoner was brought clearly out in his able charge. After a brief deliberation, a verdict of guilty, coupled with a recommendation to mercy on account of her previously good character, was returned, and sentence of death was pronounced by the learned judge.

A medical man of large experience, who was present during the trial, was so astonished at the statement of Dr. Letheby as to the time when the arsenic had been administered, that he communicated with the sheriffs, who brought the case before Sir George Grey, by whom it was referred to Sir Benjamin Brodie, Dr. Billing, Dr. Leeson, and other medical men of repute. These, it was understood, agreed that the time of administration could not be fixed. On this, at the urgent request of Dr. Pereira, Dr. Letheby wrote to the Home Secretary that it was his duty to admit that it

was within the range of possibility—nay, even probable—that the arsenic might have been taken, as the woman asserted, early in the morning of her husband's death, and in consequence the capital sentence was commuted for one of penal servitude for life. This case was used by Mr. Bright in his speech in the House of Commons in favour of the abolition of capital punishments, as a strong example of their danger.

How much more satisfactory would it have been could a court of appeal have reheard such a case instead of its being left to the Home Secretary's judgment of evidence known only to himself.[130]

CHAPTER VII.

ARSENIC.

The element (arsenicum)—The oxide (white arsenic)—Arsenicum—Arsenicum trioxide. Forms of: (1) Crystalline—(2) Amorphous—Solubility. Uses and occurrences: (1) Steeping wheat—(2) Preservation of skins—(3) Antiseptics—(4) Glass making—(5) Fur in boilers—(6) Candles—(7) Preservation of wood—(8) Sheep washes—(9) Scheele's green and emerald green as pigments in sweets (case of Franklin and Randall), wall papers, toys, &c.—(10) Medicinal—(11) For horses—(12) Tooth-stopping—(13) Aniline dyes—(14) Fireworks—(15) Rat and fly poisons (case of Maria Gage)—(16) For cleansing metals—(17) Arsenic eaters—(18) Cosmetics—(19) For bronzing metals—(20) Beer brewed from glucose—(21) American paper collars—(22) Speculum metal—(23) Inhalation for asthma and bronchitis—(24) Mineral waters. Sulphides of Arsenic: (1) Orpiment (case of M. A. Burdock)—(2) Realgar. Arsenic acid—The arsenates—Arsenic trichloride—Arseniuretted hydrogen—Methods of extraction—Tests—Modifications of old processes suggested—Marsh's test, distinction of results in arsenic and antimony—Reinsch's test—Doses—Antidotes—Physiological effects—Remarks—Did L'Angelier commit suicide?

THE name "arsenic" is applied to two things: in chemistry it means the element As; in popular usage it signifies the oxide

As_2O_3. In our report, the element will be called *arsenicum*, the oxide simply “arsenic” or “white arsenic.”

ARSENICUM,

Symbol As, is an element of steely metallic lustre, tarnishing to dull dark grey, met with in crystalline (rhombohedral) fragments, so brittle that they can be easily reduced to a dark grey powder, insoluble in water, but slowly absorbing oxygen and dissolving, insoluble in pure hydrochloric and in vegetal acids, and in alcohol, soluble (by oxidation) in strong sulphuric and in nitric acid, in chlorine, in solution of bleaching powder. Tasteless, and inodorous until heated, when it sublimes, without melting, at 110° C. (Guy), and gives a strong *odour of garlic*. Sp. gr. 5·8. The characters of the metal are utilized in Marsh’s and other tests, hereafter described. Heated in air, it oxidizes to white fumes of As_2O_3. It is employed chiefly to harden lead in making *shot*, in the proportion of 0·3 per cent. The use of these in cleaning bottles, &c., may contribute a trace of As: the presence of a larger amount of *lead* would in this case indicate the source. Common Britannia metal, used for teapots, spoons, &c., often contains As. It occurs also in many minerals.

When oxidized it is poisonous, but *pure arsenicum* passes through the body of animals unaltered (Wagner’s Chem. Technology, trans, by Crookes, 1872, p. 86). The vapour is very poisonous.

Arsenicum has two oxides, the trioxide and the pentoxide.

ARSENICUM TRIOXIDE.

Synonyms.—Arsenious oxide, arsenious acid, arsenious anhydride; popularly, “arsenic,” “flour of arsenic,” or “white arsenic:” in mining districts it is sometimes called “mercury:” Latin, acidum arseniosum.

Chemical formula As_2O_3, or two atoms (150 parts by weight) of arsenicum, to three atoms (48 parts by weight) of oxygen.

Forms.—(1.) *Crystalline*. By sublimation and slow condensation on moderately heated surfaces, also by deposition from solution, we obtain regular *octahedra*, often so modified as to appear like equilateral triangular or hexagonal plates, or even elongated into triangular prisms, but never in the form of regular *tetrahedra* such as tartar emetic yields. For figures, see Guy and Ferrier’s Forens. Med., 1881, pp. 440 and 670. The crystals are transparent and highly refracting. Sp. gr. 3·69. Volatilizes without melting, except under increased pressure.

(2.) *Amorphous* or *vitreous*. Suddenly cooled, As_2O_3 condenses as clear transparent drops, finally cohering into a glassy mass, sp. gr. 3·74. When kept, this becomes opaque, perhaps owing to a change into the crystalline variety, constituting the “porcellanous” form found in commerce. If the lumps be broken, layers of still transparent As_2O_3 will be seen.

The *solubility* depends on the variety, temperature, length of time it is digested, fineness of powder, &c. So that exact figures cannot be given, as hardly two authorities agree. It is certain, however, that the amorphous form is less soluble than the crystalline.[131] The accepted statement is that given by Taylor (Med. Juris. 1, 250): that digested with cold water, from $^1/_{500}$ to $^1/_{1000}$ dissolves, equal from one half to one grain per fluid ounce; if boiled for an hour and allowed to cool, an average of twelve grains per fluid ounce remains in solution; if boiled for a shorter time, less

is dissolved. See also Woodman and Tidy's Forens. Med., 1877, pp. 133, 134. Organic matter is said to decrease its solubility; I have not found that it does so to any notable extent. Dr. Blondlot (Med. Times and Gazette, Feb. 11, 1860) states that fats, such as bacon, diminish the solubility; this must be by coating the particles and preventing contact with water. Powdered white arsenic in all cases refuses for a long time to become moistened by water, floating on the top, and collecting in little lumps as if greasy: the appearance is so peculiar as to have led sometimes to its detection. Commercial powdered white arsenic is generally the opaque form pulverized, but it may be crystalline.

As_2O_3 is very soluble in potash and soda and their carbonates, forming *arsenites*. It is less soluble in ammonia. In hydrochloric acid it dissolves easily, forming *chloride of arsenic*. It is less soluble (1 in 2,000) in alcohol than in water. One part dissolves in 200,000 of chloroform. It is insoluble in pure ether. It is heavy to feel, *tasteless*, very faintly acid to test paper, and so feeble in affinity that its soluble salts are strongly alkaline, and are decomposed by all acids with separation of As_2O_3. The powder and its vapour are inodorous, but when heated with charcoal or organic matter it is reduced to arsenicum, with its odour of garlic.

Uses and Occurrence.—1. As a preservative against insects and fungi, for steeping seed-wheat. Many accidents have resulted. Birds poisoned by it and afterwards eaten by man have occasioned severe symptoms. From 1830 to 1840 in France 235 accusations of arsenic poisoning occurred, of which 110 were against agricultural persons, proving that the use of the drug in farming gives dangerous facilities for crime. Sulphate of copper, or, better, a mixture of sulphate of soda and lime, are more effectual as preservatives, and the latter mixture is not poisonous. (Lancet, 1849, Jan. 20.)

2. For preserving skins and furs (arsenical soap). This use has also caused serious results in the operators. Stuffed birds, &c., kept in living rooms may prejudicially affect the inmates by giving off arsenical dust.

3. As an antiseptic it is injected in solution through the vessels of subjects for dissection. Of course in this case the body would show signs of the anatomical examination it had undergone. In the trial of Professor Webster for the murder of Dr. Parkman, at Boston, U.S., March, 1850, the *absence* of arsenic and other preservative substances in the corpse proved that it had not been a subject for dissection.

4. In glass making and the production of opaque white enamels. Here most of the vapour passes up the chimney and is diffused.

5. Some of the patent preparations for preventing "fur" in boilers have contained alkaline arsenites.

6. Formerly wicks of candles were steeped in arsenic solution to prevent a long "snuff" forming. Moreover, it was incorporated with the candle itself to improve its appearance. The result was a constant diffusion of arsenic vapour in the room. Tapers were also coloured with emerald green (copper aceto-arsenite), which likewise gave rise to arsenical fumes. These objectionable practices have been fortunately given up, owing to the strong representations of scientific men.

7. Wood is sometimes preserved by a solution of arsenic, and then tarred. This use would be practically free from danger, except to the operatives.

8. An alkaline arsenite is used for washing sheep to destroy vermin. The workmen sometimes suffer. (Lancet, 1857, p. 281.) Streams have been poisoned, the solution has been drunk in mistake (Ibid, 1856, p. 447), and lastly, the sheep themselves have

been killed (Taylor's Med. Juris., i. 272). Carbolic acid would probably answer better.

9. Cupric arsenite (Scheele's green) and aceto-arsenite (Schweinfurth or emerald green) are used as pigments. In one case, where a baker's shelves had been painted with this colour, emerald green was found adhering to the bottoms of the loaves (Med. Times and Gaz., 1854, p. 326). Blancmange (*R.* v. *Franklin & Randall*, Northampton, 1848[132]), ornaments on cakes (Lancet, 1849, Feb. 17th), sweets, dresses, and artificial flowers (Husemann, Jahresbericht, 1872, p. 480), lamp-shades, insides of pasteboard cigar-holders, toys,[133] wrappings for chocolate, &c., wafers, water and oil colours, and wall papers have all been coloured with emerald green. Whenever such things have been swallowed, *the green colour is seen in the vomit*. Boxes of paints should never be given to young children. Cakes of emerald green and of other poisonous colours have often been sucked or eaten with fatal result; they are the more tempting as they are generally made up with honey or glycerine. Bright green wall papers have gone out of fashion, still many of the dull colours have emerald green in their composition. Such papers certainly give off arsenical dust, even if they do not evolve arseniuretted hydrogen or other arsenical gas, and the symptoms they produce have been well authenticated. In a new house the papers should always be tested. Messrs. Woollams, of Marylebone Lane, were, I believe, the first to disuse arsenical pigments in paper-hangings.

These arsenites of copper give, with a little ammonia, a blue solution (due to the copper), in which a crystal of silver nitrate becomes covered with a yellow coating of silver arsenite. The As can also be easily found by the other tests.

Dr. Raseden of Mersberg finds that arsenical papers cause rheumatic pains, neuralgia, cough, lassitude, and emaciation

(Lancet, 1849, April 7th). They also cause skin eruptions. These effects disappear when the patients are removed. In Germany the use of these pigments is prohibited; it should be so in England. Unfortunately no other permanent green colour is so bright in tint.

The copper arsenites are insoluble in water, but soluble in acids, hence are dissolved by the gastric juice, and then absorbed.

10. In medicine, arsenic is used for skin diseases, ague, and as a tonic; externally for cancer and lupus. *Liquor arsenicalis* B.P., Fowler's solution, or "ague drops," is composed of arsenic 80 grains, potass, carbonate 80 grains, water 1 pint, flavoured with lavender. It is a solution of potassium arsenite. *Liquor arsenici hydrochloricus* is arsenic dissolved in hydrochloric acid, giving arsenic trichloride, of the same strength as liquor arsenicalis. Among unofficial preparations are "*Donovan's Solution of Arsenic*," containing mercuric and arsenious iodides; strength 0·69 grain *arsenicum* per fluid ounce: "*Davidson's Cancer Remedy*" equal parts of arsenic and hemlock (Dr. Paris): "*Cancer Paste*," containing 8 per cent. of arsenic, with cinnabar and dragon's blood: "*Hydrophobia Pill*," $^{1}/_{16}$ to $^{1}/_{12}$ grain arsenic, with 1 grain pepper, an absurd remedy much used in the East Indies. (Blyth's Pract. Chem., 1879, p. 376.) The pharmacopœial preparations of arsenic acid will be described under *arsenic pentoxide*.

11. It is given by grooms to horses, to render their coats sleek, and improve their wind, under the name of "condition balls or powders" (strength 2½ to 5 per cent. of arsenic), also for worms, and as a tonic.

12. For destroying the nerves of decayed teeth, about $^{1}/_{25}$ grain is placed in the cavity. In the Lancet a case is recorded in which inflammation and caries of the jaw followed this practice, which is a very dangerous one.

13. In the manufacture of some aniline dyes, and in the reduction of indigo, arsenic is often used. Dyed stockings, &c., have caused skin irritation, supposed to be due to arsenic, but more probably owing to the dye itself.

14. Firework preparations commonly contain some compound of As, and therefore give poisonous vapours. "Bengal light" consists of 24 of potass. nitrate, 7 of sulphur, and 2 of realgar (arsenic disulphide). See also Blyth, Prac. Chem., p. 379.

15. *Rat Poisons*:—No. 1. Arsenic 6 per cent., made into a paste, with equal parts of flour and suet, variously coloured and scented. No. 2. Equal parts of arsenic and carbonate of barium (itself poisonous), coloured with rose pink, and scented with oils of anise and rhodium.[134]

Fly Poisons.—"Fly powder," a grey mixture of As and $As_2 O_3$. "Fly water," a solution of arsenious acid, or arsenite of soda or potash, of varying strength, sweetened with sugar, treacle, or honey. (Med. Times and Gazette, Sept. 13th, 1851.) Some also contain orpiment (arsenic trisulphide).

16. For cleansing metals, arsenite of soda has been used on account of its strong alkalinity. It is an absurd preparation to use for this purpose, as washing soda or potash would act better. In December, 1857, 340 children were poisoned by water from a boiler that had been "cleaned" by this compound (Taylor on Poisons, 2nd ed., p. 378). In 1863, a man died from drinking beer out of a pot which had been thus cleansed (Taylor, Med. Juris., 1, 273).

17. The well-known "arsenic eating" of Styria has been ridiculed as impossible, but has yet been authenticated on further examination. A Styrian wood-cutter was seen by a medical man to eat a piece of arsenic weighing 4½ grains, and next day another 5½

grains, yet remaining in his usual health. It is also eaten by the natives of Ceylon (Med. Times and Gaz. 1862, p. 454, and 1866, p. 375). Workmen in arsenic factories often become habituated to its influence. See a paper by Roscoe, Mem. of Lit. and Phil. Soc. of Manchester, 1860. I myself can testify to this fact. A student in the College of Science, Dublin, was accustomed to take out of the arsenic bottle little lumps about 3 or 4 grains each and eat them, without apparent ill effect.

18. As a cosmetic, applied externally, it would probably be useless. Unless the skin were abraded, or it remained very long in contact, no absorption, and hence no poisonous effect, would result, but any scratch or wound would be dangerous. (See Christison's Evidence, case of Madeline Smith, p. 320.) And if in protracted contact with the skin, it will cause symptoms. (Memoirs of Lond. Med. Soc., ii., 397, Amer. J. of Med. Science, July, 1851.)

19. A solution of chloride of arsenic has been employed for "bronzing" metals. The fumes would be highly pernicious.

20. Ritter, of Rouen, states that glucose or starch-sugar frequently contains arsenic, derived from the sulphuric acid employed in its manufacture being made from arsenical pyrites. He finds that by this means the arsenic is introduced into *beer* brewed with glucose, into confectionery, syrups, liqueurs, &c. (Reimann's Färber Zeitung, No. 3, 1878.)

21. It is said that certain paper collars and cuffs which are extensively made in America have proved poisonous from containing a considerable proportion of arsenic. (Les Mondes, Nov. 11th, 1880.)[135]

22. *Speculum Metal*, for telescope mirrors, is an alloy of copper, tin, and 3 per cent. of arsenic.

23. In America, a paper soaked in a solution of arsenic and other drugs is burnt, and the smoke inhaled for asthma and bronchitis. (Year Book of Pharm., 1873, p. 345.)

24. Traces occur in mineral waters.

SULPHIDES OF ARSENIC.

Orpiment, As_2S_3, Auripigmentum, or King's Yellow, trisulphide of arsenic, obtained by precipitating a solution of arsenic with sulphuretted hydrogen, is a yellow inodorous powder, insoluble in water and in hydrochloric acid, but slowly oxidizing in air to arsenious acid, and therefore poisonous. It is found native. By heat it melts to a reddish liquid: if air be excluded, it volatilizes at about 700° C., and condenses unchanged: if air be present, it is oxidized to sulphur dioxide and arsenic trioxide, which condenses in the crystals before-mentioned. It is soluble in alkalies and their carbonates, and reprecipitated by hydrochloric acid. Commercial "King's Yellow," formerly used as a pigment, but now replaced by Chromate of lead, is a very poisonous mixture of $As_2 O_3$ and $As_2 S_3$. It is sometimes employed in printing indigo. A mixture of orpiment, water and lime is used in the East as "Rasma" (see page 320) for a depilatory. In a corpse, by putrefaction, the arsenic is frequently converted into sulphide.

Realgar, the disulphide, $As_2 S_2$, is red, exists as a mineral, and is also made artificially for fireworks. It contains *about* 75 per cent. of arsenic, but varies. Formerly it was used as a pigment, and in tanning to remove hair.

These sulphides have rarely been used for criminal purposes. *Orpiment* was employed by Mary Ann Burdock, 1833.[136] Being insoluble, they would only be absorbed after oxidation into $As_2 O_3$.

Ossikovszky (J. Pract. Chem. 2, xxii., 323) finds that this change happens rapidly in contact with organic bodies. But the opposite change, by putrefaction and development of sulphuretted hydrogen, of $As_2 O_3$ into $As_2 S_3$, is far more likely and frequent.

ARSENIC ACID

is obtained by oxidizing $As_2 O_3$ by nitric acid. It is a white deliquescent solid, inodorous, *very soluble in water* to a syrupy solution, which is corrosive, strongly acid and metallic in taste. By heat it first gives the pentoxide, $As_2 O_5$, then it breaks up into $As_2 O_3$ and oxygen, finally completely volatilizing. It is said to be less poisonous than $As_2 O_3$. (Wöhler and Frehrichs, Ann. Chem. Pharm., lxv., 335.)

The *arsenates* are very like the phosphates. Like them they give with acid molybdate solution a yellow, with magnesium sulphate a white crystalline, precipitate. But with sulphuretted hydrogen, after acidifying, they give *slowly* a yellow precipitate of sulphide of arsenic and sulphur; and with silver nitrate a *liver brown* precipitate of silver arsenate.[137] Sulphurous acid reduces arsenic acid to arsenious.

Sodium arsenate is in the British Pharmacopœia, and is employed in calico printing. A brominated solution of potassium arsenate (strength = 1 per cent. $As_2 O_3$) is used in Russia for epilepsy. “Pearson’s solution” is 1 grain sodium arsenate to 1 oz. water. “Macquir’s neutral arsenical salt” is a binarsenate of soda. “Papier Moure” consists of paper soaked in solution of potassium arsenate (Tidy).

Fischer (Ber. deutsch. Chem. Gesellschaft, xiii., p. 1778) proposes *ferrous chloride* as better than sulphurous acid for

reducing arsenic acid to arsenious (see process for separation, post).

Arsenic Trichloride, As Cl_3, is a volatile, colourless liquid, very pungent, and fuming in air. It has been discarded from medical use on account of its dangerous properties. A case of poisoning by it is mentioned in Taylor (Med. Juris. 1, p. 278). It is obtained in the process for separation from the organs. Arsenic Triiodide, a dull red crystalline solid, is used in ointments.

Arseniuretted hydrogen, As H_3, is a colourless gas of a garlic odour, almost insoluble in water. It burns with a livid bluish-grey flame, forming water and a white cloud of As_2 O_3. By heating to redness it is decomposed into hydrogen and a deposit of arsenicum (the "mirror"). It is formed whenever hydrogen is evolved in contact with arsenic compounds, hence has caused accidents in making hydrogen from impure zinc. It is probably the most deadly compound of As, and proved fatal to its investigator, Gehlen, and in several other cases.

EXTRACTION AND TESTS.

If arsenic has been given in the solid form, the greater part will remain insoluble, and will be found either in lumps or powder in the stomach, or as a white powder adhering to its lining. Any substance so found should be washed with water and tested for arsenic. It is absurd to say, as Dr. Letheby did in Ann Merritt's case (*ante*, p. 366), that the quantity was too small for examination: if a white powder can be *seen*, it can be *tested*. In the contents, or in any fluid food, the heaviness of powdered arsenic will cause it to readily separate as a sediment. Soot or indigo, the legal admixtures, should also be sought.

Arsenic is not naturally present in the body (Sonnenschein, Gerichtlich. Chemie, p. 122; and others). As it occurs in soils, in cases of disinterment a portion of the earth surrounding the coffin should be tested.[138]

When absorbed, it may pass into every part of the body, but more especially into the liver and spleen. De Poncy and Livon have supposed that it was capable of replacing phosphorus in the actual brain substance (Comptes Rendus, 23, June 9th, 1879), and that it is mainly localized in the *brain*. Another author finds it concentrated in the *bones*. Prof. E. Ludwig of Vienna, in the case of a woman who suffered from making artificial flowers coloured with magenta containing arsenic, found arsenic in the liver, spleen, kidneys, and stomach, but not in the bones or urine (Lond. Med. Record, Dec. 15th, 1877, p. 509). He found also that in human beings as well as dogs poisoned with arsenic, in both acute and chronic cases, the liver contained the largest amount, the kidneys sometimes a considerable quantity, and the bones, brain and urine, only small traces (Jahresb. für Thierchemie, 1879, 85). These results have been discussed by Johnson and Chittenden (American Chem. Journal, 2, 332), who, in a woman poisoned by arsenic, found, *a year and a half after burial*, over 5 grains of $As_2 O_3$, almost evenly distributed. The conclusion to be drawn is, that, of the absorbed arsenic, the main part will be in the liver, and the rest in varying proportions in other tissues, so that as much as possible of the whole body should be examined.

As the large quantity of organic matter is in the way of the tests, it has been proposed to get rid of this by different processes. That of Fresenius and V. Babo consists in oxidizing the substances by strong hydrochloric acid and chlorate of potash. There is a great objection to this, as loss is liable to occur from volatilization of arsenic trichloride, unless it is done in a retort, which is practically

impossible on account of the bulk and frothing, and the danger of explosion from the oxides of chlorine formed.

The following modification of an old process has been found by the author to be satisfactory. It may be used also for antimony and mercury. Weigh the whole, cut up finely, and grind the matters to a pulp with water, reserving a weighed portion of about one third; render strongly alkaline with potash or soda previously tested for arsenic. Pass in a current of chlorine, *stopping before the alkalinity is destroyed*. Boil the solution down to a low bulk, *not to dryness*, till a portion taken out and treated with acetic acid gives no chlorinous odour, showing that the hypochlorite has been completely decomposed. Arsenic trichloride does not escape from alkaline solutions, so there is no loss. Add sufficient *pure* aqueous sulphurous acid, to reduce the arsenic acid to arsenious. Now transfer to a large retort provided with a tube-funnel and condenser, the end dipping into water in a well-cooled tubulated receiver, itself connected by a tube with a flask containing dilute potash solution. Through the tube-funnel pour in pure concent. sulphuric acid in volume about equal to the liquid, adding it gradually, as there is much heat and effervescence. Mix well by shaking, and distil slowly from a sand bath. In distilling a moderately strong solution of mixed arsenious and antimonious chlorides in concent. hydrochloric acid, I have found that the arsenic all comes over in the first third of the distillate, and that after two-thirds have passed over, the antimony also begins to distil. Hence, in the above process the distillation should not be carried beyond half the volume of the liquid in the retort, when all the arsenic, *in whatever form it originally existed*, will be found as chloride in the receiver, except a little which may have escaped into the potash. Test a portion of the potash solution by Marsh's or Reinsch's process as hereafter described: if any arsenic be present, add the remainder to

the liquid in the receiver, taking care that excess of free acid is left. Pass into the distillate washed sulphuretted hydrogen in excess (or add a solution of the gas in water), warm, cover, and allow to stand. (The excess of sulphuretted hydrogen may afterwards be removed by warming and passing in carbonic acid gas.) If any arsenic be present, a yellow precipitate of arsenious sulphide, As_2S_3, will appear; if the precipitate be pale, it will consist mainly of sulphur, formed by the action of the sulphuretted hydrogen on the sulphurous acid which is present. Some organic matters are also generally present. Collect the precipitate on a filter, wash with sulphuretted hydrogen water, dissolve in a dilute solution of ammonium carbonate, and again precipitate with hydrochloric acid. The precipitated arsenious sulphide is now nearly pure: it may be collected on a small filter, washed rapidly, again dissolved in ammonia, the solution received in a porcelain dish, evaporated to a low bulk, transferred to a weighed porcelain boat, and heated cautiously in a current of carbon dioxide to a temperature not above 400° C., sufficient, in fact, just to melt the arsenious sulphide. [Sulphur boils at 446° C., As_2S_3 at 700° C.] Any remaining sulphur is thus removed, and the arsenious sulphide may then be weighed. The weight multiplied by 0·805 gives the amount of arsenic trioxide.

A less preferable way is to collect the arsenious sulphide on a weighed filter, to dry, and dissolve out any sulphur by carbon disulphide. Yet another method is to oxidize by nitric acid, evaporate, precipitate the arsenic acid by a mixture of ammonic chloride, magnesic sulphate, and strong ammonia —"magnesia mixture") as ammonio-magnesic arsenate, and weigh, either as that salt, or, after ignition, as pyroarsenate of magnesia. The former, dried at 100° C., contains 39·57, the latter 48·29 per cent. of As. Lastly, if the sulphide, oxidized by nitric acid, be alkalized with

ammonia, and warmed to 70° or 80° C. with a solution of ammonium molybdate in nitric acid, as used for the ordinary determination of phosphates (see Fresenius, Qual. Anal., p. 54), a yellow precipitate of *arsenomolybdate of ammonia* appears, which can be weighed: it contains 3·3 per cent. of As (Bull. Soc. Chem., Jan. 7th, 1877).

But where such importance may hang on quantities, the use of weighed filters for such small amounts is simply courting error. When the As_2S_3 has been weighed in the porcelain boat, calculate it into As_2O_3, or into As (it contains 61 per per cent. of As), then cover it with a mixture of pure potassic cyanide and sodium carbonate, place it in a piece of combustion tubing drawn out at the end into a long thin point, pass washed dry carbon dioxide over it, and heat cautiously till all the water is expelled. Finally raise the temperature to full redness, and pass a *slow* continuous current of the gas, keeping the narrow part of the tube cool with moistened blotting paper. The sulphide will be reduced to As, which will deposit in a metallic coating on the narrow portion. Seal this part, and preserve it as evidence.

It is obvious that the residue in the retort may be tested for other metals.

The presence of arsenic ascertained, and the quantity known, it would seem as if nothing more was necessary. Still, it is useful to confirm results by the other tests. The reserved portion may now be divided and used as follows:—

MARSH'S TEST.

If hydrogen be evolved in presence of arsenical compounds, it combines with the element to form "arseniuretted hydrogen," or *arsine*, AsH_3, a colourless gas of alliaceous odour, extremely

poisonous, giving, when passed into silver nitrate solution, a precipitate of silver and a solution of As_2O_3; decomposed at a red heat into As and hydrogen, and burning with a livid flame into As_2O_3 and water. The flame yields, when a cold surface, such as a porcelain crucible-lid or dish, is depressed into it, a steel-grey lustrous stain or ring of metallic arsenic.

To evolve the hydrogen, Marsh originally used zinc and sulphuric acid. As it is so difficult to obtain zinc pure, magnesium has been proposed. But the evolution is then too rapid. Moreover, the reputed "pure" acids of commerce are scarcely ever free from a trace of arsenic. This difficulty affects equally the galvanic method. Hence it is better to employ *sodium amalgam* (Edmund Davy, Chem. News, xxxiii., 58, and ditto, 94). One part of sodium, scraped free from oxide, is melted under solid paraffin, and gradually added to ten parts of mercury (previously purified by nitric acid) with constant stirring, the paraffin poured off, and the amalgam cleaned by washing with pure dry benzine. The result is a solid crystalline alloy.

A few fragments of this alloy are placed with water in a flask provided with a thistle funnel, and with a delivery tube dipping into a 4 per cent. solution of silver nitrate. The horizontal part of the delivery tube is heated to just below redness by a lamp, meanwhile being supported to prevent its bending. If, after about an hour, no As ring appears in the tube, and if the silver nitrate, after precipitation of the silver by hydrochloric acid and filtration, gives no arsenious sulphide on addition of sulphuretted hydrogen, the amalgam is pure. Now add to the flask the suspected liquid, put in more amalgam, and continue the heating of the tube and passing of the hydrogen till no further evolution of As occurs. The portion of tube containing the deposit of As may be cut off, weighed, the As dissolved off by aqua regia, and the tube washed, dried, and

weighed again. The silver nitrate solution contains the remainder of the As dissolved as As_2O_3: after removal of the silver by hydrochloric acid and filtration, the arsenious acid solution may be divided, a portion titrated by iodine (see Blyth's Pract. Chem., p. 392), and the rest tested qualitatively by sulphuretted hydrogen, ammonio-silver nitrate, and ammonio-cupric sulphate (see these tests, *post*).

If the original liquid be rendered strongly alkaline before adding the amalgam, no antimony will pass off with the arsenic. But from *acid* liquids, arsenic and antimony pass off together. They both give metallic rings in the tube, and stains on a cold surface. The chief distinctions between them are as follows:—

1. *Arsenic.*—More volatile, hence deposited further from the flame; bounded by a "hair brown" fringe of suboxide; heated in a current of sulphuretted hydrogen gives *yellow* As_2S_3, unchanged by passing dry hydrochloric acid gas: heated in air, it gives easily a sublimate of As_2O_3 in glistening octahedral crystals. It is soluble at once in chloride of lime solution.

2. *Antimony.*—Less volatile, hence forming close to the flame; no brown fringe; heated in a current of sulphuretted hydrogen, gives *orange or black* Sb_2S_3, volatilized by passing dry hydrochloric acid; heated in air, it gives a white oxide, volatile with great difficulty, and not generally crystalline. It is insoluble in chloride of lime solution.

By the above process, Edmund Davy has detected one-millionth of a grain of As; $^1/_{1000}$ grain gives a very decided effect in a few minutes. It is applicable not only to As_2O_3, but to all other arsenical compounds in powder, whether soluble or insoluble. Organic matter interferes very little.

It must be observed that hydrogen alone may give a slight reduction and precipitate in solutions of silver nitrate.

To prepare pure sulphuric acid and pure zinc, see Selmi, Chem. Soc. Journal, May, 1881, p. 311.

REINSCH'S TEST.

If a fragment of pure copper be boiled with *pure* hydrochloric acid for ten minutes, no discolouration occurs. If now a solution containing arsenic be added, the copper turns black or grey, from formation of an alloy of copper and arsenicum. On drying the copper, and heating it in a small glass tube closed at one end, the arsenicum is oxidized, with production of crystals of As_2 O_3. Organic matter does not interfere. *Antimony*, sulphides, and some metals produce a similar grey deposit, but do not yield a *crystalline* sublimate. *Mercury* also precipitates on the copper, but the sublimate consists of metallic globules.

Any compound of arsenicum, mixed with dried potassium cyanide and carbonate of soda, introduced into a piece of hard glass tubing drawn to a point, and heated in a slow stream of dry carbon dioxide, gives a deposit, in the narrow portion, of the whole of its arsenic in the metallic form (Fresenius).

As_2 O_3 heated in a tube with dry potassium or sodium acetate gives *cacodyl-oxide* (Bunsen) of an exceedingly offensive alliaceous odour.

In solution, arsenious acid gives:—

1. *With ammonio-silver nitrate* (prepared by adding silver nitrate to dilute ammonia till a precipitate just forms) a *yellow* precipitate of silver arsenite, soluble in ammonia and in nitric acid.

2. *With ammonio-cupric sulphate* (prepared by similarly treating cupric sulphate), a *bright green* precipitate of cupric arsenite.

3. With *sulphuretted hydrogen* a yellow colour (the intensity of this has been proposed as a method of estimating small quantities of arsenic by comparison *à la* Nessler), but no precipitate till hydrochloric or other acid be added, when *yellow arsenious sulphide* falls. This is a most delicate test, as arsenious sulphide is only soluble to the extent of one part in one million of water (Fresenius, Quant. Anal. p. 137), and not much more soluble in acids. The precipitate may be weighed, or treated as already mentioned (pp. 386-7). Tin and cadmium solutions also give yellow sulphides, but they are insoluble in ammonia, and do not yield the other tests.

4. Stannous chloride (protochloride of tin) gives a brown deposit of metallic arsenic. With acids containing traces of arsenic it gives a brown colour.

DOSES.

1. *Medicinal* (British Pharmacopœia).—Acidum arseniosum ($As_2 O_3$), $^1/_{60}$ to $^1/_{12}$ grain in solution. Liquor arsenicalis (solution of potassium arsenite), 2 to 8 minims. Liquor arsenicalis hydrochloricus (solution of chloride of arsenic), 2 to 8 minims. Sodæ arsenias (sodium arsenate), $^1/_{16}$ to ⅛ grain. Liquor sodæ arseniatis (solution of the preceding), 5 to 10 minims. Ferri arsenias (ferric arsenate), $^1/_{16}$ to ½ grain.

2. *Poisonous.*—Smallest recorded: *one grain*, (Lancet, Dec. 16th, 1837), *two grains*, (Provincial Journal, 1848, p. 347); average smallest, 2½ grains. Recoveries have been described after

enormous doses, up to 1½ ounce, taken solid and therefore not dissolved, rejected by vomiting or purging, or prevented from irritant action by abundance of food (see a case in the Lancet, Jan. 13th, 1849, when 1oz. was taken with recovery).[139]

Idiosyncrasy may cause smaller doses to be dangerous; on the other hand, habit may cause tolerance of the poison, as already mentioned with regard to arsenic eaters. Nitre is said to increase the poisonous action (Med. Times, 1844, p. 216). Antimony by its prostrating action would have the same effect.

PHYSIOLOGICAL EFFECTS.

The symptoms usually commence in ½ to 1 hour after administration (Taylor), but vary with dose, form, &c. They have also been *immediate* (case of Lofthouse, York, 1835); in ten minutes (Guy and Ferrier); in ¼ hour (Taylor); in 5, 7, 8, and 10 hours (Med. Gaz. xlvii. 722); in 23 hours (Med. Times, Oct. 21, 1848); in *four days* (Woodman and Tidy, Forens. Med. p. 134).

As to the character of the symptoms, *irritation of the stomach and intestines* is the main feature. Burning pain, vomiting and purging, cramps and occasionally tetanus (Orfila, i., 449) occur. Rarely there is insensibility and no pain. Great thirst, constriction of the throat, headache, and finally exhaustion are common. Sometimes epilepsy or paralysis has been caused. The truth is, that every variety of constitutional disturbance may be caused by the violent irritation of the alimentary canal, except that the intellect is rarely affected. In many cases the effects closely resemble those of acute diarrhœa or English Cholera. One anomalous case is on record when death occurred in four hours after sound sleep, and *no inflammation* of the stomach was found (Lancet, xii., 194). For a detailed list of cases, see Guy and Ferrier's Forens. Med. p. 457.

Fatal period.—Shortest, twenty minutes (Taylor); average, about twenty-four hours. Death in three to eight hours is common. But the end has been sometimes far more protracted, even to *two years* (*Ibid.*, Med. Jur. i., 256).

The *vomit* is usually yellowish (L'Angelier) from bile: occasionally it is tinged with blood; rarely white. If the arsenic has been mixed with soot or indigo, these will affect its colour.

Post Mortem Appearances.—The lining membrane of the stomach and intestines is almost always inflamed and reddened, rarely darker from congestion. White patches, covered with mucus, should be examined for solid arsenic. Perforation, ulceration, and gangrene are rare. In bodies long buried, the arsenic is often converted into sulphide by putrefaction, and then appears as a yellow coating. Occasionally inflammatory appearances are found in the mouth, throat and other organs. Congestion of the brain is uncommon.

Among the effects of *chronic* poisoning by arsenic may be noted inflammation of the eyelids (conjunctivitis), skin eruptions, irritability of the stomach, jaundice, and local paralysis (for cases see Taylor's Med. Jur., i. 252).

TREATMENT AND ANTIDOTES.

Vomiting should be encouraged by emetics or tickling the throat; the stomach pump being used if judicious. To obviate the irritation, demulcents such as arrowroot, mucilage, &c., are useful. Albumen (white of egg) has proved serviceable (Lancet, Jan. 13th, 1849). To render the arsenic insoluble, magnesia or chalk may be given. But the best chemical antidote is hydrated ferric oxide, freshly prepared by precipitating ferric chloride or tinct. ferri sesquichlor. with carbonate of soda (washing soda), or by similarly

precipitating ferrous sulphate (copperas), and then shaking the mixture with air till it turns red, or by the following formula:—

Tinct. ferr. perchlor.	1 oz.
Sod. bicarb.	1 oz.
Tepid water, a teacupful.	

(Hoglan, Year Book of Pharm. 1881, p. 211).

M. Lucas of Beauvais has stated, that in nine cases of arsenical poisoning, calcined magnesia arrested the symptoms and eventually removed the effects (J. Chim. Medi. 1850).

REMARKS.

Arsenic has been given in pessaries by the vagina, in ointment for skin diseases and by "cancer doctors," also inhaled as vapour for asthma, in each case with dangerous result.

The frequent occurrence of this poison in common articles of use gives an opportunity to the defence which has led to analyses of multitudes of articles—wall-papers, clothing, cooking vessels, &c. It may be positively affirmed that if white arsenic *in the solid state* be found in the stomach, it could not have come from any of these sources. The trace that could be derived from wall-papers would be infinitesimal. The tests for arsenic are almost inconveniently delicate, so that the slightest impurity of the reagents will make it appear to be present. Reichardt (Archiv. der Pharm., xiv. 1-23), states that $^{1}/_{1000}$ milligramme of As_2O_3 evolved as arseniuretted hydrogen will precipitate silver nitrate, and that by this means he has found it in the urine of patients suffering from arsenical wall-papers. The effect of such papers is certainly pernicious, though it may be mentioned that in Silesia mortar is

made with arsenical sand, and people living in houses thus built do not suffer (Lancet, 1849, April 7th). On the whole it may be concluded that in a trial, *traces* of arsenic will not be sufficient, a tangible quantity found and *weighed* will be the only sufficient evidence of poisoning by the mouth.

To illustrate the value of a knowledge of chemistry to a medical man in such cases the following may be quoted. A child of ten was supposed to have eaten a quantity of meal mixed with arsenic for rats. An emetic of sulphate of zinc was given: the first vomit gave with ammon. sulphate of copper a bright green, with ammon. nitrate of silver, a yellow precipitate, thus establishing that the poison was arsenic. Emetics and diluents were continued, then albumen was given. Some hydrated ferric oxide was hurriedly made from common green vitriol (ferrous sulphate) and ammonia: the washed precipitate was administered in successive teaspoonfuls. Recovery on the third day. In the vomit 10 grains of white arsenic were found. (Lancet, 1849, p. 311.)

The following is a curious form of attempted poisoning. A person lately presented this prescription in Paris: “Decoct. barley, 8 oz.; hydroch. acid, 1 drachm; *arsenious acid, 10 grains*.” The signature of a physician was appended, but, on suspicion being aroused, was found to be a forgery.

In Ann Merritt’s case, Dr. Letheby stated that arsenic had been taken not more than two or three hours (afterwards he said four) before death, because he found undigested gruel in the stomach, containing arsenic *in solution*, and because the intestines contained very little arsenic. This conclusion was considered by weighty authorities to be rash, and probably wrong, because:—

1. He found 2 grains (a poisonous dose) in the liver. This could hardly have got there within so short a time.

2. In a stomach irritated by arsenic or disease, food may remain undigested for seven, eight, or more hours.

8. A previous dose of arsenic, adherent to the coats of the stomach, might be dissolved by an influx of warm gruel.

4. The portion in the intestines might have been evacuated by purging.

5. The "pinkish liquid" described by the surgeon who performed the *post-mortem*, pointed to admixture with blood, therefore to inflammation of some standing, and certainly did not tally with Dr. Letheby's description of "gruel."

With reference to the alleged administration of arsenic in cocoa in Madeline Smith's case, the following details will be illustrative.

100 grains of white arsenic were found to be a small teaspoonful, not heaped. This quantity was mixed with two teaspoonfuls of Epps's cocoa. The colour was rendered lighter, but still looked natural. On making up with boiling water and milk, as directed, a cup of cocoa was obtained, in which neither appearance, taste, nor smell, betrayed anything unusual. On standing the milk rapidly curdled, and the arsenic deposited, but this would not be seen in an opaque cup. With arrowroot or gruel a similar result was obtained.[140]

It has been stated that arsenic trioxide volatilizes with the vapour of water. I have not found this to be the case to any appreciable extent, but it does volatilize slowly at 100° C., and still more at 120°. About ½ gramme of $As_2 O_3$ lost, after six hours on the water-bath, 3 per cent. of its weight; after six hours at 120° C. it lost six per cent. When chlorides are present, as in the body, it is still more liable to volatilization as arsenic trichloride. Hence matters containing it cannot be boiled down or dried without danger of loss, unless previously rendered alkaline.

R. Otto has stated that ordinary sulphuretted hydrogen may contain arsenic from the sulphate of iron used. He proposes to prepare the gas by the action of pure hydrochloric acid on pure calcium sulphide obtained by roasting gypsum with charcoal (Ber. Chem. Ges. xii. 250). I have tested water into which sulphuretted hydrogen has been repeatedly passed, and have found no arsenic: if really present in the gas, the As H_3 is not absorbed in the liquid.

CHAPTER VIII.

POISONING BY ANTIMONY.

THE cases under this head are very numerous, and, therefore, difficult of selection. I have given, as the leading cases, full reports, (1), of that of Dr. Pritchard, of Glasgow, tried in the High Court of Justiciary, in July, 1865, for the poisoning of his wife by repeated small doses of antimony, and his mother-in-law by antimony and aconite; (2), of that of Dr. Smethurst (the Richmond poisoning case), tried for the poisoning of his mistress by small doses of antimony and arsenic, at the Central Criminal Court, August 15th, 1859[141]; (3), I have added a report of the Liverpool poisoning case —that of Thomas Waislow, for the poisoning of Ann James, by antimony, tried at Liverpool, August 20th, 1860.

TRIAL OF DR. PRITCHARD.[142]

Before THE LORD JUSTICE CLERK (RIGHT HON. JOHN INGLIS), LORD ARDMILLAN, *and* LORD JERVISWOODE, *at the* HIGH COURT OF JUSTICIARY, EDINBURGH, *July, 1865*.

For the Prosecution: The Solicitor-General (*now* Lord Young), Mr. Gifford, *and* Mr. Chrichton.

For the Defence: Mr. Rutherford Clark, Mr. Watson, *and* Mr. Brand.

By the *first* count of the indictment the prisoner was charged with the murder of his mother-in-law, Mrs. Taylor, by administering to her, between the 10th and 25th of February, 1865, in Battley's sedative solution, tapioca, porter, or some other medicine or food, to the prosecutor, unknown, tartarised antimony, aconite, and opium, or one or more of them. In the *second* count he was charged with the murder of his wife by administering the like poisons, or one or more of them, between the 22nd day of December, 1864, and the 25th of March, 1865, in egg flip, cheese, porter, beer, or wine, or some other articles of food, to the prosecutor, unknown. To the relevancy of the indictment several objections were taken, but overruled, and the prisoner pleaded "Not Guilty."

THE HISTORY OF THE CASE.

Edward William Pritchard, a native of England, and member of the Royal College of Surgeons since 1846, before he came to Glasgow, had been a traveller in the Polar and Pacific Seas, and in the countries bordering the Mediterranean, and first set up in practice at Filey, in Yorkshire, where he married the daughter of a Glasgow silk merchant, by whom he had a family. In consequence of this connection, about 1859 he removed to Glasgow, where, from his writings on several diseases, he became favourably known as a person of superior attainments, and gradually obtained a fair practice. Whilst thus apparently in the enjoyment of popularity and success, he, in 1863, became the subject of much adverse report,

from the suspicious circumstances attending a fire in his house, by which a maid servant was killed—the Insurance Company refusing to pay his claim, and the doctor not taking legal steps to enforce its recovery. The ugly rumours about this affair, however, gradually subsided, and his social and professional position was retained, until the sudden death of his mother-in-law, whilst staying in his house to nurse his sick wife, was quickly followed by that of the wife herself. As the mother-in-law was 70 years of age, the statement that she had died of apoplexy was at first accepted. When, however, the death of the wife so quickly followed, suspicion was excited, inquiries were instituted by the police, and on the 21st of March, 1865, Dr. Pritchard was arrested on the charge of poisoning her. A *post-mortem* examination of her remains had proved that her death had not been due to natural causes, and a subsequent examination of the body of his mother-in-law, exhumed for the purpose, led to the same result in her case. Chemical analyzations of the interior portions of both bodies disclosed in that of the wife the presence of antimony in sufficient quantities to account for her death; and in that of the mother-in-law to reduce the powers of her constitution so far as to increase and facilitate the effects of a narcotic poison.

THE SYMPTOMS.

The details of the progress of the lingering illness of Mrs. Pritchard until her death, and of the sudden seizure of Mrs. Taylor with what proved to be a fatal attack apparently of apoplexy, were given in great minuteness by several non-professional witnesses, servants in the house at the time, pupils of Dr. Pritchard’s, and a girl whom Dr. Pritchard had seduced and promised to marry when his wife died.

Up to October, 1864, Mrs. Pritchard, never apparently a very strong woman, had been in her usual state of health. Towards the end of that month, however, she began to look pale and lose her strength from frequent vomitings, and had to keep her bed, as she believed, from a severe cold, for four or five days. About this time, on her temporary recovery, she went on a visit to her parents in Edinburgh, and there gradually recovered, returning home about Christmas in her former state of health. After a week or so the vomiting returned, and on the 1st of February, 1865, she had a severe attack of cramp. Some few days after, as the prisoner said, Dr. Cowan, a relative, saw her, and prescribed small doses of champagne as a stimulant. However, the vomiting returned, and about midnight on the 8th she was seized with such a violent attack of cramp that, at her request, Dr. Gairdner was called in, who at once stopped all stimulants. Dr. Pritchard told every one that his wife was suffering from gastric fever. Dr. Gairdner, however, could not find any feverish symptoms, and based his advice on their absence, confessing himself "puzzled with the case." On the 10th Mrs. Taylor, her mother, came from Edinburgh to nurse her daughter. She was a hale, hearty woman, though 70 years of age, but at times affected with severe headaches, as a remedy for which she had been accustomed for some years to have recourse to Battley's sedative solution. On the 13th, at her suggestion, some tapioca was bought, brought into the house, and left for some time on the lobby table. Of this, afterwards, a cupful was made, and fetched by Mary McLeod, the younger servant, and by her carried up to her mistress's bedroom. Whether Mrs. Pritchard partook of this or not was not known, but Mrs. Taylor ate a portion of it, and the cook tasted it before it left the kitchen. Both Mrs. Taylor and the cook were violently sick after taking the tapioca, the old lady saying that she feared she was suffering from the same complaint as her daughter. The tapioca had not been tampered with when

purchased, but when the remainder of it was analysed it was found to be charged with nearly five grains of tartarised antimony. On the 16th the old cook left, and Mary Patterson came. She found her mistress suffering from continual vomits, and gradually getting weaker—as Mrs. Taylor said, “one day better, and two days worse.” For the next twelve days this state continued, and then a dreadful scene occurred. Mrs. Taylor, who, whilst at Dr. Pritchard’s, had sent for a bottle of Battley’s solution, was violently sick in the evening of the 24th of February, and about nine on that night rang the bell violently, and was found by the servant vainly endeavouring to vomit and asking for hot water to assist her. By the prisoner’s orders this was twice brought, and when on the second occasion Mary Patterson entered the room Mrs. Taylor was sitting in her chair with her head down, apparently insensible, and with her eyes closed. She was lifted into bed, and died in about three hours. Whilst dressing her corpse a bottle, about two-thirds full of Battley’s solution, was found in her pocket, and identified as that which she had last purchased. That this also was pure and free from poison when sold was clearly proved. When, however, it was analysed, it was found to be charged with antimony and aconite. Dr. Pritchard declared that she had died of apoplexy following on paralysis; but Dr. Paterson, who had been called in at the last moment, distinctly declared that there were no such symptoms. An attempt was made by the prisoner to get Dr. Paterson to give the usual certificate of the cause of death, and on his indignant refusal, the prisoner himself filled up the form with the words, “Paralysis for twelve hours, followed by apoplexy,” and the first victim was buried.[143]

Mrs. Pritchard still lingered. She had been sick on the day before her mother’s death, but not for two or three days afterwards. Then, however, the attacks returned, coming on, as before, within

an hour or two after her meals, which were uniformly sent to her by her husband—generally by the hands of McLeod. It was during the last three weeks of her miserable existence, that on one occasion he sent to her from the supper table a small bit of cheese, which McLeod tasted at Mrs. Pritchard's request, when it gave her a burning sensation in the throat, and made her thirsty. At another time he sent her a jug of camomile tea, after taking a wine-glass of which, from time to time, as ordered, she uniformly vomited. At another time, he had some egg-flip prepared for her in the kitchen, and brought down the pieces of sugar for it, taking them, as the witness believed, into his consulting room, where he kept his drugs and poisons, before he put them into the glass. Patterson, who tasted it, was struck with the taste, and Mrs. Pritchard, who drank it, was sick very soon after, and in the following night. In the week in which Mrs. Pritchard died she drank some port wine which Dr. Pritchard had sent up, and again was sick. On the 17th of March, the day before she died, Patterson, who had gone up to her bedroom to speak about some linen, found Dr. Pritchard handing his wife a glass of porter, which she drank. At that time Mrs. Pritchard was in her senses. About five o'clock the bell rang violently. McLeod called Patterson to come up at once. She did so, and found her mistress raving about her mother, and calling on them to leave her and assist Mrs. Taylor; her hands severely cramped—speaking wildly about her children. After her hands had been rubbed, Mrs. Pritchard seemed to get more calm, and Mary Patterson left, having handed the patient's supper to her husband. Until about half-past one the next morning Patterson heard nothing. Then she was called up by McLeod to get a mustard poultice, which the latter took up to the bedroom, and in a few minutes after the bell again rang violently. She hurried up, and found the prisoner in bed by his wife's side. Her mistress was dead. The long agony of months was at an end.

EVIDENCE OF THE MEDICAL ATTENDANTS.

Dr. James Moffat Cowan, her second cousin, in consequence of a letter from the prisoner, saw Mrs. Pritchard on the 7th and 8th of February. She was then in the drawing-room, and complained of great irritability of the stomach, combined with an inability to keep down her food, and vomiting for some time back. He visited her rather as an old friend than as a professional man, recommended her to go to bed, and advised small quantities of champagne with ice to be taken at intervals, and as she expressed a desire for food, recommended her husband to try injections of beef tea. She was seized with vomiting during the evening, but when he saw her before he left on the following day, seemed better, and he never saw her again alive. He spoke to the apparent happiness in which she lived with her husband, and to the fact that, after her death Dr. Pritchard, to enable the servants to take a last look at their mistress, had the coffin opened. Mrs. Taylor, with whom he was intimately acquainted, Dr. Cowan described as a person of very temperate habits.

Dr. William Tennent Gairdner, who was sent for during the night between the 8th and 9th of February, immediately after Dr. Cowan left, was told by the prisoner that for some time his wife had suffered from sickness and spasms, and that Dr. Cowan had recommended stimulants, and that she had had champagne and chloroform.

> "I found her," said the witness, "in bed, lying on her back, with a considerably flushed face, and in a state of pretty considerable excitement. She told me of Dr. Cowan's previous visit and of her wish that I should be sent for, and we had a good deal of general conversation about her symptoms. I found her to a certain extent exhausted, but by no means extremely so. She had a pretty good pulse. There was nothing in her symptoms to indicate immediate

danger, and the most remarkable thing about her symptoms was the violent state of mental excitement she was in and the spasms of the hands. She held her hands outside the bedclothes above her head, and I saw that the wrists were turned in, and the thumbs somewhat inverted towards the wrists—a very peculiar state of the hand. I thought she was intoxicated from the combination of champagne and chloroform. When I turned to the fire to warm my hands before feeling her, she called me very unfeeling, and begged me not to leave her, using expressions for which I thought she was not responsible, from her temporary intoxication. I then examined her belly, and asked particularly if there was any chance of her being pregnant,—that being a frequent cause of vomitings,—and found there was none; and, after various inquiries, feeling her pulse and her skin, spoke strongly against the use of stimulants, which I ordered to be at once discontinued until I saw her again. Next day when I saw her, she assured me that she felt better and had had no return of the vomiting, but had still the remains of the spasms in her hands. I repeated my injunctions of no stimulants or medicine, and that her only food should be a plain boiled egg and bread and milk —that is, nothing that could produce sickness or sit heavy on her stomach. I told her that if her stomach had fair play it would digest the simple food I indicated. *I was very much puzzled as to what was the matter with her, and, had I been attending her as a general practitioner, should probably have seen her once or twice a day; but there was a doctor in the house, and my habit is to act as a consulting physician, and not as a general practitioner.* I had to leave town for a distant engagement, but before I left I wrote to Dr. Pritchard to inquire how his wife was, and received the reply that she was better. I wrote also to her brother, Mr. Michael Taylor, *as I was very much puzzled with the case*, and asked to be backed up by him in forbidding the use of stimulants. On my return Dr. Pritchard called, and left word that his wife was better, and that I need not call again. I do not think that there was any fever at all."

In his *cross-examination* Mr. Clark, in consequence of Dr. Pritchard having said to the witness that it was a case of catalepsy, elicited that Dr. Pritchard was somewhat careless in his nomenclature of disease—"that he spoke occasionally a little at random, and was not a model of wisdom, accuracy, and caution, in applying names to things;" and that, in writing to her brother—who had been a fellow-student with him—"he had not indicated to him that there had been any foul play, but nothing more than improper treatment."

Dr. James Paterson, who gave his evidence with an apparently strong feeling against the prisoner, a man of very large experience, living within two hundred yards of Dr. Pritchard's house, had been called in a little before eleven on the night of the 24th of February, to see the mother-in-law.

> "Dr. Pritchard," said the witness, "met me in his hall, and conducted me to the bedroom, telling me that his mother-in-law, whilst in the act of writing a letter, had fallen off her chair on to the floor, and been conveyed upstairs about half an hour before I came. She and his wife, said the prisoner, had partaken of some bitter beer for supper, and soon after both became sick and vomited, and complained of its being more bitter than usual. From the quantity remaining in the bottle they could not have taken more than a third of a pint each.[144] I asked in regard to the previous state of his mother-in-law's health, and particularly as to her social habits, when he led me distinctly to understand that she drank spirits occasionally. He also stated that his wife had been very poorly for some time with gastric fever, and that, some days previously, he had telegraphed for her mother to come and nurse her. On entering the bedroom I observed Mrs. Taylor lying on the edge of the bed nearest to me on her right side, with all her clothes on. She had all the appearance of a sudden seizure. Mrs. Pritchard, in her night-dress and nothing on her head, and her hair very much dishevelled, was in the same bed, but underneath the clothes, sitting up immediately

beyond her mother. Mrs. Taylor was then alive, and she gave me the impression of a healthy-looking old lady, and previously in very good health—rather beyond the usual size, well-formed; a very superior-looking person, not having the slightest appearance of being addicted to the use of spirituous or intoxicating liquors. Her face was rather pale, but the expression was calm and placid. The eyelids partially closed, the lips rather pale and livid; the breathing slow and laborious; the skin cool, and covered with a clammy perspiration; the pulse almost imperceptible, and she seemed to me perfectly unconscious. On my opening up the eyelids, I found both pupils very much contracted. From these symptoms, and judging from her general appearance, my conviction was that she was under the influence of opium or of some other powerful narcotic, and I at once pronounced my opinion that she was dying.

"I and Dr. Pritchard retired a little from the bedside, and went to the fireplace, and I then stated distinctly that she was dying. Pritchard said she had frequently had attacks of a similar kind before, but never one so severe. I said, nothing that we could do would have the slightest effect, but that, as a last resource, we might try mustard poultices to the soles of the feet, the calves of the legs, and the inside of the thighs, and as quickly as possible administer a strong turpentine enema. Pritchard at once proceeded to prepare the enema, and said he had a little before given her one, in which he had administered a glass of brandy. The old lady lay apparently comatose, or unconscious; but on being roused a little, and the head and shoulders slightly elevated, there was a degree of consciousness came on, and the pulse became perceptible at the wrist. She had not manifested consciousness before. I directed Pritchard's attention to the pulse, and he then clapped the old lady on the shoulder and said, 'You are getting better, darling.' I looked at him and shook my head ominously, as much as to say, 'Never in this world.' A slight fit of retching now came on, and she put up a small quantity of a frothy kind of mucus, immediately after which the 'coma,' or insensibility, returned—the breathing became more oppressed, more laboured, and the alvine evacuations were passed involuntarily, I then

concluded that the case was hopeless, but Pritchard administered his enema. I then left the room, and went downstairs with Pritchard to his consulting room, and there repeated my opinion that she was in a state of narcotism. Pritchard then said that the old lady was in the habit of regularly using Battley's Sedative Solution, and that she had a few days before purchased not less than a half-pound bottle of that medicine, and that he had no doubt, or it was very likely, that she might have taken a good swig of it. I know that medicine, but seldom use it. My impression was that she was not what is called an opium-eater, or one that used opium to any great extent. She presented no appearance of that."

At this visit Dr. Paterson's attention was forcibly attracted to the appearances presented by Mrs. Pritchard.

"She seemed," said the witness, "exceedingly weak and exhausted. Her features were sharp or thin, with a high hectic flush on her cheeks, and her voice was very weak and peculiar—in fact, very much resembling a person verging into the collapsed stage of cholera. The expression of her countenance conveyed to me the idea of a kind of silly or semi-imbecile person at the time. At first I was inclined to attribute her appearance to the recent severe attack of gastric fever, which I was told by the prisoner she had had, and her symptoms aggravated, of course, by the great consternation and grief not unnaturally caused by the sudden and alarming condition of her mother. At the same time I must say that I could not banish from my mind the idea, or rather conviction, that her symptoms betokened that she was under the depressing influence of antimony —that conviction came upon me while in her presence, and I could not get quit of it. I did not put a single question to her."

At half-past eleven Dr. Paterson went home, and about one the next morning he was sent for again, but refused to go, as he was certain he could do nothing, but sent word that he would do so if Dr. Pritchard thought he could be of any use. No answer came, and

it was not until the Saturday morning that he heard of Mrs. Taylor's death, when her husband called on him to ask him to certify the cause of death, and the duration of her disease. This he refused, telling Mr. Taylor that that document was not given to friends of the deceased, but only to the Registrar. Soon after Dr. Paterson received from the Registrar the usual form to fill up, which he returned at once in blank as it came, with this note:—"Dear Sir,—I am surprised that I am called on to certify the cause of death in this case. I only saw the person for a few minutes a very short period before her death. She seemed to be under some narcotic; but Dr. Pritchard, who was present from the first moment of the illness until death occurred, and which happened in his own house, may certify the cause. The death was certainly sudden, unexpected, and to me mysterious." The words "the cause of death" he rendered emphatic by underlining them. That was the only communication which he made to anyone, beyond speaking about it in his own family. The certificate was eventually given by Dr. Pritchard, assigning as the cause of death "paralysis for twelve hours as the primary cause, and the secondary, apoplexy," the duration of which had been one hour.[145]

On the 1st of March he met Pritchard accidentally, who asked him to come and see his wife, which he did the next day.[146]

> "She was in bed, still very weak and prostrate, and in a weak voice expressed her satisfaction and her gratitude at my calling. Then, in a very earnest manner, she asked me if I really thought that her mother was dying when I saw her. I said most decidedly I did, and had told Pritchard so. She then clasped her hands, looked up, and feebly exclaimed, 'Good God, is it possible!' and burst into a flood of tears. I put some questions then as to her mother's previous state of health, especially if she was habitually addicted to the use of Battley's solution. She told me that her mother's health, generally

speaking, was good, but that she suffered occasionally from what she called neuralgic headaches, and for relief of these attacks she did take a little Battley's solution; but she added that she could not be said to be in the habitual use of that medicine.

"I then questioned her about herself. She told me that for a considerable time past she had suffered very much from sickness, retching, and vomiting, with severe pains in the stomach and throughout the bowels, accompanied with purgings, great heat and uneasiness about the throat and mouth, and a constant urgent thirst. I examined her tongue; it was very foul, and of a lightish brown colour. Her features were still very sharp and deeply flushed. Her pulse was weak, contracted, and very rapid. Her skin was moist, but defective in animal heat, and altogether she presented the appearance of great general prostration. Her eyes were watery, but clear and intelligent. I prescribed for her small quantities of brandy and champagne to recruit her strength, and small pieces of ice to relieve the thirst and irritability of her stomach. If she tired of these, she should have recourse to granulated citrate of magnesia as a cooling effervescent drink, and have a mustard poultice applied on the pit of the stomach—these were verbal directions. I also recommended, at short intervals, small quantities of easily digested nutritious food, such as beef tea, calves' foot jelly, chicken soup, arrowroot, and so on. I then wrote a prescription for 12 grains of camomile, 24 of blue or gray powder, 12 of powdered ipecacuanha, and 6 grains of aromatic powder, to be carefully mixed and divided into six parts, one to be taken daily, to relieve the biliary disturbance and soothe the mucous lining of the alimentary canal. I gave her the prescription, and told her to show it to Pritchard when he came home."

From then until the day before her death the witness did not see Mrs. Pritchard. On the 5th of March Dr. Pritchard had called on him, and reported that his wife was better for his advice, but still very weakly, and her stomach irritable, and had been strongly

advised by Dr. Paterson to continue the treatment he had recommended.

"On Friday evening," continued the witness, "Dr. Pritchard called upon me personally and requested me to come and see his wife. I did so. She was in bed in a sitting posture, supported by pillows, and I was very much struck with her terribly altered appearance. She seemed quite conscious. I went up to her bedside and she caught my hand, and I could see a half-smile of recognition on her countenance. She very soon began to mutter something about her having been vomiting. Dr. Pritchard was standing beside me, and he volunteered to say that she had not been vomiting—that she was raving. She complained of great thirst, and Pritchard poured some water out of a *carafe* into a tumbler and gave it her, and she drank it. I observed her countenance very much changed from what it had been when I saw her last. Her cheeks were hollow, sharp, pinched-looking, and still very much flushed. There was a peculiarly wild expression: the eyes were of a fiery red and sunk-looking. Her pulse was very weak and exceedingly rapid. Her tongue was a darkish brown colour, very foul; and she immediately began to grasp with her hand as if to catch some imaginary object on the bedclothes. She muttered something about the clock, but there was none in the room. I expressed my surprise at the great change and alarming appearances, and asked Pritchard how long she had been confined to bed since I saw her. He said only since morning, that yesterday and yesterday afternoon she was in the drawing room amusing herself with the children. I again expressed my surprise at her alarming condition. He said she had not slept for four or five nights, and I replied that we must endeavour to procure some refreshing sleep. We went downstairs, and I then prescribed 30 drops of solution of morphia, 30 drops of ipecacuanha wine, 10 drops of chlorodyne, and an ounce of cinnamon water, to be taken every four hours if the first dose did not give relief. Pritchard wrote the prescription at my dictation. I said it was unnecessary; it was simple, and he might mix it himself. I was anxious to save time, and

give relief as soon as possible. He said he kept no medicines but chloroform and Battley's solution; he did not keep a small stock for any emergency, which I thought strange.[147] I then left the house, and at one o'clock the next morning a message came that Mrs. Pritchard was dying, and in less than three minutes after another that she was dead. I never entered Dr. Pritchard's house except on the occasions I have mentioned. I never told him that I thought his wife had taken too much wine, and I never recommended Dublin stout for her."[148]

The *cross-examination* of Dr. Paterson was confined to two points, the grounds on which he held that Mrs. Taylor had not the appearance of having been in the habit of using opium, and his conduct in not disclosing to some member of her family the impression he had formed that Mrs. Pritchard was being slowly poisoned by antimony. "When a person is in the habit of taking opium to a great extent," he said, "you generally find that they are not very good in colour. They are generally thin in features and hollow about the eyes—in fact, not of a healthy appearance. Mrs. Taylor being stout and healthy-looking, my impression was that she was not an habitual consumer of opium, though she might take it occasionally as medicine." On the second point he stood on professional etiquette as a consulting physician, and not the regular medical attendant, insisting that he had no right to revisit his patient unless sent for, and saying that he believed he should never have been called in the second time had he not accidentally met Dr. Pritchard in the street.

"His first impression arose simply from seeing Mrs. Pritchard at the time of her mother's fatal seizure, when he formed his diagnosis from the symptoms that were present, just as he was in the habit of forming his opinion of any patient he saw for the first time—judging from symptomatology, the science of the signs of disease. It

was not his duty to interfere in the family without being invited, as there was another doctor in the house, and he did the best he could by apprising the registrar when refusing to sign the certificate of Mrs. Taylor's death. Had he been called in consultation with another medical man, he should have felt it his duty to state his medical opinion; and had there been a *post-mortem* examination of Mrs. Taylor's body at the time, he believed that in all probability the drugging of Mrs. Pritchard with antimony would have gone no further, at least at that time."

When called in the second time on the 2nd of March, he said:—

"I believed her to be suffering under poisoning by antimony," and I prescribed accordingly. I saw her alone, but I did not give her any indication of what I thought her ailment. I did not mention antimony or poison in the slightest. I did not give her any idea that she was labouring under any but a natural disease, because the treatment which I prescribed for her, provided she got nothing else, was in my mind quite sufficient to have very soon brought her round, taking it for granted that my advice was carefully walked up to. I did not mention to Dr. Pritchard that his wife was being poisoned by antimony. It would not have been a very safe matter to have done so. I did not go back the next day to see if my advice had been acted on. I did not consider that she was my patient at all. I had no right or title to go back and see her. In any case where a consultation is held, the consulting physician has no right to go back to see the patient; it would be a breach of the etiquette of the profession."[149]

On *re-examination* Dr. Paterson stoutly adhered to his opinion that his being called in to see Mrs. Pritchard was purely accidental, and that it would not have been very natural to have communicated his suspicions to the husband.

PURCHASE AND POSSESSION OF MEDICINES AND POISONS BY THE PRISONER.

The prisoner, when it was suggested by Dr. Paterson that he should mix in his own consulting-room the prescription, on the 17th of March, told the doctor that he did not, like other medical men, keep in his house a small stock of medicines for any emergency. It was, however, proved that in the presses in his room were at least five-and-thirty bottles of medicinal preparations, and several papers and bottles of poisons; and that he had been a constant purchaser of poisons, and especially of Fleming's tincture of aconite and tartarised antimony, from September, 1864, to as late as the 16th of March, 1865.[150] According to the witnesses for the prosecution, the quantities of antimony and tincture of aconite bought by him were largely in excess of the amounts sold to other medical men, though not so according to the experience of two druggists called by the prisoner. Anyhow, as will be seen by the list in the note, the purchases were larger than could have been required in any ordinary practice. Besides the phials and papers subsequently proved to contain poison, in one of the presses was a bottle labelled Battley's solution, which was found to contain an appreciable quantity of antimony, to the extent of 1·5 of a grain per fluid ounce, and the remainder of the tapioca to be charged with 4·62 grains of antimony to the pound. A phial containing 3·5 grains of tartarised antimony, and three others containing tincture of conium, and six other phials with small portions of tincture of aconite, conium, and digitalis, were found in the prisoner's cupboard. In the chloroform, no metallic poison was discovered; but in a small wooden box with a screw cover were 15·5 grains of tartarised antimony and arsenious acid (the common poison of arsenic), in nearly equal proportions; 35 grains of tartarised antimony in a pasteboard box, and about ten drops of aqueous

solution of corrosive sublimate were found in a quart wine-bottle. [151]

MEDICAL AND CHEMICAL ANALYSES OF THE BODIES OF MRS. TAYLOR AND MRS. PRITCHARD.

Mrs. Taylor.

On the 29th and 30th of March the exhumed body of Mrs. Taylor was medically and chemically examined by *Dr. Maclagan*, the professor of medical jurisprudence in the university of Edinburgh, and *Dr. Henry Duncan Littlejohn*, surgeon of the Edinburgh police. In accordance with the admirable practice of the Scotch courts these experts gave in formal certificates "on soul and conscience," which were read in court before any personal examination was allowed. The medical report, after detailing the healthy condition in which the different portions of the body were found, concluded by stating that the examiners "had not been able to discover in the body any morbid appearances capable of accounting for death, and that they were of opinion that the cause of death could not be determined without chemical analysis, and that for that purpose they had secured the alimentary canal and its contents, the heart and some of the blood, the liver, the kidneys, the bladder and uterus, and a portion of the brain," which had been entrusted to Dr. Maclagan, of whose report the substance is now given:—

> "*Contents of stomach*, amounting to five ounces, having been first tested for vegetable poisons, and then for meconic acid, without success, 'the residues of the above process were tested for mineral poisons; and a preliminary trial, by Reinsch's method, having revealed the presence of antimony, I subjected the whole to a

process by which I was enabled to determine the amount of this metal (process then described). Assuming, for reasons afterwards to be given, that the antimony existed in the form of tartar emetic, the amount of this represented by the sulphuret which I obtained from the stomach was a little more than a quarter of a grain (0·279).

"*Contents of intestines.*—The whole contents were evaporated at a gentle heat on the water-bath, and a dry residue obtained, weighing 430 grains. Ten grains of this, by Reinsch's process, yielded a characteristic deposit of antimony. To determine in what form this antimony existed, other ten grains were treated with distilled water, the solution filtered, and the fluid subjected to Reinsch's process. A characteristic antimonial deposit was obtained, thus proving that this metal was present in a soluble form. There are only two soluble forms of antimony met with in commerce. One of these, the chloride, is a dark-coloured, acid, corrosive fluid, totally unsuited for internal administration. The other is what is known scientifically as 'tartarised antimony,' and popularly as 'tartar emetic,' a colourless substance possessed of comparatively little taste, and in daily use as a medicinal agent. I have no doubt it was in this form that the antimony had been taken, which I found in the alimentary canal of Mrs. Taylor. I endeavoured to determine the amount of antimony in the contents of the intestines, but the deposit was too small to enable me with confidence to make it the subject of a quantitative determination. No arsenic was found.

"*The Blood.*—From one ounce a characteristic antimonial deposit was obtained.

"*The Liver.*—By operating on 1000 grains of this, I obtained a quantity of sulphuret, indicating that the whole liver contained one grain and one-tenth (1·151) of tartar emetic. I also examined the other solid organs and tissues removed from Mrs. Taylor's body, in each case following Reinsch's method, and in each case obtaining on copper a characteristic antimonial deposit. I thus found that there was more or less of antimony present in the muscular substance of the heart, the spleen, the kidney, the coats of the stomach, and of the rectum, the uterus, and the brain.

"*Lastly.* As Mrs. Taylor's body had been exhumed, I thought it my duty to examine some of the earth in which it had been interred, though this was superfluous, from the fact of the soil being dry, and the coffin entire: it was not found to contain a trace of soluble antimony, and was therefore incapable of impregnating with this metal any body buried in it."

Mrs. Pritchard.

On the 21st of March a similar examination was made of the body of Mrs. Pritchard three days after death by the same medical men, who reported "that it presented no appearances of recent morbid action beyond a certain irritation of the alimentary canal, and nothing at all capable of accounting for death." They had therefore secured for chemical analysis those parts of the body which they deemed likely to disclose the cause of death. As a portion of this analysis had been conducted during the temporary absence of Dr. Maclagan in London by Dr. Gamgee and Dr. Littlejohn, previously to the report being read they were called to prove that Dr. Maclagan's report of what they had done in his absence was correct. The following was the substance of the report of the chemical analysis:—

"(1.) *Contents of stomach* amounted to little more than ½ an ounce, and free from all odour of any poisonous drug. Not a trace of any vegetable poison or of antimony was found.

"(2.) *Urine.*—The presence of antimony having already been ascertained in a portion of this secretion, the remainder (7 ounces) was employed to determine the quantity. The process followed was that by which antimony is obtained in the form of the sulphuret, after destroying the organic matter by means of hydrochloric acid and potash. The quantity was readily weighed, and found to be

rather more than one-tenth of a grain (0·1078). This corresponds to nearly one-fourth of a grain (0·121) of tartar emetic.

"(3.) *The Bile.*—A little more than ½ an ounce of this fluid was obtained from the gall-bladder. By Reinsch's process 50 minims readily gave an antimonial deposit. The remainder (4 drachms) used to determine the amount, yielded sulphuret of antimony corresponding to more than one-tenth of a grain (0·121) of tartar emetic.

"(4.) *The Blood.*—1 ounce, by Reinsch's process, readily gave evidence of the presence of antimony.

"(5.) *The Liver.*—The weight was 36 ounces, a portion of which, weighing less than 4 ounces (1460 grains), by Reinsch's process, gave sufficient antimony to coat rather more than four square inches of copper foil. (This experiment was satisfactorily tested by another process described in the report.) As to quantity, 1,000 grains gave of sulphuret of antimony 0·1234 grains, corresponding to a quarter of a grain of tartar emetic, making the whole amount contained in the liver almost exactly 4 grains (3·93 grains).

"I next examined the remainder of the solid organs removed from the body of Mrs. Pritchard, and found more or less antimony in the whole of them.

"I also examined certain articles of clothing and bed-linen handed to me by the officer, and in the stains on four of them—the chemise, two sheets, and a toilet-cover, on which was a stain as of wine—I found antimony. From these experiments I have been led to the following conclusions:—

"(1.) Mrs. Pritchard had taken a large quantity of antimony in the form of tartar emetic.

"(2.) Having regard to the absence in her body of any morbid appearances sufficient to account for death, and to the presence in it of a substance known as capable of destroying life, her death must be ascribed to the action of antimony.

"(3.) That it is most unlikely that this poison was taken in a single large dose. Had this been the case, I should have expected to

have found some more decided evidence of irritant action in the mouth, the throat, or the alimentary canal.

"(4.) That from the extent to which the whole organs and fluids of the body were impregnated with it, it must have been taken in repeated doses, the aggregate of which must have amounted to a large quantity.

"(5.) That from the large amount found in the liver, from its ready detection in the blood, and from its being found passing so copiously out of the body by the bile and the urine, it is probable that some of the poison had been taken at no greater interval than a period of a few days previous to death.

"(6.) That I am inclined to believe that it had not been administered, at all events in any great quantity, within a few hours of her death. Had this been the case, I should have expected to have found at least some traces of it in the contents of the stomach, and more in those of the intestines; whereas none was found in the former, and the amount found in the latter seems to be amply accounted for by the bile impregnated with the poison discharged into them from the liver.

"(7.) That the period over which the administration had extended cannot be determined by mere chemical investigation, but must be deduced from the history of the case, with which I am unacquainted."

Dr. Maclagan then stated what portions of the bodies he had handed to Professor Penny for further analysis, and described the result of his examination of the solid residue obtained from Mrs. Pritchard's body by the process adopted by Dr. Gamgee and Dr. Littlejohn.

"I determined the presence of mercury, and found a considerable quantity of antimony remaining in it. I got a clear fluid by operating on that residue with chlorate of potash and hydrochloric acid; and then passing sulphuretted hydrogen, I got a precipitate of a dirty

orange colour, which was collected, washed and boiled in strong hydrochloric acid. The yellow colour disappeared, and the precipitate became black. The hydrochloric solution was then mixed with water and tartaric acid, and it gave an orange precipitate which, when collected and weighed, amounted to 0.082, equal on the whole to 1.265 of sulphuret of antimony—rather more than a grain and a quarter—in the whole of the solid residue. This was in addition to what had been found in the intestines after the precipitate had been obtained by Dr. Gamgee and Dr. Littlejohn. A grain and a quarter of sulphuret of antimony is equal to two and a half of tartar emetic; the amount of tartar emetic in the whole of the intestines would be about five grains and three-quarters (5.712)."

In cross-examination, Dr. Maclagan deposed to the discovery of about the three hundredth part of a grain of mercury in the 50 grains of sulphuret; that in some cases he was not content with the mere presence of the deposit on the foil, but boiled the copper foil in potash—namely, with the contents of the intestines and with the liver—but otherwise was content with the coloured deposit.

Dr. Frederick Penny then gave in his reports on the portions of the bodies of Mrs. Taylor and Mrs. Pritchard, given to him by Dr. Maclagan. The following is the substance of the report in Mrs. Pritchard's case:—

"*Dried Contents of Intestines.*—By the first process employed an abundant black precipitate was obtained, which by proper treatment was separated into sulphide of antimony and sulphide of mercury. The sulphide of antimony, which was obtained of a fine orange-red colour, was washed, dried, and weighed. Its weight corresponded to a quantity of metallic arsenic equal to 2.1 grains in one thousand parts of the dried contents of the stomach. The same sulphide was found to be readily soluble in sulphide of ammonium, and also in hydrochloric acid; and the acid solution, when poured into water, gave a white precipitate, and when boiled with copper

ribbon deposited a violet-coloured coating on the surface of the copper. The coated copper, on being heated in a glass tube, gave no distinct crystalline sublimate. All these results are eminently characteristic of sulphide of antimony when thus treated.

"The sulphide of mercury gave metallic mercury corresponding to 3 grains in 1,000 grains of the dried contents of the intestines. The report then states how these tests were confirmed by further experiments on the solution by Reinsch's test supplemented by that of Marsh.

"*Stomach*, by the same methods, yielded antimony in appreciable proportions, equal to 0.5 of a grain in 1,000 parts, but no mercury; that it was afterwards treated for morphia and aconite, but not a trace of these substances was obtained.

"*Liver* found to contain antimony equal to one-tenth of a grain in 1,000 parts, but no mercury.

"*Spleen* yielded antimony in about the same proportion as the liver, and also contained mercury in well-marked quantity.

"*Kidney* about the same proportion as the liver, and a minute trace of mercury.

"*Heart* yielded antimony in a proportion rather larger than that found in the liver, and less mercury than in the spleen.

"*Brain* yielded antimony in less quantity than the liver, and no mercury.

"*Blood* yielded a small quantity of antimony, and a faint trace of mercury.

"*Rectum*, antimony in less quantity than the liver, and no indications of mercury."

In the case of Mrs. Taylor, *Dr. Penny* reported:—

"That all the articles submitted to him (liver, stomach, heart, kidney, rectum, blood, and dried contents of intestines), and subjected to analysis, contained antimony; (2), that the contents of the intestines contained the largest proportion of antimony (0.583

parts in 1,000 parts); next, the liver and stomach (0.047 of a grain in 1,000 grains in each); then the blood, and, in less quantity, the heart, kidney, and rectum; (3), that part of the antimony in the contents of the intestines was in a form soluble in water; (4), that the kidney was the only article in which mercury was detected; (5), that neither the stomach, nor the contents of the intestines, contained aconite or morphia in quantity sufficient to be detected by known chemical processes; (6), that the articles subjected to analysis contained no other metallic poison than antimony and mercury as reported above."

Dr. Penny also handed in his reports of the examination of the contents of the cupboards in Dr. Pritchard's consulting room, the substance of which has already been given. In the first of these reports, that of the 17th of May, Dr. Penny had stated that he was at present engaged in testing the bottle of Battley's solution (in which he had discovered antimony) for other substances, the result of which inquiry he now detailed:—

"I looked for mercury and other metals. I searched for aconite, and also for conium. I found aconite. This is tested chiefly by the taste of the abstract obtained by evaporation, and by its physiological action upon small animals. A portion of the fluid was evaporated to dryness, and the extract thus obtained was very carefully tasted, or its effects upon the tongue and on the lips ascertained by applying them to it. The effects were a tingling and benumbing sensation—characteristic of aconite. To another portion of the extract, dissolved in water, ammonia was added, and a precipitate was separated and examined in the same way, after being dissolved in diluted hydrochloric acid. The benumbing and tingling sensation produced by that precipitate was very slight. But the ammoniacal liquid, after the separation of the precipitate, was treated with hydrochloric acid, and evaporated, and the sensation produced by this residue was very strong.

"With a view to ascertain the character of aconite when mixed with Battley's solution, I mixed known quantities of tincture of aconite with Battley's solution, treating the mixtures in the same way. I took Fleming's tincture and the results were precisely similar; but when the proportion of aconite was equal to 5 per cent., the sensation was by no means strong; but when it was in the proportion of 10 per cent., it gave a sensation, though the same, much stronger than that of the liquid in the bottle. I draw the conclusion, therefore, that in this solution the proportion was between 5 and 10 per cent. I purchased genuine Battley's solution at several establishments in Glasgow, including that of 'Murdoch Brothers,' and was satisfied that none of them contained either antimony or aconite."

Dr. Penny then detailed his experiments with pure and impure Battley's solution on rabbits. Genuine Battley, when injected under the skin, did not kill; 40 grain drops from the bottle found in Mrs. Taylor's dress did.

"I made in all about ten experiments with the genuine Battley's mixed with Fleming's aconite. I will tell you the result of two experiments. In one set I injected a mixture of Battley into three young rabbits, and in a third into full grown rabbits. In the first set with young rabbits I injected 10 grains of genuine Battley's solution. In the second experiment with a young rabbit I injected 10 grains of this Battley's (that found in the prisoner's cupboard); in the third, I injected a mixture of 9 grains of genuine Battley, and 1 grain of Fleming's tincture of aconite. In the cases of the old rabbits I proceeded in a similar way, only increasing the dose to 40 grains. The symptoms manifested by the rabbits, old and young, subjected to the action of genuine Battley, were simple in character and few in number, and were not materially altered by the variation of the dose. The animal soon assumed a prone position, resting on the belly and chest, and the head invariably resting on the ground. The forelegs were either sprawling or gathered under the body, the hind legs always extended sideways; the eyes remained open, and the pupils

were natural and not contracted; the breathing was invariably gentle; no cries were uttered, and no convulsions or spasms of the body were apparent. There was a complete condition of inanity, and, with the exception of the open state of the eyes, the animal seemed to be in a state of profound sleep. There was no indication of spasmodic movement, and, when aroused and urged to motion, the movements were always performed in a crawling, tortoise-like manner. In this state the animal remained for several hours, and then gradually recovered.

"The effects produced by the mixture of genuine Battley with aconite presented a striking contrast to those resulting from pure Battley. Very soon after the injection the animal became restless and uneasy, and then began to crouch, resting on its flank, with the hind legs extending laterally, and the head erect. It next assumed a sitting posture, in an attitude of watchful expectancy, and commenced to twitch its lips and move its jaws as if chewing. Suddenly it staggers, rolls over, and quickly regains its feet. Saliva begins to flow from the mouth, and soon after piteous and peculiar choking cries are emitted. Its head is retracted, and the breathing is painfully laborious. Convulsions now set in, followed by intervals in which the limbs are quite relaxed, and the animal lies helpless on its side. Frantic leaps are now frequently taken, accompanied by movements of a paralytic character. A state of utter prostration also occurs, variable in duration, and then a strong convulsion comes on, during which, or immediately after which, the animal expires, the limbs becoming instantly relaxed.

"*The symptoms exhibited by the rabbits subjected to the Battley from the prisoner's cupboard responded in every important respect with the effects produced by this mixture, and it was impossible to detect any essential difference in them.*"

The Battley's solution used by Dr. Penny was not purchased from "Murdoch Brothers," but he had purchased and analysed some from that house, and it was exactly similar to that which he had used. He had also been present when the same experiments as

his were tried on rabbits by Dr. Maclagan, in the presence of Drs. Christison, Gamgee, and Littlejohn, with the same result as in his experiments. Dr. Penny was then examined on Dr. Maclagan's report of his *post-mortem* examination of Mrs. Pritchard's body, and on the symptoms exhibited by her from the time she was taken ill in 1865 down to her death. Replying purely as a chemist, and not as a medical man, he declared them to correspond with the action of tartar emetic or tartarised antimony. He further accounted for the presence of the small portions of mercury by the administration of Dr. Paterson's powders, *Hydrargyrum cum creta*, shortly before death. In Mrs. Taylor's case he considered the vomitings to be the result of the antimony, which had been traced by the analyses, and repeated the conclusions, already given, to his reports on both bodies.

Dr. Maclagan, who was recalled, declared that the whole of the symptoms in Mrs. Pritchard's case, from Christmas, 1864, until her death—the sickness and vomiting, muscular depression, irritation of the bowels, and cramp in the stomach—were symptoms of poisoning by antimony, and could not, as a medical man, suggest any natural disease to which they were due, that he could assign as the cause of death. He had never seen antimony when rubbed into the skin (referring to the prisoner's statement that he had done so for a swollen gland in his wife's neck) produce any constitutional effect. The fact of Mrs. Pritchard some years ago having taken antimony internally for inflammation of the eyelids would not account for the symptoms; and he agreed with Dr. Penny that the traces of mercury were due to the powders prescribed by Dr. Paterson. "There was nothing in the case," he added, "to indicate to a medical man of ordinary intelligence that she was suffering from gastric fever, or any other fever"; and he adhered to the conclusions already given in his report, that she had been poisoned by minute

doses of antimony in the form of tartar emetic given at intervals over a long period of time.

Dr. Maclagan attributed Mrs. Taylor's death to something more than antimony—some powerful, depressing poison.

> "The symptoms," he said, "might be produced by aconite—being found with her head fallen on her neck, and hardly observed to breathe, her pulse almost if not absolutely imperceptible, and the dozing, torpid state in which she lay, were such as would result from aconite. Though he might know in a case that aconite had been taken, he might not be able to find it by chemical analysis: these organic poisons—all the alkaloids—are very often not found, though known to have been taken. The administration of opium might diminish the effect of antimony in causing vomiting and purging, but its depressing effect on the muscular system would still remain; and if opium, aconite, and antimony were being administered at the same time, he should anticipate symptoms such as appeared in Mrs. Taylor's case. Taking the symptoms and the results of the *post-mortem* examination together, the idea of apoplexy was satisfactorily excluded from his judgment; and assuming the correctness of Dr. Paterson's description of the symptoms he saw, he should not have concluded that it was apoplexy, nor did he think any other medical man would have. He was satisfied with the presence of aconite in the Battley's solution, without the experiments on the rabbits, which only confirmed it."

The *cross-examination* of this witness was directed to the question whether the symptoms in Mrs. Taylor's case did not indicate poisoning by opium, probably arising from an overdose of Battley's solution.

> "I saw," said the witness, "no precise indications of poisoning by opium, though I cannot say that she had not taken some. I think aconite was the leading feature in the final part of the case. The symptoms described by Dr. Paterson did not, in my mind, indicate

poisoning by opium or laudanum at all. They were not inconsistent with her having taken opium, but they were not consistent with her having been poisoned by it, and with the ordinary symptoms. The symptoms of aconite predominated. If she had taken opium alone I should have expected to find the pulse full and slow, and probably the breathing laborious and stertorous. Though these were absent, I could not say that she had not taken opium, particularly if she had been accustomed to its use." *When reminded from the judge's notes that Dr. Paterson had described the breathing as "laborious," he said*, "It does not make much, indeed not any, modification of my view, because the condition of the pulse showed the action of aconite on the heart. Laborious breathing is an indication of many things besides opium." *When reminded that Dr. Paterson spoke of her being in a state of "coma*," he admitted that that generally indicated opium and not aconite, but added that here "it was more oppression than true coma," and assumed that Dr. Paterson did not use the word scientifically, but as many persons did to describe insensibility. "*But," said Mr. Clark, "you pointed to the absence of 'coma' as indicative of poisoning by aconite.*" "I spoke of her," replied Dr. Maclagan, "being in a torpid condition, which I think was connected with the weakened state of the circulation and not from fulness of the brain. Opium, like aconite, is a vegetable poison, and is absorbed into the system: a person may be poisoned by it without any trace remaining in the stomach or the system capable of being detected by chemical analysis. All mineral poisons are more easily detected, but I am not prepared to give into the statement broadly that a person cannot be poisoned by antimony without it being capable of detection, though I cannot recollect such a case. The quantity here found in both cases was considerable. The expectation is that the chemical analysis will detect it, but there may be exceptions. The fact that Mrs. Taylor's eyes were contracted is an indication of poisoning by opium, but it also occurs in aconite, though the cases vary a good deal in that respect, from people, as I think, having observed the symptoms at different stages; and the probability is that contraction had been produced at first, and then relaxation at the time all the muscular parts became relaxed—

namely, at the time of death. Aconite is applied externally in neuralgia."[152]

Dr. Littlejohn, who was next called, concurred in the opinion that there was nothing to indicate gastric fever in Mrs. Pritchard's case, and that her death was due to the continuous administration of small doses of antimony from the commencement of her illness to the day of her death, and that the result of the chemical analysis was such as he should, on that supposition, have expected. On the cause of Mrs. Taylor's death he was not so certain.

"It seemed to me," said the witness, "that she might have died from a dose of antimony administered shortly before death, or else from some sedative narcotic poison. I have no difficulty in saying that she died of poison, but only as to the particular poison which killed her. I am inclined to believe that the symptoms in her case were mixed to some extent, like the symptoms of narcotic poison, and to some extent like the symptoms of antimony. There was nothing to show that she died of apoplexy, and the *post-mortem* examination did not indicate any such. In the failure of circulation and great depression and spasms, and the state of insensibility, I recognise the action of antimony; in the later stages of antimonial poisoning we have generally great insensibility. The hot taste in the mouth and burning sensation in the throat after taking the bit of cheese suggest a large dose of antimony, and also suggest a strong dose of narcotic poison—they suggest many things besides cheese. That it caused violent sickness in the case of one of the servants for some hours is quite consistent with antimonial poisoning. In large quantities it would produce a burning sensation in the throat. I have tried it in large quantities, and the secondary sensation is always in the throat, and it did produce a burning sensation. That the egg flip gave the same effect in the case of the servant points to the use of antimony or some substance resembling it. Various other emetics might produce these effects. Egg flip is a convenient medium for administering antimony, as it readily dissolves in it, and sufficient

antimony could be dusted on loaf sugar to produce sickness. Sugar is very porous, and antimony, being a white powder, could be dusted over it, and a large quantity absorbed in it—sufficient, not to kill, but to keep up the illness."

In cross-examination, the witness adhered to his opinion as to the suitableness of egg flip when the hot water had been poured on it, as a medium for antimony, and to the possibility of a sufficient quantity to produce sickness being conveyed into the cup on two pieces of loaf sugar. Though he had not made any special experiments to support this opinion, he considered himself, from his special acquaintance with tartar emetic, entitled to answer in the way he had done. He did not consider opium as a sedative but as a narcotic, and, in his opinion, aconite was a sedative narcotic. There was nothing impossible for Mrs. Taylor to take opium, and for that to contribute to the symptoms.

Dr. Paterson, who was re-called, was quite confirmed in his previous opinion of the cause of Mrs. Pritchard's death from the evidence he had heard. Mrs. Taylor's death, he thought, had been caused by opium, but there might have been some other narcotic combined to him unknown, and he thought that aconite and opium combined would contribute to the effect and hurry the termination; but he never in his practice had seen any person poisoned by such a combination. He had not the slightest suspicion of antimony, and the narcotic effect was such when he saw Mrs. Taylor that he did not believe that he could recognise the effect of antimony. The narcotic effect would overpower the other, and laudanum would interfere with the usual effect of antimony. What he called stertorous breathing was rather oppressed breathing—snoring and stertorous breathing were the same thing. "By coma," he added, "I meant insensibility—it means that, especially insensibility under opium; and my impression was that it was opium alone, or some of

its preparations: it might be morphia." Now that he had heard of the discovery of antimony in the body, he believed the death to be due to a combination of antimony and opium, a smaller dose of the latter being likely to have a greater effect, in consequence of the condition of the body produced by the former. If the opium contained upwards of five per cent. of aconite, the effect, he considered, would be much more rapid and more likely to be fatal.

On the conclusion of the medical testimony witnesses were called to prove that at two banks in Glasgow, where Dr. Pritchard had accounts, these were overdrawn on the 20th of March—that he borrowed to the extent of £255 on his life policy, the last advance being as late as the 13th of May—that his mother-in-law had advanced him £500 towards the purchase of his house, and that under her will he would be entitled, in the event of the previous death of his wife, to the interest on two-thirds of her property for the benefit of his children until they attained twenty-one years, and then "for his own use as he might consider proper." Letters of Mrs. Taylor and Dr. Pritchard were identified, in one of the latter being an entry under February 7th, "Dr. J. M. C. here; on February 8th Dr. J. M. C. left"—namely, Dr. Cowan.

THE PRISONER'S STATEMENTS.

In accordance with the Scotch practice, two declarations were made by Dr. Pritchard before the sheriff, one on the 22nd of March, and the other on the 21st of April. The *first declaration* was as follows:—

> "I have always attended my wife in all her ailments of every kind during the whole period of our married lives, now fifteen years, and some of these illnesses were very severe; but I never saw her so ill as she was on the occasion which terminated fatally. As far as my

judgment goes, her last illness was gastric fever, which commenced about the beginning of the present year. I gave my wife no medicines during her illness excepting wine, champagne, and brandy, to support her strength; and I gave her no medicines at all. I trusted to nature to right itself, with the assistance of these restoratives. During the last six weeks her power of sleeping entirely went away. In order to procure sleep I gave her, at the commencement of her sleeplessness, a small quantity of chloroform, but it entirely disagreed with her, and I discontinued it. I then called in Dr. Gairdner, professor of medicine in the university, and he visited and saw her several times; and he continued to attend her till her old medical friend, Dr. James M. Cowan, returned, and he came from Edinburgh to see her.[153] I then wrote to her mother to come and nurse her, and she arrived about the 11th of February last; and her arrival had a beneficial effect upon Mrs. Pritchard for some time, but still the sleeplessness continued; and shortly after her mother's death, which happened on the 25th of February, she relapsed and became much worse, and very apprehensive about herself, and she suggested to me the adoption of a medicine with which her mother was very familiar—Battley's solution of opium—but I declined to give her any without first consulting Dr. J. Paterson, who lived close by. I saw him, and consulted him, but he did not see Mrs. Pritchard on that occasion, and he did not approve of using the solution of opium. He prescribed granulated citrate of magnesia, calomel, mercury, and chalk, and I acted on his advice and administered the medicine, and it seemed to have a beneficial effect.[154] Some time after, finding her sleeplessness still continued, I, at her own suggestion, applied a solution of atropine to the external parts of the eye, and it had a little effect for some time, but the effects soon ceased. After her mother's death, she became rapidly worse; indeed, I ascribed her decease to the agitation consequent on her mother's death. At the time of the last event she was strongly impressed with the idea that she would herself die at the same time as her mother; in fact, she did die on a subsequent day at exactly the same hour. On the night preceding her death she was

apprehensive that, unless she got sleep, she should not get through the night. I went for Dr. Paterson, who came immediately and sat for a considerable time by the bedside, and afterwards dictated a prescription, which was made up at the Glasgow Apothecary Company's shop at Elmbank-street. It will be found in my desk at home. It was for two draughts to be given four hours after the first if it did not succeed. She got the first draught as prescribed by Dr. Paterson about ten o'clock, but she said after drinking it that it was not half strong enough, and asked if she might have some of her mother's medicine. I refused to give it her, and said I dare not do it. I gave her a glass of port wine, and sat carefully watching for a short time. I then went down stairs and had supper, and, after being absent for some time, returned to see if she had got to sleep. I found her awake, and she wished me to give her something to make her sleep. I refused, and she then asked me to come to bed, as I must be tired with the weary nights of watching. It was then about twelve o'clock. I tried to persuade her that I should sit up to watch her till past the time when her mother had died; but to please her I got into bed, and almost immediately I fell asleep from the state of exhaustion I was in; was awoke by her pulling at my beard, and found my wife struggling to get into bed. She appeared to have got out of bed. She said, 'Edward, I am faint.' I assisted her into bed, and asked her how long I had been asleep, but she answered, 'Don't speak; look! do you see my mother?' I said 'No, it is only a vision; only imagination,' and asked if she felt pain. She said she felt cold, and I need try no more skill; that I had failed this time, and that she was going to her mother. I got alarmed and rang the bell violently, and the youngest servant came. I desired her to make a mustard plaster as quickly as she could, and on that my wife turned round and said, 'Edward, I'm in my senses; mustard plasters will do no good,' and almost immediately she fell back in my arms and died. The servant came with the mustard plaster, and found her in that position. I did not give her any other medicine at that time except a little brandy applied to her lips.[155] During the whole course of her illness I never gave her any antimony, nor any medicine in which there was

any preparation of antimony. Antimony is a poison, but it is used occasionally to subdue inflammations, and I applied it to her neck, in October last, when she was plagued with a swelling gland in the neck. I rubbed it in externally on that occasion, and I have never given her any antimony since. On that occasion I recommended change of air, and I gave her a little bottle of antimony with her for the same purpose of rubbing in behind the ear. She went to Edinburgh at that time, and she returned to Glasgow very much better, and I have never seen the bottle of antimony since she got it away with her. There was a considerable quantity of antimony in my repositories at the time of my wife's last illness, as I used it extensively in my practice, and it was kept in a cupboard of which I had the key, but which was not always locked. I did not see any of it brought out, or lying about, during her illness. The cupboard where the antimony was is in the consulting-room on the ground flat, and she was so weak on the day of her death—Saturday—and on the Friday preceding, that I do not think she had strength to have gone to the cupboard herself. My wife took the antimony internally on one occasion when she had a tendency to inflammation of the eyelids. This was years ago, and I never knew her to use it internally, except on this occasion. I never administered antimony to her internally on any occasion, nor any other substance calculated to injure or destroy life."

In the *second declaration*, made on the 21st day of April, 1865, he confirmed the correctness of the former one when read to him, denied the charges as laid in the indictment, and elected to make the following voluntary statement with reference to Mrs. Taylor's death:—

"I never administered poison to her. I did, and I do believe, that she died from paralysis and apoplexy. I have no further statements to make, and by the advice of my agent will make none, with the exception that I am entirely innocent of the charge preferred against me."

Being asked by the Procurator Fiscal whether he ever administered or caused to be administered to the said Jane Cowan or Taylor tartarised antimony, declares:—

> "My agent recommended me to say nothing, and I decline to answer the question, and, as I act under my agent's advice, it is unnecessary to put any further questions."

EVIDENCE FOR THE DEFENCE.

With this evidence the prosecution was closed late on the third day, and on the next the defence was opened by calling witnesses on the Prisoner's behalf.

Dr. Michael Taylor, Mrs. Pritchard's brother, had seen her on the 28th of February, a few days after his mother's death, when she objected to Dr. Gairdner again visiting her, and to following her brother's advice to have a nurse, as she did not like strangers about her. He also identified as her writing two letters from Edinburgh to her husband at the time of her visit to her parents in November, in which she spoke of the slowness of her recovery and her inability to go out, except two or three times.

Mr. Simpson, a partner in Duncan & Co., Chemists, in Edinburgh, remembered Dr. Pritchard, some four years ago, purchasing Battley's solution at their shop, and that shortly afterwards other purchases of this compound were frequently made in his name by one Thomson, whom he recognised, down to the beginning of 1865. *Fairgrieve*, another chemist in Edinburgh, spoke to repeated purchases of this compound by or for Mrs. Taylor for several years before her death, once in a 5-oz. bottle, but generally in bottles of 2 oz.[156]

Two other witnesses proved that they consulted Dr. Pritchard for affections of the ear, and that to the first he gave a bottle labelled "poison—2 drops in each ear every night," and to the other a tonic of glycerine and strychnia; the object being to account for the numerous poisons found in the cupboard in his consulting room.[157] *Dr. McHattie* proved that there were not the necessary drugs in the cupboard to enable the Prisoner to make up Dr. Paterson's prescription,[158] and afterwards his eldest son certified that his father and mother lived happily together, and his daughter, who lived chiefly with her grandparents, that they were fond of each other. The evidence for the defence then was closed.

THE SOLICITOR-GENERAL'S SPEECH.

In addressing the jury on the evidence, the counsel for the prosecution drew their especial attention to (1) the fact—not contested and not contestable—that though none of the medicines prescribed by the medical attendants on both of the ladies had contained any preparation of antimony, antimony was found in their bodies—in that of Mrs. Pritchard in such proportions as could only be accounted for by a long continuous administration of that drug—in Mrs. Taylor's sufficient to so reduce her system as to increase the operation of any narcotic poison; (2) that the notion of this having been taken by accident was excluded even by the prisoner's own statement, and that the idea of suicide was entirely at variance with the characters of the sufferers, and in the case of the wife with the fact that suicides do not choose "a long, lingering, and painful death;" (3) that the prisoner had in his possession the means of administering poison as well as the opportunities; (4) that in the three cases in which symptoms of antimonial poisoning were felt by those who tasted the cheese, the egg flip, and the tapioca,

the prisoner had the opportunities of dealing with these articles of food before they were sent to his wife; (5) that in the remnant of one of them—the tapioca—antimony to a large extent was found; (6) that in a bottle of Battley's solution found in the pocket of Mrs. Taylor after her death aconite in deadly proportions was detected; and (7) that there was a pecuniary motive, paltry as it might be represented to be, to induce the prisoner to commit both these murders.[159] Who, then, he said, put the antimony into the food? who put that and the aconite into the Battley's solution?

> "Who, then," continued the *Solicitor-General*, "was the murderer? For there was a murder—a deliberate, cold-blooded, cruel murder—committed in that house. Who was it? We know the inmates. There were the two students of medicine. I suppose you may lay them aside as having nothing to do with it. Suspicion does not attach to them, neither had they the opportunity. The servants change in the course of the enacting of this dreadful tragedy—all but one. Catherine Lattimer was there until the 13th of February. The poisoning went on after she left—the deaths both occurred after she left. She was not the poisoner, nor was there a breath of suspicion about her. Mary Patterson comes on the 16th of February. The poisoning, indeed, goes on after she comes; but it had commenced long before—weeks before. We, therefore, lay her aside. There was Mary McLeod, a girl under seventeen, the only remaining grown person in the house during the whole course of the administration to which I need refer. I need not take any notice of the children, who were the only other inmates of the house. See, then, to what we have come. There was a murderer in the house—a murderer practising the dreadful art of slow poisoning from the end of December till past the middle of March. The only two grown persons, except the boarders, who were in the house during that time—the only two who had access to the patients—were the prisoner at the bar and Mary McLeod. This is narrowing the case to a very short question. I have excluded every other idea from the case, by fair,

> legitimate, convincing argument, upon evidence that is not open to dispute. I have excluded the notion of natural death. I have established the fact of death by poison. I have excluded the idea of death by accident, by suicide, by the administration medicinally. You are shut up, therefore, to murderous administration.... I find that the only two who had access to these miserable victims, and had any opportunity to perpetrate the murders with which they are charged, were the prisoner and this one girl. Now, pray, consider, with respect to the wife, upon the question whether or no the prisoner is not the man clearly proved by irresistible evidence to be so, what was the nature of the murder? *It was a murder in which you almost detect a doctor's finger.* It is gradual poisoning—poisoning so as not to kill but to weaken; leaving off for a day, and then resuming again—one day better, two days worse. During the whole time the patient exhibited the symptoms of vomiting and purging, the result of the action of antimony. You have that going on for a long time under the very eye of a medical man, the husband of the victim, who was in close attendance upon her. Do you think anybody else—do you think a girl of seventeen could have done that deed? She knew nothing about antimony.[160] If she did not do it, the prisoner must have done it. And what is his case? His case respecting his own wife, who was thus demonstrably being poisoned by inches under his very eye during this long period—what is his case? "I thought it was gastric fever," he says. Gastric fever! Nobody could have thought it was gastric fever. Nothing like gastric fever in it. Nothing like anything except what it was—slow, cruel poisoning, which brought, in the course of two or three months, this poor woman to the grave, with such an amount of poison in her body."

Referring, then, to the false statements made by the prisoner in the case of Mrs. Taylor—that she had tumbled off her chair in his consulting room in a fit, and been carried up to bed, when it was proved that she had walked up to her bedroom from his consulting room—had during the evening called to one of the servants to go out and get sausages for supper—had had no tumble or fit, and that

the doctor himself knew nothing about her attack till the bell rang violently three times—that hot water had been taken up by the servant to make her vomit—the strange statement to Dr. Paterson before the bottle of "Battley" was found in Mrs. Taylor's pocket, that she had purchased half-a-pound of it a few days before—the false certificate of her death, "paralysis for twelve hours and apoplexy for one hour," when there was no paralysis except the paralytic affection caused by the aconite, and that was not before she went upstairs at nine o'clock in the evening, only four hours before her death: then referring to the tapioca purchased entirely for Mrs. Taylor's use, into which antimony was put by some one; the Solicitor-General said:—

> "Keep in view that the method of poisoning alleged against the prisoner here is not the giving a dose that would kill, but the introducing it into the food in such quantities that the taking would not kill, but produce sickness merely—the intention being to produce and continue the sickness for months, the fatal termination then supervening. A poisoner in this way practises the dreadful art successfully, and could not be very apprehensive of even himself or any one else taking the food accidentally, as it would only make them sick. He knows that to produce death it will be necessary to continue it for a long time. Into this tapioca antimony is introduced —sufficient to produce sickness in anybody taking it, but not death. But Mrs. Pritchard does not get this tapioca. It is taken by Mrs. Taylor, and she is seized immediately by symptoms of poisoning by antimony. She is sick in the same way—I think she expressed it—as her daughter was; because the effects were the same. That tapioca was not put away, as it might be required again; and if Mrs. Pritchard had wanted tapioca again, she would have got that, and the poisoning would have been carried on by its means. If anybody else got it, it would be a misfortune, but not much more. And who could have introduced it but the master of the house, who was an adept in such a mode of poisoning.—I do not know how many, if more than

one, partook of poisoned food; but some food had been poisoned. I take that for granted, and that it had been taken by one of the boarders, Connell, I think. But that is not presented as part of the case. He was one day more or less sick. The prisoner does not seem to have been alarmed about it—he does not seem to have been alarmed even when he himself was sick upon some occasion in February. He knew very well there was no occasion for alarm, for sickness was the end of it; that it would require a long sickness in order to produce anything like a fatal result."

Briefly, then, reviewing the points he had made, the Solicitor-General concluded his exhaustive address.

THE DEFENCE.

Mr. Rutherford Clark, in the opening of his speech, urged on the jury that the enormity of the double crime required it "to be proved by evidence strong, clear, overwhelming, that brought home to their minds and consciences, without the slightest suspicion on the testimony, the guilt of the prisoner," and that "the motives assigned for it were not such as could ever have, in the slightest degree, actuated any human being to the commission of such hideous offences." Whilst he could not deny that he had the opportunity of committing the crime, he contended "that it went a very short way—indeed no way at all—in even suggesting or indicating his guilt."

"If," he said, "you find a case where crime is committed, and where the person charged with committing it has made an opportunity for himself—has been zealous in obtaining opportunities—then opportunity is of the greatest possible importance and the strongest possible evidence; but to say that he has opportunity in this case is nothing more than to say it was likely, as indeed it was true, that the husband who was attending the sick

bed of his wife, should carry to her some of her meals, and send up others with her meals. But that he should do so is, I am sure, nothing unnatural—nothing to suggest guilt. It would have been frightfully suggestive of guilt, if, instead of sending up these meals, and taking them up himself, he had always chosen some other agent to carry them up and to administer the food she was taking. If that had been the case, I should have been inclined to say that the Crown would have had a case much more strong to indicate guilt, than they have when, as it is stated here, that he was administering to the comfort of his wife while upon her death-bed."[161]

On the point that the prisoner was in possession of the means of poisoning, "he was," he said, "by profession a doctor, and had, no doubt, as most doctors have, considerable quantities of drugs in his possession. Whether he had more than most medical men kept in their houses was a matter of opinion, but it was absurd to suppose that he accumulated these large quantities of most powerful and destructive poisons—a minute dose of many of which would have been fatal—for the purpose of murder."[162]

"But," continued *Mr. Clark*, "it is not unimportant, in considering this question, and it is very important especially in considering the argument of the Solicitor-General, that these poisons were kept, not in any locked press, but, on the contrary, within the reach of the household. It is a remark I have made, that there was not one of the poisoned articles of food which ever reached the lips of Mrs. Taylor or Mrs. Pritchard without passing through other hands than the prisoner's, and it is odd enough that, in regard to each of them, the person who administered it and who carried away the food left, is this girl, Mary McLeod. It will not do for the Solicitor-General to say, 'I have established that one of two persons must have committed these crimes,' and that you can trace the particular finger of the medical man in connection with them. Probability will never support a conviction. It will not do for him to say, as regards the death of Mrs. Pritchard, that it was the act either of the prisoner or

Mary McLeod, and that it was not likely that a girl of under seventeen would have the skill to do it. Do you not think that he shrinks from the onus of proof when he accepts this convenient mode of getting rid of the difficulty, as he must prove that it is one of those two who did it. He must prove by evidence that it was not Mary McLeod or some one else in the house, and it was only by showing that it was not Mary McLeod, that he can bring this charge home, to the prisoner." [Mr. Clark then noticed that the question was put to Lattimer whether she put anything into the tapioca, but that that question was not put to Mary McLeod.] "It is a singular omission in the case of the Crown, which necessarily depends upon being able to select between those two persons, whom the Solicitor-General stated were the only two who could have committed the murder, that they did not venture to put the question to exclude upon her evidence the fact that she might have been guilty. And this is all the more strong that I shall trace every article of poisoned food immediately through her hands."[163]

Subsequently he reviewed the evidence as to each of the three poisoned articles of food.

"Let us see," he said, "about this tapioca:—it was suggested, apparently through Mrs. Taylor, that Mrs. Pritchard would like some. Accordingly some tapioca is brought by a little boy, and it is brought in, and received by Mary McLeod. She says she placed it for some short time on the lobby table. Catherine Lattimer says Mary McLeod took it down to her, but Mary says Mrs. Taylor did. Now the suggestion of the Crown is that the prisoner put antimony in this tapioca, so nicely adjusted to the quantity bought as to produce sickness leading to death, but not so as to produce death itself. It would certainly have been of some importance to have shown that he had any opportunity of administering or putting any poison into it, but it is not proved—there is not a shadow of evidence that he had any opportunity, or to show that he was in the house at the time. He was a man accustomed to exercise an active

profession, and, of course, would naturally be out at that period of the day; but at all events it is not shown that he was aware that his wife desired tapioca, or that his mother-in-law had ordered it. It is not even shown that there was the least possibility of his introducing antimony into that bag. It is prepared and carried up by Mary McLeod to her mistress, who declines to take it, and it is taken by Mrs. Taylor, who was taken ill after partaking of it."

Again, as to the poisoned bit of cheese:—

"It is spoken to by Mary McLeod. She tells you she had taken up the tray for supper, and that on it was the cheese and other things which were placed on the table at which Dr. Taylor and the other inmates of the house are sitting; that she came out, and that, on returning again, Dr. Pritchard handed to her a piece of cheese to take to her mistress. She did not see him cut off the piece of cheese, but he handed it to her sitting at the table; and it is perfectly obvious it must have been cut off the cheese eaten by the family at supper. If he placed antimony upon it, it must have been in the presence of the persons at supper—a piece of yellow cheese which must have indicated the powder of tartarised antimony, if placed upon it.[164]— It was not asked if it were possible to put this tartarised antimony upon the cheese while sitting at supper. I leave you to judge if it were possible. It was taken up oddly enough—I cannot help noticing the coincidence—by Mary McLeod. She says she ate part of it, and that it did her no harm; but the residue was taken down into the kitchen and eaten by Patterson, and she suffered from vomiting."

Again, as to the poisoned egg-flip:—

"The doctor comes and tells his servant to prepare some, a thing not unnatural to be taken by a person with a delicate stomach, and for a medical man to order. But it is said this was a plot for Dr. Pritchard to get in his drugs in this way. He supposes that he went through the dining-room and got the sugar, and then into the

consulting-room, and then into the pantry, and dropped the pieces of sugar, on which he had put antimony, into the egg. Does he give any proof of this? Does he suggest anything more than suspicion? The Crown seems to have doubted whether he could on the sugar have put in so much antimony as to have produced the effects which the servant girl says she suffered. Dr. Littlejohn thought it possible, but he had never tried the experiment. A possibility at the best—a large possibility—that he could have put in the drug. Was the egg-flip capable of producing the effects which are said to have been caused by it? 'Barely possible,' according to Dr. Littlejohn. What is its history: does it pass through his hands? No. It was left by Patterson in the pantry, and Mary McLeod came down for it to the kitchen. She was told it was in the pantry, and she goes up to bring it down again. There, again, you have Mary McLeod intervening in the matter, notwithstanding the dilemma on which the Solicitor-General placed his case: she it is who carries it up to the bedroom, and she it is who administers it to the patient who is suffering there. There is another remarkable thing in this case. The amount of antimony introduced must have been a very powerful dose, because, taking only a teaspoonful of the egg-flip as Patterson did, she lay vomiting and suffering all night. Mrs. Pritchard took a wine-glassful, and vomited for about half an hour afterwards. Surely if a strong woman took only a teaspoonful, and a weak woman a wine-glassful, she would have been destroyed by the poison that had so powerful an effect on the former."[165]

Again, with reference to the bottle of Battley's solution found in Mrs. Taylor's dress after her death, into which it was suggested that the prisoner had put the aconite and antimony discovered in it, said Mr. Clark:—

"He knew, no doubt, that she was taking it, but it is not in the least degree proved that he knew where it was, in what bottle it was, or where Mrs. Taylor kept the bottle. Mary McLeod did know, for she bought it for Mrs. Taylor. But what is the ground of suggestion

that aconite had been put into that bottle before Mrs. Taylor had it? All that you have is that Drs. Maclagan and Littlejohn say there was, and that they were contradicted by the person who actually observed its effects. And what became of this bottle? It was found on her person after her death. Is it possible to suppose that he had the means of getting at the bottle before her death to introduce the poison? How could he? It was carried about her person, and there is not the slightest suggestion that he ever had access to it; and yet you are asked to act upon that suggestion, because it is said, 'You may probably trace the administration of a medical hand.' No: probabilities are not in this case. It is proof, and proof alone, that we can go on. What was the history of the bottle? It was found in her clothes, no doubt, when the body was being dressed by Patterson and Nabb, and even they did not know the very great quantity, perhaps, that this old lady had taken. But still more, supposing that she should take no aconite, she had taken sufficient of the mixture to account for her death. Assuming that the highest mark on the bottle, as taken by Dr. Paterson, is a correct one, it would come to be not less than 2¾ ounces that had been taken. It was shown that the bottle was put by for some time; but if it was taken away after the murder, that is of very little consequence. If he had put antimony in it, would it not have been very easy for him to have thrown the bottle aside? But instead of that, we have him expressing his surprise to these two women that she had taken such a great quantity. He takes away the bottle, and brings it back again, and there it remains until examined by Dr. Penny, who then finds that it contains some aconite and antimony. But where is the shadow of a proof that he put it there? The bottle was lying open—was not locked up in any way: it remained in the house from the death of Mrs. Taylor till after the prisoner was apprehended, more than a month afterwards. Any person in the house might have access to it, and yet all that can be suggested to prove that the prisoner put in this antimony and aconite before her death was contained in the observation of my learned friend, that you could trace, or that you could *probably* trace here, the finger of a medical man."[166]

The false statement in the certificate of death, Mr. Clark attributed to a desire of sparing the feelings of the husband. He did not justify the morality of the act, but, looking at the circumstances, asked the jury "if there was any degree of guilty knowledge when he asked Dr. Paterson to inform his father-in-law of the cause of death, and he was only forced to take that step by his refusal." With Dr. Paterson's manner in the witness-box he naturally dealt in the most severe language of reproof and censure.

> "I do not believe," he said, in concluding his remarks on this witness, "he saw any symptoms of poisoning, or he would have acted as any other medical man would have acted—unselfishly, nobly, and generously in this matter. And when you see that this is inconsistent with the whole conduct of the profession to which he belongs, I ask you to disbelieve many of the statements he makes. You cannot rely on these statements, given with a bias, for he tells you what is incredible, or only credible at the loss of his own honour, which I am sure he will strive studiously to guard. He has become a partisan in this matter altogether, and forgot what is due to his position and his profession. All that can be said of Dr. Paterson is this,—that he speaks about the prisoner, of his mother-in-law, and speaks further about what he said of her falling; yet even after all, this is merely an account of a circumstance given by him some months, or, if you like, a month after the case occurred. And because the prisoner made some statements not exactly consistent with the truth as now disclosed on the evidence, are you to believe, on Dr. Paterson's statement, and upon his statement only, that these statements were made so as to show guilty knowledge. I can quite understand that after there is proof of administration you may support that proof by evidence of falsehoods which the prisoner may tell, if you have reliable evidence to prove that they were stated. But when you have no evidence of administration of poison, then the evidence is all the other way; then I think you cannot eke out the probabilities of the case by appealing to these probabilities, or to the falsehoods depending on evidence like that here, as

showing conclusively, beyond a reasonable doubt, that this prisoner was the person who committed that foul crime upon the person of his mother-in-law."

Having thus commented on the evidence given for the prosecution on all the leading points of the case, in masterly, if not convincing arguments, in conclusion the prisoner's counsel dwelt on the admitted terms of affection in which he lived with his wife and children—on the impossibility of believing in his commission of such a cold-blooded murder, on the evidence adduced. "The whole evidence of the Crown," he said, "hangs upon probability, and can never justify you in believing, in the first place, that he was capable of committing the crime; and, in the second, it is hardly conceivable that anything so unnatural should be committed by such a man."

THE JUDGE'S CHARGE.

On the fifth day, the Lord Justice Clerk summed up the evidence in this protracted trial with great minuteness, in the course of his charge reading to the jury nearly the whole of the evidence, and meeting the various objections to its relevancy offered by the prisoner's counsel. There were three points, he said, for their consideration. (1.) Did the two ladies, or either of them, die from poison? (2.) If aye, was that poison administered for the purpose of destroying life? (3.) Was it the prisoner who administered it?

On the first point, after calling their attention in detail to the medical and analytical evidence in the case of Mrs. Pritchard, that she died from slow antimonial poisoning, he said, did not appear to have been contested by the prisoner's counsel, and, upon the evidence, he did not think it admitted of a doubt. As the evidence showed that it was not from a large dose of antimony taken lately

before death that she had died, the idea of accident or mistake was excluded. That it might have arisen from unskilful treatment by the prisoner was negatived by his assertion that he had never administered antimony to her, except once externally in October last, which could have nothing to do with the state in which the intestines were found in March. The idea of suicide by slow poisoning, even if there had been any hint of a suicidal tendency on Mrs. Pritchard's part, was equally inadmissible: she must, if killed by antimony, have had it administered to her for that purpose. In Mrs. Taylor's case, into the details of which he fully entered, one was almost forced to the conclusion that her death was brought about by the combined action of aconite, antimony, and opium. As to the idea of accident in her case it was inconsistent with the fact that the Battley's solution was pure when bought. "Was it then," he added, "by accident that these two subtle poisons, aconite and antimony, found their way into her medicine-bottle: if not by accident, did she put them there herself, or had she any knowledge of such things as to enable her, if she were willing, so to poison herself by using her own medicine? There was no appearance of that, and the character and conduct of the old lady, her natural condition both of body and mind as you heard it described by the witnesses, is such as not to suggest the idea of suicide in her case as a possibility at all. Consider, then, with reference to both deaths, whether you can arrive at the conclusion, or whether you can resist the conclusion, that the poison by the means of which they were deprived of life was wilfully given to them for the very purpose of destroying life."

Passing then to the third question, "Was the poison of which these ladies died administered to them by the prisoner?" the Lord Justice Clerk went with great minuteness through the painful details of Mrs. Pritchard's long and lingering illness, the symptoms

which it exhibited, the prisoner's misrepresentation of it as gastric fever, when the medical men proved that there was no fever in the case, but clear signs of antimonial poisoning, and the various acts of the prisoner during it which were put forward as showing that he had, and that he used, the opportunities his position offered, for the purpose of administering the poison. The interest of this portion of the charge, as well as of that relating to the symptoms and death of Mrs. Taylor, and the prisoner's conduct in relation to it, depends so entirely on the judge's method of marshalling the evidence, already reported, that it could not be satisfactorily given except verbatim. Many of the remarks of the learned judge, on these points of the evidence, have already been reported in the notes. It will therefore be sufficient to give, here, his remarks on the question of motive, and on the suggestion of the prisoner's counsel with regard to Mary McLeod.

> "In regard to the matter of motive, I would suggest to you that the motive that his pecuniary difficulties would be relieved by the death of Mrs. Taylor, does not seem to have been made out satisfactorily. You will consider the evidence, but I confess I do not think it worth while to set it before you again. Then, the question comes to be, was there a motive? What is there in the shape of a motive that may be supposed to account for the perpetration of two such horrid crimes? That is the way it was stated, and ably stated, by the prisoner's counsel. But there are some considerations applicable to that part of the case which I am bound to suggest to you. The absence of motive, in the ordinary sense of the word, is not a very uncommon thing in the experiences of a criminal court. In truth, the existence of any adequate motive for the perpetration of a great crime is a thing impossible. Still there may be what is called an intelligent motive—the existence of some foul passion, or some immediate and strong excitement, which, in a moment of half frenzy, drives a man to the commission of murder. These are all very evident and intelligible incentives to crime. But when we find that,

in the opinion of the prisoner's counsel, there is no motive, it means no more than this, that the motive has not been discovered. There must have been a motive or incentive, and yet we may never discover what it was. You are never in a condition to say that there was no motive, but only that the motive was not discovered; and the motives of human action, we know from history and experience, are often inscrutable. Another motive or incentive has been suggested—the illicit relation between himself and Mary McLeod. This is a very important part of the case undoubtedly, and one to which you are bound to give due attention. The prosecution suggests that the existence of that intercourse was the reason or the desire that led him to get rid of his wife. If that was the incentive, I do not think there will be much difficulty in explaining the incentive to the commission of the other murder; because her presence in the course of the chronic poisoning of his wife would have been a great obstruction and interference with his plans.[167] But it is for you to say whether it is a sufficient motive. It is a fair question for your consideration, and I should desire you to turn your minds to it very seriously; keeping only in mind this view, that even supposing you find it impossible to assign an intelligible motive for the commission of one or both of these murders, the absence of evidence of motive is not sufficient reason for acquitting the prisoner, if you are satisfied from the other evidence in the case that he was guilty. Motive, after all, can but create a presumption one way or another. It is not evidence of the fact of murder, that a man has an obvious motive to commit it; and just as little can the absence of proof of the existence of a motive be a reason for finding the prisoner not guilty, if the evidence of the fact of the murder be satisfactory against him."

Again, after having shown how no imputation could rest on the servants Lattimer and Patterson, the learned judge thus dealt with the imputation thrown out by the prisoner's counsel against Mary McLeod:—

"He has said that there was another girl there who stands in a very different position, and that it appears, singularly enough, that whenever an article of food was to be carried to Mrs. Pritchard, Mary McLeod's is the hand that bears it. In short, if I understand aright his theory, it is Mary McLeod who caused these murders, and he invites you to choose between her and the prisoner, and to pronounce upon a balance of probabilities which of the two it was. This is a very painful position for you to be placed in. If it be necessary that you should decide absolutely between the two it must be done. *At the same time the prisoner's counsel did not seem sufficiently to advert, in considering the point, to the possibility that both might have been implicated, and, if that was so, I suppose we should have little doubt which was the master and which was the servant; and, although the one might be the active hand that administered the poison, if two were concerned, you would have very little doubt who was the actor, and who set on the other. And, in fact, if you should arrive at this conclusion, every article that the prisoner's counsel alluded to for the purpose of throwing the guilt on Mary McLeod would be an article of evidence to implicate the prisoner at the bar.* But I do not desire you to take this theory. On the contrary, I think it quite right that you should consider on the balance of probabilities, as has been very well said, which of the two is the perpetrator of this crime; and in considering this, it is necessary for you to advert to this—that the poison was administered in doses—in doses any one of which was insufficient to kill, but which was quite sufficient, in the agony it produced, and by the gradual reduction of the strength of the patient, at length to lead to a fatal termination. Is it conceivable that a girl of fifteen or sixteen years of age, in the position of a servant maid, could of herself have conceived and executed such a design, within this house, under the eye and subject to the vigilance of the husband of her victim, himself a medical man? That is very hard to believe. On the other hand, if you can suppose that the prisoner was the person who conceived and executed this wicked design, it is not so difficult to believe that Mary McLeod may have been the perfectly unconscious instrument of carrying out his purpose—suspecting

> nothing, knowing nothing of what was being done, and seeing nothing but great kindness on the part of the prisoner to her mistress, and seeing them dying, not rapidly as in the case of Mrs. Pritchard, and though rapidly in that of Mrs. Taylor, still in a way the prisoner accounted for as a medical man. You may understand easily enough that a girl in the position of Mary McLeod might be made the unconscious means of carrying out these designs, and perfectly innocent on her part. But there is no difficulty in this question. If you are satisfied that murder was committed, somebody did it. Some of them are plainly innocent, and therefore the probability of guilt is reduced to two. Of these two, one or both of them are guilty of this deed."

Then with a remark on the suggestion of the prisoner's counsel, that Mrs. Taylor died of an overdose of opium in the Battley's solution, the learned judge left the case to the jury, who, after about an hour's deliberation, found the prisoner "Guilty," and he was sentenced to death.

After his conviction, in the hopes of exciting commiseration, Pritchard drew up a confession implicating Mary McLeod, but the transparent falsehood failing to gain for it any credence, he was induced to put forward a second, and, subsequently, a third and apparently full confession of his guilt. In this last he made the following statements: "I am guilty of the death of my mother-in-law, Mrs. Taylor, and of my wife. I can assign no motive for the conduct which actuated me, beyond a species of 'terrible madness,' and the use of 'ardent spirits.' I hereby freely and fully state that the confession made on the 11th of this month (implicating McLeod) was not true, and I confess that I alone, and not M. McLeod, poisoned my wife in the way brought out in the evidence at the trial. Mrs. Taylor's death was caused according to the wording of the indictment and the main facts brought out at my trial. I hereby fully acknowledge and now plead wholly and solely *guilty thereto*,

and may God have mercy on my soul." He was executed on the 27th of July, at Glasgow, in the sight, it was reported at the time, of nearly one hundred thousand persons.

THE RICHMOND POISONING CASE.[168]

Before The Lord Chief Baron Pollock, *at the* Central Criminal Court, *July 7 and 8, and August 15 to 19, 1859.*

For the Prosecution: Mr. Serjeant Ballantine, Mr. Bodkin, Mr. Clerk, *and* Mr. Mereweather.

For the Defence: Mr. Serjeant Parry *and* Mr. Giffard.

FIRST TRIAL—*July 7 and 8.*

Thomas Smethurst, æt. 48, surgeon, was indicted for the wilful murder of Isabella Bankes. The prisoner was a person of small stature and insignificant appearance, with reddish-brown moustaches, probably older than he stated, and, though appearing careworn, maintained great self-possession throughout the proceedings, and especially during the second trial.

HISTORY OF THE CASE.

Serjeant Ballantine, in stating the case to the jury, said it was alleged that the prisoner took away the life of a fellow creature by poison, and likewise contrived to throw around the means employed to destroy life some more than ordinary difficulties in the way of the detection of the crime; that in order to effect this purpose he had availed himself of the knowledge he possessed, and

made use of a slow irritant poison, which he had administered with his own hands, until, by the accumulation of poison and irritation, she died.

The prisoner was represented to be a member of the medical profession: he had considerable knowledge of medicine, and was known as Dr. Smethurst. He was a married man, and had a wife considerably older than himself now living. At the time when he should first refer to Dr. Smethurst, he was living with his wife in a respectable lodging-house in Bayswater. While they were living there, in the autumn of 1858, Miss Isabella Bankes also came there to reside. She was a lady of delicate constitution,[169] and possessed of property under her own control of between £1,700 and £1,800, and a life interest in £5,000, which, at her death, went to other members of her family. The result was that an intimacy sprung up between the parties. In November of that year, the landlady, considering that there was too great intimacy between Miss Bankes and the doctor, spoke to her, and, in consequence, she left the house. On the 9th of December, Miss Bankes and the prisoner went through the form of marriage at Battersea Church, and, two days after, commenced to reside at Richmond. From a letter to his wife found on him when in custody, it was evident that the doctor did not intend this to be a permanent marriage. Until the 28th of January, 1859, nothing was heard of them; then Miss Bankes's sister Louisa received a letter from her, but not dated from the place where they were living. On the 15th of February, the sister received another letter from her. At that time they were living in Old Palace Gardens, Richmond. Miss Bankes was then in good health, but, about the 28th of March, her illness commenced. On the 3rd of April, Dr. Smethurst determined to have medical advice. The landlady advised Dr. Julius, as he and his partner, Dr. Bird, were the most eminent practitioners in Richmond. They were

accordingly called in. The former treated her for diarrhœa, in the usual way, the complaint from which he understood she was suffering, taking his account of her symptoms from Dr. Smethurst. Dr. Julius all through consulted with the prisoner, who took a most active part in the matter, and sometimes pressed upon him the use of various medicines. He, however, was only on two occasions allowed to be alone with his patient. On the 15th of April, on the landlady at Old Palace Gardens asking a few shillings more rent, they removed to Alma Villas—Miss Bankes so weak that she had to be taken in a cab and carried upstairs. Dr. Julius, when he found that his remedies had a contrary effect to what was intended, asked Dr. Bird to see her, but did not mention his own suspicions, though they were very strong. On the 18th of April Dr. Bird saw her, prescribed for her, but with the same result as his partner. At this time she was sinking, and becoming continually weaker. On that day the prisoner wrote a letter to her sister Louisa marked "private and confidential." It stated that her sister was very ill, and wished to see her: she was to ask for Dr. and Mrs. Smethurst, and not to breathe a word of the contents of the note to anyone. The sister was not at this time aware of the marriage, and had her own views of her sister's conduct. She went, however, and found her sister in a very feeble state. The deceased said to her, "Oh, don't say anything about it; it will be all right when I get well, won't it dear?" turning to Dr. Smethurst, who said, "Yes, it will be all right soon." Dr. Smethurst showed every kindness and attention to the deceased during her illness, and to the time of her death she treated him with love and affection. Miss Louisa, however, was never allowed to be for a moment alone with her sister. Whilst she was there the prisoner gave the patient a saline draught, and she vomited immediately, and complained of its bad taste. Miss Louisa offered to make some tapioca, but the prisoner objected on the ground that there was not any milk. She then offered to make some arrowroot,

but again he objected on the ground that the landlady might not like it. That evening the sister left, and next day wrote to the deceased, to which letter she received the following reply from the prisoner:—"After your departure, dear Bella had a very bad evening and night of it, purely from the excitement of seeing you, and the fatigue consequent thereon. Vomiting and purging set in at a fearful rate, which of course prostrated her greatly. The doctor at once forbade any visitors for the present, or he would not be responsible for the effects attendant thereon." The prisoner had no doubt made such representations to Dr. Bird as induced him to say that she had better not receive visitors for the present. On subsequent days the sister received other letters from the prisoner postponing her intended visits from time to time; describing her sister's condition, and mentioning that he had insisted on having a consultation with "Dr. Todd, the first physician of the day, and the two regular attendants who were the first doctors in the place." One of these letters was dated April 30, but made no mention of his having on that day instructed an attorney in Richmond to draw up a will upon what he said was a draft by a barrister in London, but was really entirely in his own handwriting. On the following day (Sunday) he called on the attorney, and, representing that the case was urgent, induced him to come to the lodging, where the will was formally executed. By this will the whole of her property was left to the prisoner.[170] The consultation with Dr. Todd took place, and he agreed with other medical attendants that the patient was suffering from unfair treatment. The prisoner, however, on the 29th, wrote to the sister that Dr. Todd not only acquiesced in what was being done, but recommended a perseverance of the treatment, with some slight additions of his own. This was not the fact, but the prisoner was not made aware of the suspicions entertained by the medical attendants. They, however, caused the evacuations of the deceased

to be tested, and the result was so confirmatory of their views, that they communicated with the police, and the prisoner was arrested. A number of bottles containing drugs and medicines were taken possession of, and on his person was found the following letter to his wife, sealed and stamped for post:—

Monday, May 2, 1859.

"My Dear Mary,—I have not been able to leave for town as I expected, in consequence of my medical aid being required in a case of illness. I shall, however, see you as soon as possible. Should anything unforeseen prevent my leaving for town before the 11th, I will send you a cheque for Smith's money and extras. I will send £5. I am quite well, and hope you are the same, and that I shall find you so when I see you—which, I trust, will not be long first. Present my kind regards to the Smiths and old friends in the house. I heard from James the other day, who said he had called on you, but that you had gone out for a walk. With best love, believe me,

"Yours affectionately,

"Thomas Smethurst."

The case not being, in the opinion of the Richmond magistrates, strong enough to justify his committal, the prisoner was discharged. On the following day, the 3rd of May, Miss Bankes died, a coroner's inquest was held, and the result was the re-arrest of the prisoner, and his subsequent committal for wilful murder, for which he was put on his trial on the 7th of July.[171]

EVIDENCE OF MEDICAL ATTENDANTS.

Dr. Julius said:—

"He was called in on the 3rd of April to the deceased, who was represented to be suffering from vomiting and diarrhœa. The prisoner said he believed that her liver was overloaded with bile.

The witness prescribed accordingly, but without any abatement of the symptoms. There was no appearance of bile in the evacuations after the third or fourth day that he saw her, yet the symptoms of diarrhœa and vomiting continued, with a burning sensation in the bowels and soreness of the mouth. She complained of a parching throat and a burning thirst. He could not account for any of these appearances from any natural disease, and began to entertain an opinion that something of an irritant character was being administered, and in consequence desired that his partner, Dr. Bird, should see her. Did not communicate his suspicions to Dr. Bird, who, taking the prisoner's account of the symptoms, and knowing the witness's prescriptions, adopted his mode of treatment, but with the same want of success. The medicines were varied, but the symptoms continued the same. On this the witness communicated his fears to Dr. Bird, and he on further observation agreed that the patient was suffering from some irritant, of the administration of which they knew nothing. During this period the prisoner always saw the medical attendants, and was always present in the room when they were with the patient, and recommended or dissuaded the use of various medicines. He displayed a considerable knowledge of medicine. On the 28th of April the patient was very ill, and she repeatedly said to Dr. Bird in the prisoner's presence that she should like some one else to be called in. On the same day the prisoner (who had always expressed a desire that the best medical advice should be obtained) suggested that Dr. Todd should be called in. On Dr. Todd's arrival, witness gave him an outline of the case and treatment, but did not say anything of the suspicions that had arisen in his mind. Subsequent to Dr. Todd's attendance witness procured some of the evacuations, and in consequence of the examination of them, thought it his duty to communicate with the magistrates, and the prisoner was arrested, but released on his own recognizances. Witness was unable to ascribe the symptoms to any natural cause, but if small doses of some irritant poison were administered from time to time, it would have accounted for all the appearances that had exhibited themselves. Antimony and arsenic would be the character of poisons likely to produce such results. *There was*

neither antimony nor arsenic in any of the medicines he prescribed for her. The prisoner told him that she was not in the family way. Dr. Todd had prescribed a pill containing a quarter of a grain of sulphate of copper and a quarter of a grain of opium, to which the prisoner objected, as the copper often produced symptoms of poisoning. On the Saturday the prisoner said this medicine had produced intense burning in the mouth and throat, constant vomiting, and fifteen bloody motions—that the burning was from the "mouth to the anus." In my judgment it could not have produced these effects. The evacuation which I obtained was previous to her taking any of these pills, as they did not arrive until afterwards. When in prison Dr. Smethurst wrote to me three letters for the particulars of the medicines that had been given, which I answered. In the first he also wished to know what solutions of arsenic were kept in our surgery, *and in the third letter ashed for the date of the prescription for antimony, which had never been prescribed*. He also told me that she had been ill just a week—that previously she had been in very good health, able to take long walks, in fact out a good deal."

On his *cross-examination, Dr. Julius*

"Admitted that Smethurst's communications to him of the symptoms were made in the clearest and plainest manner, and tallied with his own observations—that twice he believed he saw the patient without the prisoner being present; that previous to the 15th of April the prisoner had suggested to the witness that Drs. Hills or Hassell should be called in, and a different treatment—one of a very sedative character, which the witness considered as too powerful, and, therefore, gave in a more diluted form; that witness had not, whilst in attendance on Miss Bankes, the slightest suspicion of her pregnancy, but that, if he had known of it, he should not have made any difference in his treatment, and now that he did know of it, it made no difference in his opinion as to the cause of her death. Whilst admitting that the delivery of a woman who had a first child at the age of forty-three would be very critical, he stated decidedly, as the result of his experience, that the period of pregnancy would

be far less critical than in a younger woman. Vomiting was well-known to be an early—the earliest—sign of pregnancy, but diarrhœa was not; and though he had heard of a case in which it was accompanied with diarrhœa, he had not heard of one in which the diarrhœa would not yield to any ordinary treatment, and the life of the mother was only saved by the destruction of the fœtus."[172]

On *re-examination Dr. Julius* stated that "vomiting in early pregnancy had nothing to do with the burning sensation in the mouth and throat; *that the sickness of Miss Bankes was decidedly not of the same character as that of pregnancy, nor was the diarrhœa such as pregnant women sometimes suffer from*." Dr. Bird, and not the witness, prescribed bismuth, acetate of lead, and nitrate of silver.

Dr. Bird, who from service in the Crimea in 1855 had had great experience and opportunity of studying bowel complaints, confirmed the evidence of his partner.

"None of the symptoms were in his opinion reconcileable with any known disease, but were such as could be accounted for from the administration of small doses of antimony or arsenic. The prisoner, he said, told him, on one occasion, that the deceased had seen her sister, and that it had very much excited her, and in consequence witness told him that it would be better if she did not come again. On the 30th he told the prisoner that he wished to take away a portion of one of her evacuations, that it might be examined under the microscope to see if any purulent matter was in it, that we might judge if there was any ulceration of the bowels—that the prisoner poured out a portion into a tumbler, which he tied over with an old newspaper, and that the witness took it to his surgery, marked it No. 2, sealed it with his own seal, and preserved it intact until delivered to Dr. Taylor with the bottle No. 1 which Dr. Julius had obtained. A third portion of an evacuation was shown to him by the prisoner, which he put into a white jam-pot, and marked No. 3. He

was downstairs at the moment Miss Bankes died, but saw her every minute or two before that. He gave an ample quantity of every ingredient used in his prescriptions so as to afford a sufficient opportunity for analyzation."

On *cross-examination*, he described the various remedies he prescribed, none of which would account for the symptoms, and stated that he formed his opinion that it was a case of slow poisoning by an irritant, not only from what Dr. Julius and the prisoner told him, but from the vomitings, the motions, and the lady's own account of her symptoms.

Mr. Caudle, the assistant of Messrs. Julius and Bird, described the medicines he compounded, and *Dr. Buzzard* detailed the transmission of the bottles of evacuations to Dr. Taylor.

POST-MORTEM EXAMINATION.

Mr. Barwell, Assistant-Surgeon of the Charing Cross Hospital, who, with Mr. Palmer, of Mortlake, made a *post-mortem* examination of the body on the 4th of May, said:—

"I found the back part of the body externally of a dark purple, being full of blood from the position in which the body lay: I gathered from that that the blood was more fluid, I should say, than usual. The arms were perfectly flexible; legs very rigid; feet bent downwards and turned in, and the muscles at their bottoms very rigid, indicating cramp or spasm in the lower extremities; the abdomen drawn in and the muscles tense and hard; the tongue rough, and the *papillæ* more elevated than usual. There were no signs of what I could call aphthœ; the face was much emaciated and of a dull earthy colour; lower lip drawn in under the upper teeth; front of the body generally of this dull earthy colour; brain perfectly healthy; nothing wrong about the lungs—they were healthy. I saw that the liver was firm, full-sized, rather large, but did not then cut

into it. I examined the uterus, and found the common signs of pregnancy and a fœtus of somewhere between the fifth and seventh week; the heart and great vessels connected with it were perfectly healthy. *I examined the liver subsequently; it was slightly fatty, rather fatty; the remainder hard. The liver when it becomes fatty is usually soft, but in this instance it was hard, and it was coloured in the usual manner—speckled.* Gullet healthy, no signs of inflammation on it. The outside of the stomach, the smaller end, that nearer the intestine, was red; the larger end, that where the gullet enters, was of a dark colour; in the centre it was pale. On examining the inside of the stomach, the narrow part or small end was also red; at the larger end was a black patch of effused blood; near the small end the mucous membrane was congested, that is the other end from the black spot and near where the red was. The contents of the stomach were a brown mucus mixed with blood and some bile, I should say. There were no ulcers in the stomach, nor appearance of acute inflammation. On the outside of the intestine I noticed on the 4th of May (the first examination) that its commencement was very red, the small intestines generally were inflated and minutely injected with blood, and in certain spots they were roughened by lymph, the result of inflammation, and glued together at certain turns where this lymph or glutinous inflammation was effused; they were coherent together from that cause; that did not apply to the entire length of the intestines, only to a few parts, and chiefly quite the lower parts. Those are the external symptoms. Internally, the first part of the intestine (the *duodenum*) was inflamed for about three inches from its commencement, but the mucous membrane was quite firm, and there was no ulceration. From that point the rest of the mucous membrane was only slightly injected, not inflamed. In the next intestine, the *jejunum*, the mucous membrane was still firm; in places the vessels were injected with its own blood, but this only in spots. In the *ilium*, or lower intestine, there was much the same appearance at the commencement as in the last, *except that approaching the lower part the injections increased very much, and at last, about 3 feet from its end, the mucous membrane was greatly altered; there was a deposit of lymph therein, and a thickening of*

the membrane; an ill-organized granular lymph; the membrane at the same time was roughened, and the glands, which are in the intestine there, were less visible than usual. This deposit of lymph did not begin in the glands, but went over the whole surface of the intestine, and concealed the glands instead of rendering them more prominent—instead of being deposited in the glands, was rather around them at first. *This brings me to the* cæcum. *On its mucous membrane were many very large spots. The appearances within the* cæcum *indicated very serious disease indeed—inflammation, sloughing, ulceration, and suppuration.* Those appearances diminished as I went lower down the intestines. *When I reached the termination, the* colon, *there was still ulceration, but in a minor degree. In the* rectum *there were three ulcerations. I should also say that in the* cæcum *were black spots of effused blood, which were also found along the rest and in the* rectum. I have heard the evidence given of the symptoms exhibited during life, and the treatment adopted. Taking those into consideration, and the *post-mortem* appearances, they are not reconcileable with any natural disease with which I am acquainted."

By the Court.—"What is the conclusion you have formed?"

Witness.—"*That the symptoms and appearances together have resulted from some irritant, administered frequently during life.*"

In his *cross-examination*, the earlier portion of which was occupied with questions to test the accuracy of the notes of his report, the witness explained that the hardness of the liver, which he observed, was not a stage of *Cirrhosis*, as he had at first written in his memoranda, "but a normal hardness, nothing extraordinary;" that the use of the term "hard" did not imply that the liver was diseased, but that the term "fatty" does.

Sergeant Ballantine.—"I think I understood you to convey that there were no signs of disease about the liver, except this fattiness?"

Witness.—"No signs at all except that. That is not a disease of a nature to affect the *cæcum* and the intestines in any way."

By the Court.—"Is it in any way connected with diarrhœa and vomiting?"

Witness.—"No."

Dr. Samuel Wilks, who had subsequently examined the intestines with *Mr. Barwell*, confirmed his statements as to their condition and that of the liver, and "should think Miss Bankes' death was most probably to be attributed to an irritant."

On *cross-examination*, he allowed that "severe dysentery produces great inflammation of the intestines, particularly of the larger; that inflammation, if continued, results in ulceration and destruction of the tissues; that the *cæcum* and *rectum* would be affected in that way by dysentery, and that dark spots of effused blood are also a consequence of severe dysentery." His admission, however, rested on his reading, and not from his experience of cases of acute dysentery, as he had seen only "two cases, which they were obliged to call by that name, not being able to arrive at any other conclusion as to the cause of death."

MEDICAL EXPERTS FOR THE PROSECUTION.

Dr. Todd, Physician to King's College Hospital, was then called.

"Dr. Julius," he said, "told him the nature of the case before he saw the deceased, but not his suspicions. When he saw her he noticed a peculiar expression of countenance—an expression of terror, as though she were under the influence of some one, and that was not in accordance with the appearance of a patient suffering under an ordinary disease. The abdomen was very hard—an indication of extensive inflammation in the stomach—and he was at

once under the impression that she was suffering from some irritant poison. By witness's desire an evacuation was obtained, and he directed Dr. Julius to make up the sulphate of copper and opium pills to allay irritation. He had never known any bad effect produced by these medicines, and did not think it could produce a burning sensation in the throat and stomach. If the disease had been diarrhœa, the medicines administered by Dr. Julius were the proper ones."

Sergeant Ballantine.—"From all you have heard of this case, what in your opinion was the cause of this lady's death?"

Dr. Todd.—"*I believe that her death was caused by the administration of some irritant poison, such as arsenic, antimony, or corrosive sublimate. The only natural disease that would account for the symptoms is what would be called acute dysentery.*"

On *cross-examination, Dr. Todd* said:—

"I have never known any case or cases of early pregnancy of a woman of about forty to forty-five years of age in which there has been violent vomiting, violent diarrhœa, and severe dysentery, which no ordinary medicines would stop, and in which the life of the mother has only been saved by the abortion of the fœtus. No such cases have come under my cognizance. I think it possible that excessive vomiting and great diarrhœa may be caused by the early stage of pregnancy, and symptoms somewhat allied to those under which this lady died; *but I think it quite impossible that pregnancy alone, in an early stage, or in any stage, could, produce extensive ulceration of the bowels*. *I think, where it is a doubtful case, it is conclusive evidence against the theory that the symptoms were caused by early pregnancy that you found such extensive ulceration as existed in this case.*"

Dr. Buzzard, who had been a staff-surgeon in the Crimea, *Dr. Copland*, and *Dr. Bowerbank*, who had had great experience of acute dysentery in tropical climates, gave it as their opinion that the

symptoms were not reconcileable with that disease, but were those of the presence of irritant poison. *Dr. Babington*, Physician to Queen Charlotte's Lying-in Hospital, who had attended more than 2,000 women in their confinement, did not consider that the death was in any way attributable to the fact of her being in an incipient state of pregnancy. On *cross-examination*, whilst admitting that cases of violent vomiting and diarrhœa in early pregnancy are recorded, said that he did not remember any one of so severe a character as to endanger life; that he did not think that the lady's advanced stage of life had anything to do with it; that it was a complication generally at a later period of pregnancy; and that a first pregnancy between 40 and 45 years of age was not more critical in the early stage. On *re-examination*, with reference to six cases of dysentery, in 1841, in which he had made *post-mortem* examinations, he said:—

> "There was not the same amount of sloughing of the *cæcum* as in this case, nor destruction of the mucous membrane. The glands were in a different condition. In the dysentery cases, the glands were quite destroyed, and in three of the cases there was perforation of the intestine. The symptoms in all six were different to those in this case; there was no burning sensation of the throat."

ANALYTICAL EVIDENCE.

Dr. Alfred Swaine Taylor.—"On the 1st of May," said the witness, "Mr. Buzzard called on me, and brought me two bottles, which he said contained matters he wished me to examine. I took about two drachms from one of these bottles (No. 2), and having first examined the test and the vessel to be employed, and ascertained that they were pure, I then made the test, and discovered a metallic deposit on the copper wire, which, in my opinion, indicated the presence of arsenic or antimony; but I could not speak

to the exact metal. I did not proceed further at that time, as I desired to have the authority of a magistrate. Bottle No. 2 was then resealed in my presence by Mr. Buzzard, and taken away by him with bottle No. 1. After he left, as I was told that it was necessary to do something to save the life of a living person, though it was Sunday, I proceeded with my experiment by boiling copper gauze in the remainder of the liquid in the tube, and on examining it with a microscope, saw appearances closely resembling metallic arsenic; and I then heated a portion of the gauze covered with metal in a tube, and obtained crystals of arsenic (wire gauze with the crystals on it produced). If you take the tube out, under the microscope the crystals are perfectly clear; in this little sediment, if you put it against a dark cloth, you will see a little ring of crystals—it is quite plain in the sun light. I subsequently applied the test of nitrate of silver and nitric acid to crystals obtained in the same way, and the result convinced me that they were composed of arsenic. Next day Dr. Buzzard brought back the bottles with the magistrate's order. I then proceeded with the examination of both bottles, and the result perfectly satisfied me that I was correct in discovering arsenic in bottle 2. My calculation was that there must have been at least a quarter of a grain mixed with the four ounces of matter in bottle 2. [173] There was no trace of mercury, bismuth, or antimony, but I did discover the presence of copper by a subsequent test; but only such a trace of it as might be accounted for from the copper pill taken on the 29th. I examined the evacuation, and came to the conclusion that it was such as would pass from a person who had taken arsenic, and I immediately advised that the antidote for arsenic, hydrate of magnesia, should be administered. I subsequently examined the other bottle, and found that it did not contain any poison or any metallic matter whatever.

"On the 5th and 7th of May Inspector McIntyre brought me a portion of the viscera of a human being, which I subsequently submitted to chemical examination. The officer also gave me a number of bottles, and several pill boxes which I numbered, and subsequently some more. There were altogether twenty-eight; and

on the 14th of May others which I also numbered. In none of the twenty-eight, omitting Nos. 5 and 21, did I discover anything at all necessary you should be acquainted with. I examined them for arsenic. I then examined the bottles containing the viscera:—first, the *uterus*, which I did not analyse, but agree with Mr. Barwell as to its impregnation; then the *œsophagus*, or gullet, in which there were indications of some cause of irritation, but no arsenic or antimony; *then the* stomach, *containing yellowish fluid with blood, and found antimony in two distinct places in the small intestines; the middle portion of the small intestines contained the largest quantity, the other part was above and below; some was found above and below that and some in the* cæcum; *altogether the amount found in the stomach was very small. In one kidney and in the blood of the heart there were traces of antimony, and in the blood in the jar*. I was assisted by Dr. Odling, and we came to the conclusion that the quantity did not exceed from a quarter to half a grain. I found the appearance of the stomach and *cœcum* such as Mr. Barwell has described. I then examined the medicines prescribed by Dr. Julius, and found them to contain the ingredients of which they were represented to be composed. I then examined bottle No. 5, and found it to contain 355 grains of chlorate of potash, and free from anything else. That bottle has been accidentally broken in half. I then examined another bottle, No. 21, which appeared to contain a clear watery liquid of a saline taste, and I tested a portion of the contents by Reintsch's test, and upon first trying the copper it was entirely consumed.[174] I made a further examination which led me to conclude that there was arsenic in the solution, but it turned out that I was mistaken, and that it did not contain either arsenic or antimony, and that the arsenical appearances originally produced came from the copper gauze. By the destruction of the gauze the arsenic in it was set free, and this destroyed the effect of the experiment. *The quantity of arsenic that I discovered, I should say, was less than half a grain.* In the experiment I made with this bottle, the arsenic was deposited by myself. Dr. Odling also came to the same conclusion—that the bottle contained arsenic, and we both

stated that fact in our examination before the magistrates and the coroner, but we were, of course, mistaken. We believed, no doubt, at the time, that the arsenic we found was in the bottle which contained chlorate of potash—a cooling mixture. I have used the same description of gauze for many years, and have never before found arsenic in it. I shall certainly continue to use it, but shall take care not to do so with chlorate of potass."

Serjeant Parry here called for the deposition of Dr. Taylor made before the magistrates, a portion of which was read. It stated that he had discovered arsenic in bottle No. 21, in which there was chlorate of potass; that the latter was a harmless saline mixture acting upon the kidneys, and that if poison had been given in it, its effect would probably be to carry off the noxious ingredient from the body very quickly, but that by repetition constantly of such a proceeding chronic inflammation would be created which would yield to no treatment, and would end in the death of the patient from exhaustion.

Dr. Taylor then continued:—

"At the time I gave this evidence I firmly believed that arsenic was contained in the mixture and that it had not come from my test, but had been placed there by some one. When before the coroner I expressed my opinion that the death was referable to antimony and arsenic. *The finding of the arsenic in the bottle did not have any effect upon the opinion I subsequently formed with reference to the case.* The moment I discovered the mistake I had made I informed Serjeant Ballantine. No arsenic was found in the body of deceased. I did not form my theory to account for the absence of arsenic from the tissues of the body, that it had been carried off by the chlorate of potass. It did not enter into my consideration beyond this, that it acts generally as a diuretic. After Dr. Odling and myself had given our evidence relative to finding the arsenic in the bottle of chlorate of potass, we thought it was possible there might be some mistake, and

> we made other experiments to satisfy ourselves. We made seventy-seven experiments with the same kind of gauze, and in seventy-six no arsenic was discovered: and the only instance in which it was found was in the evacuation in bottle 2." The witness also said that he could not, after hearing the symptoms and the treatment of the deceased, attribute the death to any other cause than the administration of some irritant poison.

This witness was also cross-examined at considerable length as to the symptoms of slow poisoning by arsenic and by antimony, in which he agreed with the previous witnesses, adding to their evidence the fact of its operation in causing enlargement of the liver, and the deposit of fat in it. Hence the use of sulphide of antimony to fatten the geese used in Strasburg, in the manufacture of Perigord Pies. On the subject of dysentery he could not speak, having ceased to practise as a medical man, and confined his attention to analyses.

On *re-examination, Dr. Taylor* said that "the half grain of copper, given in the pill during life, would not by any action of any acid in the stomach account for the quantity of arsenic found in the evacuation; that he had examined and found no arsenic in the copper pills; and that though arsenic was found in the sulphate of copper taken from the surgery, there was not a quantity to be seen; there was no arsenic in the bismuth, and no antimony in the medicines. Arsenic is sometimes found in bismuth."

Dr. Odling, Professor of Practical Chemistry at Guy's Hospital, who had assisted Dr. Taylor in his experiments, 2ì"confirmed Dr. Taylor's account in every respect, and expressed himself satisfied that there was antimony in the body of the deceased. He agreed also in attributing the death to the administration of some irritant poison, and did not know any natural disease that would account for the symptoms spoken of."

William Thomas Brande, formerly Professor of Chemistry to the Royal Institution, and for fifty years engaged in the practice of chemistry, "had examined a portion of the liquid (the chlorate of potass), and come to the conclusion that it did not contain arsenic. Reinsch's test for arsenic was reliable where chlorate of potass was not present." "Our first object," said the witness, on cross-examination, "was to get rid of the chlorate of potass, or to decompose it so as to render it inert, which we did; and we then examined the liquid in question, and found no arsenic in it."

> *To the Court.*—"I was not aware that Reinsch's test would be inapplicable to such a compound, and if I had applied it, and the result appeared as it did to Drs. Taylor and Odling, I should have come to the same conclusion, that there was arsenic in the substance. *The matter that has appeared since is to a certain extent new to the chemical world. We have always been aware of the presence of very minute quantities of arsenic in copper, but we have never considered it as interfering in any way until this particular case.*"[175]

MEDICAL AND ANALYTICAL EVIDENCE FOR THE DEFENCE.

It will be convenient, as in the previous trials, to report at this period the medical and analytical evidence offered on the part of the prisoner, subsequent to the address of Serjeant Parry. This was devoted to the following points: (1), the absence of some of the well-known symptoms in slow poisoning by arsenic or antimony, or by both; (2), the similarity of the symptoms in this case to those exhibited in cases of acute dysentery; (3), the occurrence of severe diarrhœa, with vomiting in the *early* stages of pregnancy; (4), that the non-discovery of either arsenic or antimony in the tissues of the body could not be due to its being given in, or with chlorate of

potass; (5), the probability that both the arsenic and the antimony found in the evacuations and intestines might be due to the presence of arsenic in the bismuth, and of antimony in the grey powders administered as medicines. In support of these opinions four doctors and analysts, all belonging to what was known as the Grosvenor School of Medicine, were examined, two of whom (Dr. Richardson and Mr. Rodgers) had given evidence for Palmer at his trial, Dr. Richardson then suggesting that Cook's symptoms were reconcileable with an attack of *Angina pectoris*, and Mr. Rodgers supporting the view that if strychnia had been given to Cook, it must have been discovered in his body by chemical analysis.

Dr. Richardson, after generally asserting that the symptoms in Miss Bankes' case were not in the main reconcileable with either slow arsenical or antimonial poisoning, or both, enumerated the following as absent if it was a case of slow antimonial and arsenical poisoning:—

> "1st, the inflammation of the conjunctival membrane of the eye; 2nd, soreness of the inner surface of the nostril; 3rd, a skin disease peculiar to arsenical poisoning; 4th, excoriation, amounting to absolute destruction, possibly, of the surface at the orifice of the mucous tracts, the mouth, the anus, the lips, and the vagina—and, lastly, and, in his opinion, the most important, the absence of the peculiar nervous symptoms which he should expect to find which characterise arsenical poisoning—frequent convulsions of a violent kind, in many cases; or in others, where the symptoms may be prolonged, tremor of the whole limbs, a suppressed convulsion in fact. *Although he should not expect to find all these symptoms in a case of arsenical poisoning, he believed it to be quite impossible that a case of arsenical poisoning could exist from which they would all be absent.*—The results of the *post-mortem*" he said, "were inconsistent with arsenical poisoning, because the inflammation that would establish it was most demonstrated in the part ordinarily most

free in such poisoning—that, had it been a case of arsenical poisoning, arsenic must have been found in the tissues, and, had it been given in chlorate of potass, the whole of it would not have been eliminated. He based this opinion on an experiment he had lately made on a large dog, to which in sixteen days he had given 18 grains of arsenic and 365 of chlorate of potass, in small doses, two or three times a day, and then killed and examined and chemically analysed in conjunction with Dr. Thudichum and Dr. Webb, two of the witnesses for the defence. In this animal he found arsenic in the liver, lungs, and heart, a trace in the spleen and in the kidneys, but the greater part in the liver. He could venture to say that he found half a grain."

The Judge.—"*Give me leave to say, that the value of this experiment is nothing if you give a dog arsenic day by day for sixteen days, and then it is killed, and some arsenic is found left in it; is that all it proves?*"

Witness.—"*No; it was done to prove whether the chlorate would eliminate the arsenic as fast as it was given.*"

The Judge.—"*All that the experiment proves is, that chlorate of potass does not eliminate the whole of the arsenic, because it eliminated all but half a grain.*"

The witness then went on to show, by experiments on two other dogs, that the administration of chlorate made no difference either as regards symptoms, pathology, or the chemical result. Speaking again of the sweating as one of the symptoms in antimonial poisoning absent in Miss Bankes' case, *he admitted that he had seen it only in one case, and that, where it had been given in excess, for a long time, and in large doses medicinally, and that in two other cases of acute poisoning by antimony there was no particular eruption, because, as he said, the attack was not long enough*. Such was all the experience he had had in cases of slow poisoning. As to the effects of antimony on the liver, he could only speak from some experiments on animals in 1856-7, and that, in

reality, he had no experience at all in slow poisoning, except from experiments on animals. Of dysentery, too, he knew very little; had seen two or three cases, *but had never met with it in the early stage of pregnancy; he had met with one between the third and fourth month, but not between the fifth and seventh week*. He had analysed the bismuth usually administered in medicine, and had found nearly half a grain of arsenic in an ounce, and, in a case in which 90 grains of that drug had been given at the rate of 5 grains three times a day—for dyspepsia—with Drs. Thudichum and Webb he found about the fiftieth of a grain of arsenic in the urine.

The *cross-examination* of this witness was mainly occupied by questions about his evidence on Palmer's trial, and in trying to elicit from him that these canine experiments had been made for the purposes of the present case. The latter he denied, but admitted that he had made them after reading the examinations before the magistrate and the coroner, and that though he did not communicate them to the prisoner, he talked about them so frequently to his colleagues at the Grosvenor School, that he was not surprised at being interviewed by the prisoner's solicitor and asked to give evidence for his client. As to his evidence on Palmer's trial, he maintained that he did not endorse the theory that Cook died of *Angina pectoris*; that he did not negative the idea of strychnia, but at last admitted that he could not deny that he went there to support the theory of *Angina pectoris*.[176] In the cases of the dogs his analysis was not quantitative: he was content with the fact that the arsenic was present. He negatived the idea that the ¼ of a grain of copper in the pill would produce a burning sensation from the mouth to the anus, *but admitted that any irritant given for a long time would unquestionably produce that effect*. The form of dysentery to which a lady with such a liver as Miss Bankes' would be subject, would be subacute, not that arising from poison, but

which is prolonged over a very considerable time: not chronic, but something between chronic and acute, but too severe to be strictly chronic; that would not harden the coats of the stomach; would produce a great deal of mischief in the bowels; would not thicken them, but probably lead to a deposit of false membrane: it would not harden them, but a false membrane would; if there was great congestion, the wall would be thicker. He had not acted as an accoucheur since 1854, but was of opinion that sickness accompanied by dysenteric diarrhœa, in the early stage of pregnancy, might have been the cause of all the appearances exhibited in this case. Diarrhœa was sometimes an incident of and caused by pregnancy; the opposite effect, constipation, was not more usual.

On *re-examination*, the witness qualified his admission as to the effect of the copper pill to this extent, that, "in a patient suffering from violent irritation, arising either from a natural or mechanical cause, sulphate of copper would have a tendency to increase that irritation; and he justified his reliance on the experiments on animals on their forming the great bulk of scientific knowledge in Europe on the subject of poisons and their operation on the human frame, and by the fact that the materials for forming a judgment of the effects of slow antimonial poisoning on the human subject were very bare," and concluded by saying, that, "after his cross-examination, and his attention having been called to all the points deemed important, he still adhered to his opinion that the deceased lady might have died from natural causes."

Dr. J. E. D. Rodgers, Professor of Chemistry in Knowle College, but for seventeen years at the Grosvenor School, agreed with Dr. Richardson that chlorate of potass would have no effect in eliminating arsenic or antimony from the human system; that the absence of arsenic or antimony from the tissues, and especially

from the liver, would cause him to doubt whether the allegation of poisoning was correct, and that he did not think it possible to find it in the blood and not in the liver, “as the blood in the heart must be regarded as a sample of the whole 28 lbs. circulating in the system, and, if you find the poison in one small portion, you must find it wherever the blood flows.” He confirmed the amount of arsenic said to be in bismuth, and had found antimony in grey powder: should expect to find, in a case of slow poisoning, the symptoms spoken to by Dr. Richardson, and, if he did not find any arsenic in a body from which an evacuation containing one-sixth of a grain came, it would lead him to doubt whether the experiment had been correct.

Dr. J. L. W. Thudichum, Lecturer on Chemistry at the Grosvenor School, and a pupil of Liebig’s, attributed the death to what he called *diphtheritic dysentery*, of which he had seen two cases, and, on opening the body in one case, found the false membrane from which the disease takes its name. The only medical work in which he had seen this form of dysentery described was *Rokitansky’s Morbid Anatomy*.[177] It was not, however, at all necessary to find the false membrane, as it might be broken up and discharged, and hearing that shreddy matters were found in the evacuations, would confirm his view. He quite concurred with the previous witnesses as to the symptoms they would expect to find in a case of slow arsenical or antimonial poisoning. He had analysed grey powder and bismuth. In the former he found caustic and carbonate of lime, mercury partly oxidised, silica, with phosphate of iron, arsenic and antimony—more arsenic than antimony; in the bismuth he found both arsenic and antimony—more than a trace—enough to answer the test two or three times—an appreciable quantity. “I dare say,” he said, “there was half a grain in 20 grains.

It is almost necessary, from the mode of its preparation, that it should contain arsenic."

On *cross-examination*, the witness admitted that he had not made any quantitative analysis, because they were so laborious; had used in his experiment about one-sixteenth of 2 ounces of the grey powder, which he dissolved; neither the grey powder nor the bismuth had anything to do with the death of Miss Bankes, but the fact of bismuth containing arsenic might account for the traces in the evacuation, and if antimony was taken in a medicine it might account for the analysis, but this would depend upon the quantity in the medicine.

Dr. Cornelius Webb, Lecturer on Medical Jurisprudence and Toxicology at the Grosvenor School, and Physician to the Great Northern Hospital, said:—

> "From all he had heard deposed to in court he was of opinion that the deceased died from natural causes that might be accounted for—that the fact of her being in an early state of pregnancy ought most decidedly to be taken into consideration; *though he did not know of a case, he was of opinion, founded on practical experience and general knowledge, that severe vomiting and severe diarrhœa which would not yield to ordinary treatment may arise from an early state of pregnancy—that Miss Bankes died from dysentery, made worse by the condition of early pregnancy, and that a burning sensation in the mouth is consequent upon dysentery, and the diarrhœa and vomiting of pregnancy. All the symptoms in her case might arise from the vomiting and diarrhœa of pregnancy*. The ulceration in the stomach, obliteration and partial destruction of the mucous membrane, the effusion of blood under it, and the dark patchy spots and ulcers and injection generally of the membrane might, as Dr. Wilkes said, arise from dysentery. If the deceased at one time had an affection of the womb, for which she used nitrate of silver (a pint bottle of this was found in her room), it would indicate ulceration of the neck of the womb; and if there had been such a condition of the

> womb an appreciable time before pregnancy, it might add to the irritation of pregnancy. Unless he found other symptoms, the vomiting, diarrhœa, sensation of the throat and the intestinal canal, accompanied by ulcerous appearances in parts of the body, would not, in his judgment, necessarily lead to the conclusion that she must be the subject of irritant poisoning—unless he found other symptoms, it would not enter his head. In a case of antimonial poisoning he should expect to find a clamminess and cold perspiration of the skin. In arsenical poisoning he should expect to find arsenic in the kidneys and the spleen, as well as the liver; should expect to find it in the liver first—it is the great criterion. And from the absence of these symptoms and appearances in this case, he was fortified in his opinion that she died from natural causes."

The *cross-examination* of this witness was mainly directed to his assertion that, "in such a case as this, had he been called in at its early stage, notwithstanding he was told that she was not pregnant, and that her courses were in order, he should have examined the patient for pregnancy, especially if he found that the remedies were useless in stopping the vomiting and diarrhœa."

> "Dysentery," he said, "was a most common disease, and in such a state as Miss Bankes was, the quarter-of-a-grain copper pill might increase the irritation. Diphtheritic dysentery was a form of idiopathic dysentery, that is, occurring without any particular poison —the Eastern form; there is a dysentery that arises from natural poison, just the same as fever. If I had been acquainted with all the symptoms I have heard described in court, I should not have dreamt of poison."

Dr. G. F. Girdwood, who had delivered upwards of 3,000 women, strongly supported the view of the death being due to the effects of dysentery, combined with pregnancy. "Idiopathic dysentery would be its proper name—a special disease originating

in itself, one single malady, one single suffering. He had had several cases of dysentery at early stages of pregnancy, one of them very severe, in fact, contemporaneous with it—he should say symptomatic of pregnancy: this would be much aggravated by a bilious temperament, and any affection of the liver."

> On *cross-examination* the witness explained that "in this country idiopathic dysentery assumed a less severe form than in warm climates—was what is called subacute or chronic, and that the state of the cæcum indicated a case of *subacute, not of severe dysentery, of prolonged dysentery*, and that it did not necessarily follow that such a case should commence with febrile symptoms." On re-examination he stated, that "in early pregnancy the dysenteric motions have become bloody, the sign of dysentery which may come on immediately or not; in a day or two in acute dysentery, the result of neglected diarrhœa. *Subacute dysentery* is frequently the result of neglected diarrhœa, or chronic dysentery—you have acute, subacute, and chronic."

Mr. James Edmunds, Surgeon to the Royal Maternity Charity, cited a case in his own practice of a woman of about forty years of age, who had been married ten or twelve years, and who in her pregnancy suffered from vomiting, purging, and severe pain in her abdomen, and who, from the *post-mortem* examination which he made, he was convinced died of dysentery, complicated by vomiting and irritability of the stomach attributable to pregnancy, and purging attributable to dysentery. "Purging," he said, "was often a symptom at an early stage of pregnancy, and often of impending labour."

On *cross-examination*, however, he admitted that when he first attended this woman, *when the symptoms first began, she had been pregnant five or six months*.

Dr. Tyler Smith, the last medical witness called for the defence, in practice for fifteen years as an accoucheur, said that

> "He was acquainted with cases in which excessive vomiting in pregnancy had caused death—where it went on after pregnancy had commenced, sometimes during the whole period, but these were exceptional cases. It would require considerable skill to determine accurately the age of a fœtus, as you may have a case in which it may die and remain *in utero* without development, though no decomposition takes place. He had known one case in which there was a great amount of vomiting and some amount of purging, in which the friends of the lady could not be brought to believe that her husband was not poisoning her. These symptoms might become so violent as to be mistaken for a case of poisoning; the expression on the face in such cases was that of death by starvation."

On *cross-examination*, he admitted that though he had seen cases of death in pregnancy from vomiting conjoined with purging, he believed the vomiting to be the great cause of death, and that ordinarily, if dysentery is excessive, abortion is produced. On *re-examination*, he said "that in the case of a woman of from forty to forty-five years of age, doses of irritant poison were more likely to procure abortion than idiopathic disease." To a question by a juryman, he said, "any irritating medicine would tend to keep up dysentery."

With the evidence of a dentist (Pedley) who had attended the prisoner about the middle of February last, and recommended the use of chlorate of potass for foulness of breath, the evidence for the defence was closed.

THE JUDGE'S CHARGE.

The Lord Chief Baron, in his address to the jury, which occupied eight hours and a half, and of which, therefore, only the leading points can be given, said:—

> "As to the marriage of the prisoner and the deceased—though in itself a breach of the law and a felony—the jury ought not to allow it to have any weight, excepting so far as it operated, with the other facts in the case, upon the question whether the prisoner was guilty or innocent of the more serious crime laid to his charge. It appeared to him that it was a most important subject for their consideration—the position of the deceased at the time the fatal event occurred, and also what she believed to be her position with the prisoner. In the letter she wrote to her sister she stated she was happy, and she also told her sister when she first saw her during her illness, that when she got well all would be right. What did she mean by that expression, and what would have become of the prisoner if she had got well, he having a wife living? In the will that had been made by the deceased, she appeared to have been studiously called 'spinster,' and she signed her name, 'Isabella Bankes,' and how she could have done this, knowing that she had gone through the ceremony of marriage with the prisoner, and might, therefore, naturally have supposed herself entitled to the name of 'Smethurst,' was certainly a very mysterious and extraordinary circumstance.[178] He could not help observing on the circumstances under which the will was made. The prisoner had certainly told Mr. Senior a falsehood, and he did not appear to scruple to degrade most seriously the unhappy lady for the purpose of having the will prepared in the form he required. If he had told the attorney the truth, he would never have drawn the will in the form in which it appeared. Again, at the very period when this unhappy woman was lying in agony on her death-bed, and according to the prisoner's statement unable to bear the excitement of seeing her sister, he took into her room on the Sunday an entire stranger, and there a will prepared by himself was read to her, and executed by her under the circumstances of degradation to which he had alluded. Thus this poor dying woman, from whom all

her relations had been excluded, had a stranger thrust into her presence, and was allowed to pass into the other world without one word of religious consolation, as if she had been a beggar and an unbeliever in a heathen land. Again, as to the pecuniary motive, on the supposed inadequacy of which counsel had commented because she would have been entitled to receive the interest of the £5000 (£150) only during her lifetime, it should not be forgotten that by her will he would be at once in the possession of a sum equal to twelve years' purchase of that dividend."

"The illness of the deceased appeared to have commenced very soon after the parties arrived at Richmond; the prisoner appeared to have described it as a bilious attack; he undoubtedly appeared desirous to have additional medical aid, and Dr. Julius was in consequence called in. In both the lodgings he appeared to have performed all the offices that were necessary in connection with the patient, although it was perfectly clear that he had ample means for providing the necessary attendance. The jury would consider what bearing this had on the case. Did he refuse to have a nurse because he did not wish to have a witness in that bedroom? He not only refused to have a nurse, but he wrote to the deceased's sister to prevent her from visiting her sister. He said that he could not afford a nurse, yet at this very time the deceased had an income of at least £220 a year. It also appeared that no portion of any of the food given to the deceased was allowed to remain; it was always thrown away, so that no person ever had an opportunity of tasting it. This was one of the facts of the case, from which the jury would draw their own inference. It was a fact in favour of the prisoner that neither arsenic nor antimony was found at his lodgings or on his person. He had, however, ample opportunity between his discharge on the Monday and his re-arrest on the following day, of getting rid of any poison, and if the jury thought that the deceased really died of poison, the fact that none was found in the prisoner's possession would not have much weight.

"After the first interview, the prisoner had taken every means in his power to prevent the deceased from seeing her sister, on the

ground that the doctor forbade it[179]—which was not true. Why was not the sister informed on the 30th, when she was allowed to see the deceased again, that she had made a will, and what could be the object of the prisoner in wishing that the young woman who was to witness the will should be told it was a 'Chancery paper' and not a will? The fact of the sister having been sent away on the day before the death, was probably more in connection with the will, and from fear lest the deceased should, at the last moment, revoke it in favour of a beloved sister, than with the actual death—but it was a fact in the case. It was also a fact in the case, that after the prisoner ceased to attend on the deceased she ceased to vomit, and that the prisoner said that as the parties about the deceased had interfered, he should take no further responsibility, nor pay for anything, though at that time he had money of the deceased's at his bankers.[180] It was another fact to be considered that the draft of the will was entirely in the prisoner's handwriting, and that there was no evidence that it was drawn by a barrister as he represented."

On the medical testimony, the *Chief Baron* said:—

"The medical witnesses called for the defence thought the symptoms of this case inconsistent with slow poisoning, and that had arsenic or antimony been the cause of death, some portions of those substances would have been found in the body.[181] These statements were, however, the opinions of scientific men, the result of reading and study, and the jury would have to consider how far it weighed against the evidence of those scientific witnesses who had seen the patient when living, and had observed personally all the symptoms that manifested themselves. The medical men first called in found themselves baffled by the disease; the medicines not only did not alleviate the symptoms, but did not produce even their natural effects. They, therefore, came to the conclusion that something was being administered which counteracted their medicines. Dr. Todd, one of the most eminent physicians of the day, was called in, and came to the same conclusion. These gentlemen,

and other competent witnesses, who had not seen the patient while living, were equally of opinion that the symptoms were not ascribable to any natural causes; but were those which would arise from the administration of an irritant poison. The counsel for the prisoner had laid much stress upon the mistake made by Dr. Taylor in one of his tests, and asked them to dismiss Dr. Taylor's evidence from their consideration. He did not agree with this. The failure of Dr. Taylor's analysis in one instance arose from a new and hitherto unknown fact in science, and did not in any way invalidate his testimony.[182] It appeared to him that no answer had been given to the main point urged by the prosecution—that no medicine whatever had the slightest effect upon the malady under which the deceased was suffering. *He did not agree with the prisoner's counsel, that the real question for the jury was to consider which set of medical witnesses were entitled to credit. The medical evidence was important, but the jury must, in addition, look at all the other facts of the case, and particularly to the conduct of the prisoner and the motives for his crime.* They must, after all, be guided by those rules of common sense that would operate on the minds of reasonable men with regard to the more important actions of their lives; *and even supposing that there were no medical testimony at all in the case, they would still have, as it appeared to him, a very grave question to decide with reference to the guilt or innocence of the prisoner*."

The jury, after deliberating for twenty minutes, returned a verdict of "Guilty." When the prisoner, who appeared thunder-struck at the verdict, was called upon to say why sentence of death should not be passed on him, he speedily recovered his self-possession, and addressed the Court in a powerful, though rambling speech, in which he attempted to explain away some portions of his conduct, strongly asserted his innocence, and denounced Dr. Julius, against whom he appeared to entertain a bitter animosity. Again, when the usual sentence had been passed upon him, which he heard

without emotion, he denounced Dr. Julius as his murderer, and declared that "he was innocent before God."

No sooner was the verdict given than its correctness was questioned alike by the legal and the medical profession, each discussing it within its own domain, the doctors confining themselves too exclusively to the conflict of medical testimony, the lawyers confining their disputes too exclusively to the collateral facts of the case. Such, however, was the discussion between the two professions, that the Home Secretary (Sir G. Cornewall Lewis) deemed it advisable to reprieve the culprit until the case had undergone deliberate revision.

By the account given by Mr. Justice Stephen, based on the notes and papers of the late Lord Chief Baron, it would appear that, in addition to the numerous letters (some very foolish on both sides) sent to him, and transmitted by him to the Home Secretary, two communications, described as "somewhat hastily prepared," were forwarded from *Dr. Baly* and *Dr. Jenner*. These urged that "sufficient weight had not been given to the fact of the pregnancy and the ambiguous character of the symptoms," and, some of the letters added, "their inconsistency and incompatibility with poison." As the reasons on which these "somewhat hastily prepared communications" were based are not divulged, it is impossible to judge of their value. The learned Judge, on the contrary, called the Home Secretary's attention to the statement in the memorial to the Prince Consort (already quoted, note, p. 474), to certain entries in Smethurst's diary, not proved at the trial, and not now given, showing that he had wilfully misstated the symptoms of the patient, and to a statement in a letter of *Mr. Herapath* in the *Times* that the quantity of arsenic extracted from the chlorate of potass was larger than could have been released from the copper gauze. (See Chapter IX. p. 509.) On receiving this report the Home Secretary referred

the whole of the documents, together with the copy of the evidence, to Sir B. Brodie. His reply, which, it is reported, dealt not only with the medical, but the moral evidence of Smethurst's guilt,[183] concluded in these words: "Taking into consideration all that I have stated, I own that the impression on my mind is that there is not absolute and complete evidence of Smethurst's guilt." Thus on evidence not subjected to the searching cross-examination which it could have received if produced at the trial, and the opinion of a most eminent surgeon (not an analyst) merely on reading the papers submitted to him, the prisoner was pardoned. "The responsibility," says Judge Stephen, "was thus shifted from those on whom it properly rested on to a man, who, however skilful and learned as a surgeon, was neither juryman nor judge."[184]

THE LIVERPOOL POISONING CASE.

TRIAL OF THOMAS WINSLOW FOR THE WILFUL MURDER OF ANN JAMES.

Before Baron Martin, Northern Circuit, Liverpool, *August 20, 1860*.

For the Prosecution: The Attorney-General for the County Palatine (Mr. Bliss, Q.C.), Mr. Aspinall, *and* Mr. Temple.

For the Defence: Mr. Digby Seymour, Q.C. for the County Palatine, Mr. Fenwick, *and* Mr. Little.

HISTORY OF THE CASE.

The prisoner, who had been an ironworker, was charged with the murder of Ann James, by aggravating the disease of the *cæcum*,

under which she was suffering, through the administration of minute doses of antimony. Mrs. James came to Liverpool from Devonshire, in 1854, whither she was soon followed by her sister Eliza, her sister's husband a Mr. Townsend, an invalid, three nephews, and a niece, who was married to a japanner of the name of Cafferata. Commencing business as a grocer, she had subsequently kept an eating-house, which was eventually turned into a night refreshment and registered lodging-house, of which the prisoner, one of her lodgers, had taken the active management. Between him and the Townsends it was evident that no good feeling existed. They were jealous of his influence over their aunt, and suspicious of the intimate relations that existed between them. One of the nephews, Martin, who had caused her much trouble and expense from frequently enlisting in and having to be bought out of the army, acted as baker to the shop, but, with that exception, the Townsends had no share in the business. Previous to the last illness of their aunt, her sister, lately left a widow, and the other two nephews, died suddenly, as it was found afterwards, under very suspicious circumstances. No investigation, however, was made in their cases, until after the aunt's death.

Mrs. James had prospered in her business: according to her own account, the prisoner had made it. Her stock-in-trade and the goodwill were worth between £200 and £300: she had four gas shares, valued at £200, and £130 in the savings bank, at the time of her death. An authority for the withdrawal of the money from the savings bank, the holograph of the prisoner, was found in a drawer, and during her last illness the prisoner had gone to the gas company to try and get the shares entered in his own name, and been told that it could not be done without a proper transfer, or by will. On this he got the solicitor of the gas company to see Mrs. James and draw her will. This the solicitor did, no one but himself

and his clerk being present, and by it the business and stock-in-trade were left to the prisoner, and the rest of the property divided equally between Mrs. Cafferata and her child, and the nephew Martin, the prisoner being appointed sole executor. On the 5th of February, Mrs. James was so ill that the prisoner called in Dr. Cameron, Physician to the Liverpool Southern Hospital, who found her in bed, suffering from bowel complaint, and a tumour in the abdomen, which he believed to be cancer, and very weak and prostrate. He prescribed for her, and desired to be sent for again if she became worse. On the 26th of that month the prisoner wrote to Mrs. Cafferata at Manchester to come at once if she wished to see her aunt alive. She came and stayed with her for a fortnight, sleeping in the same bed, in the back parlour, of which the prisoner had the key at night. During Mrs. James's illness her food was prepared by her servants, and brought to her room generally at night by the prisoner, who was very attentive, and showed great interest in her condition. On the 29th of March, Dr. Cameron was sent for again, and found her symptoms similar to those he had seen on his first visit. Again, on the 8th of May he saw her, when she was suffering under a violent attack of purging and vomiting, but, as regarded these effects, was convalescent by the 19th. On the 25th, however, he found her again very ill, and for the first time, from the symptoms, suspected that some foreign ingredient, some irritating substance, such as antimony, had been given to her. Mrs. Cafferata had again been sent for to attend on her aunt. Dr. Cameron prescribed tannin as an antidote, and on the 6th of June Mrs. James was again convalescent. Two days after, however, the same bad symptoms reappeared, and she became exceedingly prostrate. Some of her urine and excretions were obtained and handed to Dr. Edwards for analysis, and its results communicated to Dr. Cameron, who, in consequence, went to her house on the 10th of June with the police, took possession of all the medicine

bottles and some cups that were in her room, and had Mrs. James taken to the Southern Hospital. More specimens of the excretions were obtained, and instructions given that for the future they should be, from time to time, preserved. On the evening of the 9th of June, if Mrs. Cafferata was to be believed, a most suspicious incident occurred. "On that evening," she said, "I made my aunt a cup of sago from a parcel on the kitchen shelf, which she took, and at three o'clock the next morning took up to her a cup of tea and an egg, and, as she did not eat them, I placed them on a chair by the bedside, went into bed to her, and slept till nine o'clock, having locked the door, and placed the key under it. When I awoke I found my aunt awake, and appearing to want to go to sleep. I then saw two cups had been brought into the room in the night" (the prisoner admitted that he brought one) "and the cup gone from the bedside."[185] In one of these cups was a little sago, in which antimony was detected by chemical analysis. For some days after her removal to the Hospital Mrs. James continued very ill, but ceased to have attacks of vomiting and purging after the first or second day. Afterwards, however, she improved in health until the 22nd of June, when dangerous symptoms occurred, and she died in two days.[186]

MEDICAL AND ANALYTICAL EVIDENCE.

Dr. Cameron, who attended the *post-mortem* examination of the body of the deceased, gave the following description of the appearances presented.

> "The body was greatly emaciated. The membrane of the gullet presented a yellow appearance. At the entrance of the stomach there were two patches of false membrane, but I could form no opinion how they were caused. The stomach was distended, and contained

sixteen ounces of fluid. There were two small ulcers communicating with the cancerous tumour, which might have been caused by the administration of antimony or by disease. The bowels had been perforated and their contents discharged into the cavity of the abdomen, which was the immediate cause of death. My opinion is, that antimony was administered within a very short time of her admission into the hospital—sometime between the 9th and 10th of June. I do not think antimony was given to her after her admission into the hospital. The vomiting was not of the kind ulcers would produce, but of a kind which might be produced by an irritating substance such as antimony."

On *cross-examination* by *Mr. Digby Seymour*, he said:—

"Hot food in a case like that of Mrs. James might produce vomiting, and always occasioned more or less pain with ulceration of the stomach. There was no redness of the small intestines. Vomiting was one of the principal symptoms of ulceration of the stomach, as by tending to starve and weaken the patient it produced emaciation and prostration. Purging was not a usual symptom of an ulcerated stomach, but occurred with cancer in the bowels. Witness agreed with Dr. Richards as to there being no case in which slow antimonial poisoning was accompanied with dysenteric evacuations. The alternation of constipation and purging was one of the known symptoms of antimonial poisoning. The intermitting condition of the patient was one of the reasons which led him to the conclusion that she was the subject of poison. Witness agreed with the opinion that in malignant diseases of the stomach the symptoms remitted in a remarkable way so as to excite a hope that recovery would take place; but the truce was not very long; frightful disorganization was at length produced and inevitable death at last. Softening of the brain had been noticed in some cases of antimonial poisoning, but it was not a frequent or even an ordinary indication. Antimonial poisoning sometimes produced enlargement of the liver, but it did not in this case. Aphthous ulcerations in the glands of the small intestines are also symptoms of the presence of antimony—*there*

were none in this case. Eminent writers on *Materia Medica* and pathology assert that some persons can tolerate the presence of poison in their bodies without it having any effect upon them. It is also an accepted truth among eminent scientific writers, that there are conditions and circumstances of the human frame in which antimony may not possess poisonous results."

On *re-examination*, the *witness* said:—

"This toleration of poison is common in certain cases of inflammation, but it is my opinion that, in this case, the opposite to toleration has been established. Aphthous ulcerations are not often observed in cases of poisoning by antimony. The absence of these symptoms, combined with the state of the liver and brain, in no way affect my opinion as to the poisoning in this case. There were peculiar symptoms in the vomiting of Mrs. James which induce me to believe that it was not caused by the ulcer. Antimony would aggravate the ulcerous disease and enfeeble the bodily powers, as well as affect the appetite. One of the effects of slow poisoning by repeated doses is that the stomach is prevented from receiving fresh nourishment."

To the Judge.—"I have never attended a human patient poisoned by antimony. Persons suffering from sickness after food are relieved by vomiting; but in the case of Mrs. James there was considerable retching after the food was thrown off the stomach."

John Baker Edwards, Analytical Chemist, said:—

"He analysed a bottle of urine which he received from Dr. Cameron on the 6th of June, and informed him that he found in it slight traces of antimony. On Saturday, June 9, he received two bottles from Dr. Cameron, one of which contained fæces, analysed it and found slight traces of antimony. The other bottle was marked 'vomit.' Analysed that, and found in it two considerable deposits of antimony. Subsequently confirmed this analysis by other chemical tests. He sublimed it by the application of heat, and obtained a white

sublimate, which, when examined under the microscope, had the appearance of oxide of antimony. Afterwards dissolved this in tartaric acid, passed sulphuretted hydrogen gas through it, and obtained an orange precipitate—sulphuret of antimony. He could not scientifically distinguish whether it was ‘free’ or ‘eliminated’ antimony.[187] On Wednesday, the 13th of June, he received three bottles labelled ‘Mrs. James, Tuesday,’ one of which was labelled ‘vomit.’ It had scarcely a trace of antimony. The other two bottles contained fæces and urine, in each of which was a trace of antimony. On the same day he also received two cups, one of them containing about a tablespoonful of sago. This he analysed and found in it two considerable deposits of antimony on copper, which he sublimed and recognised under the microscope as oxide of antimony. On Thursday the 14th he received three bottles, one of them of vomit, containing no antimony; the other two containing fæces and urine, in which was no antimony. On the 15th he again received a bottle of vomit and also one of fæces, and in the former he found two antimonial deposits, which under the microscope he recognised as oxide of antimony, and in the latter a trace of antimony. On the following day he found traces of antimony in two bottles of urine. The day after he received two bottles, one of urine, and found a trace of antimony in each. He also examined some uncooked sago which contained no antimony. Subsequently (after Mrs. James had been removed to the hospital) he received bottles labelled ‘Mrs. James.’ The vomit contained no antimony, but there were still distinct traces of it in the fæces and urine. He subsequently received four jars containing brain, lungs, heart, spleen, kidneys, intestines, stomach, and blood, labelled ‘Mrs. James,’ and four bottles containing fluids. He analysed portions of these separately. From one half of the stomach he obtained five deposits of antimony. He also obtained five deposits of antimony from the intestines, four deposits of it from one of the kidneys, and three deposits of it from one half of the liver. He found no trace in the brain. In four ounces of blood he found a distinct deposit of antimony, and also from the fluid of the stomach. He also analysed

six bottles of medicine and two of urine, and found no antimony. On the 26th of July he took a portion of the spleen and lungs of Mrs. James to London, and examined them there in conjunction with Dr. Miller and Dr. Taylor, and also the deposits of the viscera. He examined and tested them and found by the most approved tests applied that they contained antimony."

On *cross-examination*, the *witness* admitted:—

"That the first satisfactory result which he obtained was on the 9th of June—that he had no doubt that the trace he found on the 7th was antimony, but it was not a satisfactory result—that he had examined the body of a dog which died from antimony, and which had been exhumed, and had not found a trace, and, that if the animal had vomited after taking it he should not have expected to find any."

Dr. A. S. Taylor said:—

"That he received some jars at Guy's Hospital from Inspector Horne, containing portions of the stomach, cæcum, liver, one kidney, and the heart, and afterwards from Dr. Edwards a portion of the spleen and lungs. He divided them and gave a part to Mr. Miller. Dr. Edwards showed him some sublimate on glass, and deposits on copper. He examined them. The deposits on copper were metallic antimony, and those on the glass were oxide of antimony. He was of opinion that antimony had entered the body during life. Assuming the deceased to have been labouring under the disease of the cæcum, and to have had two ulcers in her stomach, the administration to her of antimony, by depressing the bodily powers, would tend to accelerate death. Antimony had a powerful depressing influence and lowered the pulse in strength, produced great exhaustion of the system, and in a serious disease affecting the body was likely to aggravate its effects. A person might be able to bear a dose of antimony in health, who in a serious disease would be destroyed by it. His opinion, in this case, was that antimony had been administered at intervals in small doses. Antimony could be

found in the tissues three weeks after it was taken. It might during that time be found, day by day and at intervals, in the secretions. The tests which he had applied were the most approved known in science."

On *cross-examination*, the *witness* said:—

"The disease which has been described as affecting the deceased must have terminated fatally. The death had been caused by inflammation arising from the passage of the contents of the diseased bowel into the cavity of the abdomen. It was very difficult to draw the line where a patient had rallied from the effects of poison, and where she sank under disease. The medical man in attendance on the deceased person would be the best judge of the influence of poison in accelerating death. Small doses frequently repeated would have the effect of irritating the mucous membrane of the bowels. In two most marked cases of poisoning with which he bad been connected there had been no change in the condition of the liver. *All the indications in Mrs. James's case were referable to natural causes.* If antimony were found in the fæces, he should conclude that the purging was occasioned by antimony. In vomiting caused by ulcers in the stomach, it was confined to the relief of the stomach from its contents, and then ceased. Antimony produced prostration of the nervous power."

Dr. Miller, Professor of Chemistry at King's College, confirmed the opinion of Dr. Taylor so far as it related to the chemical analysis, but gave no medical opinion.

Dr. Clarence Pemberton, House Surgeon at the Southern Hospital in Liverpool, deposed that he attended Mrs. James and paid attention to her symptoms. He made the *post-mortem* examination. "Taking the symptoms observed during lifetime, and the appearances shown by the *post-mortem* examination, and assuming the judgment of Dr. Edwards to be correct, the cause of

death, in his judgment, was the diseased ‘cæcum,’ but the administration of antimony would undoubtedly accelerate her death.”

On *cross-examination*, he admitted that, *judging from what he saw in the hospital, all the symptoms might be attributed to natural causes*, and, in answer to the Judge, said that *on the post-mortem examination he could find no traces or symptoms which he exclusively attributed to the administration of antimony*.

Dr. Francis Ayrton said he saw the viscera and the other portions of the deceased sent for analysation. He observed some redness at the commencement of the small intestines, and some spots on the large ones, and he formed his opinion from these spots that an irritant had passed through the bowels. Antimony was an irritant, and would produce such appearances. He had heard the evidence given, and his opinion was that the deceased’s death was accelerated by antimony. He also admitted, on cross-examination, that *what he observed in the viscera might be attributable to other causes than antimonial poison*.

THE PRISONER’S STATEMENTS.

According to the evidence of Mrs. Cafferata, and the inspector of police, the prisoner openly accused the Cafferatas of having poisoned their aunt. He objected to their interference, and ordered them to leave the house, calling Cafferata a second Palmer, because he carried white powders about in his pocket, and saying, when the wife showed him the soda powders in question, “You are not likely to show me the right stuff.” When Mrs. Cafferata wanted to go to the hospital to see her aunt, he threatened to put her under arrest. That the prisoner had a great deal of drink when he spoke in this way was admitted by the witness, but when he made the same

accusation of the Cafferatas to the inspector such apparently was not his condition. On the other hand, a Mrs. Higgins, on cross-examination, spoke to a threat of Mrs. Cafferata's that "she would hang the orange dog (the prisoner), and that after her evidence they would want no more."

PURCHASE OF POISON BY THE PRISONER.

The proof of the purchase of antimony by the prisoner was most unsatisfactory. A woman (Ann Foley) who used to work for Mrs. James, remembered that during the previous summer, on one occasion, when Mrs. James was sitting behind the counter and the prisoner was present, she said to him, "Here is Mrs. Foley; she will go for it;" that they then gave her twopence and told her to go and get antimony for the dog, and that when she went to a chemist of the name of Miller for it he would not let her have it, but told her to tell them to bring the dog over to him. This chemist's assistant (E. P. Rees) remembered a woman coming for antimony some nine or ten months before, a second person coming also for it on the same day, and a third about four months after for the same drug, to poison a dog with. The third person, he believed, but could not swear, was the prisoner. Another witness (Eliza Brennan) told a strange story about the prisoner. She had been in Mrs. James's service, some two years ago, and spoke to him about leaving and going to Dublin in the first week of her service. On this the prisoner, she said, advised her to stay, but added that, "if she would go, if she would buy him half-a-crown's worth of antimony in Dublin, and send it to him by the boat, he would give her £5." Lastly, a newspaper boy (Thomas Maguire), who slept at Mrs. James's house, swore that

> "The prisoner once sent him for a pennyworth of something for the dog, he did not know its name, but what he got was a white powder, which when given to the animal in water purged it violently —that within half an hour the prisoner sent him again for the same, and now told him its name was antimony. He got it, said the witness, from a young man, name Coopland, at Miller's the chemist. He declared it was taken from a bottle six or seven from the window, and professed to point out the bottle to the Inspector of police. He knew that the letters ANT. on it stood for antimony. He had also several times since January last seen the prisoner when making bread and butter for the mistress take from his pocket a white powder in a paper and throw some of it on the bread before he buttered it; when he asked him once what it was, the prisoner had said it was salt. When the witness said 'there was salt enough in the house without that,' the prisoner made no reply."

To Inspector Home the prisoner admitted that "he knew the use of antimony, and had given it to cattle, but had not had any in his possession for many years."

In his charge to the jury, *Baron Martin* told them that, if they believed that the prisoner administered the antimony with the intention of killing, and that her death from a natural disease was thus accelerated, that was murder—citing the dictum of Lord Hale "that if a man be sick of some disease which might possibly end his life, and another gave him a wound, which would hasten his death, this was murder by the party giving the wound"—they were to guard against prejudice because of the nature of the crime, and not to convict unless the evidence affirmatively satisfied their minds of his guilt.

The jury almost immediately returned a verdict of "Not Guilty."

CHAPTER IX

ANTIMONY.

Properties of the metal—Alloys—Compounds—Chlorides, sulphides, oxides, hydride. Tartar emetic—solubility, composition, uses and occurrence—commercial, veterinary, medicinal. Doses and preparations—fatal dose, fatal period. Physiological effects—Antidotes—Separations and tests—(1) Reinsch's—Presence of antimony; purity of the copper employed, how to be secured; different stains resulting from presence of arsenic, antimony, mercury, bismuth, tin, silver, gold, platinum, palladium, sulphur compounds—(2) Dr. Maclagan's test in Pritchard's trial—(3) Marsh's test—Remarks on Pritchard's trial—On Smethurst's trial—Dr. Taylor and Mr. Herapath—Arsenic in bismuth—Antimony in grey powder.

ANTIMONY.

THE metal antimony (symbol Sb, from its classical name *Stibium*) is heavier than arsenic (sp. gr. 6·8), less easily tarnished, more difficult to pulverize, and not nearly so volatile. It forms somewhat brittle masses, with a fern-like crystalline appearance on the surface. When broken the interior shows radiating (rhombohedral) crystals of a bluish-white, strongly metallic lustre

(arsenicum is greyish, bismuth is pinkish, white), yielding a grey or black powder. Melting point, 425° C. Heated with the blowpipe on charcoal it gives white fumes of oxide, *without odour* (arsenic gives a garlic odour). The metal is insoluble in water and dilute acids, but soluble in *aqua regia* to form antimonious chloride; also soluble in sulphide of potassium or sodium. Hot concent. sulphuric acid converts it into sulphate. Nitric acid turns it into a white powder consisting chiefly of *metantimonic acid*, $HSbO_3$, of which a small quantity dissolves.[188] The powdered metal burns in chlorine, forming Sb Cl_3, or Sb Cl_5. Metallic antimony is obtained as a "mirror" in Marsh's test: the distinctions between it and arsenic have been already given (p. 389).

The following is the percentage of metallic antimony in different alloys. English type metal, 20 to 25; German ditto, 15; Britannia metal, 10 to 16; pewter, 7; Argentine, 14½; Ashbury metal, 19½; white or anti-friction metal for engine-bearings, 10; Babbit's metal, for similar purposes, 13; alloy for ships' nails, 17 (Ure's Dictionary, I., 169; Roscoe and Schorlemmer's Chemistry, 1880, ii., 2, p. 307). There is also antimony in brass, metallic mirrors, bell-metal, &c. (Blyth). *Antimony black*, used for giving a steel-like lustre to plaster casts, is finely divided Sb, precipitated from the chloride by zinc.

Metallic antimony is not poisonous unless partially oxidized. Commercial samples usually contain a little arsenic, which enters into the salts.

Antimonious chloride, Sb Cl_3, when pure, forms colourless glistening deliquescent crystals. A solution in hydrochloric acid constitutes the commercial "butter of antimony" used for giving a dark bronzing to brass. It is a thick, powerfully acid liquid, coloured brown by the presence of iron, fuming in air, very corrosive, and of an irritating odour, distilling over at about 200° C.

(*pure* Sb Cl_3 boils at 223° C.), decomposed by water into a white magma of *oxychloride*, Sb O Cl, "powder of Algaroth" (tartar emetic is not decomposed by water). It is a violent corrosive poison, blackening and destroying the surfaces like oil of vitriol. For cases, *see* Woodman and Tidy, p. 130.

Antimonic chloride, Sb Cl_5, is rarely met with. It resembles Sb Cl_3, but is liquid.

Antimonious sulphide, Sb_2 S_3, is found native as "stibnite," "speiss-glas," "grey antimony," or "antimony glance," sp. gr. 4·63, in lead-grey striated prisms, fibrous or massive, of a strong metallic lustre, fusing readily to a dark-brown glass —"vitrum antimonii"), giving before the blowpipe white fumes, and an odour of sulphur dioxide —"brimstone"). It is the principal ore, the source of all the preparations, and is itself used in fireworks. When powdered it is black, and in this state was used by the Roman ladies under the name of "stibium," by the Orientals as "Kohl," for darkening the eyelids. It is soluble in hot hydrochloric acid to form $SbCl_3$. The precipitated sulphide is orange, and will be noticed under the tests. Sb_2 S_3 would not be poisonous until oxidized.

Antimonious oxide, Sb_2 O_3, obtained by burning Sb in air, is a white powder, turned yellow on heating, soluble in hydrochloric acid to form Sb Cl_3, and in cream of tartar (acid potass. tartrate) to form *tartar emetic*. Unlike As_2 O_3, it does not easily volatilize in crystals. It is occasionally found native.

Antimonic oxide, Sb_2 O_5, is a pale yellow powder. There is also an intermediate oxide, Sb_2 O_4.

Antimonious and antimonic acids are hydrates of the above oxides. They exist in several modifications, and form metallic salts,

one of which, sodium pyrantimonate, Na_2 H_2 Sb_2 O_7, 6 H_2 O, is the only known insoluble salt of sodium, and hence available as a test.

Antimonious hydride, Stibine, or "antimoniuretted hydrogen," Sb H_3, has never been obtained pure. In admixture with hydrogen, as given by Marsh's test, it is a colourless gas, almost or quite *inodorous* (distinction from As H_3 which smells like garlic), decomposed by heat into hydrogen and a "mirror" of Sb. Its poisonous properties have been doubted, but it is probably more dangerous than As H_3, on account of the absence of the warning odour. It burns with a bluish-green flame, giving white clouds of Sb_2 O_3, and a spot of Sb, duller and greyer than As, when a cold porcelain surface is depressed into the flame. Passed into silver nitrate solution, the Sb is precipitated along with metallic silver as *silver antimonide*, Ag_3 Sb, whereas arsenic under the same circumstances would remain in solution as As_2 O_3.

TARTAR EMETIC.

Potassio-antimonyl tartrate, *tartrate of antimony and potash*, "*antimonium tartarizatum*," "*tartarized antimony*," "*stibiated tartar*," symbol K (Sb O) C_4 H_4 O_6, ½ H_2 O, occurs in colourless rhombic octahedral crystals, transparent at first, but becoming opaque by efflorescence, or as a white powder, inodorous, and with a strong metallic taste. The aqueous solution is faintly acid to test-paper, and becomes mouldy on keeping. When evaporated on a glass slide, it leaves a crystalline residue of *tetrahedra*, cubes and branching forms. (*See* figure in Guy and Ferrier's For. Med., p. 469.) Heated on platinum, tartar emetic blackens and swells up with an odour of burnt sugar (due to the tartaric acid), gives a bluish-green tint to the flame, and quickly fuses and makes a hole

in the platinum, from the formation of a fusible alloy. Heated in a closed tube, it gives charcoal, potass. carbonate, and metallic antimony, which does not sublime at a moderate temperature, is inodorous, and may be separated in metallic globules by washing (differences from arsenic; *see* p. 389). Sulph. hydrogen of course gives the orange-red sulphide.

Solubility.—Tartar emetic is almost insoluble in alcohol, and still less soluble in ether, chloroform, &c. Spirits and water, such as are mixed for drinking, dissolve nearly as much as cold water, and more if warm. The solubility in cold water is given very variously in the text-books, from 1 part in 21·8 —"20 grains per fluid ounce," British Pharmacopœia), 1 in 20 (Garrod and Blyth), 1 in 15 (Brande's and Gmelin's Chemistry), to 1 in 14 (Graham and Taylor). To clear up this difficulty I prepared for Dr. Bernays in 1879 a very pure sample of the salt: he found that 100 cubic centimetres of water at 58° F. dissolved 6·67 grammes, equal to *one part in fifteen*. The solubility rises rapidly with the temperature, till it reaches *one part in two* at the boiling point. The discrepancies are accounted for by the facts that, (1), the textbooks do not mention the temperature; (2), the salt readily effloresces in air, losing water and becoming less soluble; (3), impurities are often present.

Composition.—Commercial tartar emetic is generally very pure. It sometimes contains a trace of sand and dirt, occasionally an excess of cream of tartar (potass. hydrogen tartrate) from careless preparation, but I have never found arsenic. The theoretical percentage of Sb is 36·53: in good commercial samples Bernays found 36·03 to 36·32 per cent.; in an over-dried specimen, 37·4 per cent. One sample contained 23 per cent. of cream of tartar and only 28·13 of Sb; another, 10 per cent. tartar and 32·7 of Sb.

USES AND OCCURRENCE.

The alloys and pyrotechnic uses have been already mentioned. The impure fused sulphide (vitrum antimonii) is employed to give a yellow tint to glass and porcelain. The oxides are used in glazing earthenware, and in glass and china painting. The following are antimonial pigments: “Antimony cinnabar,” and “crocus,” or “saffron of antimony,” are oxysulphides: “Naples,” “Cassell,” and “antimony yellows,” are chiefly antimoniates of lead. Small quantities of antimony occur in iron ores, ferruginous waters, the coal formation, and in river sand (Roscoe).

In *veterinary practice*, large doses of antimonials are given to animals, as much as 90 grains of tartar emetic being often administered to a horse in his gruel three times a day. Other preparations are used (*see* Blyth’s Pract. Chem. 1879, p. 404). They are supposed to cause fattening.

Medicinally it is employed in typhus, *delirium tremens*, small doses in croup and the broncho-pneumonia of children, as a general expectorant in asthma and bronchitis, in whooping-cough, by some recommended also in scaly skin affections. In acute inflammations and pneumonia, it has lost favour, as too depressing (Farquharson’s Therapeutics). In times before chloroform, tartar emetic was even used to lower the muscular tension previous to reducing dislocations.

DOSES AND PREPARATIONS.

Pulvis antimonialis, 3 to 10 grains. This is the Pharmacopœial equivalent of “James’s Powder,” a secret remedy once highly popular. It contains one part of $Sb_2 O_3$ to two of phosphate of lime.

Vinum antimoniale, antimonial wine, is a solution of 10 grains of tartar emetic to each ounce of sherry: dose, 5 minims to 1 fluid drachm.

Antimonii oxidum, $Sb_2 O_3$, is often very impure. It may contain, (1), higher oxides of Sb, when it is not completely soluble on boiling with water and cream of tartar; (2), carbonate of lime, when it effervesces with acids and contains less Sb; (3), traces of arsenic, when it gives a garlic odour before the blowpipe on charcoal. Percentage of Sb, 83·56: dose, 1 to 4 grains.

Antimonium sulphuratum, or *oxysulphuretum*, is precipitated $Sb_2 S_3$ with a small amount of $Sb_2 O_3$. It contains about 62 to 65 per cent. Sb (pure $Sb_2 S_3$ has 70·2 per cent.). Dose, 1 to 5 grains, but rarely prescribed, except in "compound calomel pill," *pil. hydrarg. subchlorid. co.*, which contains 20 per cent. of $Sb_2 S_3$.

Antimonii chloridi liquor, a solution of $Sb Cl_3$ in hydrochloric acid, is sometimes used as a caustic, never internally.

Antimonium tartaratum, tartar emetic: dose, as a diaphoretic, $^1/_{16}$ to ⅙ grain; as a depressant, ⅙ to 1 grain; as an emetic, 1 to 2 grains (to 3 grains, Farquharson). It should never be used as an emetic in suspected poisoning, as its presence would confuse the investigation.

Unguentum antimonii tartarati, antimonial ointment, contains 20 per cent. of tartar emetic.

The following proprietary pills contain tartar emetic in the annexed proportion per pill weighing about 3 grains:—*Dr. J. Johnson's*, 0·04 grain; *Mitchell's*, 0·05 grain: *Dixon's*, 0·06 grain (Blyth).

It has been stated that the liqueur *absinthe* owes its deleterious effects to antimony. I have tested several specimens, but never

found antimony, though traces of lead or copper were occasionally present.

Fatal dose.—About this, nothing can be exactly stated. The smallest was, in a child, ¾ grain; in an adult, 2 grains; but in this instance there were circumstances which favoured the fatal operation (Taylor, Med. Jur. i., 310).

If vomiting and purging happen, the poison is for the most part expelled: except for the effects of exhaustion, there may then be hardly a limit to the amount which may pass in and pass out. Taylor records recoveries from 120 grains, 200 grains, and even *half an ounce* of tartar emetic. In pneumonia it has been given in repeated doses of 2 grains without ill effects. It must be remembered that, in the hands of the poisoner, its perverted use is, not to kill, but to so weaken the vital powers that a small and not suspicious dose of some other poison may complete the death.

Fatal period.—Shortest, seven hours in an adult female (Wormley); eight hours in a boy after 10 grains tartar emetic (Lancet, 1846, p. 460). Usually much longer: four days after 40 grains (Orfila, i., 480); up to one year from after effects (Guy and Ferrier).

PHYSIOLOGICAL EFFECTS.

The unpleasant metallic taste, the heat in the throat, and burning in the stomach, have been described in the previously reported trials, and in other cases. Afterwards there is nausea, severe vomiting, profuse watery purging, often convulsions which are sometimes tetanic in character; the skin is generally cold and clammy with perspiration; there is collapse from exhaustion, and occasionally delirium and insensibility. Death may happen either

during the convulsions, or during the collapse. The heat and constriction in the throat is not invariably present.

After death there is generally found inflammation of the stomach and intestines, especially the cæcum: the brain is sometimes congested, the throat rarely affected. The stomach-contents are usually tinged with blood, as with most irritant poisons.

In smaller doses it acts at first as a sedative on the brain; the action of the heart becomes slower, weaker, and finally irregular, the pulse is soft, the breathing slower; there is an increased bronchial secretion, and general muscular relaxation. As an emetic it is sluggish and depressing, and is often followed by diarrhœa. It powerfully promotes perspiration, and is therefore used in influenza, &c. Poisonous doses may cause paralysis, prostration, degeneration of the liver and other organs (*see* Taylor's remark about the geese at Strasburg, p. 464), inflammation and even ulceration of the intestines (Farquharson and others).

ANTIDOTES.

Sometimes vomiting does not occur: in this case it should be promoted by tickling the throat, and by draughts of warm water. *Tannin* precipitates compounds of antimonious oxide ($Sb_2 O_3$), but not those of antimonic oxide ($Sb_2 O_5$): as the former are the ones almost invariably used, astringent preparations, such as strong tea, coffee, decoction of oak bark, galls, tincture of catechu or kino, should be given. Tannin, or tannic acid, is commonly kept by photographers. Failing this, sodium carbonate (washing soda), in not too strong solution, may do good. Opium to allay the irritation, and brandy to overcome the depression, should then be tried.

SEPARATION AND TESTS.

During life, antimony may be found in the urine and fæces: after death, if its administration has been long continued, it will be found in all parts of the body, but especially in the *liver and spleen*. If the doses have been discontinued some time before death, none may be left in the stomach and intestines.

The enquiry divides itself into three parts: 1st, the *presence* of antimony; 2nd, the preparation used; 3rd, the quantity.

I. Presence of Antimony.

Marsh's and Reinsch's tests have been mentioned under arsenic. It, however, will be necessary to add a few observations on their special use for Sb.

A fractional part, say one-fourth, of the suspected matter, after mincing or pounding, is digested with hot distilled water containing 5 per cent. of *pure* hydrochloric, and a little tartaric, acids, well shaken or stirred in a covered or closed vessel, and after some hours filtered. To a portion of the filtrate is added a little more hydrochloric and a little sulphuric acid (to reduce the higher oxides of As and Sb), and the whole is boiled for ten minutes. A portion of the filtrate is now subjected to

Reinsch's Test.—First it is absolutely necessary to have *pure copper*; so pure, in fact, that a quantity, *larger than would be used in testing*, will not, *if totally dissolved up*, yield any As or Sb to another piece of copper boiled in the solution.

Dr. Taylor's mistake in the case of Smethurst, more fully treated of hereafter, was a very natural one. The trace of arsenic in his copper would not have affected the conclusion in ordinary cases: but it would be better not to test at all than to use materials

which are not *proved beforehand* to be free from the poison we are seeking. Pure "electrotype" copper can now be purchased; or it can be made pure by either of the following methods.

(*a*) "Pure" commercial sulphate of copper is boiled with a slight excess of chlorine water, then treated with dilute ammonia till a slight permanent precipitate forms: after standing twelve hours it is filtered (the precipitate containing iron and arsenic), acidulated with *pure* sulphuric acid, and subjected to the current from two Daniell cells, the terminals being two plates of hard wax well coated with purified graphite: the coating must communicate with the copperwire from the battery, and the wire must not dip into the solution. The distance between the terminals should be so regulated that the copper may be deposited *slowly* and in a tough layer on the negative pole: the thin plate so obtained may afterwards be easily detached, hammered or rolled, and cut into suitable pieces: it is absolutely free from arsenic.

(*b*) Pure crystallized chloride of copper is mixed with pure carbonate of soda in excess, the mixture dried with constant stirring, heated to near redness, powdered, mixed with an equal volume of lamp-black, and introduced into a "plumbago" crucible lined with a paste of purified graphite and oil. The crucible is covered, and gradually heated in a Fletcher's or Griffin's gas furnace (not with coal or coke), and finally kept at a very high temperature till the copper is reduced. The fumes contain chlorides of copper, sodium, &c., and are poisonous. The copper, after separation from the slag, may be cast, hammered, or rolled, and is free from As or Sb.

I suggest these processes more for manufacturers than for chemists, but expense and trouble should really be subordinate considerations where life is concerned.

Now for the application. Two flasks containing pure diluted (25 per cent.) hydrochloric acid are placed on a sandbath, and nearly closed by small glass funnels. About a square inch of pure copper, cleaned by sand-paper, is placed in each: to one is added the suspected liquid, to the other an equal bulk of 5 per cent. hydrochloric acid. Both are boiled, with occasional inspection. If the following are present, the copper will be darkened:—

Arsenic.—Stain *steel-grey*: dried and heated in closed tube it gives *easily* a sublimate of octahedral crystals of $As_2\ O_3$. (*See* Arsenic, *ante*.)

Antimony.—Stain black, or in small quantity, *violet*: in the closed tube it gives with difficulty an *amorphous* white sublimate of $Sb_2\ O_3$, soluble in H Cl, and then precipitated *orange* by $H_2\ S$.

Mercury.—Stain silvery: in closed tube gives a sublimate of *metallic globules*, made more visible by rubbing them together with a splinter of wood.

Bismuth, *tin*, *silver*, *gold*, *platinum*, *palladium*, &c., give black, grey or silvery deposits, but no *sublimate* in the tube. *Gold* gives a stain which is *yellow* on burnishing, and yields no sublimate.

Sulphur compounds in the organic matter may give a dull stain, which may even yield a kind of sublimate in the tube, but this sublimate will not conform to the tests for As or Sb.

If there is much As or Sb, the deposit sometimes peels off if boiled too long.

The process used by Prof. Maclagan in the Pritchard trial is also a good means of verification. Boil the stained foil in a solution of caustic potash, exposing it occasionally to the air (or boil with a weak, slightly alkaline solution of potass, permanganate, and filter —Odling). The Sb will be oxidized and dissolved. Add HCl and

pass H_2 S: an orange precipitate of Sb_2 S_3 will prove the presence of antimony.

If Sb has been found, remove the first piece of copper, and boil with another piece, and so on till the Sb is all removed. The coated slips, the sublimate, the Sb_2 S_3, and the copper in the second flask which has still remained bright, should be sealed up to be shown in court.

The previous treatment with sulphurous acid prevents any interference by oxidizing agents such as chlorate of potash, nitrates, iodine, &c.

Marsh's Test is more delicate, but more liable to error, than Reinsch's.

Two methods of applying Marsh's test to antimony may be used.

A. By Edmund Davy's process with sodium amalgam (*see* Arsenic, p. 388), only As H_3 passes off, the Sb remaining behind. Hence, when the arsenic has finished coming over, if the remaining solution be acidulated with *pure* sulphuric acid,[189] *pure* zinc put in, and one or two drops of *pure* platinic chloride added to facilitate the evolution of hydrogen, the antimony will then come over as Sb H_3.

B. Or the original substance may be placed in the flask, treated at once with the zinc and dilute acid, and the As H_3 and Sb H_3 passed together into silver nitrate solution, and separated by filtration as directed under arsenic. *See* p. 389, also as to the distinctions between the stains of Sb and As. To these add, that metallic spots of both As and Sb are soluble in yellow ammonium sulphide: the solutions on evaporation to dryness on the water-bath give:

(*a*). With *arsenic* a *yellow* stain, soluble in ammonia, insoluble in hydrochloric acid;

(*b*). With *antimony* an *orange* stain, insoluble in ammonia, soluble in hydrochloric acid.

Metallic antimony can be precipitated as a black powder from its solutions by acidulating with hydrochloric acid and treating with a slip of pure tin, which does not precipitate arsenic. Zinc or electrolysis also precipitate Sb, along with copper and many other metals. Hence this method is not available in mixtures.

Sulphuretted hydrogen gives with antimonial solutions slightly acidulated an orange-red precipitate of sulphide, insoluble in ammonia or ammonium carbonate, soluble in ammonium sulphide, soluble in hot strong hydrochloric acid by conversion into antimonious chloride, and sulphuretted hydrogen: the former then gives a white precipitate with water, the latter gives the characteristic odour and blackens lead paper.

The reactions with sodium hydrate and sodium carbonate, are not so clear or decisive. Potass. ferrocyanide gives no precipitate. Tannin and tincture of galls give a yellowish white precipitate. Before the blowpipe with sodium carbonate on charcoal, solid Sb compounds give a grey brittle globule of the metal and a white incrustation. But there is rarely sufficient for such a test to be of use in toxicological work, there is also a risk of loss, and other metals give a similar reaction.

N.B.—Among other substances, sulphide of antimony is frequently added to caoutchouc in the process of vulcanising india-rubber: in all toxicological experiments involving tests for antimony (and arsenic), great danger of a mistake is thus attendant on the use of ordinary vulcanised india-rubber tubing. Black unvulcanised tubing should alone be employed.

II. Preparation Used.

The insoluble compounds would act very slowly as poisons and would require very large doses, hence would be found in the solid form in the stomach, and could be identified by appearance, by the microscope, and by the tests, after washing and settling down.

To ascertain whether antimony was *in solution*, the liquid contents of the stomach, after dilution with water if necessary, should be allowed to settle, the nearly clear top layer decanted and filtered, and the filtrate examined. The soluble compounds are:—

1. *Tartar emetic.* Solution *slightly acid*, taste metallic. On evaporation on a glass slide *tetrahedral crystals* are obtained. If the solution is moderately strong, it gives a white precipitate with a little hydrochloric acid, soluble in excess: with water it gives *no precipitate*. Stomach generally inflamed but not corroded.

2. *Antimonious chloride*, Sb Cl_3. Solution *strongly acid*, effervescing and giving a white precipitate with sodium carbonate. Taste corrosive and powerfully metallic. On evaporation, no tetrahedra. No precipitate with hydrochloric acid: with water a white precipitate, re-dissolved by tartaric acid.[190] By analysis a large quantity of *chlorine* will be found. The stomach is corroded and often blackened or charred.

3. *Antimonates*, *antimonites*, *sulphantimonites*, and *-ates* (such as "Schlippe's salt"), are rare and improbable. Antimonates are *alkaline*, give a white precipitate with acids, and a white crystalline one with sodium salts. Schlippe's salt is strongly alkaline, and gives with hydrochloric acid an orange-red precipitate of sulphide.

III. Quantity.

To ascertain the amount of Sb is absolutely necessary. Marsh's test is not available, since a large part of the antimony is thrown down on the zinc and remains in the generating flask. It has been proposed to wash this off and weigh it, but other metals and impurities are present, so that this is not practicable. Reinsch's test has been applied quantitatively by weighing the copper before and after the test: the difference of weight was supposed to be the As or Sb. But the copper may dissolve or oxidise, sulphur and other things deposit on it; so that this method is not correct.

If antimony only is present, acidulate with hydrochloric acid, pass sulph. hydrogen in excess, warm, filter, wash the orange hydrated antimonious sulphide into a porcelain capsule, remove most of the water, dry on the water bath, finally at 200°C. and weigh. 100 grains of $Sb_2 S_3$ correspond to 85·88 of $Sb_2 O_3$, to 196·47 of tartar emetic, to 71·76 of Sb, to 134·41 of $Sb Cl_3$.

But in the stomach any other metal may be present, hence a process of separation must be used. It is not generally necessary to destroy the organic matter: if this be desired, Fresenius and v. Babo's process, of heating with H Cl and potass. chlorate (previously proved pure) may be used without much danger of loss, as $Sb Cl_3$ is not so volatile as $As Cl_3$. Otherwise the solution made by pure hydrochloric and a little tartaric acids is treated with sulphuretted hydrogen. The precipitated sulphide may be of uncertain, though suspicious colour. After collection on a filter and washing, it should be extracted with dilute ammon. carbonate solution (10 per cent.): *arsenic* only will dissolve and will be reprecipitated as sulphide on adding an acid. The remainder on the filter must be treated with freshly prepared ammon. sulphide: *antimony* and *tin* will dissolve. If any black residue remains on the filter, it will consist of *mercury*, *lead*, *bismuth*, or *copper*: it should

be treated with hot 25 per cent. nitric acid, when all will dissolve except *mercuric sulphide*. We shall then have three portions:—

1st. The *mercuric sulphide*. Wash, dry, and weigh. Then heat in a sealed tube with dry sodium carbonate, collect the sublimate of metallic mercury, weigh it, and preserve in a sealed tube.

2nd. The nitric acid solution containing *lead*, *bismuth*, and *copper*. Evaporate nearly to dryness, dilute, add dilute sulphuric acid, and a little alcohol, after standing collect and weigh the precipitated sulphate of *lead*. Precipitate the *bismuth* by ammon. carbonate in excess, and the *copper* from the filtrate by zinc or by sulph. hydrogen. (*See* Fresenius' Quant. Anal. p. 411).

3rd. The ammon. sulphide solution of the *antimony* and *tin*. Evaporate to dryness, dissolve in hot strong hydrochloric acid, dilute, divide into two equal portions: in *one* throw down both metals by a rod of *zinc*: in the other throw down only Sb by a slip of *tin*. Wash off both precipitates, dry and weigh. The first is antimony and tin together, the second is antimony alone (Gay Lussac). The difference is the tin.

Usually only *some* of these metals will be present. *Tin* has derived more importance lately since Hehner has proved its almost constant presence in canned provisions.

As to the delicacy of the precipitation of antimony by zinc or galvanism, Mohr (Toxicologie, 1876) states that a solution containing ·00005 gramme of Sb in one cub. centimetre gives a distinct reaction in fifteen minutes. Such a solution gives with H_2S only a colouration, and after a long time a faint precipitate. $^1/_{30000}$ part gives with zinc a clear reaction in one half-hour: with H_2 S, only a colour, no precipitate, in twelve hours. $^1/_{40000}$, doubtful: $^1/_{50000}$, imperceptible with zinc: of course, nothing with H_2 S. The reaction is only decisive if other metals are excluded.

From the solution of Sb Cl_3, or tartar emetic in H Cl, *gallic acid* throws down Sb, and not As or tin. The precipitate after washing and drying contains 40·85 per cent. of Sb. (Chem. News, XXIV. 207, 251.)

To sum up, the decisive characters of antimony are:—

1. An orange red precip. by H_2 S in slightly acid solutions.

2. The insolubility of this precip. in ammon. carbonate.

3. Its solubility in ammonium sulphide.

4. Its solubility in hot H Cl, with evolution of H_2 S, and formation of a solution of Sb Cl_3, which is precipitated by water and cleared up again by tartaric acid.

Remarks.
DR. PRITCHARD'S CASE.

In connection with the supposed administration of tartar emetic on a piece of cheese, in Dr. Pritchard's trial (*see* Mr. Clark's review of McCleod's evidence, p. 438), the following considerations are of interest.

1. An exceedingly small (weighed) quantity of dry powdered tartar emetic was sprinkled on the surface of a little piece of cheese: although the amount of tartar emetic used was far less than that required to induce vomiting, &c., the powder was found to be plainly visible, and the appearance of the cheese so treated would certainly have excited suspicion in the mind of any ordinarily observant person. Hence it is impossible that enough tartar emetic to produce the recorded effects should have been sprinkled externally on the very small amounts of cheese described —"not larger than a bean"—M. McCleod: "size of a good large pea"—M. Patterson).[191]

2. With reference to the Lord Justice Clerk's observation, p. 439, *note*, tartar emetic is *not* easily dissolved, a cold saturated aqueous solution containing only 5 per cent. of the salt (according to the B. P., 20 grains dissolve without residue in 1 ounce of water). A piece of cheese, the size of a bean, would weigh about ⅛ ounce. I have found by experiment that 1 ounce cheese took up by soaking not more than ¼ ounce water, which, from the above, could contain in solution 5 grains of tartar emetic. Hence a piece of cheese, the size of a bean, = ¼ × ⅛ = $^1/_{32}$ ounce water = ⅝ grain of tartar emetic. This amount could not cause the symptoms described.

3. If put on in powder the poisonous salt could only be concealed by being rubbed over with butter or oil: if soaked in a solution of tartar emetic, the cheese, in order to avert suspicion, must be wiped or dried—operations practically impossible at the table with so many present.

Two possibilities remain: (*a*) Cheese is often eaten with salt. Dr. Pritchard may have had a little salt-cellar by his side, professedly for his own use, containing tartar emetic, either alone or mixed with salt. He may have placed a spoonful of this on the plate with the cheese: the latter may have been either dipped into the salt or got into it accidentally. No question was asked at the trial about such a likely fact, which would account for one person suffering, and not another, according as they got the salt or not. The strong taste of salt would avert suspicion from that of tartar emetic. (*b*) McCleod said that it was "new cheese—they had it in the house—it was soft—it tasted hot like pepper." It is possible, but not easy, by warming and pounding in a mortar, to mix cheese with a considerable amount of a powder: it would then look *soft* and rather unnatural, but might, as "new cheese," escape suspicion. This theory is less probable than the other.

Tapioca.—Mr. Clark's remark, p. 438, "Now the suggestion of the Crown is that the prisoner put antimony in this tapioca, so nicely adjusted as to produce sickness leading to death, but not so as to produce death itself," is inconclusive, as it requires a considerable amount to produce *death*. A large quantity of tartar emetic could be mixed with tapioca without suspicion, and would not betray itself by any peculiar appearance on cooking. The same remark applies to the sago in Winslow's case.

Egg-flip.—"The amount of antimony introduced on the sugar into the egg-flip must have been a very powerful dose, because Patterson took only a teaspoonful and lay vomiting and suffering all night." The total amount was a tumblerful (= 10 fluid ounces). Mrs. Pritchard took a wine-glassful (= 2 fluid ounces); was sick very soon and all night. Mary Patterson took a teaspoonful, was sick immediately, and vomited frequently throughout the night. Her dose must have been at least 1 grain. This would make 60 grains in the whole. Such a quantity of tartar emetic would be about a teaspoonful, and obviously could not be introduced on two lumps of loaf sugar, as the following experiment shows:—Two rather large pieces of loaf sugar weighing together 204 grains were gently shaken with powdered tartar emetic, and the loose part shaken off. The lumps now looked rather powdery, but nothing very noticeable. The amount of tartar emetic they had taken up was nearly 3 grains (2·96), not nearly a teaspoonful, though amply sufficient to cause vomiting. It is not the *porosity*, but the roughness of surface, that enables a powder to adhere to the sugar. The tartar emetic might have been slipped into the egg-flip, out of the hand, at the same time that the sugar was added, the mixture being afterwards stirred up.

DR. SMETHURST'S CASE.
Dr. Taylor and Mr. Herapath.

In his evidence before the committing magistrates, on the 20th of May, Dr. Taylor said:—

"I found no arsenic or antimony in any of the bottles delivered to me by Inspector McIntyre on the 5th and 7th of May, except one, and the homœopathic medicine: that one was bottle 21.[192] When I received this bottle it was about half full of thin, watery-looking mixture, and I tested it. It had a cooling, pleasant saline taste, not repugnant, no smell. I detected nothing wrong with the taste. I evaporated some in a glass, and examined it by the microscope, and then found it was not tartar emetic, as I thought. I then applied the tests for arsenic, and every test I tried was destroyed, and failed to show the existence of arsenic, owing, as I supposed, to there being in it, and my tests convinced me that there was, something very peculiar about it that I had not met before. I tried Reinsch's process, but I found that it dissolved the copper-gauze as soon as I put it into the liquid. I then determined to extract this noxious agent, and continued to put in copper-gauze until it no longer possessed the power to dissolve it. I then put in a piece of copper, which at once received the arsenic. I was able to decide by these tests that the mixture was chlorate of potash. I found there was of chlorate of potash 7 grains to the ounce, or 1 and $^{6}/_{10\text{ths}}$ per cent., and there was a grain of arsenic to every ounce. I found that the taste of the liquid in this bottle was such that no one would be likely to suspect that it contained arsenic, more particularly as the quantity of arsenic was so small that the liquid could be mixed with any kind of food and swallowed without the person being aware of it.[193] In the bottles brought to me by Dr. Berry[194] I found arsenic —*that was white arsenic*. I could not give an opinion on that in the

evacuation (No. 2), as that was mixed with blood and mucus. In No. 1 there was biliary matter without any metallic substance."

Subsequently to the conviction of Smethurst, Mr. Herapath wrote the letter to the *Times*, on the 27th of August, before referred to in the Lord Chief Baron's communication to the Home Secretary, in which, after a wordy and personal attack on Dr. Taylor, with special reference to his having used for twenty years untested copper, he said:—

"But was the arsenic said to have been found in bottle 21 really in the copper used to prove its presence? Could the copper wire-gauze dissolved by 7 grains of chlorate of potash and its associated hydrochloric acid deposit one grain of arsenic? In the face of all England, I say it could not. The 100th part of a grain of arsenic in that quantity of copper would render it so brittle that it could not be drawn into wire at all, much less into fine wire fit for gauze. The fact is the whole set of operations were a bungle. Reinsch's process is inapplicable where nitrates or chlorates are present. Taylor must have known this: it was well known then that chlorates, nitrates, arsenates, and other oxidizing agents, interfered with Reinsch's process. When Taylor found the copper dissolved—he knew that one of these oxidizing agents was present—he ought then to have either used Marsh's test instead of Reinsch's, or should have prepared the solution by sulphurous acid first. The method he did use was as dangerous as could be."

Whether Mr. Herapath communicated this opinion to the friends of Smethurst before the trial, as he ought to have done, does not appear. At any rate he was not called for the defence, and his opinion was apparently only made public after the conviction. It stands, therefore, like all the other communications laid before the Home Secretary, untested by cross-examination. How far was he correct?

Taylor does not state how much of the liquid in bottle 21 he took for analysis. Assuming that he took 1 ounce, 7 grains of chlorate would dissolve, *at the most*, 22 grains of copper. If this yielded 1 grain of arsenic, the copper must have contained 4½ per cent. of that poison—an impossible quantity. Less than ½ per cent. of arsenic renders copper brittle. So far Herapath was right.[195]

(2.) If Taylor was right that what he got was *white arsenic, that could not have come from the copper, which can only contain arsenicum—metallic arsenic*. Therefore if Taylor's analysis was not altogether wrong, *in bottle 21 there really was arsenic, and the prisoner was proved to have had the materials for poisoning in his possession*.

Taylor's procedure in dissolving up piece after piece of copper, which had not been previously proved, by the same process, not to contain arsenic, was highly blameable, and his assertion that he had previously tried his tests and found them pure, was not strictly true. Altogether, his tests both for arsenic and antimony were not reliable.

ADDENDA.

The "bismuth" frequently referred to in the report of Smethurst's trial is the Bismuthi Subnitras, B. P., also known by the various names of "Bismuthum Album," "White Bismuth," "Trisnitrate of Bismuth," "Subnitrate of Bismuth," "Magistery of

Bismuth," "Pearl White," &c. This compound is a basic nitrate of bismuth, Bi N 0_4, H_2 0: it is insoluble in water, and is a heavy, white, minutely-crystalline powder, much used in medicine, and also as a cosmetic. The name "bismuth" is misleading as applied to this drug, which is *not* bismuth, but a *salt* of that metal.

Ordinary subnitrate of bismuth frequently contains various adulterations and impurities. The most usual adulterants are carbonate of lead, carbonate of lime and phosphate of lime (Royle's Materia Medica, 1876): among the impurities which have been found are ammonia (Piper, Pharm. Journ., Ap. 21, 1877), arsenic, lead, iron, chlorine, and sodium salts. Some specimens of bismuth subnitrate analysed by Herapath contained 1 grain of arsenic in 1000: others contained as much as 1 grain in 433. Taylor, also, found arsenic in three samples out of five examined by him. Riche (J. Pharm. et Chim., 5, 384) states that the majority of commercial samples of bismuth subnitrate contain lead and arsenic, the former to the extent of ·03-·04 per cent. (as sulphate), and the latter (as arsenious acid) to ·002-·01 per cent., while Chas. Ekin (Pharm Journ., 3, III., 381) remarks that this preparation of bismuth is often very impure, containing much subchloride, copper, and occasionally lead. On the other hand, three specimens of subnitrate of bismuth, analysed by Bernays, contained no arsenic, lead, or carbonic acid, while the percentage of bismuth oxide present closely approximated to the theoretical amount. Moreover, in the Practitioner, Mar. 1871, p. 191, the results of the examination of six samples of bismuth subnitrate are given, the only impurities found being traces of chlorine and sulphuric acid: there was no arsenic. *Hence it is evident that subnitrate of bismuth does not always contain arsenic: and the quantity of this impurity, when present, is so minute as (having regard to the small doses in which the drug is*

usually prescribed in medicine) to be insufficient to produce the graver symptoms of arsenical poisoning.[196]

The presence of arsenic in bismuth subnitrate may easily be detected by Marsh's test.

Subnitrate of bismuth nearly always contains arsenic and other impurities, when it has been prepared from commercial bismuth. The British Pharmacopœia, therefore; very properly directs that *purified* bismuth (Bismuthum Purificatum, B. P.) should be used in the preparation of this drug: the B. P. method of purifying the metal is as follows. 10 ounces of bismuth and 1 ounce of nitrate of potash are fused together in a crucible, heated and stirred, until the salt has solidified into a slag over the metal: the salt is now removed, another ounce of nitrate of potash is added, and the remainder of the process is repeated. The fused bismuth is now poured into a mould, and allowed to cool.

Herapath states that the arsenic is not all removed by this process, and he proposes to boil the nitrate in solution of a caustic alkali, which removes the arsenic and converts the bismuth into oxide, from which the salts can be prepared (Royle).

From the purified metal subnitrate of bismuth can be prepared by the following process, which is that given in the British Pharmacopœia. 2 ounces of purified bismuth are gradually added to a mixture of 4 fluid ounces nitric acid with three ounces distilled water: when effervescence has ceased, heat is applied for a few minutes, and the solution is decanted from any insoluble residue. The liquid is concentrated by evaporation to 2 fluid ounces, and poured into half a gallon of distilled water. The precipitate formed ($Bi\ N\ 0_4$, $H_2\ 0$) is well washed by decantation, filtered, and finally dried at a temperature not exceeding 150° F.

In the event of the bismuth used not having been thoroughly purified, and being therefore still likely to contain a trace of arsenic, a modification of the above process, recommended by R. Schneider (Journ. Prakt. Chem., 1879, 418), may be employed. It consists in *heating* the acid before the bismuth is added, and continuing the heating until the metal is dissolved. If arsenic be present, the solution will contain in suspension a white precipitate of *bismuth arsenate*, which is nearly insoluble in nitric acid, and can be removed by filtration through asbestos, before the solution is diluted. Cold nitric acid would convert any arsenic present into *bismuth arsenite*, which is readily soluble in nitric acid, and could not, therefore, be separated by filtration.

"*Grey powder*" is Hydrargyrum cum Creta, B. P., and consists of one part of metallic mercury in a very finely divided state, mixed with two parts of chalk. It is made by rubbing mercury and prepared chalk together until metallic globules are no longer visible. The mercury in this preparation always becomes in course of time more or less oxidised, the amount of oxide formed varying according to the length of time the mixture has been kept, and the extent of its exposure to the air.

Iron, silica, and phosphoric acid, might be present in very small quantities as impurities, in many samples of grey powder: caustic lime could not possibly occur, unless the specimen had been subjected to a red heat, which would drive off the mercury and so spoil the preparation. Antimony and arsenic would rarely be met with as impurities in grey powder, and if present, would only be in very minute quantities.

CHAPTER X.

POISONING BY ACONITIA OR ACONITINE. THE WIMBLEDON POISONING CASE—DR. LAMSON.

UNDER this head of poisons, there is only one trial to report in full, that of Dr. Lamson for the murder of his brother-in-law, Percy Malcolm John, at Wimbledon, on Saturday, the 3rd of December, 1881, for which he was tried before Mr. Justice Hawkins, at the Central Criminal Court, on the 8th of March, 1882, and the five following days. The especial difficulties in the way of detecting this preparation of aconite, invested the case with more than usual interest to both the medical and legal profession. The subsequent attempt by the convict's friends to induce the Home Secretary to delay his execution, in order that his mental condition might be inquired into, backed as it was by the American Government, kept alive the public interest to an unusual extent, and bid fair to revive another such controversy as that which followed, but with a different result, on the conviction of Smethurst. By the kindness of Mr. W. A. Mills, Dr. Lamson's solicitor, I have had the advantage of reading the whole of the very numerous affidavits tendered in

support of this application, of which I have given a summary at the close of the trial.[197]

Though the trial now reported is the only one in which aconitia was employed, other forms of aconite have been used in previous cases. In that of Dr. Pritchard it was administered in the form of tincture of aconite, and as far back as 1841, in the case of *Reg.* v. *McConkey*, it was administered as powdered aconite root. In this case the reputed poisoner was tried at the Lent Assizes, Monaghan, and the medico-legal investigation was conducted by the late Dr. Geoghegan, of Dublin. As in Pritchard's and Lamson's cases, the medical evidence was beset with difficulties, for no trace of the poison could be discovered in the body, and it was only by a close analysis of symptoms and appearances that the charge was brought home to the prisoner. The deceased had eaten at his dinner some greens dressed for him by the prisoner: he complained of their having a sharp taste, and this was perceived also by another person present who tasted them. It was ascertained that the deceased, soon after the meal, had vomited a greenish matter, and suffered from purging, restlessness, incoherence, lockjaw, and clenching of the hands. He died in about three hours after having eaten the greens, but was not seen by a medical man while living. The chief appearance met with was in the stomach, where the mucous membrane was of a light reddish-brown colour. Traces of vegetable matter were found in the intestines, but no poison could be detected, either botanically or chemically. The symptoms suffered by a friend of the deceased, who had accidentally tasted the greens, were very characteristic of poisoning by aconite. In *two* minutes he felt a burning heat in the mouth, throat, gullet, and stomach; then a sensation of swelling in the face, with a general feeling of numbness and creeping of the skin. Restlessness, dimness of sight, and stupor almost amounting to insensibility, followed; and in

about an hour after the meal he was found speechless—frothing at the nose and mouth, the hands and jaws clenched, appearing occasionally as if dead, and then again reviving. Vomiting, purging, tenderness at the pit of the stomach, cramps, tingling of the flesh, and a burning taste in the mouth, followed. This man did not entirely recover until after the lapse of five weeks. The prisoner was convicted, and confessed before his execution that the powdered root of Monkshood (aconite) had been mixed with pepper and sprinkled over the greens.[198]

THE WIMBLEDON POISONING CASE.

Before The Hon. Mr. Justice Hawkins, *at the* Central Criminal Court, *March 9, and five following days, 1882*.

For the Prosecution: The Solicitor-General (Sir F. Herschel), Mr. Poland, *and* Mr. A. L. Smith.

For the Defence: Mr. Montagu Williams, Mr. C. Matthews, Mr. E. Gladstone, *and* Mr. W. S. Robson.

George Henry Lamson, surgeon, aged 29, was indicted for the murder of his brother-in-law, Percy Malcolm John, at Blenheim House, Wimbledon, on December 3rd, 1881.

HISTORY OF THE CASE.

In the winter of 1881, among the pupils at the school of Mr. Bedbrook, of Blenheim House, Wimbledon, was Percy Malcolm John, the youngest of the five children of a Manchester merchant, a lad of about nineteen years of age, a sad sufferer from paralysis of the lower limbs produced by curvature of the spine, but otherwise in a fair state of health. Since the death of their mother in 1869, the children had been orphan wards in Chancery, and previously to

1881, one brother and one sister had died, under age, another sister had married a Mr. Chapman, and the third the prisoner, a medical practitioner at Bournemouth, who was now indicted for the murder of his brother-in-law. By the wills of their parents, the children, as they came of age or married, were entitled to the family property in equal shares, those of such as died under age passing to the survivors. Hence, at the time of his death, Percy John had property in expectance to the amount of £3,000, which, in the event of his death as a minor, would be equally divided between his two married sisters, and by the settlement made by Mrs. Lamson on her marriage, her share would come into the hands of the prisoner.[199] Though such a sad sufferer from paralysis as to be unable to move about readily except in a wheel-chair, and only able to drag himself backwards up a few stairs,[200] there were no symptoms of serious bodily illness in the lad: his temper was good, and his intelligence fair.

In his brother-in-law's health Lamson appeared to take great interest, visiting him at the school, having him to stay at his own house, and sending to his master from America some medicines which he stated had been found useful in that country in similar cases. On the 1st of December, the prisoner wrote to the boy that he would come to see him the next evening, before he left for Paris—a promise which he failed to keep.[201] On the 3rd, however, about seven in the evening, he came, bringing with him some sweets, a cake, and a box containing gelatine capsules, which he told the master he had brought for him from America, as convenient for enabling him to administer nauseous medicines to his pupils. At this interview with his brother-in-law, he persuaded Mr. Bedbrook, who was present, to take one of these capsules to try how easily they were swallowed. Whilst doing so, the master noticed that the prisoner was filling another with some powdered sugar, which he

had asked for, on the plea of destroying the alcohol in some wine of which he was partaking. When he had put in the sugar, the prisoner, turning to the lad, shook up the capsule, saying, “It has to be shaken in order that the medicine may go to the bottom. You are good at taking medicine; take this.” The boy swallowed the capsule, and within a few minutes after, the prisoner, saying that he wanted to catch the tidal-train for Paris, left the school-house. In about twenty minutes afterwards Percy complained of heartburn, gradually became worse, was carried up to bed, and vomited largely in the closet.[202] “He felt,” he said, “as he had done in the previous August when the prisoner gave him a pill in the Isle of Wight.” He was in great pain, violently restless, and with difficulty kept down by those who were holding him. After more simple remedies had failed to relieve him, the doctors who had been called in injected morphia under the skin, which had a temporary effect. This was subsequently repeated, but with no apparent result, and shortly afterwards he died, within four hours of swallowing the capsule. The *post-mortem* examination revealed no signs of such a natural form of disease as would account for his sudden death—the only sign of disease being the long-standing curvature of the spine, distressing, but at that time innocuous. A chemical analysis of the stomach and other parts of the body was had, and, so far as the present state of scientific knowledge could decide, it was the firm opinion of the experienced analysts Drs. Stevenson and Dupré, that death was due to an irritant vegetable poison, and that that poison was aconitia, a most highly poisonous vegetable alkaloid, containing the active principle of aconite, the product of the root of monkshood.

Suspicion naturally fell on the prisoner, and was greatly increased when it was discovered that a few days before his last visit to the boy he had purchased aconitia in London, and that

previously to the illness of the deceased in the Isle of Wight, the prisoner had also purchased of a druggist at Shanklin some of this deadly poison. In the meantime the prisoner had gone to Paris, whence on the 8th of December he unexpectedly returned, presented himself to the police at Scotland Yard, in consequence, as he said, of the reports he had seen in the papers, and, apparently to his surprise, was taken into custody.

Other incidents in the prisoner's career and conduct gradually came to light. Whilst in practice as a surgeon at Bournemouth he had been in great pecuniary difficulties, though he had received his share of the property of that one of the children who had died a minor; an execution had been put into his house, and at the time of the murder he was admittedly in straitened circumstances. Again, in the boy's boxes at school, in addition to some genuine quinine powders purchased of a chemist in the Isle of Wight, and proved to be free from poison, which had been sent to the boy by the prisoner, were three heavily charged with aconitia, and two pills containing this deadly drug. Again, he had written to the boy on the 1st of December that he would call on him on his way to Paris the next day. He went to Wimbledon, however, on the evening of the 2nd, with his friend, a Mr. Tulloch, whom he left at the station, whilst he professed to have gone to the school, and to whom he said that "he had seen his brother-in-law, who was much worse, and that he did not expect he would live long, and that he would not go on to Paris that night, as Mr. Bedbrook, who was a director of a continental line, had told him that there was a bad boat on." All this was untrue. He had never been to the school, and Mr. Bedbrook had nothing to do with any continental line. He had invented the whole story.

In the trial that followed, the interest centred on the impossibility of detecting vegetable poisons by any chemical tests,

and on the necessity, as in Dr. Pritchard's case, with aconite, of relying on the test of tasting the extract from the various parts of the body. On this test, supported by the effects observed on injecting drops of the extract under the skins of mice, which successively died of the operation, and exhibited the same symptoms before death as resulted from similar injections of pure aconitia, depended the proof that the death resulted from this poison. I proceed therefore to give the medical and analytical evidence in detail.

EVIDENCE OF MEDICAL ATTENDANTS.

Dr. Berry, of Wimbledon, the regular medical attendant at the school, who had known the deceased for a year and a half, and only had occasion to attend him twice during that time, once for vaccination, and another time for an eruption on the skin, his state of health being otherwise good, gave the following account of the symptoms:—

> "On Saturday, Dec. 3, I arrived at the school about five minutes to nine p.m., and was taken by Mr. Bedbrook to Percy John's room. [203] He was in bed, and partly undressed, and in great pain in the stomach. He also complained of the skin of his face being drawn, and that there was a sense of constriction in the throat, in consequence of which he was unable to swallow. He was retching and vomiting; the vomit was a small quantity of dark-coloured fluid. I asked him shortly after the cause of his illness (Mr. Bedbrook had previously made a communication to me), and said to Percy, 'Did your brother-in-law ever give you quinine pills before?' He said, 'Yes, at Shanklin.' I said, 'Did it make you like this before?' 'Yes,' he said, 'but not so bad.' There is nothing in ordinary quinine pills to produce such symptoms. I did not form an opinion at that time to what the symptoms were due. During an interval of the vomiting I

had some white of egg beaten up in water given to him, which he was able to swallow, and had hot linseed poultices placed on his stomach. He was very restless on the bed—violently so, throwing himself backwards and forwards and from side to side. Several people held him to prevent him from injuring himself. He did not improve at all under this treatment. Hearing that Dr. Little, a medical man of Wimbledon, was in the house, I had him sent for, and in about twenty or twenty-five minutes after I had been in the room he came. I consulted him, and we determined to inject some morphia. I left the house to get the morphia and an instrument, being away five to ten minutes. When I returned the deceased was not better, and I injected a quarter of a grain of morphia under the skin, over the region of the stomach. This was done about ten o'clock. The symptoms abated somewhat about half-past ten, but not very much. They were still all present, but in a modified degree, and then they returned again a little before eleven as severely as before the injection of the morphia. A little before eleven the deceased asked to have the morphia injected again. He complained then of pain in his body, but not in any particular part. I then about eleven injected one-sixth of a grain of morphia in the same place as before, but it had no apparent effect. In about ten minutes he became a little unconscious and wandering. That was the first time I noticed it. His breathing became slower and sighing, and the heart's action weaker and weaker, and he died about twenty minutes after eleven."

In his account of the symptoms and the progress of the case until the deceased's death, Dr. Berry was fully confirmed by Dr. Little, who added that at that time they were of opinion that the death was due to an irritant poison. *Dr. Berry* then gave the results of

THE *POST-MORTEM* EXAMINATION.

“After his death Dr. Little and I collected some of the vomit which had been caught in a basin in the bedroom. (He had previously vomited in the closet.) I also collected some from the floor of the bedroom and the closet, and the whole was put into a cup together, and thence into a clean bottle, which was sealed with my own seal, and given to Mr. Bond on the day of the *post-mortem* examination.

“On Tuesday, Dec. 6th, Mr. Bond, Dr. Little, and myself, made a *post-mortem* examination. I made some notes at the time which I have here. With the exception of the paralysis of the lower limbs, he was a particularly well-developed, muscular lad. The brain was slightly congested superficially, as well as the substance of the brain itself. By superficially, I mean the membranes. There was no fluid in the ventricles of the brain, nor under the membranes. The pupils of the eyes were dilated; the lips pale and the tongue bleached; in the right lung were some old adhesions at the apex, between the lung and the chest wall, the result of inflammation at some previous time. Both lungs were healthy, but considerably congested in the lower part. The heart was healthy muscularly, the valves also healthy; *it was almost entirely empty and flaccid*. There was a small quantity of fluid in the *pericardium*. The liver was normal in size, but intensely congested. The kidneys were also normal in size, but much congested, and the spleen was also congested but normal in size. The stomach had the mucous membrane congested throughout. Under the surface, near the large end of the stomach, were six or eight small yellowish-grey patches, slightly raised, about the size of a small bean. Towards the smaller end of the stomach were two or three similar smaller spots. I believe that they were the result of inflammation, caused recently before death. The stomach contained three or four ounces of dark fluid, which was carefully preserved, and of which Mr. Bond took charge. I examined the *duodenum*, the first part of which was greatly congested, and there were patches of congestion on other parts of the small intestines. Portions of the intestines were taken care of by Mr. Bond, who also took possession of the stomach itself and portions of the liver, with the gall bladder,

both of the kidneys and the spleen. The bladder contained three or four ounces of urine, which was drawn off and taken possession of by Mr. Bond. There were no traces of inflammation in the *peritoneum*. The membranes of the spinal cord were greatly congested. Except the appearance of the lungs and the curvature of the spine, these were all the appearances I noted in the *post-mortem* examination. There was nothing in the *post-mortem* examination to account for death from natural causes. I should say that he died from the effect of some irritant poison, the administration of which would, I believe, account for all the appearances. Aconitia is a vegetable alkaloid poison, and the appearances would be consistent with a fatal dose of that poison, but I have no special knowledge on the subject."

On *cross-examination*, the witness repeated, in several forms, that he had no special knowledge of aconitia, but some of aconite as used internally for cancer, erysipelas, and other complaints, and was unable to say whether a grain of aconitia blended into 20 pills would be good for curvature of the spine, and that the remedies he applied were for the violent irritation of the stomach from which up to the time of his death he believed the deceased was suffering.

"At the *post-mortem* I examined the spinal cord and the spinal curvature. The cord was healthy, but congested. The existence of paralysis is consistent with a healthy spinal cord, but not with healthy bone and healthy intervertebral cartilages. I did not examine the condition of the arteries in the neighbourhood of the curvature."

Mr. Williams.—"Are you not aware that there are many cases on record of death having resulted from the effects of pressure on the arteries in the regions of these curvatures?"

Witness.—"No; but I am not prepared to say that there are not such cases."

Mr. Williams.—"Will you undertake to say that death did not result from such a cause as that?"

Witness.—"I cannot undertake to say. I did not examine to see the effect of the spinal curvature on the position of the lungs."

Mr. Williams.—"Nor what its effect was on the heart?"

Witness.—"No."

Mr. Williams.—"Do you not know that the lungs are very much displaced in some cases of spinal curvature?"

Witness.—"Yes, they are."

Mr. Williams.—"Is not the heart very much displaced?"

Witness.—"Yes."

Mr. Williams.—"You say this irritation of the stomach was consistent with poisoning with vegetable alkaloids, and yet you have never seen a case of such poisoning?"

Witness.—"I have not; I did not take means to ascertain whether the appearances were *post-mortem*. I know—only from Taylor's 'Medical Jurisprudence'—that vegetable alkaloids have produced these symptoms."

On *re-examination*, the witness said that "he could not think that the death was caused by anything he saw in the curvature of the spine; that if death had been caused by pressure on the arteries, he should not have expected to find the symptoms of irritation in the stomach which existed after death; that displacement of the lungs and heart had not been, in this case, produced by the curvature of the spine, and, if there had been much displacement of either, he could not have failed to observe it." Dr. Little was equally inexperienced with Dr. Berry in cases of poisoning, but agreed with him that the curvature of the spine in the lumbar region had not displaced either the lungs, the stomach, or the heart, and that the patches on the surface of the stomach were of recent date —"might have existed for days, but not for weeks, but not without the patient suffering."

Mr. Bond, the Lecturer on Forensic Medicine at the Westminster Hospital, detailed the various portions of the body which he put aside for chemical analysis and delivered to Dr. Dupré; the receipt of two pills given to him by Dr. Berry, one of which was taken out of one of the capsule boxes after the boy's death, and the other brought to Dr. Berry whilst he was in attendance on the deceased, and two packets of sweets, and part of a cake. He further confirmed the evidence of Dr. Berry as to the results of the *post-mortem* examination, with the exception, that Dr. Berry had omitted to state that "the whole of the lungs were somewhat congested, and the anterior part of them exceedingly so, and that the body was not decomposed." In his opinion there was nothing to account for death from natural causes, and he attributed it to poisoning by some vegetable alkaloid, such as aconitia, a fatal dose of which could be given in one of the capsules. The appearances on the *post-mortem* examination were, he considered, such as he should expect to find in death by aconitia. He agreed also with the other medical men that the grey patches on the stomach were recent, due to intense irritation, and would cause the deceased great pain, and induce vomiting. On the question of the probable effect of the curvature of the spine, he gave the following most material evidence:—

> "The principal curvature was in the lower part of the body; in the upper part of the spine there was slight anti-posterior or forward curvature, but it was not enough to affect the position of the heart or lungs relatively to each other. The cavities of the chest appeared to me to be deeper from before backward than usual. The heart was in its right position, except perhaps that it was higher up in the body than is normal. In the lower region there was a good deal of lateral curvature. I examined the spinal cord down to the end of the dorsal vertebræ, and I found the membranes very much congested, but otherwise it was quite healthy, to all appearance. I did not examine it

with a microscope. In the lower lumbar region I did not open the canal, for it was very twisted, and I had difficulty in getting it open. No disease there could have caused sudden death. The curvature appeared to be of long standing; the bones were very hard, and there was no active disease there. I think it impossible that death could have been caused by pressure produced by the curvature on one of the arteries."

The *cross-examination* of Mr. Bond by Mr. Williams was directed, *first*, to whether the time at which after taking the dose the symptoms might be expected to show, depended on its amount. Of this the witness had no knowledge, but considered that that would be determined by the fulness or emptiness of the stomach; and *secondly*, whether he would expect to find in the stomach the amount of poison that would cause death. On this last point the following questions and answers must be reported:—

Mr. Williams.—"Would you, supposing death had been occasioned by aconitia, expect to find the amount of poison that had caused death, or would it have disappeared?"

Mr. Bond.—"I believe it would be possible to use so small a dose that it could not be found in the stomach."

Mr. Williams.—"Supposing death caused by aconitia, would you expect to find the actual amount that caused death?"

Mr. Bond.—"That would depend on the amount. My opinion is that if death was caused by an ordinary amount, traces would be found."

Mr. Williams.—"Of the amount that caused death?"

Mr. Bond.—"Not of all."

Mr. Williams.—"And you say aconitia enough to cause death might leave no trace in the stomach?"

Mr. Bond.—"Not of aconitia in the stomach."

Mr. Williams.—"Do you agree with this: 'that the poison found on analysis would be over and above that used up in causing death?'"

Mr. Bond.—"No; I should not agree to that, unless it means that so small a quantity had been absorbed, causing death, leaving a larger amount which did not cause death. What I mean is, that the poison which may have caused death has been removed from the stomach to other organs, and it is quite possible that a larger amount may be left behind in the stomach than the portion which has been removed, and caused death."

Mr. Williams.—"Do you mean that it would be decomposed in causing death?"

Mr. Bond.—"I do not know whether it would or not. I think not. I will not give a decided answer one way or the other. I have no idea."

Mr. Williams.—"'Guy and Ferrier on Forensic Medicine' is one of the first authorities, is it not?"

Mr. Bond.—"Yes, I think so."

Mr. Williams.—"Do you agree with this, in regard to aconitia, 'that the commencement of the symptoms may be in a few minutes or in one or two hours'?"

Mr. Bond.—"I do not know anything about poisoning by the alkaloid aconitia, so I cannot say one way or other."

Mr. Williams.—"I understood you to say, that the ventricles of the heart were both empty?"

Mr. Bond.—"The ventricles and auricles were both empty."

Mr. Williams.—"Can you produce any case on record where such a symptom as that has appeared in poisoning by aconitia?"

Mr. Bond.—"No, I cannot produce any case on record of poisoning by aconitia."

On *re-examination*, the witness declined to speak more positively on this point, on the ground that he was a surgeon, and

therefore had not had experience in the pathology of such cases. His only experience in poisoning by alkaloids had been in a case of strychnia. In reply to the Judge, he admitted "that other vegetable poisons, even a strong solution of oil of mustard, would produce the same congestion of the stomach, and the same yellow marks as had been found; that a vegetable alkaloid would pass within a minute from the stomach into the blood, and that it would be more likely to be found in the liver, kidneys, and urine, than in the heart; he did not know whether strychnia had been found in the heart when not discoverable in the blood and the urine."

ANALYTICAL EVIDENCE.

Dr. Thomas Stevenson, Lecturer on Medical Jurisprudence and Chemistry at Guy's Hospital, and Examiner in Forensic Medicine at the London University, after enumerating the various matters handed to him and Dr. Dupré by Mr. Bond for analysis,[204] and stating that the methods of it were arranged with his colleague, the manual operations carried out by both of them, and the results of those performed by Dr. Dupré examined by himself, gave the following evidence, which must be reported in full.

> "The bottle marked 'A' contained portions of the liver, spleen, and kidney. To that was applied Stas's process. I obtained an alkaloidal extract which contained a trace of morphia, and which, placed on the tongue, gave a faint sensation like that produced by aconitia. I reserved that for experiments. To the bottle '2,' which contained part of the bowels, large and small, I applied the same process. I obtained an extract which I have done nothing further with—that is to say, I have not tested the extract. No. 3 contained a fluid, the contents of the stomach, 3½ ozs. This was treated in a somewhat similar way. The fluid contained a raisin and a piece of fruit like the top of a carrot or an apple. From that fluid I obtained,

by Stas's process, an alkaloidal extract, which was distinctive, and produced a very faint sensation, like that of aconitia. When placed on the tongue, burning of the lips was produced, though the extract did not touch the lips. Burning, tingling—a kind of numbness peculiar but difficult to define; a salivation creating a desire to expectorate, a sensation at the back of the throat of swelling up, and this was followed by a peculiar seared sensation of the tongue, as if a hot iron had been drawn over it, or some strong caustic placed on it. I reserved that alkaloidal extract also for physiological experiments. No. 4 D contained a human stomach, and 7 ozs. of spirits added to preserve the stomach. I observed that the stomach was reddened, I think from congestion, in the region of the greater curvature, and posteriorly. At one part there was a little pit as if a blister or inflammatory effusion of lymph had broken. From the stomach and liquid in the bottle I made an extract by Stas's process, and obtained an alkaloidal extract. That I reserved; but I tasted it, and it had no particular taste that I could recognize. Next was No. 5 E, containing the urine, 6 ozs. I opened it in Dr. Dupré's presence. He found that 4 ozs. of urine had had 2 ozs. of spirit added to preserve it. I made an extract from a portion of that liquid—three-fourths. I obtained an alkaloidal extract which contained a trace of morphia. By a further process I obtained more morphia, but the first alkaloid I referred to was more than could be accounted for by the morphia I obtained. Some of this extract was placed upon my tongue. It produced the effects of aconitia, which I have already described, in a marked degree, and a peculiar burning sensation extending downwards towards the stomach."

By the Judge.—"I have 50 or 80 alkaloids in my possession, and I have tasted most of them."

The Solicitor-General.—"How long did the effects last?"

Witness.—"About four hours—not all the effects, but the burning on the tongue did. I made an experiment on about one-third of the urine. I injected it beneath the skin of a mouse. The animal was obviously affected in two minutes. From that time it exhibited symptoms of poisoning, and died in 30 minutes. I made some

experiments on mice from Morson's aconitia, which I procured for the purpose. I injected some of that, after dissolving it, under the skins of several mice. It operated on the mice in a manner which was undistinguishable from the effect of the urine. The effects of the two I might say were ridiculously alike. Tartaric acid was previously used on a mouse in the same quantities and was found inoperative. I retained portions of the extract made from the liver, spleen, and kidneys, from the stomach, and from the contents of the stomach. All contained an alkaloid; two giving a slight taste of aconitia, and the third no taste. I then mixed together the alkaloidal extracts, Nos. 1, 3, and 4, and I injected it under the skin of a mouse, in the same manner, and it produced effects on the mouse, in nine minutes from that time, of severe symptoms of poisoning, and the animal died in 22 minutes. These symptoms were precisely similar to those produced by Morson's aconitia. No. 6, the vomit, contained nearly ten ounces, or half a pint, of thick, pasty fluid stuff, with which also were spirits of wine. Dr. Dupré pointed out marks showing that to 5oz. of vomit 5oz. of spirit had been added. There was a good deal of solid matter in the vomit, which must have been of a solid character. I examined the solid portion and found it consisted of pieces of fat, a very small portion of the muscular fibre of some animal, pieces of onion, a little starch, probably that of wheat, a slice of candied peel like that put on the top of cake, a piece of apple pulp, raisins, and some pineapple, with just the odour of pineapple drops. I subsequently examined with the microscope the vomit again, the solid portions, to see if I could find anything corresponding to the root of aconite or the root of horseradish. I found neither. I made an extract from the vomit, and obtained an alkaloidal extract. The extract had no trace of morphia or of quinine. I applied it to the tongue with a very powerful result, such as that of aconitia. The severe forms of attack lasted for 6½ hours; it lasted for that time, though the effects did not then cease. I took 1-24th part for experiment on a mouse. I injected it into the back of a mouse. It was severely affected in 2½ minutes, the symptoms continuing till the time of its death, 15½ minutes after. Those symptoms were

parallel with those of aconitia. In my judgment the vomit submitted to me contained a considerable quantity of aconitia."

Question.—"Can you fix what quantity?"

Answer.—"Approximately it was not less than one-seventh, and not more than one-fourth of a grain."

Question.—"What would be a fatal dose of aconitia to a human being?"

Answer.—"There is only one fatal case I know of, and in that death was caused by about one-sixteenth of a grain. What is known to have caused death was not less than one-twenty-first of a grain, and not more than one-thirteenth. Each of the boxes produced contained capsules. There were only two pills in them. They were gelatine-coated pills, like those in the bottle. I examined those pills, or rather I saw Dr. Dupré do so. They were simply five-grain quinine pills."

Question.—"The packet of sweetmeats, No. 8. Did they contain any traces of poison?"

Answer.—"No."

Question.—"No. 9, the cake?"

Answer.—"That contained no traces of poison of any kind."

Question.—"No. 10, the capsules, did you examine them?"

Answer.—"They are simply gelatine capsules."

Question.—"You have told us there were some pills loose?"

Answer.—"Yes; there were four, and they were similar to those I have just referred to, quinine, gelatine-coated pills. There was some sugar in a paper. Some of the powders were in larger papers than others; six were in large. They contained 1½ grains of disulphate of quinine. There were 14 smaller papers containing powders. They were tied together in a bundle numbering from 7 to 20. They varied considerably in weight, the lowest weighed 6-10ths of a grain, the highest 1⅛ grains. Three of the powders differed in appearance. The average weight of those which were quinine were 9-10ths of a grain. I examined those powders, and I found they consisted, eleven of them, 7, 8, 9, 10, 11, 12, 13, 14, 15, 18, and 20, of disulphate of

quinine simply, the ordinary quinine powders, but varying considerably in weight, from 3-10ths of a grain up to 1¼ grains. Of the other three, my attention was drawn to No. 16 by Dr. Dupré; it was a different colour, as also were Nos. 17 and 19. No. 16 was an obvious mixture; there were two substances clearly to a chemist, who would have noticed the mixture at once. It was a very pale fawn, the mixture; the other was a pure white. No. 16 weighed $1^{8}/_{10}$ grs. or 1·79 grs. No. 17 weighed ·88 of a grain; No. 19 weighed 1·26, or about 1¼ grs. In the No. 16, which appeared to be a mixture, it looked as if the quinine had been damaged. I tasted it, and in about three minutes a startling sensation came on. The sensation was severe for three hours, and then gradually went away after dinner."

Question.—"Did you make a special examination of the pills?"

Answer.—"Yes."

Question.—"What amount of aconitia was in the pills?"

Answer.—"Decimal 83. In the quinine pills there was ·96. I tested the action of this quinine on a mouse. In three and a half minutes after I had administered it the effect was the same as before. In No. 17 there was aconitia, and in 19 there was aconitia; I cannot tell you how much. In 17 and 19 I noticed the difference in colouring between the ordinary quinine powders. The proportion of aconitia was considerably less in 16 as compared with 19."

Question.—"Is it usual to wrap pills in tinfoil?"

Answer.—"No."

Question.—"Or to put them in boxes of this description?"

Answer.—"Oh, no."

Question.—"Were these two pills examined by yourself and Dr. Dupré?"

Answer.—"Yes; one weighed 3 grs. and another 2¾. There was nothing particular in the appearance. There was a little bitterness at first with the 2¾ grain pill. I cut out a small piece with a penknife. We all took a little piece, I only took the 22nd part of a grain. Part of it was used for the microscope. It caused intense burning. The

bitterness of quinine was followed by intense burning, and the same symptoms I have already described, but of a more severe kind. I injected some of that into the back of a mouse. It exhibited symptoms of poisoning, was very ill in two minutes, and it died in 4½ minutes. I came to the conclusion that there was ·45 of a grain of aconitia in that pill, or nearly half a grain. No. 12 was the sherry. I found no trace of poison in that, nor in the wafers. I have said the urine contained aconitia, showing that the poison had been absorbed into the blood, had passed through the tissues of the body, and had become excreted. I have said I found in the extracts traces of morphia. I have heard of the injection of morphia by Dr. Little and Dr. Berry during the last hour of the boy's illness. The traces I found were such as I should have expected to find from that, both in the urine and probably in the liver too."

Question.—"Could a fatal dose of aconitia be administered in such a capsule as this?"

Answer.—"Oh, yes. Many times a fatal dose. I have put into one a grain of aconitia, and into another a half-grain."

[Capsules produced by Witness, and shown to Judge and Jury, to show how little space in the capsule was occupied even by the grain of aconitia.]

Witness continued.—"The symptoms lasted after tasting the pill 7½ hours, notwithstanding having taken a meal."

Question.—"Supposing aconitia taken in a capsule of this description, would it prevent a taste on the tongue?"

Answer.—"Oh, yes."

Question.—"I believe there is no test of aconitia?"

Answer.—"No specific or characteristic chemical test."

Question.—"What are the tests?"

Answer.—"We can tell chemically that it is an alkaloid. Then there is the physiological test, the effect on the tongue and the neighbouring parts, and its general effect on the system if taken in any quantity. Then the other physiological test is that it will kill,

after a definite course of symptoms, as shown in my experiments with the mice."

Question.—"Have you any doubt that you did find aconitia in the portions of the body you examined and in the vomit?"

Answer.—"Not the least. I have heard the description of the deceased boy. He had symptoms such as would arise from poisoning by aconite. His symptoms approached more nearly to those caused by that than any other poison. Judging from the symptoms discovered at the *post-mortem* examination, I should say that he died from poisoning by aconitia."

Question.—"Is aconitia a medicine commonly used for spinal diseases in this country?"

Answer.—"No."

Question.—"I do not know if you are aware of its use here by medical men?"

Answer.—"No; the British Pharmacopœia orders it for external use, but makes no mention of any dose for internal use. It was formerly tried a quarter of a century ago, or thirty years ago, but it was given up because it was too dangerous."

On *cross-examination* by *Mr. Williams*, after he had stated that he had never seen an acknowledged death from aconitia, but founded his opinion not only from tasting, testing, and the experiments on mice, but from his reading, and that he knew that it was used in France and Germany, but not that it was sold at the French chemist's in the Haymarket as a patent medicine, the examination proceeded as follows:—

Question.—"Do you know Guibert's French book on chemistry?"

Answer.—"Yes; I know the book. I have it in my possession."

Question.—"Would you look at that book—is that it?"

Answer.—"Yes; that is the book."

Question.—"Do you there find a formula for pills with aconitia in them?"

Answer.—"Yes."

Question.—"And drops?"

Answer.—"Yes."

Question.—"For internal use?"

Answer.—"No. The drops are for dropping in the ear; the pills are for internal use."

Question.—"Also for ointment?"

Answer.—"Yes."

Question.—"And in the British Pharmacopœia you will find 'Unguentum Aconitiæ,' 8 grains of aconitia to 1 ounce of lard?"

Answer.—"Yes."

Question.—"Is Sidney Ringer an acknowledged authority on therapeutics?"

Answer.—"Yes."

Question.—"Do you know his books?"

Answer.—"Yes."

Question.—"Do you agree with this:—'Aconite is used externally in the form of liniment or ointment to relieve pain?"

Answer.—"Yes."

Question.—"The 'Unguentum Aconitiæ' alludes to aconitia, does it not?"

Answer.—"Yes, the ointment does."

Question.—"Is that applied in neuralgic cases?"

Answer.—"Yes, it is used in neuralgia and rheumatism."

Question.—"Do you agree with the statement, 'That a piece of ointment the size of a bean or nut should be applied with friction, which enhances its efficacy?'"

Answer.—"Yes, to the skin."

Question.—"A piece the size of a bean would contain half a grain of aconitia, would it not?"

Answer.—"Yes."

Question.—"Do you agree that the application in such a case will cut short pain?"

Answer.—"Yes."

Question.—"And prevent sickness?"

Answer.—"I do not know about that. Sickness is not a usual symptom in neuralgia and rheumatism."

Question.—"Do you agree with this, that 'Aconite diminishes sensibility, and it has been used internally in various painful diseases?'"

Answer.—"Yes, aconite."

Question.—"Have you heard of the use of aconitia in typhoid fever?"

Answer.—"No; I have heard of its use in fevers generally, but not in typhoid."

Question.—"In the *Journal of Medicine*, No. 27, March, 1882, by Dr. Phipson——"[205]

The *Solicitor-General* objected that that was something written within a few days.

Mr. M. Williams.—"Then I will put this question generally. Have you heard of its use internally in severe cases of fever?"

Answer.—"Yes, I have heard of its use in fever, but not in typhoid."

Question.—"Have you heard of its use in pleuro-pneumonia?"

Answer.—"Yes, in very minute doses; it is recommended in a journal of medicine which is edited by a man who is not a medical man."

Question.—"Your collaborateur, Dr. Dupré, is not a medical man, is he?"

Answer.—"No."

Question.—"With regard to the symptoms—the dilated pupils—are they not invariably dilated three days after death?"

Answer.—"After a natural death. The surface of the tongue being rough is no sure sign of aconitia poisoning. Congestion of the brain has been observed in aconite poisoning, but is no sure sign."

Question.—"Has bloody fluid in the bag of the heart been met with in aconitia poisoning?"

Answer.—"Yes."

Question.—"Would you expect to find the ventricles and auricles empty?"

Answer.—"It has been observed in poisoning by preparations of aconitia; but in the only case of aconitia poisoning I know of the state of the heart is not mentioned. You will find it in the *Philadelphia Journal of Medicine* of November last."[206]

Question.—"Is congested liver a sign of aconitia poisoning?"

Answer.—"The congestion of the internal viscera is an important sign of poisoning by aconitia. The congestion could be caused by various means. The kidneys being congested was consistent with aconite poisoning, but not dependent on it. The same could be said of congestion of the spleen. I am prepared to admit that cases may have occurred in which congestion has been caused without poison. The patches in the stomach may have existed days before death, but not without causing pain. I commenced the analysis of the contents of the stomach on the 10th of December. I commenced the analysis of the vomit the same day. I commenced to examine the urine the same day."

Question.—"You say the bottle C, No. 3, contained matter from which you extracted an alkaloidal extract. Would you expect to find an alkaloid from morphia in the contents of the stomach?"

Answer.—"No; but I should expect to find it in the urine, and I found in that more alkaloid than was consistent with morphia. That requires the most delicate test. By a further extraction I got a little more morphia."

Question.—"The precise process I ask you for in testing the alkaloidal extract."

Answer.—"I took half the contents of the stomach. I mixed it with such a quantity of rectified spirit as, with the spirit previously added by Dr. Dupré, made the proportion of spirit two volumes of spirit to one volume of matter. The liquid I took was acid in reaction. The liquid stood over from Sunday to Monday. It was then filtered. The insoluble part was well washed with rectified spirit. The clear liquid was then evaporated at a temperature below that of the human body, till it was almost solid. The portion I had not dissolved in spirit was then treated with an additional quantity of spirit, to which a little quantity of tartaric acid was added. The mixture was then warmed to 140 deg. Fahr. It was then cooled. The insoluble part was well washed with spirit, and the clear liquid evaporated at a temperature below that of the human body. A fairly solid residue was obtained. I now obtained two alcoholic extracts, each of which was treated in a precisely similar manner, but separately, by digesting them with warm absolute alcohol, or rather tepid, till the alcohol would take up and dissolve nothing more. The solutions in absolute alcohol were filtered and evaporated nearly to dryness. They were then treated with a little water. They were found to be acid in reaction, and the two solutions—that is to say, that from the plain spirit, and the other from the tartaric acid spirit—were mixed. Care was taken that they remained just faintly acid, and the solution was then agitated with washed ether. The ether was allowed to separate; it was drawn off, and replaced by fresh ether. This operation was carried out five times. The ether was set apart, and allowed to evaporate at a temperature below boiling point; that was reserved as not containing any alkaloid. The residue was oily and partially dissoluble with water; it was of a brownish colour. It was not weighed, but was a very appreciable quantity."

Question.—"Were these tests conducted for aconitia only?"

Answer.—"Oh, no; I tested for other poisons. The aqueous liquid which separated from the ether was made alkaline by carbonate of soda, and it was then agitated with a mixture of washed ether and washed chloroform. The ether-chloroform solution was then allowed to separate, drawn off, replaced by washed ether, the ether

again drawn off, and again replaced by ether, which was again drawn off. These chloroform-ether mixtures were mixed and evaporated, and finally dried in vacuo over oil of vitriol. Before it was placed in the vacuum, I examined it to see if there were any volatile alkaloids, which would be distinguished by their peculiar odour. There were none. I then weighed it, after drying, and found its weight ·108 of a grain, or rather more than 1-10th of a grain. It was slightly crystalline in appearance. I tasted it, putting a little on my tongue. That was one of my taste tests."

Question.—"That was afterwards dissolved, and part of it was applied to the mouse?"

Answer.—"Yes, but I had previously tested it for an alkaloid. I went through the same operation with the vomit and the urine, with only minor differences of details here and there as occasion required."

Question.—"You say that the effect on the tongue was characteristic of aconitia. Was it characteristic of nothing else?"

Answer.—"Nothing else that I know of."

Question.—"Not of veratria?"

Answer.—"No; I have tried that on the tongue, and its effect is different. I do not recollect that delphinia is like aconitia. Morphia has no marked bitterness. I know that the taste is very different from other substances. Pepperine has an immediate burning effect."

Question.—"Is not phosphoric acid a test for aconitia?"

Answer.—"No; it is given as a test, except by those who have studied it recently. I have made experiments with pure aconitia with no results. The book produced is written by an authority. Fluckijer, in his work on the subject, gives the reaction of aconitia, but it is German aconitia he refers to; it is very different to English aconitia. I see no reference to English aconitia in Fluckijer."

The book was handed back to counsel, and Mr. Montagu Williams said the date was 1879.

Witness, cross-examined further.—"The solution injected into the mouse was measured on each occasion. About three minims of

liquid altogether was injected. With the exception of the urine and one of the vomits, the injections were unmixed. He believed, of course, that too much reliance must not be placed on experiments on animals."

Question.—"Is it not a recognised fact that alkaloids are found in the human body after death, irrespective of poisons?"

Answer.—"It is a question still *sub judice*. It has been asserted that such is the case where the stomach or other viscera has been much decomposed."

Question.—"What are called cadaveric alkaloids, utterly irrespective of the administration of poison?"

Answer.—"It is so asserted."

Question.—"Is not Stas's test a mode of extracting cadaveric alkaloids?"

Answer.—"Cadaveric as well as natural alkaloids."

Question.—"Would these cadaveric alkaloids produce the same effects as the natural alkaloids?"

Answer.—"They have been described as producing the same effects; but I have seen no description of one producing the effects of aconitia. There is a test distinguishing these cadaveric alkaloids from all natural alkaloids, except morphia and veratria, and certainly from aconitia. That test was applied to these extracts when no morphia was present,—the reduction of the ferricyanide to the ferrocyanide of potassium. There is an authority for the method of obtaining and distinguishing these cadaveric alkaloids. I was one of the first to point out that alkaloidal extracts from the stomachs of the dead would kill frogs if injected under the skin. I have read most of the foreign writers on this subject. I have not read Peschi, and cannot say whether they produce pricking of the tongue. I do not remember any of them describing sensations produced on the tongue from cadaveric alkaloids, similar to those from aconitia. Many things would produce prickings on the tongue."

Question.—"Have you found the ordinary residue of the stomach from the dead poison the lower animals?"

Answer.—"I have never known it to do so. I will not say it is not so."

Question.—"How long after the administration of aconitia would you expect the symptoms to appear?"

Answer.—"From a few minutes to an hour and a half."

Question.—"Would the time of action depend upon the dose?"

Answer.—"The probabilities are that a large dose would soonest produce effect. The smallest dose that has produced death has been between 1-21 gr. and 1-13 gr., or about 1-16 gr."

On *re-examination* by the *Solicitor-General*, the *Witness* explained that it was when corpses were putrefying that the cadaveric alkaloids were produced. He had procured alkaloidal extracts from the urine, viscera and stomach, and ascertained the effects of them upon mice: had made twenty-two experiments this year: there were two cases of heart disease, and four of the liver, kidneys, spleen, vomit, and six from the urine. He had also, in six instances, taken from the urine of living persons, and in three from that of healthy dead persons. Those extracts had no effect on his tongue. He had had many years' experience, and certainly never tasted anything like aconitia, and he had tried these alkaloidal extracts on the same number of mice without the animals suffering except from the puncture. One of these mice, he added, he had killed with the *three-thousandths* of a grain, and *two-thousandths* of a grain was always fatal to a mouse. To a question by the judge, he said "it would make a great difference in the time when the severe symptoms appeared, whether the poison was swallowed directly and whether it came into direct contact with the tongue." Dr. Dupré confirmed in every detail the statements of his colleague. "In his case the effects of tasting the alkaloid from the urine continued over four hours, and that from the vomit over six hours, though he took lunch and dinner during that time. In the vomit he

did not find any trace of quinine which he should have expected had aconitia been given in conjunction with quinine."

THE PREVIOUS ACTS OF THE PRISONER.

Soon after his marriage in 1879, the prisoner set up in practice at Bournemouth, whence in April, 1880, he went for a six months' trip to America. Early in 1881, he was in great pecuniary difficulties, and had to part with his furniture to pay an execution out of his house, and again went to America on the 30th of August. Three days before he sailed, whilst staying with his mother at Ventnor, he visited Percy John at Shanklin, where the boy was staying with the Chapmans, and promised to return on the Monday, the 29th, before he left England. It was supposed that he did so, and it was then, according to the boy's statement before reported, that he gave him a pill, after which he was taken ill in much the same way as at Blenheim House in the December following.[207] From America he returned on the 17th of October, and after a visit to Ventnor, where he got a cheque, which was subsequently dishonoured, cashed by a tradesman (Price Owen), he was in London on the 1st of December, staying at the Nelson Hotel, Portland-road. His actions are now taken up by the following witness, to whom, and to whose brother, the prisoner had from time to time advanced money, in the case of the brother pawning his surgical instruments and watch, on the 24th of November, in order to lend him five pounds.[208]

John Law Tulloch, a student of medicine living in Alma Square, St. John's Wood, said:—

> "I have known the prisoner for some time. I did not see him till December of last year from the previous April. I saw him on the 1st of last December, a Thursday night, at my house. He said he was

staying at Nelson's Hotel, and was going to Paris the next night. He had dinner at my house. I went with him to Nelson's Hotel, and assisted in packing his luggage. I went with him from the hotel to Waterloo Station. We had with us a leather case, a handbag, and a rug. He said he thought he would go first of all to see his brother-in-law at Wimbledon. We went to Wimbledon together at about six in the evening.[209] He said he was going up to the school, at Mr. Bedbrook's. I waited for him in the public-house opposite. He came back to me in about twenty minutes. He said that he had seen his brother-in-law, who was very much worse. He added that he did not expect him to live long. He said he had seen Mr. Bedbrook, who was a director of one of the Continental lines, and that gentleman had told him that it was as well that he should not go that night, as there was a bad boat on the service. We returned to town, and went together to the Comedy Theatre in Panton-street. After that we went to Stone's, a public-house opposite the theatre, and while we were there he wrote the cheque produced, on the Wilts and Dorset Bank, dated December 2, 1881, for 12*l.* 10*s.*, payable to J. L. Tulloch. He asked me to try and obtain the cash for it. We went first to the Adelphi Hotel in Adam-street, but could not get it cashed there. We then drove to the Eyre Arms, St. John's-wood, which is close to where I reside. Mr. Perrot, the landlord, cashed the cheque, and I gave the money to the prisoner. I then parted from him, and arranged to meet him on the following day at the Adelphi Hotel. I saw him there about three or four in the afternoon. I was to meet him at half-past one, to see him off by a train at 2.50, but I do not know from what station. He said that he was too late for the mid-day train, and could not go until night. I went with him to the Horseshoe to have some refreshment. When there we found that one of the bags received from the Eyre Arms contained coppers. We returned to the house and obtained a 5*l.* note in exchange. He left me there about six. I did not hear of him again till he was in custody. The cheque was dishonoured. On the 13th of December he wrote saying the amount would be in my hands very soon, and he was surprised at my attitude towards, or, rather against him."[210]

On *cross-examination*, the *witness* said:—

"I have said to-day the prisoner said on December 2, 'the boy is very much worse, and I don't think he will last long.' I do not think he said anything about his having passed his examination that day. I was quite sober. I do not owe him money."

At five minutes to seven, on the evening of the 3rd of December, he was at Blenheim House telling Mr. Bedbrook he wished to see his brother-in-law. The boy was brought into the dining-room, some wine got for the prisoner, and some powdered white sugar to cure, as he said, the alcohol in it. He then had with him a leather bag from which he took some Dundee cakes and sweets, of which the boy and the master partook.

Mr. Bedbrook deposed:—

"About a quarter past 7 the prisoner said to me, 'Oh, by the way, when I was in America, I thought of you and your boys, and I thought what excellent things these capsules would be for the boys to take nauseous medicine in.' He produced two boxes of capsules from his bag, and said, 'I should like you to try one to see how easily they can be swallowed.' I examined them, and put one in my mouth."

The Judge.—"Was the box wrapped in paper, or was it handed to you open?"

The Witness.—"It was handed to me open."

The remainder of the capsules were here produced.

Mr. Montagu Williams.—"I do not think they are all of one size."

Mr. Poland.—"These are the original capsules."

Witness continuing, said—"I swallowed an empty capsule, and it was very easy to swallow."

The Witness continuing, said—"The prisoner took the lids off both of the boxes. While I was examining a capsule the prisoner was filling another with sugar, with a little spade spoon. He then, having apparently filled it with sugar, said, 'If you shake it the medicine will come down to one end.' He then handed the capsule to the boy Percy John, who was sitting on his right, about a yard from him. In doing so he said, 'Here, Percy; you are a swell pill taker; take this, and show Mr. Bedbrook how easy it is to swallow.' Percy John then put the capsule in his mouth as far back as he could, and at one gulp it was gone. I remarked to him, 'That is soon gone, my boy.' The prisoner then said, 'I must be going now,' and I then looked at the time-table to see the next train for London. It was then 7.20 or thereabouts, and I told him the next train left at 7.21, and advised him to go at once or he would miss his train. Previous to this I had asked him to remain a little longer, until the 7.50 train. He said, 'I cannot, as I have to catch a train at eight o'clock at London Bridge, *en route* to the Continent.' He said he was going to Florence, *viâ* Paris. Passing through the drawing-room I remarked to him that I thought the curvature of the spine of the deceased was getting worse. He observed on that occasion that he did not think the boy would last long. I did not make any reply to that. He then left the house at about 21 or 22 minutes past seven o'clock. He left behind the two boxes of capsules. I placed them on the dining-room waggon."

Question.—"From the time Percy John had swallowed the capsule how many minutes elapsed before the prisoner said, 'I must be going now'?"

Answer.—"He said it within five minutes. After the prisoner left the house I returned to the dining-room, where Percy John was. When I got back deceased said, 'I feel as if I had an attack of heartburn.' I think after that I returned to my guests. He was reading the newspapers."

Mr. Montagu Williams objected to the statements of the deceased being put in evidence.

The Judge said that evidence as to symptoms could be received when made by the deceased.

> *Examination continued.*—"I returned to him in five minutes. He said, 'I feel as I felt when my brother-in-law had given me a quinine pill at Shanklin.' He said he would like to go to bed. I gave orders that he should go to bed. Mr. Bell carried him upstairs."
>
> *The Judge.*—"At what time was this?"
>
> *Answer.*—"Between eight and nine."

The fatal attack now came on as previously described. In the box with the capsules were some little pills, and in the boy's own box in his bedroom a small box of quinine powders, and another with two pills wrapped in tinfoil.[211] In the previous year, when the prisoner was in America, Mr. Bedbrook had received from him a box of pills, with a letter, saying that "he had met some one in America suffering from the same complaint as the boy, who had derived great benefit from taking medicine similar to that now sent, and requesting Mr. Bedbrook to see the boy take the medicine." "I afterwards," said the witness, "gave the boy one of the pills, and next morning he complained of being very unwell. At that time the box was in his bedroom, and Percy John said, 'I will take no more of them.' I thereupon took the pills downstairs, and until the box produced was found, was under the impression that I had thrown it away."[212]

PURCHASE OF ACONITIA BY THE PRISONER.

Mr. Charles Albert Smith, a chemist at Ventnor, proved that on the 28th of August, 1881, the prisoner purchased of him 3 grains of sulphate of atropine, and 2 grains of aconitia, and that he had labelled the latter "Aconitine, poison." As he had previously made

up prescriptions for the prisoner, and knew him as a medical man, he sold the poison to him without hesitation. Aconitia, he believed, was commonly used for neuralgia and cancer, to relieve the palpitations in heart disease, and as a diuretic in dropsy.

On the 24th of November, 1881, the prisoner asked for 2 grains of aconitia at Messrs. Allen & Hanbury's, of Plough-court, Lombard-street; and as the assistant, on reference to the Medical Directory, found the prisoner's name as a medical man practising at Bournemouth, he sold them to him without further precaution than labelling it "Poison." On the evidence of this witness, Mr. Dodd, a difficulty arose, from his having at first entertained the impression that it was "atropia" which he had sold. The price of this drug to a medical man would have been only threepence a grain, whilst that of aconitia would be 1*s.* 3*d.*[213] In the petty-cash book of the day, among entries of sales marked "C"—the sign that they were sold to a medical man—was one of 2*s.* 6*d.*, but none of 3*d.*; and Mr. Dodd, after consulting with the other assistant who was present at the sale, became convinced that it was "aconitia," and not "atropia," which he had sold to the prisoner. "There is also," he said, "a difference in colour, atropia being white, and aconitia yellowish-white."

A previous attempt to purchase aconitia was proved by Mr. Stilling,[214] an assistant of Messrs. Bell & Co., Oxford-street, on the 20th of November. Twice before that day the prisoner had had prescriptions made up there, which he wrote in the shop, and marked as for his own use. These contained morphia and atropia, but at the bottom of the second of these prescriptions he had written, "Digitaline, pure, 5 grains."

By the Judge.—"He told me he practised at Bournemouth."

By Mr. Poland.—"He led us to infer that he was accustomed to prescribe this digitaline for internal use. It is the active principle of foxglove, and is a poison. While he was in the shop I looked at our

stock of digitaline, and found it more coloured than I expected. I told him that, and said I would provide him some fresh from the manufacturer in a few days. I did that because he had laid stress on its being pure. He did not say when he would call again, but in a few days. Dr. Lamson himself then struck out the lower part of the prescription as to the digitaline. All the rest was made up—morphia and the sulphate of atropia. He waited in the shop while it was made up, and paid 2*s.* 9*d.* for it. In a few days he called again; it was after the 20th of November. He then asked for one grain of aconitia for internal use. I knew it was poison, and I recommended him to procure it where he was better known. Nothing more was said, and he left the shop. I believe he wrote an order for one grain of aconitia in the shop, and I believe he tore it up himself. Except seeing him on the 11th and the 16th I knew nothing of him before."

By Mr. Williams.—"He told me on the 11th that he was staying at Nelson's Hotel, in Portland Street. I cannot swear that there was a written order for the aconitia. I believed that when I went from the shop for my fellow-assistant, Dr. Lamson wrote the order; and then when we returned he tore it up. I have not said anything about that order before to-day, because I was not asked. Only the atropia and morphia were bought on both occasions."

Re-examined.—"When he asked me for the aconitia, knowing it was a potent poison, I went to consult a fellow-assistant, and then he wrote the order, as I believe."

It may be noted here that the larger quinine powders in the box which were found to be pure were proved to have been purchased of Mr. Littlefield, a chemist at Ventnor, on the 13th of October, 1880; that he knew nothing of the smaller ones, which were proved by Dr. Stevenson to contain aconitia, and that he never kept that drug in his shop. In this he was confirmed by his assistant, Mr. Bright, who identified his own handwriting on the box in which they had been sold. The smaller quinine powders were not traced.

THE SURRENDER OF THE PRISONER.

On the 7th of December, the prisoner called at Scotland Yard and saw Inspector Butcher, who gave the following account of the interview:—

> "When the prisoner came there and saw me, he said, 'Mr. Butcher?' and I replied, 'Yes.' He said, 'My name is Lamson. I am Dr. Lamson, whose name has been mentioned in connection with the death at Wimbledon.' I asked him to be seated, and he continued, 'I have called to see what is to be done about it. I considered it best to do so. I read the account in the public papers in Paris, and came over this morning. I have only just now arrived in London. I am very unwell, and much upset about this matter, and not in a fit state at all to have undertaken this journey.' I then communicated with Chief Superintendent Williamson, who said to the prisoner, 'You will have to remain a time.' I remained with him. His wife was present. He conversed on various subjects for some time, and then he said, 'Where is the delay? I thought I would come here and leave my address. I am going into the country to Chichester, so that you will know where to find me, and I will attend the inquest. I have travelled from Paris *viâ* Havre and Southampton. I went over *viâ* Dover and Calais.' After this I again saw Chief Superintendent Williamson, who called the prisoner into another room. I said, 'Dr. Lamson, this case has been fully considered, and it has been decided to charge you with causing the death of Percy John. I therefore take you into custody, and charge you with causing the death of Percy Malcolm John, at Blenheim House, Wimbledon, on the 3rd of December instant.' He said, 'Very well; do you think bail will be accepted? I hope the matter will be kept as quiet as possible, for the sake of my relations.' I told him he would now be taken to Wandsworth police-court, and the question of bail would rest with the magistrate. I conveyed him in a cab to the Wandsworth police-station. On the way he said, 'You will have my father here in

a day or two. I hope it will be stated that I came to Scotland Yard voluntarily. I came from Paris on purpose.' I said, 'Certainly.'"

On searching the box which he had left at Euston Station among various articles, chiefly of plate, a medical memorandum book was found, from which the Solicitor-General read an extract on the "effects of acrid vegetable poisons," and then closed the case for the prosecution.

Mr. Montagu Williams, having previously had the letter read from the Home Office, refusing to allow an independent analysis of the contents of the body on the part of the prisoner, then commenced.

THE DEFENCE.

Of the speech for the defence, which lasted the greater part of two days, and dealt with the case with extreme minuteness, it will be sufficient to give a summary, especially as its leading points were remarked upon so fully in the charge of the learned Judge.

On the question whether the death of the boy was from poison, *Mr. Montagu Williams*, necessarily laid great stress on the admitted inability of the scientific witnesses to rely on any other test than that of taste. "Scientifically," he said, "it was a leap in the dark, and they had to traverse a region of science up to the present moment unexplored. Who knows about aconite? and echo answers who? What was it? The root of monkshood. Aconite was one form, and aconitia was the active principle of that form: and up to the present moment, with the exception of one reported case, there was not a single authority on the subject." Pursuing this subject, he said:—

"The first medical witness called was Dr. Berry, who on the night of December 3rd was visiting at Blenheim House, where he saw the

poor boy until his death, and observed all the symptoms under which the unfortunate lad suffered. What were they? The lad told him that he was suffering from heartburn, and where was the symptom of heartburn in the administration of aconite in the evidence of the experts that had been brought before them? What medical gentleman had said that heartburn was a sign of aconitia poisoning? The poor lad was found vomiting, and Dr. Berry and another medical man, Dr. Little, treated him for irritation of the stomach. Neither of them treated him for, or thought of, poisoning. The boy was taken from the bath-room, where he was found, to the bed from which he never rose, and from first to last all the symptoms were those of irritation of the stomach. From nine o'clock to past eleven no attempt was made to use the stomach pump; and if the medical gentlemen thought poison had been taken, they never used anything to relieve him, or what might have saved him. If poison was in the minds of these medical men, why did they not treat him for such? It was clear, therefore, there was no thought of poison; and Dr. Berry admitted in evidence that it never occurred to him that it was so until the *post-mortem* examination. He said he then thought the death was from alkaloid poisoning. It was the duty of him (Mr. Williams) to cross-examine him on vegetable alkaloids. What was his knowledge? His knowledge was a blank, and he admitted he knew nothing of vegetable alkaloids. Therefore, the first expert witness called for the prosecution—who had, moreover, the benefit of seeing the symptoms in life—broke down altogether. It was his case that the theories of the prosecution were of the most speculative character. Dr. Little differed somewhat, and said, 'We came to the conclusion that the boy was dying from a vegetable poison an hour before his death,' while Dr. Berry said it was not until the *post-mortem* examination that they thought anything of the sort. Dr. Little says he read about vegetable alkaloids in his student days. Both those gentlemen, who give the opinion that death resulted from vegetable alkaloids, knew nothing whatever about the subject. Then they had Mr. Bond, a gentleman of great scientific attainments, well known in these courts, who gave the results of the *post-mortem* examination, and he (the learned counsel) thought it

> would not be straining the imagination too much to say that that gentleman gave the first idea of poisoning in the matter. Mr. Bond said he came to the conclusion that death resulted from a vegetable alkaloid, and again the same line of questions and answers followed. Mr. Bond admitted he had never known a case of such poisoning. And so the jury were asked to form a verdict on the evidence of two persons who had seen the symptoms of the deceased in life, and were entirely ignorant of the signs of vegetable alkaloid poisoning, and of Mr. Bond, who was not present, and who admitted he was also ignorant upon the subject. They were asked to give a verdict on which an existence hung, and to say they had no doubt whatever that aconitia was in the body. He could only say up to that time there was not one single piece of evidence that the boy died by aconitia poisoning."

Passing thence to the evidence of Doctors Stevenson and Dupré, whose tests, the former said, "rested on his taste, on the effects of the solutions on the mice and his reading," he called the attention of the jury to Dr. Stevenson's admission that the results of most of these tests were consistent with other causes, though consistent with aconitia, and ridiculed the effects on the mice as confirmatory tests, quoting the remarks of Lord Coleridge that tests upon animals were always found to be most unreliable, and of Professor Tidy, "that although useful at arriving at results, they sometimes failed, and were not reliable." "If they used their common sense they must see that that must be so. So delicate was the constitution of a mouse that one of those experimented on had died because the injecting needle had been stuck in a quarter of an inch too far. Mice would sometimes die from fright, and also from the injection of water, and yet because these mice spoken of died in five minutes they were asked to say that they died of aconitia poisoning." As to the test of taste, Dr. Stevenson had admitted "that it was like some other alkaloids, and not like others." The question

of the production of cadaveric alkaloids was still *sub judice*. He was prevented, by the refusal of the Home Office, to allow experts on the prisoner's behalf to be present at the analytical examination, from calling scientific witnesses to rebut—"an act that was trifling with life—a beautiful bit of red-tapeism; and, if it was contrary to all practice, the sooner it was done away with the better."

On the second point, whether if aconitia was given, it was given by the prisoner, *Mr. Montagu Williams*, after alluding to the way in which his admitted poverty had been pressed against the prisoner, called the attention of the jury to the facilities the prisoner would have had of poisoning his brother-in-law during the boy's visit at his house in the summer, or his projected visit at Christmas; to the fact that the supposed attempt was made in the full light of gas, and in the presence of both the master and the victim; that there was no proof that he had brought a capsule ready charged with poison, and that he must have manipulated one before their eyes, and that it was not by his request that powdered white sugar was brought. "What was there to prevent lump sugar being brought?" As to the pills found with the capsules,

> "Where did they come from? No pills were given to the boy by the prisoner, for Mr. Bedbrook was present the whole time and no mention was made of pills. Where was the boy all the afternoon? In the room downstairs, and able to move about, though this was studiously concealed by everyone from Blenheim House. In this room was the box in which two pills were afterwards found, one of which was charged with aconitia. Were there other pills in that box? It was known that Percy John kept medicine unknown to everyone in the establishment, although it was against the rules of the school; it being the duty of the master to administer all medicine. The poor fellow was called 'the swell pill taker,' and what was more likely than that, with the fascination of the new capsules before him, he should have taken a pill for the heartburn from which he was

suffering. Did he do so? It was suggested that these pills were some sent by the prisoner, but Mr. Bedbrook had exploded that idea. He swore that he thought he had destroyed those referred to, but at any rate he had never given them back to the prisoner. Now did these four or five pills, found on the table, come from the box? Was there any evidence to show that the boy did not carry pills in his pocket, and took one in consequence of the heartburn? What did the prosecution mean? Did they mean to say that there was a pill hidden in the capsule? If the boy had thought of such a thing, would he not have asked Mr. Bedbrook or Banbury whether they felt in a similar state? The boy was in the possession of all his faculties when questioned, but he did not say one word about the capsules."

Mr. Montagu Williams then alluded to the admission of Mr. Whalley that poisons were occasionally left in the house after the chemical lectures, and to the probability that so large a dose of aconitia as was assumed to have been given would have acted sooner, as Dr. Stevenson admitted that $^{1}/_{21}$ of a grain might kill, and $^{1}/_{13}$ would certainly have a fatal effect. As for the medical note-book found in the prisoner's possession, he reminded the jury of Lord Campbell's opinion in Palmer's case that nothing was more natural for a professional man, and added, "It had no more bearing on the case than if 'Russell on Crimes' had been found in his own possession, on a charge of murder."

On the proof of the purchase of aconitia at Allen's, he begged them to note, that on the 5th of December the police commenced their enquiries, on the 6th the assistants at Allen's communicated with them, saying that the prisoner had purchased atropia, and that it was not until after that that they changed their opinion and were convinced that it was aconitia. It was true that no entry of 3*d.* was found in the cash book, but there was one of 8*d.*, and one of the chemists had deposed that the wholesale price of atropia, to a medical man, was 4*d.* a grain. But even if it was aconitia that the

prisoner then purchased, it was only natural for him so to do, as he was suffering from rheumatism, of which it was a cure. Again, though they knew where the larger quinine powders, which were not poisoned, came from, it had not been proved whence the smaller came, which it was the duty of the prosecution to have done. "Oddly enough, they were tied up with a piece of string, a most unusual thing coming from a chemist's shop. They had traced twelve quinine powders, but they had failed to trace the pills sent from America which Mr. Bedbrook swore were not given back to the deceased. He, Mr. Williams, could not say where the smaller powders came from, nor where the pills came from. The burden was not on him to do so, but on the prosecution."

Turning then to the evidence of the visit to the boy at Shanklin, *Mr. Williams* said he would deal with that important episode most successfully.

> "Albert Smith," he said, "proved that on the 28th of August he sold to prisoner three grains of atropia and one grain of aconitia, charging 4*d.* per grain for the first and 1*s.* 6*d.* per grain for the last named. The suggestion on the part of the prosecution was that in the month of August the assassin was at work and an attempt was made on the life of the lad. In his judgment he would make that melt into the thinnest of thin air. The 28th of August was a Sunday, and on the previous day Mr. and Mrs. Chapman and the boy arrived. At that time there were four persons of the name of Lamson residing at the Isle of Wight—namely, the prisoner's father and mother, and himself and his wife. On the 27th of August they met the boy at the station, and went to Mrs. Jolliffe's lodgings, and here again there appeared a kindness and solicitude for the deceased. The 28th was Sunday, and it was said that he bought aconitia on that day, and that he was present on the 29th, and in order to prove it it was said that a parcel was left at the station in the name of Lamson, when there were four persons on the island named Lamson. It was further said that the deceased suffered from illness after taking something given

to him by the prisoner, and from that they assumed it was aconitia bought at the shop of Mr. Smith that he had taken. The proof was all the other way, as the symptoms upon which the prosecution relied all through the case were not those which could be assigned to aconitia, while he recovered within a few hours. Beyond that, it was shown that he suffered from indigestion, especially by the fact that although he dined at one o'clock on the day of his death, undigested food was found in the vomit at nine o'clock at night. The prisoner purchased the atropia and aconitia on the 28th of August, he was to leave for America on the 30th. This mixture was the very thing he would have taken, and the very time he would have bought it for the purpose of going on the voyage. The dates exactly suited."

Counsel's explanation of the story told by the prisoner to the witness Tulloch was ingenious.

"The prisoner did not deny that he went down to Wimbledon on December 2 with Tulloch, but if he contemplated assassination then would he have been likely to have taken Tulloch with him? That was an observation worthy of some note. He would try and imagine a state of things to have existed, which was not impossible but more than probable. It was admitted that upon the 2nd of December the boy had been passing an examination. It was also admitted the first thing the prisoner was greeted with on the 3rd was, 'I am glad you did not come yesterday.' When he went down on the 2nd what was more likely than that he met some one, perhaps one of the boys, for it was a holiday, who told him it was an examination day, and he therefore postponed his visit until the next day? All the importance of this visit depended on the evidence of a man who had altered his evidence as originally given, and who, it was suggested, was on that night the worse for liquor."

With the remarks that the flight of the prisoner to Paris, where he could have been arrested, and his return to England and surrender to the police, were not the acts of a guilty man; that, to

obtain the pecuniary gain from the boy's death, the prisoner must have applied to the Court of Chancery, and if there had been suspicion of foul play would find, instead of receiving £1,500, the hangman's halter round his neck, and a fervid appeal on behalf of the wife who had stood by him in Court, and his young child, *Mr. Montagu Williams* concluded his minute and able survey of the case against his client.

THE REPLY.

The *Solicitor-General*, in his comparatively brief reply, directed the attention of the jury to the following points. He admitted that, in this case, they had to traverse a branch of science but little known, that little was known of aconitia, and everything speculation. He urged, however, that "that argument, whilst fair, might be pressed too far, as then a man desirous of taking life had only to use some poison but little known, and then to ask that he should not be rendered liable for the results of his crime. They found, no doubt, from time to time, fresh materials used for the commission of crime. If a man from his knowledge used a poison little known and little used, still science, with unerring precision, and working as fast as him, could bring the crime to light." The idea of death from natural causes had apparently been abandoned by the prisoner's counsel, so that it was impossible to doubt that it was due to poison, and what that poison was must rest on the evidence of the scientific witnesses, "the first in their profession, of the highest skill, not called in to prop up any theory, but to frame an independent opinion. The presence of a third party would not have been likely to assist the analysis, while on the other hand it might have led to difficulty, and even mistake." He disputed the correctness of the quotation from Dr. Tidy. What he really did say,

was, “Experiments on animals may furnish us with much useful information in cases of suspected poisoning, but their value must not be over-estimated.” In this case they were only used to strengthen the evidence from taste. “The two tests must be used together. It was their combined force that drove home to the mind the conviction that Dr. Stevenson was right when he said that what he found in the body was aconitia, and nothing but aconitia.” “As to the cadaveric alkaloids, they had in evidence that they were only produced along with putrefaction, and that their results on animals were totally different from those of the extracts from the boy’s body. Would they not say that Dr. Stevenson’s experiments had been conducted in every way to exclude error, and must they not, looking at the whole of the scientific evidence, accept his judgment?”

As to the possibility of the boy himself obtaining this poison, it was fenced round with such safeguards that not even a medical man, unless personally known, could obtain it without a record being kept. His story about the visit to Wimbledon was pure invention, and the explanation of it by counsel ingenious, and no more. Falsehood seemed to have been uttered by him at every turn. The taking Mr. Tulloch with him was a mere blind: his return and surrender intended to divert suspicion. Had he remained in France he must have been arrested, and, if he had no money, he was compelled to return to England.

THE JUDGE’S CHARGE.

In his charge to the jury, after pointing out that the two points to which they had to direct their attention were whether the boy died from poison or a natural disease, and if by poison, whether it was administered to him by the prisoner, Sir Henry Hawkins alluded to

the alleged motive—the prospect of an accession of fortune at the time when the prisoner was in great pecuniary difficulties—and the fact that until the day of his death the deceased, though a cripple, was free from any mortal disease. Then, after referring to the details of the prisoner's visit to the boy on the 3rd of December, the judge made the following remarks on the results of the chemical analysis, and the comments of Mr. Williams on them:—

> "The presence of morphia was, he said, accounted for, as it had been injected beneath the skin for the purpose of allaying the pain. With regard to the dark fluid in the stomach, it contained, according to the evidence of Dr. Stevenson, traces of food, an apple, and a raisin, and from it an alkaloidal extract was obtained; on applying which to the tongue a slight taste of aconitia was produced. The sensation extended to the lip, although the extract did not touch it. The sensation was a burning, tingling, numbing one difficult to define. Salivation and a desire to expectorate were produced—there was a sensation at the back of the throat, a swelling up: this was followed by a peculiar seared sensation of the tongue, as though a hot iron had been passed over it or strong caustic. Experiments were made with extracts from the liver, spleen, and kidneys, from the dark fluid, and from the stomach itself, and within nine minutes mice showed symptoms of poisoning, and died in about twenty-two minutes afterwards. The same sensation, in fact, was produced on the mice as had been produced on his own tongue previously. In the urine there was a taste of aconitia, which brought on a sickening and a burning sensation. Mr. Montagu Williams had said that the experiments upon mice were hardly a test as to what the effect of the extract would be upon human beings. Granted; but they were about the only tests that could properly be made, and they proved the presence of aconitia. The drug, Dr. Stevenson said, produced a sensation to the tongue and throat which was unmistakable, and its property of killing was proved by its test upon the mice. Could they believe Dr. Stevenson mistaken about that, it was asked—were there not other vegetable alkaloids? There were; and Dr. Stevenson said

they all had peculiar tastes which differed from that of aconitia. He further said that, having made himself acquainted with between 50 and 80 vegetable alkaloids, aconitia differed in taste from any of them. The learned Judge proceeded to read the evidence given by Dr. Stevenson as to the action of the extract and of prepared aconitia on the mice. Dr. Stevenson had minutely examined the vomit to endeavour to trace some of the fibre of monkshood from which aconite was extracted, and which, as was known, had sometimes been mistaken for horse radish, but not a particle could he find. But he obtained all the symptoms of aconitia upon his tongue, and death resulted in 15½ minutes when a small quantity was injected into the back of a mouse. He gave it as his opinion that 1-13th of a grain was sufficient to kill, and that he found enough aconitia in the stomach to cause the death of two persons. Dr. Stevenson had been submitted to a severe cross-examination, and it would be for the jury to say whether they believed that he had really found aconitia. Mr. Williams had said they were embarking in a new region in aconitia poisoning. It might be they were not very learned in it, though they would doubtless advance as fresh experiments were made and fresh tests applied. At present it was true there was no chemical test. That was admitted. Mr. Williams, in the course of his cross-examination, had spoken of phosphoric acid, but Dr. Stevenson said that only applied to foreign aconitia, and not to Morson's English preparation. They had before them the explanation of Dr. Stevenson. It stood for what it was worth, and it was for them to say if he was correct, after the experiments he had made, in saying that he had found aconitia. Dr. Stevenson had explained the only tests, physiological and otherwise, to trace aconitia, and had formed his opinion that death arose from that substance. With reference to cadaveric alkaloids, Dr. Stevenson did not admit that poisonous cadaveric alkaloids were to be found in the human body. He did not dispute there were cadaveric alkaloids, but he disputed their being poisonous. He did not say they were not so; it was still an open question. The result of the 22 experiments he had made by tasting cadaveric alkaloids never gave him any taste like aconitia, and in only one case did death ensue to a mouse experimented upon, which was where the

little animal's spine was injured by the needle used for the injection. Another circumstance spoken to by Dr. Dupré was that no trace of quinine was found in the vomit, but that might be due to the fact that a portion of the vomit was thrown away. Upon the testimony as to the cause of death the prosecution said that there was no possibility of accounting for death by natural causes, and it was for the jury to say whether the death was from aconitia."

Then going through the evidence of the prisoner's pecuniary embarrassments, he alluded to the sending of the pills from America as showing that if he had entertained the design of poisoning the boy, he had done so long before the fatal act.

"Mischief, it was held, had been concocted long before the lad died. Prisoner went to America in the early part of 1881, and returned about the 2nd July, and whilst there, as Mr. Bedbrook had said, he sent over a box of pills, saying that he had found them to be useful in the complaint under which the boy suffered. The boy had one pill given to him, and Mr. Bedbrook believed that as he did not like it he took the box and threw the remainder away. In the month of August aconitia was, it was said, administered to the boy whilst at Shanklin, and that it came from powders contained in a box. These circumstances did not lead to death, but they indicated, as was contended, the desire of the prisoner to do mischief to the unfortunate boy. It was a question certainly whether the pills given were the same as those which the prisoner sent over from America, and which Mr. Bedbrook believed he had thrown away. In the bedroom at Wimbledon was found a box of quinine powders—six large and fourteen small ones. Eleven of the small ones were of pure quinine, but three of them were more or less mixed with aconitia. Dr. Stevenson said that one of the powders—No. 16—contained 1 and eight-tenths of a grain, and that the proportion of quinine to aconitia in it was as 83 to 96. Dr. Stevenson tested it, and the sensation upon his tongue lasted three hours. One-fiftieth part of a grain was tried on a mouse, and it was dead in six minutes and a

half afterwards. They would judge how fatal a quantity was in the powder if they bore in mind what they had been told as to the fatality of 1-13th part of a grain. In Nos. 17 and 19 there was some trace of aconitia, but in neither of them anything like the quantity in No. 16. The box in which those powders were found had been in common use, and one of the boys had actually taken one of them. Anybody, of course, might have taken one of the eleven pure powders, and the lad himself—with the exception of once, at Shanklin—had never shown any symptoms that might be considered anything like aconitia poisoning. No doubt three of the powders did contain aconitia in considerable quantities, and they had to consider how did the aconitia come into them? Among other things found in the boy's box were two pills in a tin pill-box. A tin pill-box, it was suggested, was sent over from America. Mr. Williams said that Mr. Bedbrook stated he had destroyed them, but the fact remained that the box with the two pills—one of which was poisoned—were found in the play-box. It was true there was no evidence that the box was the same, but Mr. Bedbrook said it resembled that which he received from America, but which he said he thought he had destroyed."

Mr. Williams.—"Pardon me, my Lord, but Mr. Bedbrook, I think, never said he destroyed the box; he said he had destroyed the pills."

The Judge.—" I think he said he threw them away." His Lordship referred to his notes, and said that Mr. Bedbrook in his evidence stated that he took the box downstairs, and was under the impression he threw it away. When he saw the box, however, it appeared to him exactly like that which came from America, and the pills were also exactly like them.

Mr. Williams.—"Mr. Bedbrook said he never gave the pills back to the deceased boy."

The Judge.—"That is so. He said he was under the impression he had thrown them away. It was said that the boy could not get aconitia himself, but though he could not do so the prisoner could. Next they heard what had occurred at Shanklin in October, 1881.

The prisoner was going to America, and sailed on the 30th August. On the 27th of that month Mr. and Mrs. Chapman, with the boy, went to Shanklin, and found on the platform to meet them the prisoner and his wife. They had some conversation, and prisoner promised to call on Monday, 29th, to say 'Good-bye.' On the night of Sunday, the 28th, they had it on the testimony of Mr. Smith, a chemist, that the prisoner called on him and bought, amongst other things, three grains of atropia and one grain of aconitia. It was endeavoured to be shown on the part of the prosecution that he had called pursuant to his promise on the 29th, and in evidence of that it was sought to produce the cloak-room book of the railway station. On the 29th, however, the boy was unquestionably unwell. It was clear that on the 27th the prisoner saw him, and said he would call again on the Monday, but there was no direct evidence that he did, although he bought aconitia on the 28th, which Mr. Williams said might have been bought with an innocent motive, as the prisoner at the time was suffering from neuralgia."

Reviewing then the prisoner's conduct in London, and the story invented by him about his pretended visit to the boy on the 2nd of December, "which," he said, "did not amount to much, but must be taken, with the other circumstances of the case, to show that the prisoner's word was not to be relied on," the learned judge then referred to the incidents of the fatal night. As to the two boxes of capsules, he continued:—

"The prosecution suggested that these two boxes of capsules were brought by the prisoner, but they did not suggest there was poison in any of them. They were clearly innocent capsules, as two of them did no harm either to Mr. Bedbrook or to the lad Banbury, each of whom swallowed one. What the prosecution suggested, however, was that whilst Mr. Bedbrook was examining the capsule he had taken from the box, the prisoner took another, in which there was aconitia, from another box, and that over that aconitia he put in the sugar, and then administered it to the boy. That was the

suggestion made. They asked for those facts to be put together—the boy was in as good health as he ordinarily was, in as good spirits as usual, having neither eaten nor partaken of anything in which there was a suggestion of poison during the day, and yet within half-an-hour, or less, of seeing the prisoner and swallowing the capsule he was taken ill. The cake, the sweets, and the capsule were all three given him by the prisoner, and within a short time he showed the first symptoms described, viz., heartburn, which was followed rapidly by painful sensations, and the contraction of the throat, retching, vomiting, agony, and raving to the time of death. On these facts the prosecution asked them to come to the conclusion that he not only died by aconitia, but by aconitia administered to him by the prisoner, it being clear that no other person administered anything to him during the prisoner's visit. The prosecution contended farther that they had shown the prisoner to be possessed of aconitia, upon the evidence of two purchases of aconitia by him, one from the chemist at Ventnor on the 28th August, and the other about the 20th November at Allen and Hanbury's, in Plough Court.

Then again placing before the jury the two questions he had referred to in the opening of his charge, and warning them not to allow sympathy either for the poor boy or the prisoner to bias their decision, Sir Henry Hawkins left the case in their hands.

In less than three-quarters of an hour the jury returned a verdict of "Guilty." When called upon as usual to say why judgment should not be passed upon him, the prisoner, standing with arms folded, in a loud voice, "protested his innocence before God," and with very few words, the learned judge pronounced sentence of death.

EVIDENCE OF LAMSON'S STATE OF MIND.

Within a short time after the conviction of the prisoner, Mr. Lowell, the American Minister, by the instruction of President Arthur, requested the Home Secretary to suspend the execution, on the faith of a statement from the United States Attorney-General that evidence bearing on the state of mind of the prisoner, was preparing in America, and would be shortly forwarded to England. To this novel application Sir William Harcourt acceded, in courtesy to the applicant. The promised affidavits arrived, and were considered by the Home Secretary as insufficient. Again a further application for delay was made, on the promise of further evidence, and acceded to for the term of a fortnight, with clear notice to Lamson that if the promised affidavits were not more satisfactory than the preceding ones, the sentence would be carried out. Such they proved in the opinion of Sir William Harcourt, and Lamson was at length executed on the 28th of April.

The proffered evidence not only covered the whole of Lamson's life from the days of his medical pupilage at Paris till his trial, but sought to establish "a marked hereditary tendency to insanity," from the fact that his grandmother had been in the New York Bloomingdale Asylum from the age of seventy-six till her death four years after, and had been previously suffering from "senile dementia," the apparent cause of which was entered in the Hospital Register as "predisposing;"—that her brother, a sea captain, at the age of eighty, was in the same asylum, having been suffering for two years from "dementia," also entered as "predisposing;" and that her daughter, a Mrs. McGregor, at the age of thirty-one, was a patient until her death about three years after—her mania "puerperal," and also entered as "predisposing."[215] No evidence, however, was offered of the mental condition of any less remote ancestors.

As a *Medical Student* in Paris in 1869-70, Lamson is described as suffering from cerebral anæmia with a tendency to melancholia, given to imaginary complaints about the surgical theatre, apt to take offence, with a passion for chemical experiments of a morbid character, generally genial in manner, and taciturn of speech. When employed in the American Ambulance during the siege of Paris in 1870-71, "his behaviour was so wild, erratic, and bad, that his associate aids were not prepared to say whether it was that of an idiot or the result of special wickedness—his mind so disordered that he could not be entrusted to administer medicines, as to the effects of which he seemed to be utterly destitute of judgment and common sense—just as likely to give a large and dangerous dose as a smaller and safe one, no matter how particularly instructed, and seemed to be utterly reckless of results."[216]

From this date to the year 1877, no evidence was offered of his conduct or state of mind. In that year he acted as a surgeon for the Red Cross Society at Bucharest, in the Servian War. Whilst there "he exhibited a mania for the administration of aconitia in almost every case, using it in season and out of season, and in such quantities as to alarm the medical staff and render his recall to England necessary. Here, too, he appears to have commenced on himself the extravagant use of hypodermic injections of morphia, to which he subsequently became so notoriously addicted, on the plea that he was in constant pain and misery," and to have been constantly under the influence of some anæsthetic. He was also habitually incoherent and inconsistent in his way of talking, boasting of adventures in the American Civil War, when he could have been only twelve years of age. His father, who was with him, seemed to keep a constant watch over his son, and frequently expressed his wish that some other surgeon should be associated with him.[217]

In 1879 Lamson purchased a medical practice at Bournemouth, and during the two years that he remained there, according to the testimony of friends and servants, behaved in a most erratic and strange manner. Whilst there his habit of injecting morphia under his skin increased in a most extraordinary degree, one witness saying that "he was hardly ever in his company for more than an hour that he did not use the hypodermic syringe." When visiting patients he seemed not to know why he had come, or what he ought to do, behaving so strangely that his services were eventually dispensed with. His habit of telling extravagant stories grew rapidly upon him. His eyes had a fitful and nervous look as if afraid of phantoms. He seemed to be perpetually trying to look sane, and the witness (Warren, an artist) who spoke to these symptoms said "he had frequently seen him walking along quickly, his head hanging down, when he would stop suddenly, turn back, and branch off in some other direction, crossing backwards and forwards over the road without rhyme or reason." Mr. Radcliffe Hall, of Welbeck-street, to whom Lamson had made in writing a perfectly baseless statement about Mrs. Hall's antecedents, and afterwards could remember nothing about it, had seen him inject morphia twenty times a day. His servants thought him mad, and humoured him accordingly, and the patients who attended at the dispensary which with another medical man he managed, with only one or two exceptions, refused to be attended by him.[218]

From April to May, 1881, Lamson was staying at Rouse's Point, New York, with the Rev. Irving McElroy, the rector of Christ Church, during which period his habit of injecting morphia was continued, and, according to the testimony of the rector and his wife, Dr. Winston, the Medical Director of the New York Mutual Life Assurance Company, Dr. Murray, Physician of Rouse's Point, Dr. Hall, and others who knew him, it was seriously affecting his

brain. On one occasion he was found in the public street with no coat on, and his left arm bared. He had a syringe in one hand, and with the thumb of the other was pressing down the place where the injection had been made.[219] At his friend's house he passed the greater part of the day on the lounge, either dozing or attempting to read. He was then using a mixture apparently of morphia and atropine, but told them he preferred aconitine, but could not procure it in that section of the county. To one of the witnesses he admitted that his whole existence depended on the constant use of morphia. The marks of these repeated injections were detected by Dr. Williamson of Edinburgh whom Lamson consulted in New York in October, 1881, who marked the serious change that had taken place in his health, and urged his discontinuance of this baneful practice. Dr. Hall considered Lamson "not a perfectly sane man," Dr. Winston considered that he "had become a helpless victim of the habit (of injecting morphia) which had seriously impaired his mental powers and destroyed his moral responsibility," and in Dr. Murray's opinion "he was utterly irresponsible for his acts." It is admitted, however, that at intervals his conversation was perfectly clear and lucid, and to none of the medical men appears to have been put the legal test question, "did he know the difference between right and wrong, at the time wherein he committed the crime?"[220]

Lastly, we are offered testimony as to the condition of Lamson's mind for a few days immediately preceding the fatal occurrence, and that of his father and wife as to his strange conduct for some time previous. All, however, that this evidence amounts to is, that he was so strange and extravagant in his manner and conduct, that he was spoken of by friends and acquaintance as a lunatic, that "for a year past his wife's fears and anxieties had been greatly and increasingly aroused for the soundness of his mind—

that his brain, predisposed to weakness, or constitutionally liable to disturbance, was unsettled by ill-health and trouble, and its disease aggravated by the use of morphia." His father spoke to the wild and fanciful delusions in which his son indulged—the whole being myths, and believed "that for at least eighteen months he had been in an unsound state of mind, steadily increasing in its character and blinding him to the natural and inevitable effects of his acts; and that the balance of his mind had been quite destroyed." His solicitor deposed that "he could obtain no assistance from him in the preparation of his defence—that he appeared to have no memory and to be incapable of appreciating the bearing of any of the facts of his case, or the gravity of his position; that he laboured under extravagant hallucination, whilst his statements were either incoherent, inconsistent, or manifestly the creations of a disordered brain."

Three medical men of experience speak to the effects almost certain to be produced by such an habitually excessive use of morphia or opium, as that of which Dr. Lamson was the victim. Dr. Coghill, of the Ventnor Consumptive Hospital, and for eight years municipal medical officer and consulting physician to a general hospital in China, where he had unusual facilities for becoming familiar with the effects of opium smoking and eating, has no hesitation in saying that "anyone in the habit of using opium to such an extent would be incapable of self-control, and have his moral senses and powers of judgment deteriorated to a degree rendering him incapable of resisting morbid influences." Dr. H. H. Kane, of Fort Washington, New York, who had written on the effects of "these drugs that enslave," and on the "Hypodermic Injection of Morphia," and was then in charge of a hospital devoted to the treatment of opium smokers and eaters and the like habits, admits that "as regards the question of insanity from the habitual

use of opium or its alkaloids, more especially morphia, but little definite is known. Insane Asylum reports," he adds, "record every year from six to eight cases of insanity attributed to the prolonged use of opiates; and physicians in general practice recognise it as a rare, though well-established, form of insanity. A person with an hereditary tendency to insanity, or with a mind weakened from any combination of circumstances, or from bodily disease, using this drug in large amount for a considerable time, could hardly escape some unsettling of his mental and moral powers. Actual mania, melancholia, and dementia are probably rare, but have undoubtedly occurred from this cause. Of all the forms of the opium habit that by hypodermic injection, as a rule, works the most harm in the shortest time."

Dr. R. M. Miller, of Norwood, who saw Lamson professionally in July, 1881, when his friends were alarmed at his condition, is of opinion "that morphia and atropia, taken in such quantities, would gradually ruin the powers of the nervous system and also the powers of self-control."

Such is the substance of the testimony of the cloud of witnesses proffered in support of the appeal for a scientific investigation into the mental state of Lamson at the time when he committed the act for which he was arraigned. To what does it amount? Even if it goes beyond proof that he was occasionally nervous, disconnected in his ideas, aimlessly untruthful, and with a hobby for the administration of aconitia as a panacea for all diseases, and a loss of vital nerve and energy, there is no evidence to suggest that these eccentricities were dangerous or ever assumed the form of homicidal mania. "If," said a contemporary writer, "Lamson could appreciate the pecuniary benefit he would derive from Percy John's death—and why else should he have selected his victim?—he could realise the wickedness of his act. A symptom of dangerous

madness is that it acts without apparent motive—the immediate circumstances of the murder pointed to the exercise of a crafty deliberation, which, though not in itself inconsistent with homicidal mania, was not as aimless as homicidal mania." Is it not a parallel case to that of Dove, a weak and erratic mind, in that case further weakened and unhinged by drink, in this case by the vicious use of morphia? Are not the words of Baron Bramwell in Dove's case strictly applicable to this? "The rules of law," said that judge, "are that it must be clearly proved that, at the time of committing the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; and if he did know it, that he did not know he was doing wrong." Until the law is altered it is impossible to doubt that the Home Secretary was right, "that he could find in the affidavits and statutory declarations no sufficient grounds for advising an interference with the sentence of the law."

CHAPTER XI.

ACONITE: ACONITIA OR ACONITINE.

Plants: Aconitum napellus—A. ferox. Alkaloids: Aconitia—Pseudaconitia—other bases—Decompositions—Proportions in the plants. Commercial aconitia—German aconitia—English aconitia. Separation—Tests, chemical and physiological. History—Preparations, official and non-official. Physiological effects—Causes of death—Post mortem appearances—Treatment and antidotes—Remarks—Phosphoric acid test—Case referred to by Dr. Stevenson.

THE name aconite is applied to a great number of plants belonging to the natural order Ranunculaceæ. Two species only need be noticed here, *Aconitum napellus* and *A. ferox*. The former is the well-known "monkshood," "wolfsbane," or "blue rocket," a very beautiful but exceedingly poisonous plant, commonly cultivated in English gardens. This very variable and widely diffused species is found in the mountainous districts of the temperate regions of the northern hemisphere: it occurs in the Alps up to an altitude of more than 6,000 feet, in the Pyrenees, and in the mountain ranges of Germany and Austria. It is also met with in Sweden, Denmark, Siberia, and in the mountainous districts on the Pacific coast of North America.

Aconitum ferox, Nepaul aconite —"Bikh"), is a native of the subalpine Himalayas, occurring, together with A. napellus and several other poisonous species, at an elevation of 10,000 to 14,000 feet.

The most recent researches of Dr. C. R. Alder Wright and others have shown that Aconitum napellus chiefly owes its poisonous properties to the base *aconitia*, or *aconitine* (also called *aconitina*), C_{33} H_{43} NO_{12}, a highly active crystallizable alkaloid furnishing readily crystallizable salts. This base constitutes about one-half of the total quantity of alkaloids present in the root, and is considered to be in combination with *aconitic acid*, H_3 C_6 H_3 O_6. There is also present, but in much smaller quantity (about 10 per cent. of the total bases present—Wright), another physiologically active crystallizable alkaloid, *pseudaconitia*, C_{36} H_{49} NO_{12}, similar in many respects to aconitia (especially in its effects upon the animal system), but not so readily yielding crystallizable salts. The roots of A. napellus contain, in addition to aconitia and pseudaconitia, a considerable quantity of a third base, comparatively inert, apparently amorphous, yielding non-crystallizable salts, and containing a higher percentage of carbon than either aconitia or pseudaconitia.

Aconitum ferox contains as its active principle *pseudaconitia*, or *nepaline*, associated with a comparatively small quantity of aconitia: there is present in addition a non-crystallizable alkaloid containing more carbon than either of the other bases, but apparently not identical with the analogous body from A. napellus.

The plants have been stated to contain, besides the bases already named, various other alkaloids, such as "napel-line," "acolyctine," "lycoctonine," &c., but there is no doubt that these substances are merely products of the decomposition of aconitia and pseudaconitia, formed during the process of extraction.

Aconitia and pseudaconitia are very easily decomposed; thus, when heated with water in a sealed tube, the former is converted into benzoic acid and a fresh alkaloid, *aconine*, C_{26} H_{39} NO_{11}, the reaction being represented by the following equation:—

$C_{33}H_{43}NO_{12}$	+	=	+
Aconitia.	H_2O	$C_7H_6O_2$	$C_{26}H_{39}NO_{11}$
	Water.	Benzoic acid.	Aconine.

Pseudaconitia, so treated, yields dimethyl-protocatechuic (or "veratric") acid and a new base, *pseudaconine*, C_{27} H_{41} NO_9, the equation being:—

$C_{36}H_{49}O_{12}$	+	$= C_9H_{10}O_4$	$+ C_{27}H_{41}NO_9$
Pseudaconitia.	H_2O	Dimethyl-protocatechuic acid.	Pseudaconine.
	Water.		

Aconine is doubtless identical with Hübschmann's "napel-line," discovered by him in commercial aconitia, and afterwards proved to be the same as the "acolyctine" which he had previously obtained. Pseudaconine is apparently the base "lycoctonine" of the same chemist.

Commercial aconitia is a mixture of aconitia and pseudaconitia with variable quantities of their decomposition-products, aconine and pseudaconine, and of the amorphous unnamed alkaloids above referred to (Wright and others; Year-Book of Pharmacy, 1877, *et seq.*). In commercial aconitia prepared from Aconitum napellus (*German aconitia*), *aconitia* predominates: *English aconitia* is

chiefly if not entirely prepared from A. ferox, and in it *pseudaconitia* is the prevailing active base.

All parts of the plants (A. napellus and A. ferox) are poisonous, the active principles being contained in the seeds, roots, leaves and flowering tops. The roots are chiefly used for the extraction of the alkaloids, of which the proportions yielded are very variable and depend on the time when the roots are collected. An ounce of the fresh root of A. napellus contains, according to Woodman and Tidy, from ¼ to ¾ of a grain of aconitia, while a pound of the dried root furnishes from 12 to 36 grains, or 0·1 to 0·2 per cent. "The average produce of the root, *collected after flowering* and fresh, is 8·58 grains of aconitia in the pound; of the same dried, 35·72 grains. But if collected before flowering, the yield is only 3·5 grains per pound in the fresh, and 12·13 in the dried root (Herapath). These results are the average of several experiments.... The root of A. ferox contains about three times as much alkaloid as that of the English plant" (Royle's Mat. Med.). According to Wright and Rennie (Year-Book of Pharm., 1880, 458), the percentage of total bases yielded by the root of A. napellus, calculated on the dry substance, amounted to ·07 per cent., equivalent to about ·05 per cent, of total alkaloids in the dry herb. Two-fifths of the total alkaloid consisted of pure crystallized aconitia.

Commercial aconitia or aconitine is generally met with as a white amorphous powder, but is occasionally crystalline. It dissolves in 150 parts of cold and 50 parts of hot water, and is also soluble in alcohol, benzole, and chloroform: it is inodorous, possesses an acrid taste (W. and T., For. Med., p. 392), and is strongly alkaline to test-paper. It generally fuses below 100° C. (60° C., W. and T.), and gives an amorphous sublimate above 150° C. (*pure* aconitia fuses at 183°-184° C.: *pure* pseudaconitia melts at 104°-105° C.): when strongly heated with free access of air, it

burns with a yellow, smoky flame, leaving no residue. Crystallized samples of commercial aconitia are the purest. Amorphous aconitia, and particularly that prepared in Germany, is very impure, being admixed with considerable quantities of comparatively inert bases. The use of such a preparation should be avoided, as being liable to give rise to a false idea as to the proper dose of the pure alkaloid (Royle's Mat. Med., 1876, p. 773). Morson's "English aconitine" (*pseudaconitia*) is much more powerful than the French and German products, which are mostly prepared from A. napellus, and consist mainly of aconitia.[221]

Aconitia and pseudaconitia differ from one another in their molecular weights and melting-points; they also furnish different decomposition-products: aconitia readily furnishes well-crystallized salts, while the salts of pseudaconitia are usually obtained amorphous; and finally, crystallized aconitia is anhydrous, while pseudaconitia crystallizes with one atom of water.

The two bases are similar as regards their physiological action (pseudaconitia is perhaps somewhat more powerfully active than aconitia), and general behaviour with reagents.

The characters and physiological action of commercial aconitia *vary greatly*, as might be expected from the ununiformity of its composition.

SEPARATION AND TESTS.

For the extraction and separation of aconitia from anima matters, the modification of Stas's general method, described on page 5 (Chap. I.), may be employed. The alkaloids of aconite being, as has been already shown, very liable to decomposition, great care must be taken, during the extraction with alcohol and subsequent evaporation of the extracts, that the temperature does

not rise above 50° C.: the use of mineral acids should also be avoided.

Tests.—1. The residue of aconitia or pseudaconitia, obtained on spontaneous evaporation of the anhydrous chloroform solution, will generally be found to be more or less crystalline, when examined under the microscope.

2. The Taste Test.—A minute portion of the residue, either alone or dissolved in a small quantity of water acidulated with acetic acid, should be rubbed with the finger on the lips and gums, or cautiously applied to the tip of the tongue. If aconitia or pseudaconitia be present, a peculiar tingling and numbness will be quickly experienced in and around the parts to which the alkaloidal extract has been applied: salivation, with a desire to expectorate, and a sense of swelling at the back of the throat, are also frequently noticed. The effects, or some of them, usually last from three to six hours, or even longer. *This action is peculiar to aconite; the test, therefore, is of the utmost value, and one which must never be omitted.*

3. The Physiological Test.—Inject a small quantity of the alkaloidal extract, dissolved in a little water acidulated with acetic acid, into the back of a mouse or other small animal. In the event of aconitia being present, characteristic symptoms of aconite poisoning are manifested in a few minutes, and the death of the animal rapidly ensues. Among the chief symptoms observed by Dr. Fleming, in some experiments upon animals, made in 1844, were "weakness of the limbs, staggering, a gradually increasing paralysis of the voluntary muscles, loss or diminution of sight, slowness of pulse, difficulty of breathing, occasional convulsive movements, in two cases opisthotonos, contracted pupils, but often dilating two or three minutes before death, and death by asphyxia." (Woodman and Tidy's For. Med., p. 394). This test is also a very important one.

4. Chemical Tests.—Solutions of salts of aconitia and pseudaconitia are precipitated by most of the general reagents for alkaloids, such as Mayer's reagent, tannic acid, potassium tri-iodide, phosphomolybdic acid, &c. Platinic chloride, picric or carbazotic acid, and auric chloride, however, do *not* give precipitates, except in *concentrated* solutions. Among the special tests for aconitia and pseudaconitia which have been described, the following may be mentioned. (A) With *sulphuric acid*, no change takes place in the cold, but on warming, a pale yellow, deepening into brown, and finally changing into violet-red, is observed. This reaction varies very greatly with different samples of aconitia, and little or no reliance can be placed upon it as a toxicological test. (B) With *sulphuric acid* and a drop of *saturated solution of sugar*, a fine rose-red colour, passing into dingy brown, has been obtained. Experience, however, has not shown this test to be of any especial value. (C) If cautiously heated for ten or fifteen minutes on the water-bath with a few drops of *syrupy phosphoric acid*, aconitia is said to yield a violet or blue colour. This reaction is uncertain and therefore useless: it may be obtained with impure samples, while pure aconitia and pseudaconitia fail to give it. Mr. T. B. Groves (Year-Book of Pharmacy, 1873) says:—"The colour reactions of these alkaloids may be dismissed in a word. There are 'none.' As for the phosphoric acid reaction producing a blue colour, I have never succeeded in obtaining it. It is probably due to some accidental impurity, and I believe Dr. Flückiger has arrived at the same conclusion."

Hence, as there are no reliable, characteristic, and distinctive chemical tests for aconitia, its presence or absence must be judged chiefly from the results of the tests of taste and physiological action on small animals. *A substance, previously proved to be an alkaloid by its yielding precipitates with most of the general reagents for*

alkaloids, and which, when applied to the tongue and injected under the skin of a small animal, produces the effects already described, is absolutely certain to be aconitia.

HISTORY, PREPARATIONS, AND DOSES.

History.—The *Ἀκόνιτον* of the Greeks and Aconitum of the Romans are believed to refer to the genus Aconitum, if not actually to A. napellus. The ancients were well acquainted with the poisonous properties of aconite, which has been widely used as an arrow-poison. It was employed by the ancient Chinese, and is still in requisition among the less civilised hill tribes of India.[222] Something similar was in use among the aborigines of ancient Gaul. In a Welsh MS. of the 13th century, aconite was pointed out as one of the plants which every physician was to grow. The root and the herb are met with in the German pharmaceutical tariff of the 17th century. Störck, of Vienna, introduced aconite into regular practice about the year 1762 (Flückiger and Hanbury; "Pharmacographia," 1879).

Preparations and Medicinal Doses,—Aconite leaves (Aconiti Folia) and root (Aconiti Radix) are officinal in the British Pharmacopœia, and the plants from which they are obtained (A. napellus) are cultivated in Britain (Squire's Companion to the B. P., 1868). The chief preparations are as follows:—

1. *Aconitia*, B. P.—Aconitine. Not for internal use, according to the Pharmacopœia. It is, however, occasionally prescribed in very minute doses ($^{1}/_{400}$ to $^{1}/_{50}$ of a grain by the mouth: not more than $^{1}/_{200}$ of a grain, subcutaneously injected; Royle's Materia Medica). Dr. J. Harley has given $^{1}/_{200}$ of a grain, once a day, in fevers.

2. *Unguentum Aconitiæ*, *B. P.*—Ointment of aconitia. Prepared with lard. Strength, 8 grains of aconitia to the ounce (= 1·66 per cent.). For external application in painful nervous affections, neuralgia, &c.

3. *Linimentum Aconiti*, *B. P.*—Useful for external application in neuralgia or lumbago. May contain about 2 per cent. of aconitia (Blyth).

4. *Extractum Aconiti*, *B. P.*—Prepared from the leaves and flowering tops. Dose, 1 to 2 grains.

5. *Tinctura Aconiti*, *B. P.*—Dose, 5 to 10 minims, twice or thrice a day (Squire); 5 to 15 minims, and only to be gradually if at all increased (Royle); never to exceed 5 minims (Farquharson's Therapeutics).[223]

6. *Fleming's Tincture of Aconite* is not officinal; it is nearly four times stronger than the B. P. tincture, and must on no account be given in the above doses (Royle).

7. *Liston's Strong Tincture.*—Not officinal.

8. *Aconiti Succus.*—The expressed juice. Not officinal. Dose, 15 to 20 minims (Squire's Comp. to the B. P.).

9. *Extractum Aconiti Rad.*—Not officinal. Prepared with alcohol. Dose, half a grain.

Fatal Dose of Aconitia.—Smallest: in one case $^{1}/_{50}$ of a grain nearly proved fatal (Pereira). The tenth and even twentieth of a grain are believed to have caused death (Headland; Herapath). The average quantity for an adult is probably between $^{1}/_{16}$ and $^{1}/_{20}$ of a grain. One drachm of the root, four grains of the alcoholic extract, and one drachm of the tincture have proved fatal.[224] Numerous well-authenticated cases are on record of aconite root being scraped and eaten at table, in mistake for horseradish, with very serious and even fatal results.[225] (See Guy and Ferrier's For. Med., p. 617.)

Fatal Period.—The shortest time in which death has been known to occur is 1¼ hour: the longest, 20 hours: average, less than 4 hours (Guy and Ferrier). A case is mentioned in Woodman and Tidy's Forensic Medicine, however, in which death occurred in 20 *minutes*. "The symptoms usually make their appearance in from a few minutes to one or two hours; whilst death usually takes place within three or four hours" (W. and T., p. 393).

PHYSIOLOGICAL EFFECTS.

Aconite produces, locally applied, a tingling sensation, followed by numbness, and the earliest symptom of poisoning by aconite, when any one of its preparations has been taken by the mouth, is tingling, followed by numbness and anæsthesia of the lips and throat, afterwards becoming general. Vomiting occurs frequently, but not universally: purging is not nearly so frequent (W. and T.). The intellectual faculties are usually unaffected, but in some cases there is stupor. Aconite paralyses both the reflex and motor activity of the spinal cord, hence there is an almost total loss of muscular power. The respiratory centre is eventually paralysed, so that death may result from suffocation (Farquharson). The heart's action becomes feeble and irregular; its rapidity is first diminished, then increased. The face is pale, and the body bathed in a clammy sweat: the pupils "are at first contracted, and afterwards dilated shortly before death." The respiration becomes slower, then irregular, and death generally results from its cessation (*asphyxia*).

In cases of poisoning by aconite, death may be caused by (1) *asphyxia*, (2) *shock*, or (3) *syncope*.

The following symptoms were noted in the case of a cat, to which one-tenth of a grain of Morson's English aconitia (= pseudaconitia, or nepaline) was administered:—stertorous and

difficult breathing, staggering motions, convulsions (always contracting, never stretching like strychnia), vomiting, foaming at the mouth, moans and spasmodic cries, violent struggles for breath; the body fell over on one side, the limbs were stretched forward and worked spasmodically, but never stiffened. Attacks intermittent, with peaceful intervals. Involuntary defecation; retching (the stomach had already emptied itself), prolonged low moans, gasps for breath, abdominal rumblings, insensibility for two hours with occasional twitching, moans and cries. Eyes wide open, *pupils not contracted*. Finally, after 2½ hours, a few slight struggles, a convulsive gasp, and death. Stiffening very slow. Tongue protruded beyond the teeth.

Twelve hours after death, the rigidity was very strong. A post-mortem examination was then made, with the following results. Pupils dilated. Intestines and other organs normal, not congested: lungs collapsed and congested: heart very much venously congested. Blood not more fluid than usual. Larynx filled with frothy mucus. Brain congested.

On analysis of the stomach and other organs an alkaloidal extract was obtained, which, when submitted to the taste test, produced all the effects characteristic of aconitia. It is worthy of remark that the colour-tests completely failed.

Treatment and antidotes.—"Emetics, stimulants internal and external" (Squire's Comp. B. P.). No chemical antidote is known: animal charcoal has been recommended, but its efficacy is doubtful. A mustard emetic should be applied, followed by the stomach-pump. "In the latter stages, depletion from a jugular vein to relieve the distension of the right heart, accompanied by the most persevering efforts to promote the expansion of the chest." Gentle magneto-electric currents down the back of the neck and around the margin of the ribs, to excite contractions of the

diaphragm, accompanied by rhythmical abductions of the upper extremities, should be employed. If there is yet a capability of swallowing, brandy and ammonia should be given (Royle's Mat. Med.).

Remarks.

Pure aconitia is perhaps the most deadly poison with which we are at present acquainted, and all the preparations of aconite are excessively poisonous. Unless employed with extreme caution they are very dangerous, and should on no account be used, even for external application, except with the advice of, or by a medical man.[226]

The urgent necessity for an alteration in the law at present relating to the sale of poisons, and for the introduction of a clause placing some restrictions on the sale of patent medicines containing poisons, is strikingly shown by the fact that such preparations as "Neuraline" are now sold without any restriction whatever. Indeed, as the law at present stands, the most virulent poisons, if contained in, or sold as patent medicines, can be obtained by any ordinary person with less difficulty than the same poisons can be purchased, under their own proper names, by a medical man. Neuraline, a patent medicine containing a preparation of aconite, was brought rather prominently forward, in 1872, in connection with the death of the Hon. G. C. Vernon, the question arising as to whether the too frequent use of neuraline by the deceased, for pains in his head, had been the cause of death.[227]

The phosphoric acid test for aconitia, referred to by Mr. Montagu Williams during the trial of Dr. Lamson, is described in Professor Flückiger's work ("Pharmaceutische Chemie"; Berlin, 1879); but it is at the same time mentioned that crystallized aconitia

gives only an extremely faint reaction, and crystallized nitrate of aconitia none at all.

It has been already pointed out (p. 573) that this test is one which cannot be relied on, and that the violet colour is believed to be due to impurities present rather than to aconitia itself.

The internal administration of aconitia in very small doses is recommended, in cases of dysentery and typhoid fever, by a writer in the *Journal of Medicine and Dosimetric Therapeutics, according to the method of Dr. Ad. Burggraeve*, a publication edited by Dr. T. L. Phipson. Dr. Burggraeve's method (or "dosimetry," as it is called) is in several respects similar to homœopathy, and the journal in question cannot be regarded as a generally accepted authority.

In his speech for the defence, Mr. Montagu Williams referred to the supposed existence of cadaveric alkaloids or ptomaines, and to the absence of special chemical tests for aconitia. With reference to the ptomaines, see Chap. 1, p. 12. The objection, that there is no characteristic chemical test for aconitia, is to a great extent deprived of its force when one remembers that aconitia can be proved to be an alkaloid by its deportment with the general alkaloidal re-agents; that the taste test alone will distinguish it from all other alkaloids; and that it exerts a powerful and distinctive action on small animals, and ultimately destroys them.

It must not be forgotten that the remark of Lord Coleridge's, quoted by Mr. Montagu Williams, is nothing more than an expression of personal opinion, by an eminent *lawyer* on a *purely scientific* subject; valuable, no doubt, but not necessarily infallible.

The statement of Messrs. Allen & Hanbury's assistant, that aconitia is yellowish-white (p. 544), does not hold good of all samples: the colour of the alkaloids varies with their degree of purity, and pure aconitia is not less white than pure atropia.

Full details of the case of poisoning by aconitia, referred to by Dr. Stevenson (p. 534), are to be found in *Schmidt's Jahrbücher der In-und Ausländischen gesammten Medicin*, edited by Dr. Adolf Winter, vol. 189, p. 122: the case was originally communicated by T. Haakma Tresling to a Dutch journal (*Weekbl. van het Nederl. Tijdschr. voor Geneesk*, 16, 1880). The following is a short account of this case.

A patient, for whom medicine containing aconitia nitrate (to be taken in small and repeated doses) had been prescribed by a physician, Dr. M., experienced soon after the first and second doses a burning sensation in the throat, followed by vomiting and, later on, by difficulty of respiration: the skin was icy cold to the touch, although internally there was a sensation of burning throughout the body. With the object of proving that these effects were not attributable to the medicine, Dr. M., at four p.m. on March 16th, 1880, took a dose of the mixture, containing rather more than $^{1}/_{16}$ grain of aconitia nitrate. The first symptoms of poisoning appeared in about an hour and a half; and, about four hours after he had taken the poison, Dr. M. was found to be pallid, with a cold skin, contracted pupils, small and irregular but not accelerated pulse, swollen tongue, headache, shivering fits, and a sensation of burning in the mouth: there was also pain extending from the throat to the lower part of the stomach. Suddenly the power of vision became extinct, simultaneously with a great dilation of the pupils: sight shortly afterwards returned, the pupils at the same time again contracting. Vomiting was induced by tickling the throat; the ejected matter was thick, red-coloured, and contained the remains of food previously consumed: vomiting subsequently recurred spontaneously. The first convulsions occurred eight hours and forty minutes after the dose had been taken; respiration became more difficult, and Dr. M. complained of humming in the ears, and

deafness, first in one ear and then in the other. Ether was now subcutaneously injected: dilation of pupils, with loss of vision, again followed, being succeeded by vomiting, and violent and long-continued convulsions. In eight hours and fifty-three minutes extraordinarily violent vomiting set in, and was followed by a succession of violent convulsions. Dr. M. could not again be restored to consciousness, the pupils were dilated and remained unaffected by the light, and respiration was slow and laborious. Notwithstanding the employment of electricity, breathing became slower, the beating of the heart ceased to be audible, and death occurred in nine hours from the time at which the poison was taken.

On a *post-mortem* examination being made, it was found that the surface-tissues of the body were very pale and contained little blood, while the internal organs were much congested. The intestinal congestion increased towards the stomach, and diminished towards the large intestine. The colon, rectum, and bladder were very pale and bloodless. The latter contained about 70 grammes (= 2¼ fl. oz.) of urine. The liver and spleen were enlarged, the kidneys small; all much congested. Defecation had not taken place, though some urine had been passed. The lungs did not fill the cavity of the chest; they contained fresh infiltrations and some small cavities: adhesion, congestion, and, in the lower portions, numerous emphysematous patches. Much fat was deposited on the right side of the heart, which contained thin blood. Brain congested.

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THE END.

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FOOTNOTES:

[1] Christison on Poisons, 1829, p. 491.

[2] For instance, strychnia or strychnine, morphia or morphine, aconitia or aconitine, are the same substances.

[3] 39 & 40 Vict. cap. 77, sec. 12.

[4] Potassio-mercuric iodide, made by dissolving 50 grammes of potassium iodide and 13·5 grammes of mercuric chloride, in a litre of distilled water. The reagent is added till no further precipitate is produced, which is known by filtering a small portion at intervals and testing with the potassio-mercuric iodide to see if finished. The strength of the solution must be, as nearly as possible, 1 part of the alkaloid in 200, so that an *approximate* idea must first be obtained by weighing or otherwise. As the quantity is in poison cases generally too small to weigh, the approximate idea must be gathered by comparing the intensity of the tests with those furnished by known amounts of the alkaloid. Each cubic centimetre of Mayer's solution precipitates ·02 gramme of morphia, ·0268 of aconitia, and ·0167 of strychnia. For further details see Blyth's Practical Chemistry, 1879, p. 289.

[5] Rennard (Chem. Centr. 1876, 456) asserts that acetic ether is preferable to amylic alcohol, as the latter dissolves more colouring matter.

[6] To recover the alkaloid, dissolve the precipitate in sufficient sulphurous acid solution, and evaporate: the sulphate is left (Wagner).

[7] If the picrate precipitate be dissolved in dilute potash, and the solution shaken with ether-chloroform, the latter, on evaporation, leaves the alkaloid again in a free state.

[8] At the inquest this witness said that she rinsed out one of the glasses on the table to give the deceased the water.

[9] Evidence of Katherine White, barmaid; W. Marton, gardener; J. Kendal, waiter at the Jerusalem Coffee-house; H. Crapp, clerk G. W. Railway, Slough; G. Lewis, postboy at Salthill; R. Roberts, innkeeper, Slough; C. Wibberts, guard of G. W. R.; Weymouth, a plumber; E. J. Howell, superintendent of Slough station; Rev. E. T. Champneys T. Holman, constable, of Farnham-Royal.

[10] At the inquest, this witness, speaking of the results of the chemical analysis, said:—"It may not have been prussic acid, but in conjunction with some salt nearly allied to it. I do not think it was administered by itself but in some liquid. The salts of prussic acid have not the same pungent peculiar odour as prussic acid itself. They would produce death, but he could not say how quickly." Mr. Norblad, on the same occasion, suggested that one of the salts into the composition of which prussic acid enters, might have been given; "that cyanide of potassium, the salt to which he referred, would cause death in from two seconds to a quarter of an hour, according to the amount given." At the time of the

inquest it was not known that the prisoner had bought of Thomas, Scheele's solution of prussic acid. On the properties of the various kinds of these salts, see Mr. Stewart's remarks, pp. 73-77.

[11] Doubtful. C. G. S.

[12] On the mooted question of "odour," see Mr. Stewart's experiments and remarks on smell-blindness, pp. 63-66.

[13] In giving the examination-in-chief of this witness, I have, through the kindness of Mr. C. Platt, the clerk of assize of the old Norfolk circuit, been able to correct the cotemporary reports in the *Times* and the *Bucks Herald*by the original report of his experiments made by Mr. Cooper to the prosecution. Mr. Cooper was unable to be at the inquest, and the results of such of these experiments as Messrs. Champneys and Norblad had witnessed were then alone given in evidence, excluding those where the odour of prussic acid was smelt by Mr. Cooper and his sons, and where the quantity in the portion of the contents of the stomach submitted to analysation was determined.

[14] See the table of Mr. Stewart's experiments on bitter and sweet apples, and other fruits, p. 59.

[15] The reporter is wrong here; see cross-examination of Mr. Champneys, p. 24, in which he says that neither Mr. Norblad nor Mr. Pickering smelt the odour on the first opening of the body.

[16] Sweet almonds would not affect the production of prussic acid from the apple-pips, except as tending to produce emulsine.

[17] See note at p. 38 as to Pickering's evidence on this point.

[18] See p. 58.

[19] Judge Therry's Reminiscences of 30 Years' Residence in N. S. Wales. 2nd edition, p. 107. I have altered the conclusion of the Judge's remarks from information supplied to me by a relative well acquainted with Sydney in those days.

[20] Animal matter contains the elements carbon, hydrogen, nitrogen, and oxygen: the carbon and nitrogen unite with the alkaline metal to form a cyanide, or a ferrocyanide if iron also be present.

[21] Case of Sir T. Boughton, 1781.

[22] The potash and ferrous salt form potassium sulphate and ferrous hydroxide, the latter combines with cyanogen and more potash to form potassium ferro-cyanide, the ferric chloride with the potash produces ferric hydroxide and potassium chloride; when the hydrochloric acid is added, it dissolves up the excess of ferrous and ferric hydroxides, forming ferrous and ferric chlorides, and the ferric chloride unites with the potassium ferrocyanide to form ferric ferrocyanide or Prussian blue.

[23] Professor Carey Lea (American Journal of Science, 3, ix., 121) prefers to mix a weak solution of ammonio-ferrous sulphate with a little ammonio-ferric citrate, to acidify with hydrochloric acid, then to place two or three drops of this on a white plate, and to add a few drops of the suspected solution. A blue cloudiness indicates HCN. This method, he says, is capable of detecting $^{1}/_{5000}$ of a grain of HCN. But I do not think it more delicate than the

old method if properly performed, and it does not so easily admit of comparative experiment as to quantity.

[24] Professor Toynbee met his death by incautious use in this way.

[25] Death from suffocation.

[26] 19 Vict. c. 16.

[27] The authorities for the following report are (1) Report of Trial of William Palmer. J. Gilbert, Lond., 1856. (2) Reprint of *Times* Report of the Trial. Ward and Lock, Lond., 1856; and the Life and Career of William Palmer, by the same publishers. (3) Verbatim Report of the Trial, from shorthand notes of Mr. Angelo Bennett. J. Allen, Lond., 1856. (4) Letter to Lord Chief Justice Campbell by the Rev. Thomas Palmer, brother to the prisoner, with appendix of documents, including memorial from his solicitor to Sir G. Grey, letters and newspaper criticisms. Taylor, Lond., 1856. I have also availed myself of Mr. Justice Stephens' summary of the trial and his comments on the evidence, in the appendix to the third volume of his History of the Criminal Law of England.

[28] "From his childhood upward," says his brother, "no man was gentler of heart—his charity was inexhaustible; his kindliness to all who were in distress well known. To him the wanderer resorted in his afflictions; by him the poor and houseless were fed and comforted. I write in the face of the public, with my character as a gentleman and a clergyman at stake, and I avow only facts that cannot be denied. His liberality was a proverb; his frank sincerity, his courage, his faithful loyalty to his friends, his temperance, his performance of the duties of religion, his social relations in the character of father, husband, and

son, won for him the love and confidence of all who approached him; and though it is true that in one fatal instance he violated the laws of his country, and subjected himself to a severe penalty for an infringement of its commercial code, yet, this excepted, his was in all respects the very opposite of that cool, calculating, cowardly, crafty temper, which is essential to the poisoner, and we know cannot co-exist with those qualities which my brother possessed from his earliest years down even to the day when your lordship sent him to his death." Letter to Lord Campbell, pp. 4, 5.

[29] The excuse put forward for this was his wish to raise money for Bate. The prisoner's brother complains, in his letter to Lord Campbell, pp. 29, 30, and with justice, that though the evidence of the negotiation for this insurance was afterwards excluded as irrelevant, the statement was allowed to be made by the Attorney-General without a comment, which Lord Campbell must have known would prejudice the case against the prisoner. This exclusion of the evidence of a statement which has been allowed to pass unchallenged is nearly as useless as the formal warning not to pay any attention to some evidence that has been wrongly admitted—the prejudice has been raised, and the mischief already done. But for the result of this trial, he would have been tried for the murder of his wife, whose body had been exhumed and analysed.

[30] As the probability of Cook's state of health predisposing him to epileptic attacks was made part of the prisoner's case, the evidence of his regular medical attendant is subjoined:—

Dr. Henry Savage, physician, of 7, Gloucester-place, *examined by the Attorney-General*.—I knew John Parsons Cook. He had been in the habit of consulting me professionally during the last four years. He was a man

not of robust constitution; but his general health was good. He came to me in May, 1855, but I saw him about November of the year before, and early in the spring of 1855. In the spring of 1855 the old affair—indigestion—was one cause of his visiting me, and he had some spots upon his body, about which he was uneasy. He had also two shallow ulcers on his tongue, which corresponded with two bad teeth. He said that he had been under a mild mercurial course, and he imagined that those spots were very syphilitic. I thought they were not, and I recommended the discontinuance of mercury. I gave him quinine as a tonic, and an aperient composed of cream of tartar, magnesia, and sulphur. I never at any time gave him antimony. Under the treatment which I prescribed the sores gradually disappeared, and they were quite well by the end of May. I saw him, however, frequently in June, as he still felt some little anxiety about the accuracy of my opinion. If any little spot made its appearance he came to me, and I also was anxious on the subject, as my opinion differed from that of another medical man in London. Every time he came to me I examined him carefully. There were no indications of a syphilitic character about the sores, and there was no ulceration of the throat, but one of the tonsils was slightly enlarged and tender. I saw him last alive, and carefully examined him, either on the 3rd or 5th of November. There was in my judgment no venereal taint about him at the time.

Cross-examined by Mr. Serjeant Shee.—I do not think that the deceased was fond of taking mercury before I advised him against it; but he was timid on the subject of his throat, and was apt to take the advice of anyone. No; I don’t think that he would take quack medicines. I don’t think he was so foolish as that.

Mr. Stevens, his stepfather, who saw him at the Euston Station on the 5th of November, when starting for

Rugeley, said, “he looked better than he had seen him for a long time. ‘You don’t look,’ he said to him, ‘like an invalid’; and Cook, striking his chest, said he was quite well, and should be all right if he was happy.” In point of appearance he was not a robust man; his complexion was pale, and he had sore throat in the previous winter for some months.

For the defence, *Foster*, a farmer, said he considered him of a weak constitution, because he had bilious headaches, the last a year and a half back, but admitted that he hunted three days a week.

John Sargeant, a betting man, who met him at the races which he attended, said:—I had an opportunity of seeing the state of his throat before he died. I was with him at the Liverpool meeting the week previous to the Shrewsbury races; we slept in adjoining rooms. One morning he called me into his room and drew my attention to his throat, which was much inflamed. There were ulcers upon it, and the tongue was so swollen, that I said I was surprised at the state of his mouth. He said he had been in that state for weeks and months, “And now,” he said, “I don’t take notice of it.” He had shown me his throat before this at almost every meeting we attended. He took some gingerbread and cayenne on the platform at Liverpool, and told me afterwards it nearly killed him. (It came out afterwards that the cayenne nut was a trick nut.) The witness had also known Palmer supply Cook with blackwash before his death. He had never seen Cook’s throat dressed by anybody, and was surprised to see him eat and drink so well. He saw the blackwash applied (externally) at the Warwick Spring Meeting in 1855. With reference to another point, this witness spoke to Cook being unable to pay him more than £10 out of £25 at the Liverpool meeting, and promising the balance at Shrewsbury.

[31] On the part of the prisoner, a saddler at Rugeley, of the name of *Myalt*, whom Fisher spoke of as being in the room with Cook and Palmer, was called to give an entirely different account of this suspicious incident. “I saw Cook,” said this witness, “in Palmer’s company on Wednesday, about twelve o’clock. I had not dined with Palmer, but at my house at Rugeley, and got back to Shrewsbury between eight and nine, and went to Palmer’s room to see if he was in. The first person I saw was Cook at the room door, who said, ‘What brought you here?’ I told him, ‘to see how they were getting on.’ Palmer, I found, had gone out, and I went into the town, and was away about an hour. “When I returned Palmer was not there, so I waited in his room till he returned, about a couple of hours. He came in with Cook, who was the worse for liquor—not very drunk—rather. They asked me to take some brandy and water; it was produced directly afterwards—the brandy in a decanter, the water might be on the table. I did not leave the room at all, from the time Cook and Palmer came in till they all went to bed. I did not see anything put into the brandy and water; nothing could be without my seeing it. Palmer and I left together, and slept that night in the same room. Cook said something about its being bad. He drank part of it off, and then gave it to some one to taste. He proposed to have some more, but Palmer said he would not unless Cook drank his out. Nothing more happened that night. Next morning Palmer asked me to call Cook. I went into his room, and he told me how ill he had been in the night, and obliged to send for a doctor. He asked me what had been put into the brandy and water, and I told him I did not know of anything. He asked me to send for the doctor—Palmer. I did so. The witness did not remember Mrs. Brooks coming, or Palmer being called out of the room. He swore that Cook did not say ‘it burns my throat.’ Did not remember Fisher saying that it was no

good his tasting it, as there was nothing in the glass. He told Mr. Gardner and Mr. Stevens before the inquest what he now said, but they had not subpœnaed him.

[32] "Lord Campbell did not even read this portion of the witness's evidence to the jury. Whatever its value might be, and it had some in the prisoner's favour, they were not reminded of it, and can hardly be expected to have remembered it after a twelve days' trial." Letter to Lord Campbell, p. 24.

[33] Some questions on this point were put to Mr. Gardner, the solicitor for the prosecution, but were stopped as too general.

[34] Mills, in her cross-examination, said that Palmer "had on a plaid dressing-gown, but could not say whether he had on a cap or not."

[35] Lord Campbell had omitted from his notes this contradiction of the statement of Mills and others that the body was arched, and when Mr. Serjeant Shee called his attention to it, made no comment on it to the jury.—*Evidence of Mary Keeling.*

[36] But see the evidence of Mr. Partridge, Mr. Rogers, and Mr. Pemberton as to the state of the exhumed corpse, and the probable effect of the granules.—*Evidence of scientific witnesses for the defence*, *post*, pp. 170-4.

[37] A *Mr. Devonshire*, a late assistant of Dr. Monckton's, who was present at the *post-mortem*, was also called to confirm the previous witnesses. He also proved the extraction of the liver, kidneys, spleen, and some blood, and their safe delivery through a clerk (Boycott) to the attorneys at Rugeley to Dr. Taylor for analysis.

[38] Mr. Curling agreed with Dr. Watson, *Principles and Practice of Physic*, in the cases of "the sticking of a fish bone in the fauces, the stroke of a whip-lash under the eye leaving the skin unbroken, the cutting of a corn, the biting of the finger by a sparrow, the blow of a stick on the neck, the insertion of a seton, the extraction of a tooth, the injection of a hydrocele, and the operation of cupping," but not with "the percussion of the air caused by a musket-shot." He also explained that the supposed case of tetanus produced at once where a negro servant cut his thumb with a dish, rested on the authority of an old cyclopædia, and that his judgment was more mature and his experience greater than when, twenty-two years of age, he wrote the treatise in which he had quoted this case. (It was only in Rees' Cyclopædia.)

[39] *Dr. Todd*, in reply to Lord Campbell, defined idiopathic tetanus to be "that form of the disease which is produced without any external wound, apparently from internal causes—from a constitutional cause."

[40] Evidence of *Dr. Robert Corbett*, physician, of Glasgow, at the time medical clerk at the Glasgow Infirmary; *Dr. Watson*, surgeon to the infirmary; *Dr. J. Patterson*, of the infirmary laboratory; and *Mary Kelly*, patient.

[41] This is a test for brucia and not for strychnia. See p. 285.

[42] See *Ptomaine's* or *Cadaveric Poisons*. Chemical introduction, *ante*, p. 12, and Chapter V., p. 278.

[43] "Mr. Mayhew called on me with another gentleman with an introduction from Professor Faraday. I received him as I would Professor Faraday, and entered into conversation with him about these cases. He represented,

as I understood, that he was connected with some insurance company, and wished for information about a number of cases of poisoning that had occurred during many years. After we had conversed about an hour, he asked if there was any objection to the publication of the details. Still believing him to be connected with an insurance office, I replied that, so far as the correction of error was concerned, I had no objection to anything appearing. On that evening he went away without telling me he was connected with the *Illustrated Times*, or any other paper. It was not until Thursday that I knew that. It was the greatest deception that ever was practised on a scientific man."—*Dr. Taylor's evidence.* In his charge, Lord Campbell said, "I must say I think it would have been better if Dr. Taylor, trusting to the credit he had before acquired, had taken no notice of what had been said; but it is for you to say, whether, he having been misrepresented, and having written this letter to the *Lancet* to set himself right, materially detracted from the credit which would otherwise be given to his evidence." It was these statements in the *Illustrated Times*, copied into other papers, that led Dove to resort to strychnia to poison his wife.—*See his case, post.*

[44] On the value of experiments on animals, see Chemical Introduction, *ante*, p. 6.

[45] "A mixture of sugar and bile, or a substance called pyroxanthine—the product of a distillation of wood—will produce the purple and red tint."—*Taylor's evidence.* But see Chapter V.

[46] *Curarine.* See Chapter V.

[47] On this point see Chapter V.

[48] This suggestion of negligence on the part of the operator, Mr. Devonshire, and the comments on it by the Attorney-General, having subjected him to several attacks both in the Central Criminal Court and in the *papers*, he gave the following explanation in a letter to the *Morning News*, dated May 29:—

"It was agreed in consultation at Mr. Freer's, at Rugeley, that the stomach and intestines should be opened, and, with their contents, enclosed in a jar. It was further agreed that the spinal cord should not be opened if its upper portion and the brain should prove to be in a healthy condition. At the examination I was assisted by Mr. Newton, a young gentleman who had, unfortunately, never witnessed a *post-mortem*. He punctured the stomach, and about a teaspoonful of its contents was lost. Afterwards, when Dr. Harland and I were examining the lining membrane, Mr. Newton suddenly turned the stomach inside out; an additional half teaspoonful was thus lost, the remainder falling into the jar. This accounts for Dr. Taylor finding the mucous membrane in contact with the intestines. With the exception of this casual puncture I maintain the *post-mortem* was skilfully performed."—*Letter to Lord Campbell.* Appendix, p. xxiv.

[49] The extract from Orfila is: "In a dog who for four entire months had taken no emetic, having taken three grammes in ten days (that is, about forty-five grains), but had not taken any for four months, the metal was found accumulated in the bones; the liver also contained a great deal, and the other tissues but little."

[50] The letter referred mainly to the case of the prisoner's wife. Mr. Serjeant Shee wished only the concluding paragraph to he read, but the Attorney-General insisted on the whole. It was dated only Jan., published in the

Lancet of February 2, was headed "*Audi alteram partem*," and was as follows:—

"SIR,—I have great pleasure in replying to the inquiries in your leading article of January 19. (1) I stated that I had never known antimonial powder, when given in medicinal doses (*i.e.*, from five to eight grains a dose) to produce vomiting or purging. I am aware that experience differs on this point—that some have found the substance inert, and others very active. From some recent experiments on antimonial preparations, I think it not unlikely that the powder sometimes contains arseniate of lime. Dr. Pereira mentions that in the case of a dose of half a teaspoonful it on one occasion produced violent vomiting, purging, and sweating; while in still larger doses (120 grains to a dose), prescribed by Dr. Elliotson, it occasioned in some instances only nausea. I have never met with any case in which serious symptoms could be referred to its operation; and in the case of Ann Palmer (the wife) this medical preparation would not account for the antimony found in her body. (2) My statement as to the cause of death was that the deceased died from the effects of tartar emetic, and from no other cause; that is the opinion which Dr. Rees and myself formed from the result of our examination, and from the description under which the deceased laboured during the eight days before her death. It is an opinion now equally shared by the two medical attendants of the deceased. We are quite prepared to maintain this at the trial." The letter then went on to describe the state of Ann Palmer's body, though not exhumed until eighteen months after death, and contrasted it with that of the brother, and concluded with the passage given in the text. Its effect could not be but prejudicial to the prisoner.

[51] In this case, stated by Dr. Christison, the patient had been affected with some complaint for four weeks, and

began to take strychnia; in three hours there was stupor and loss of speech, and at length violent tetanic convulsions, and death in three hours and three-quarters.

[52] Probably a mistake of the reporter, as I cannot find any clue to the meaning of this word.—C. G. S.

[53] An instance of the indestructibility of strychnia was communicated by Mr. F. Crace Calvert, F.C.S., to the London journals subsequently to the trial. In 1849 several hounds of a pack in Cheshire were poisoned and one brought to his laboratory, from which, by the usual process, strychnia was obtained. "As the master of the hounds attached great importance to the case, he requested me," writes Mr. Calvert, "to obtain a sufficient amount of poison from the stomachs of some other of the dead dogs, that I might not only be convinced of the presence of the poison, but might also bring some of the extracted strychnia into court. To enable me to do so, several dogs were disinterred and brought to my laboratory, and the space of time from the date of death to that when I submitted them to analysis was at least three weeks, and I still perfectly succeeded in extracting strychnia from their stomachs and exhibiting it in the state of crystallised hydrochlorate."—*Appendix to Letter to Lord Campbell*, p. xxix. Another correspondent to the *Times* called attention to the practice in Mexico of killing a worn-out mule with *nux vomica*, leaving its carcase to be eaten by the wolves, which are thus killed, and that the Turkey buzzards who feed on the dead wolves also die of the poison.—*Ib.* p. xxv.

[54] See Chapter V.

[55] An error. See Chapter V.

[56] The table of cases of poisoning by strychnia, with their symptoms and results of the *post-mortem*, given by Mr. Woodman and Dr. Tidy, shows that the state of the heart varies. In six cases it was contracted and empty, in some others the right side only was empty, and in one both sides were filled with blood.—*Handy Book of Forensic Medicine and Toxicology.* London. 1877.

[57] In a letter to the *Times* of June 4, Mr. Herapath says: "I learnt on my return here (Bristol) that Mr. Yates had visited Bristol with an anonymous letter in his hand (since acknowledged to have been written by the magistrates' clerk, Keynsham), and questioned several gentlemen whom I am in the habit of meeting, as to whether they heard me say 'that I had no doubt strychnia was in Cook's body, but that Dr. Taylor could not find it,' and 'that a word from me would hang the man.' They all said they had heard me speak of the case, but not in such terms. The mayor said that 'he could not say the exact terms, but the impression on his mind was, that I thought strychnia was there, but that Dr. Taylor could not find it.'"—*Letter to Lord Campbell*, Appendix, p. xxxi.

[58] "The controversy," as to the non-discovery of strychnia by Dr. Taylor, says Mr. Justice Stephen, "was foreign to the merits of the case, inasmuch as the evidence given for the prisoner tended to prove, not that there was no strychnia in Cook's body, but that Dr. Taylor ought to have found it if it was there. In other words it was relevant, not so much to the guilt or innocence of the prisoner, as to whether Mr. Herapath and Dr. Nunneley were better analytical chemists than Dr. Taylor. The evidence could not be even considered relevant to the shaking of Dr. Taylor's credit, for no part of the case rested on his evidence except the discovery of the antimony, as to which he was corroborated by Mr.

Brande, and not contradicted by the prisoner's witnesses." (One does not see how this could have been accomplished, as they were not present at the analysis.) "His opinion as to the nature of Cook's symptoms was shared by many other medical witnesses of the highest eminence, whose credit was altogether unimpeached. The prisoner's counsel was placed in a curious difficulty by this state of the question. They had to attack, and did attack Dr. Taylor's credit vigorously, for the purpose of rebutting his conclusion that Cook might have been poisoned by strychnia: yet they had to maintain his credit as a skilful analyst. For if they destroyed it, the fact that he did not discover strychnia went for nothing. This dilemma was fatal. To admit his skill was to admit their client's guilt; to deny it, was to destroy the value of nearly all their own evidence. The only possible way was to admit his skill and deny his good faith; but this too was useless for the reason just assigned."—*History of Criminal Law in England.* Vol. III., 418.

[59] Roberts, Theory and Practice of Medicine, 1877, Vol. II., 23, gives the following symptoms of angina pectoris: —"Abrupt suddenness—intense præcordial pain—oppression and constriction of the chest—suffocation, no cyanosis—tenderness of chest rare—face pale, sweat—expression of intense anxiety—pulse mostly feeble, flickering occasionally—vomiting and eructation. Conscious at first, but, if prolonged, may be syncope. Spasmodic movements, and even general convulsions may be observed. Usually several brief paroxysms with intermissions. Tendency to rave under slight exciting causes." Dr. Bristow, Theory and Practice of Medicine, agrees with this, and adds, "After death various lesions—most important *the calcification of the coronary vessels* —fatty and other degenerations of the muscular tissue of the heart. In other cases the heart perfectly healthy."

[60] In the *Appendix*, p. xxi., to the *letter to Lord Campbell*, is a letter from a Mr. Lacy, a hatter of Nottingham, dated June 2, to the *Morning News*, giving a very unfavourable account of the earlier years of this witness. He appears to have got out of the way after the trial, and to have evaded the search made for him by the prisoner's friends.

[61] In *cross-examination*, after admitting that he attested the proposal to the *Prince of Wales* office for £13,000 on Walter Palmer's life, and saying that he did not recollect attesting another proposal on the same life to the *Universal*, the proposal to that office was put into his hand, and he was asked if the "Jeremiah Smith" attesting it was his signature. "It is very like my signature," he said, "but I have a doubt of it." (After a pause) "I believe it is not my handwriting; I swear it is not. I think it a very good imitation. I did not receive the document from Pratt; I might from W. Palmer. I don't recollect." (After some hesitation) "No doubt he did give it to me. I got it before it was signed."

Attorney-General.—"Do you now say it is not your signature?"

Witness.—"I do." (He then admitted getting appointed agent to the Midland County office in order to get a policy for £10,000 on Bate's life.)

Attorney-General.—"I will refresh your memory with regard to these proposals. Look at that, and tell me whether it is your handwriting?"

Witness.—"Yes."

Attorney-General.—"Now, refreshing your memory with that document, were you applied to in December, 1854, to attest a proposal of Walter Palmer to the *Solicitors' and General* office for £13,000?"

Witness.—"That is my signature, certainly."

Attorney-General repeats the question.

Witness.—"I don't recollect."

Attorney-General.—"What, with your signature staring you in the face?"

Witness.—"I might have been a witness to it. I am speaking from memory."

Attorney-General.—"Have you any doubt, after looking at that document?"

Witness.—"I have no doubt."

Attorney-General.—"At last we have got at it from you. Now look to that document, and see if another month afterwards—in January, 1855—you were asked to attest another proposal for £13,000 to the *Prince of Wales* office?"

Witness (hesitating).—"That is my signature. (A pause.) Perhaps if I saw the paper I could answer."

Attorney-General.—"There is the paper."

Witness (after a pause).—"I might have signed it in blank. I have some doubt whether I did not sign some of these in blank. The body of the papers is in the handwriting of William Palmer."

Attorney-General.—"Upon your oath, don't you believe that William Palmer applied to you to attest the proposal on his brother's life for £13,000?"

Witness.—"He did apply to me."

Attorney-General.—"Was it not to attest the proposal for £13,000 on his brother's life?"

Witness.—"One of them was for £13,000. I don't think I was present when Walter Palmer signed the assignment. I believe Jeremiah Smith's (another witness of that name) handwriting is very like mine."

After much fencing with the question, the witness saying he might or he might not have attested Walter Palmer's signature to a deed of assignment, the *Attorney-*

General put a cheque for £5 into the witness's hand, and asked him if it was William Palmer's signature to it.

Answer.—"It is."

Question.—"Did you take that piece of paper to the bank and get £5 for it, and that for attesting the signature of Walter Palmer to the deed of assignment?"

Answer.—"I may have got the £5 at the bank; but upon my honour I do not know what for. (Laughter.) Cook, with reference to the £200 bill, gave Palmer £10 for the accommodation, and he took the money to Shrewsbury races. I cannot say who saw me on the Monday night when I went up to Cook's room at the 'Talbot Arms.' I did not notice. I believe that either the chambermaid, the waitress, or the cook saw me go into the hotel. I don't know who drove the fly to Stafford."

This witness was also severely cross-examined as to his relations with Mrs. Palmer, replying with the same caution as to their impropriety, and could not get further than "that there ought not to be any truth" in the imputation.

Mr. Justice Stephen, who was present at the trial, gives the following graphic sketch of the demeanour of this witness:—"No abbreviation can give the effect of this cross-examination. The witness's efforts to gain time, and his distress as the various answers were extorted from him by degrees, may be faintly traced in the report. His face was covered with sweat, and the papers put into his hands shook and rattled."—*Hist. Criminal Law of England.* Vol. III., p. 399, note. "And yet, after all," as the learned judge adds, "he was right as to the time according to the inspector at Euston. If Smith spoke the truth, Newton could not have seen Palmer at all that night, and Mills, if at all, must have seen him in Smith's company. Mills never mentioned Smith" (and was never asked by the defence if he came with Palmer), "and Smith would

not swear that she or anyone else had seen him at the 'Talbot' that night."

[62] Smith (not Jeremiah, subsequently examined, pp. 185-6), when called for the defence, said that he sent the soup to Cook by Rowley, but not to Palmer's on the way.

[63] Palmer's brother, in the letter to Lord Campbell, states that Sanders, the trainer, if called (who had been examined before the coroner), could have proved that Cook excused his not giving him more than £10 when he came to see him, on the plea "*that he had given all his money to Palmer to take with him to London to settle his affairs*," and that he was in court at the trial, and when not called by the prosecution, was sent out of the way to prevent his being called for the defence.—*Letter to Lord Campbell*, pp. 18, 19.

He was called on his subpœna at the close of the evidence for the defence (tenth day), and when he did not answer, the Attorney-General said, "I should be deeply grieved if it could be possibly thought that the absence of any witness could in any way prejudice the prisoner's case, and if my learned friend makes any application on that ground it shall not be resisted by me." *No application was made.*

[64] It was an acknowledgment that certain bills, of which the dates and amounts were set out, were all for Cook's benefit, and signed either J.P. or I.P. Cook. Cheshire was under Palmer's influence, and a few days after opened Dr. Taylor's letter to Mr. Gardner with the account of the results of the analytical examination, and disclosed them to Palmer, for which he was prosecuted and punished.

[65] Whilst Palmer was in Stafford jail, inquests were held on the bodies of his wife and his brother Walter. In the

first case there was no manner of doubt that she had been gradually dosed to death by antimony. In that of the brother, the analysis failed to detect any poison, a fact probably accounted for by the length of time that had elapsed since the death and the action of the lead coffin, if prussic acid was the poison used. In both cases, however, verdicts of wilful murder against Palmer were returned. On the 21st of January Palmer was brought up from jail as a witness in an action on one of the £2000 bills purported to be signed by his mother, the signature of which was denied by her; clerks in banks and others who knew her handwriting well also agreeing that it was a forgery. At last Palmer was produced in custody. He entered in a perfectly cool and collected manner, nodded familiarly to his friends in the crowded court, and gave the following evidence in a low, yet firm and distinct voice, without a sign of trepidation:—

Mr. Edwin James (putting the disputed bill into his hand).—"Is the signature of William Palmer, as drawer of this bill, in your handwriting?"

Palmer.—"Yes."

Mr. James.—"And did you apply to Mr. Padwick to advance you money on it?"

Palmer.—"I did."

Mr. James.—"Who wrote Sarah Palmer's acceptance on it?"

Palmer.—"Anne Palmer."

Question.—"Who is she?"

Palmer.—"She is dead."

Question.—"Do you mean your wife?"

Palmer.—"Yes."

Question.—"Did you see her write it?"

Palmer.—"Yes."

The action was, of course, at once abandoned, and no further proceedings taken on the other bills bearing the mother's name.

[66] See Lord Campbell's correction of this.—*Judge's charge, post.*

[67] *Ante*, pp. 185 and 186, note.

[68] See the suggestion of Dr. Guy, that the death was probably due to morphia, and the remarks thereon in Chapter V., *post*.

[69] On this point, which was also put very strongly by Lord Campbell in his charge, the prisoner's brother, in his letter to that judge, accuses the prosecution of cunningly keeping back a witness of the name of Cockayne, who had been examined before the coroner and whose deposition was before the Court, who would have explained the use for which the strychnia was bought. "Had he been, as he ought to have been called, he would have proved that he kept a gun loaded in the stable, by order of my brother, to shoot the dogs that worried his brood mares, and that he also threatened to poison them, and that the strychnia was purchased for that object, and that he had missed dogs since then, which had been in the habit of prowling about the pastures and hunting the mares." He also accounts for the non-production of poisoned dogs, by the "medical fact that they go away to die in secret, concealed and quiet places, where they die undiscovered, and would be mortally attacked in so short a time that they could not get to their own home." He further accuses them of sending this witness, and Sanders the trainer, who would have proved that Cook told him he had given Palmer all his money, out of the way, so that the prisoner's solicitor could not call them for the

defence.—*Letter to Lord Campbell*, pp. 17, 19. But see *ante*, p. 188, note.

[70] See *ante*, p. 216, note, on the evidence of a witness, Cockayne, who was called before the coroner.

[71] The prisoner's brother, on the contrary, says that he distinctly, in a most solemn interview, declared his "perfect guiltlessness of blood." The same writer unfortunately lessens the value of his other statements by a coarse attack on Lord Campbell as a worthy successor of Jeffries, and imputes to him and Baron Alderson a deliberate intention to force the jury to a conviction. As I had not the advantage of being present at the trial, I can only say nothing of this appears in any of the reports of the trial which I have collated, and whilst on the contrary we now have the evidence of an experienced criminal lawyer, who saw and heard all. Still, however, remains the great difficulty that strychnia, as every analytical chemist will testify, ought to have been found, if it had been given, though the failure to discover it does not conclusively negative the probability of it having been administered. Dr. Guy has suggested that morphia might have been the cause, introduced into the pills, a point of which would seem to be made in Serjeant Shee's speech, and which would account for Palmer's statement that Cook was not killed by strychnia, and with his wish for a further examination of the body by Mr. Herapath.—*Hist. of Crim. Law of England.* Vol. III., pp. 423-4. See on this point Chapter V.

[72] For the report of this trial I have relied on the apparently verbatim report in the *Times* (probably from the pen of the late Mr. Campbell Forster), collated with that in the Annual Register of 1856, and with the

Summary by Mr. Justice Stephen based on the notes of the presiding judge.

[73] Mrs. Mary Wood. Mr. Overend objected to this witness being asked as to her opinion of Dove's state of mind, on the ground that she was not a skilled witness. The objection was allowed by Mr. Baron Bramwell, but on the suggestion of the judge, not persevered in by the prosecution.

[74] Charles Harrison.

[75] These strong expressions were not supported by any specific proof worth reporting. Mr. H. admitted he used to flog him, but added, "I flogged him till I was satisfied there was a want of reason, but not after." He admitted that he flogged him slightly (perhaps a stroke or two) the day before he left.—*Stephens' Summary*. Vol. III., p. 430.

[76] He used to point loaded fire-arms at his servants, and threaten to shoot unoffending persons: tell strange stories of being followed by robbers: wander about his fields without an object.

[77] Evidence of his nurse, Mrs. Wood, Mr. Highley, Mr. C. Harrison, Mr. Lord, and the servants at Whitwell Farm (James Shaw, Mary Peek, Robert and William Tomlinson, Emma Spence, and Emma and Fanny Wilson) called for the defence, and cross-examination of Elizabeth Fisher, who had been his servant at Normanton and Leeds, Mrs. Thornhill, charwoman, generally employed at the house at Leeds, and Mary Hicks.

[78] In his second confession he fixes the date of this as Sunday, February 24, and that he took then about ten grains.

[79] On the Monday he wrote the following letter to his mother:—"My dear Mother,—I am sorry to tell you that my wife is very ill indeed. She came down as I thought this morning much better, took a nice breakfast for her, and then she commenced to play (the piano). After that she told Mrs. Fisher (who is with us) that she would help her to make the beds, but instead of that she was seized in her limbs and could not stand, neither could she take anything. I went to Mr. Morley, and I am sure I did not expect to see her alive when I came back; but thank God she was alive, and that was all; she was entirely prostrated. Mother has been to see her. If you would like to see her you had better come by London for three and sixpence. Harriet would like to see her, but she thinks of the expense. My dear wife's love to you and all at home, and accept the same from your affectionate son, WILLIAM DOVE. P.S.—I hope Mary will not make fun of this small bit of paper; it would be over-heavy if I had not torn it off." [This was one of the letters referred to by Baron Bramwell as disproof of his imputed idiotcy.]

[80] This witness and Mr. Morley, the surgeon, were called in Palmer's trial to state the symptoms observed in the course of Mrs. Dove's illness and death, without mentioning her name, and Mr. Morley also related the results of the analytical examination of her body in conjunction with Mr. Nunneley, who was called on behalf of Palmer, and maintained that if it had been given, strychnia must have been found by analysis six days after death (pp. 124-8).

[81] "He told me," said Harrison, "that he was afflicted by devils, but that I had more power over them, and could send them to frighten his wife from her bed to sleep with him—believed they were in his house, and attributed thunder and lightning to them. I attributed this to *delirium*

tremens. Told me he had sold his soul to the devil. I did not encourage him to think I could rule devils; it was his own fancy. I told him I would cast his nativity, but when I saw the state of his mind I did not finish it."—*Harrison's evidence—cross-examination.* But see Dove's account of Harrison in his confession, *post*.

[82] In this case Baron Alderson also decided that if the witnesses were called by the defence, the person calling them made them his own witnesses, 2 C. & K. p. 520. Baron Parke, Justice Cresswell, and Lord Campbell agreed with this. See *R.* v. *Cassidy*, F. &. F. p. 79.

[83] To the schoolmaster at Abeford—conjuring tricks!

[84] Should not this be "at *some* times."

[85] "That would be *moral* insanity."—*Judge's Notes—Stephen.*

[86] I cannot find in the reports to what particular act this question refers.

[87] "The suggestion of Dr. Williams," says Judge Stephen, "that Dove had allowed his mind to dwell on his wife's death till at last he became the victim of an uncontrollable propensity to kill her, if correct, would not prove that his act was not voluntary. It is setting and keeping the mind in motion towards an object plainly conceived that constitutes the mental part of an act. Every act becomes irrevocable before it is consummated. If a man, for example, strikes another, he may repent while his arm is falling; but there is a point at which he can no more deprive his arm of the impetus with which he has animated it, than he can divert from its course a bullet which has been fired from a rifle. Suppose he deals with his mind in this manner at an earlier stage of the

proceeding, and so fills himself with a passionate, intense longing for the forbidden object or result, that he becomes, as it were, a mere machine in his own hands. Is not the case precisely similar, and does not the action continue to be voluntary and wilful, although the act of volition which made it irrevocable preceded its completion by a longer interval than usual?

"It must, however, be remembered, that the proof that Dove's propensity was uncontrollable was very defective. An uncontrollable propensity, which accidental difficulties or the fear of detection constantly control and divert for a time, is an inconceivable state of mind. Is there the smallest reason to suppose that, if Mrs. Dove had met with a fatal accident, and had been lying in bed dying before her husband gave her any poison, his uncontrollable propensity to kill her would have induced him to give her poison nevertheless? If not, the propensity was like any other wicked feeling. It was certainly uncontrolled, and it may probably have been strong, but that is different to uncontrollable."—*History of the Criminal Law of England*, by Mr. Justice Stephen. Vol. III., p. 435-6.

[88] Baron Bramwell especially called attention to the letter of the prisoner to his mother of the 25th of February, describing his wife's first attack (see *ante*, note p. 237), and that to the Witchman, Harrison, asking him, in replying about his nativity, to "write in milk, or lemon, or anything else that would not show till put to the fire."

[89] This was proved at the trial by the Fishers.

[90] Mr. Morley's pupil had shown it to him; proved at the trial.

[91] That would be February the 23rd, when Fisher's mother come to Dove's to take her daughter's place, and the first attack was when Mrs. Dove fell whilst helping to make the beds on the following Monday. Throughout his statement Dove is very confused as to dates. The tasting by Mrs. Witham was several days after this.

[92] Mrs. Witham states (see her evidence) that she gave her medicine at 3.30 P.M., and she seemed better for it.

[93] In his comments on this extraordinary case, Mr. Justice Stephen—after noting Dove's predisposition to madness in his infancy; the fact that the symptoms of the disease exhibited themselves at frequent intervals, yet never reached such a pitch as to induce his friends to treat him as a madman; the prurience with which he dwelt on the prospect of his wife's death; the forming of the design of putting her to death, and the deliberate contrivance and precaution with which he carried it out—says:—"In this state of things can he be said to have known, in the wider sense of the words, that his act was wrong? He obviously knew that it was wrong in the sense that people generally consider it so; but was he capable of thinking, like an ordinary man, of the reasons why murder is wrong, and of applying these reasons to his conduct? There was evidence both ways. His irrationality, however, was occasional, and he appears to have acted rationally enough as a rule, and to have transacted all the common affairs of life. Did, then, this act belong to the rational or irrational part of his conduct? Every circumstance connected with it referred it to the former. It was a continued series of deliberate and repeated attempts, fully completed at last."—*History of the Criminal Law.* Vol. III., pp. 435-6.

[94] This is probably an error of the reporter—rigid(?)

[95] The pills were produced at the inquest, and seen there by Dr. Lees, but not submitted for analysis, either to him or Dr. Bernays.

[96] In this the presence of strychnia was very distinct.

[97] The important evidence of this witness is given very briefly on the report of the trial. From the notes of the analyses made at the time in the laboratory I have been enabled to give it in greater detail.

[98] Morphia gives with nitric acid a deep orange unchanged by stannous chloride.

[99] See also case of Agnes Sennett, p. 121.

[100] A striking case of cure by chloroform is given in the *London Med. Gazette* for 1850, p. 187, quoted from the *Boston Med. Journal*, July, 1850.

[101] Palmer administered to Cook so few pills, that unless these consisted of solid morphia, which is impossible, they could not much affect the above conclusion.

[102] The words “causing to be administered” were struck out on the objection of Mr. Young that “they were not covered by the major part of the indictment, and not material in any way.”

[103] This was distinctly denied by Miss Giubilei, who had been a pupil teacher at the school.

[104] Mr. Minnoch, on the contrary, said, “She accepted me on the 28th of January, and then she and I arranged it on the 12th of March. From the 28th of January to the end of March there was nothing to suggest to my mind a doubt as to the engagement continuing. I had no idea she was

engaged to any other. *When the marriage was fixed in March it was to take place on the 18th of June.*"

[105] "But surely," said the Lord Justice Clerk, "had such been the case, she would never have wished to be 'clasped to the heart,' as she expresses it in her letter, of a man whom she had to inform that she was engaged to another, and that all relations must be broken off between them."

[106] On this latter matter and the identification of the envelopes for the respective letters much time was occupied. In his charge the Lord Justice Clark said, that "though the procedure adopted had been loose and slovenly, it did not appear that the panel had suffered any prejudice from the want of any of them. As to each letter being in its proper envelope, in the first part of the correspondence, it did not much signify whether such were the case; because there was no doubt that those passionate letters written by the prisoner, declaring such strong love for L'Angelier, and some of them expressed in very licentious terms, were written by her at some time or other."

[107] "Arsenious oil applied to scalp to cure vermin caused death on 10th day."—Taylor, I., 254. "A solution to cure itch caused death in two years." *Cours de Med.*, Leq., p. 121. "Arsenious acid and gum to the head, caused death in 36 hours."—*American Journal of Med. Science*, July, 1851. "When used as a face powder it caused poisoning symptoms."—Christison, p. 329. "Arsenical soap applied to scrotum and axillæ produced violent pains in stomach, vomiting, purging, but patient recovered in fourteen days."—*Med. Times and Gazette*, December 10, 1853. And see other similar cases in list in "Woodman and Tidy."

[108] See Chapter VII.

[109] Referring to the evidence of Dr. Penny, the Dean, in his speech for the defence, said: “Here comes again another point on which the evidence for the Crown is very defective, to say the least of it. They knew very well when they were examining the contents of this poor man’s stomach, and his intestines generally, what was the arsenic that the prisoner had bought. They knew from her own candid statement that she bought it partly at *Murdoch’s* and partly at *Currie’s*. If that arsenic had been swallowed by the deceased, the colouring-matter could have been detected in the stomach—there was one means of connecting the prisoner with this poison which was found in L’Angelier’s stomach, and a very obvious means. It may be very well for Professor Penny and Dr. Christison to say now that their attention was not directed to this matter. Whose fault was this?—the whole thing was in the hand of the authorities. They kept it to themselves—they dealt with it exclusively—and they present this lame and impotent conclusion.”

[110] 14 Vict. c. 13, sec. 3: “Before the sale, the arsenic shall be mixed with soot or indigo in the proportion of one ounce of soot or half an ounce of indigo, at least, to one pound of arsenic, except in cases where, according to the representation of the purchaser, such mixture would render it unfit for his purpose, when it may be sold in quantities of not less than ten pounds.”

[111] In the *Edinburgh Monthly Journal* of Dec., 1857, Professor Christison gives the details of a case—not of suicide—in which 90 to 100 grains were found, and the party lived seven hours. In the case of *R.* v. *Dodds*, Lincoln Assizes, December, 1860, 150 grains were found; in that of *R.* v. *Hewitt*, or *Holt*, Chester Winter Assizes,

1863, 154 grains were found eleven weeks after death. Professor Christison's letter will be found in Appendix B., p. 358.

[112] In *Woodman and Tidy* the following Table, showing the solubility of arsenic, is given:—

	Transparent Form.	Opaque Form.	Crystalline Acid.
(1) 1,000 grains of distilled cold water, after standing 24 hours— dissolved	1·74 gr.	1·16 gr.	2·0 gr.
(2) 1,000 grains of boiling water, poured on the acid, and allowed to stand 24 hours— dissolved	10·12 gr.	5·4 gr.	15·0 gr.
(3) 1,000 grains of water, boiled for one hour, the quantity being kept	64·5 gr.	76·5 gr.	87·0 gr.

uniform by the addition of boiling water from time to time, and filtered immediately —dissolved			

[113] As proof that L'Angelier's first illness could not have been on the night of the 19th and morning of the 20th, the Dean referred to the fact that "on the 21st he ordered of his butcher the largest piece of beef to be found in his pass-book (7lbs.), and had fresh herrings in such a quantity as to alarm his landlady, and a still more alarming quantity and variety of vegetables." "There's a dinner for a sick person!" He also said, "I give my learned friend the option of being impaled on one of the horns of the dilemma—I care not which. He was ill from arsenical poisoning on the morning of the 20th, or he was not. If he was, he received arsenic from other hands than the prisoner's. If he was not, the foundation of the case was shaken."

[114] "What is the evidence of Mrs. Jenkins on this point? She says he was in his usual condition on the 21st, when he made that celebrated dinner, and she thought he was making himself ill, and on that 21st he told her he should not leave the house all the following day—the Sunday. He had, therefore, I maintain, no appointment to keep, else he would never have made that statement. On the 22nd Mrs. Jenkins says she had no recollection of his going out. When he did go out at night, and came in late, what was his habit? Mrs. Jenkins says he never got into the house on those occasions except in one of two ways

—either he asked her for a check key, and got one, or Thuau opened the door for him. He did not ask for a key that night, and Thuau says he certainly did not let him in."—*Speech of the Dean of Faculty for the defence.*

[115] To the evidence for these statements, the Dean of Faculty objected that, though the guard of the train from Stirling was shown the photograph of L'Angelier, and identified him by it, the photo. was not shown to Ross—that Ross only spoke of him as a foreigner—that no one at the place where he had refreshments at Coatbridge was called to identify him—that the "foreigner" told Ross he had walked from Alloa (eight miles), and not from the Bridge of Allan, and that on the Friday or Saturday previous he had walked into Stirling to try and get a cheque cashed, and yet no attempt was made to show that he did so. The witnesses for the defence, on the contrary (Adams, Kirk, Dickson, druggists), were clear (Adams) that at half-past five on Sunday, the 22nd, a gentleman came to his shop for 25 drops of laudanum; Dickson, of Batherton, two miles from Coatbridge, that one whom he recognised as extremely like the photo. of L'Angelier came for a similar dose at 6.30 on a Sunday at the end of March, suffering from a bowel complaint; and Miss Kirk, of the Gallowgate, Glasgow, who remembered a gentleman, "as like as anything I ever saw" to the photo. of L'Angelier, came about 8 P.M. on a Sunday night at the end of March for a medicine, and got a white powder. [But it must be remarked that, weak as this evidence was, it was weakened by the admission of Adams that his customer did not complain of illness—by that of Dickson that it might have been in April, and by the inability of Miss Kirk to fix any date for the occurrence, or to state what the powder was, though she identified the purse from which the party took the money for the payment of it.]

[116] On the question whether this letter brought L'Angelier to Glasgow, the Dean referred to an expression in one of his letters to Thuau, that he did not know what "Mr. Mitchell could want with him," and inferred that it might be to hear about this person that he hurried up to Glasgow and called on M'Alister, who probably might have given some information on this point had he been called. [If so, why was he not called for the defence?]

[117] "I have already shown," said the Dean, "how constantly she repeated to him her warning that on no account he was to make the slightest noise of any kind. Therefore, without previous arrangement, it does not appear to me possible for these parties to have met on the occasion on which the prosecutor says they did. If I am right in reading that letter, she expected him on Saturday evening, and she waited and waited, as she had upon Thursday, but he did not come. On the Sunday evening she did not expect him. Why should she? When he did not come on Thursday evening, when he did not come on Saturday evening, why should she expect him on the following evening? Well, then, that is the state in which her expectations were on that occasion, and her conduct precisely squares with it. She is at home in the family. They are all at prayers at nine o'clock. The servants come up to attend prayers with the family. Mackenzie, the suitor of Haggart, remains below while the family are at prayers. The servants afterwards go down stairs to bed, as usual—one after the other. The family then retire to rest, and the prisoner, with her youngest sister, goes to her bedroom about half-past ten or eleven. They both get into bed about the same time; and, so far as human knowledge can go, that house is undisturbed and unapproached till the prisoner is lying in the morning side by side with her sister, as she had fallen asleep. The watchman was on his beat—he knew L'Angelier well—and he saw nothing."

[118] Regarding this third charge in the light of probabilities, the Dean said:—"If you believe the evidence of the Crown, he suspected the prisoner of having tried to poison him. But my learned friend says his suspicions were then lulled—she had become more kind to him before he left town. I thought my learned friend said he was brooding over it when in Edinburgh, and spoke of it in a serious tone to the Towerses. That was on the 16th of March, after which date he had nothing to change his mind in the shape of kindness from the prisoner, and therefore if he did once entertain the suspicion, however unfounded, there was nothing to remove it from his mind anterior to the 22nd of March. A man, whose suspicions are excited against a particular person, is not very likely to take poison at that person's hand; and yet, what are we asked to believe that he took from her hand that night? That he took from her hand a poisoned cup, in which there lurked such a quantity of arsenic as was sufficient to leave in his stomach after death 82 grains; such a dose indicating the administration of at least double—aye, I think Dr. Christison said the administration of at least half an ounce (240 grains)—and that he took it that evening from the hand of the prisoner, with all his previous suspicions that she was practising on him. It is a dose which, as far as experience goes, was never successfully administered by a murderer. There is not a case on record in which it has ever been shown that a person administering poison to another ever succeeded in persuading him to swallow such a quantity." [But note as to confidence after suspicion, that of Cook in Palmer, after the suspicious illness at Shrewsbury.—See Palmer's Case, *ante*; and as to quantity administered by murderers, note *ante*, p. 319, and Appendix B., p. 358.]

[119] *Christina Haggart*, if she was to be believed, appears to contradict this assertion. On *re-examination* she said

that between a month and two before her apprehension Miss Smith asked her to leave the back gate into the lane open after ten at night, and stay in the kitchen a little, as she was to see her friend. When she did so she saw no one in the lane, but as she went into the kitchen, which was in front of the house, she met Miss Smith going towards the back door. She heard footsteps coming through the gate—that she stayed in the kitchen till she heard Miss Smith go to her own room. She stayed about half an hour. "*Charlotte Maclean*, the cook, stayed in the kitchen with me at my request." In this she was confirmed by Maclean, but she could not say she heard Miss Smith in the passage, though she heard her afterwards go to her bedroom. Miss Smith's statement to Dr. Meau is true, if the meeting took place only at the back gate. The Lord Justice Clerk, however, spoke of this evidence as proving that L'Angelier was in the house in Blythswood Square.

[120] In a letter with post-mark September 18, 1855, she alludes to some such threat, "Beloved, you are young, you ought to desire life." In another with post-mark October 19, 1855, she writes, "'Before long,' you say, 'I shall rid you and all the world of my presence.' God forbid that you should do this." "This," said the Judge, "was a common enough mode of influencing females; and if such was his design, he seemed to have succeeded."

[121] As to the evidence for the defence, that L'Angelier had on one occasion threatened to throw himself out of the window at the "Rainbow" Tavern, his lordship observed, "As the witness was in bed at the time the deceased had ample opportunity to have thrown himself over, if he had been so inclined, before the witness could interfere; and the jury would consider whether, when

going about the room in that excited state, he had only thrown open the window to get air. As to the other stories that he would drown himself, if jilted, they did not amount to much, as on one occasion he had been jilted, and had not drowned himself. You will consider whether all this is merely the vapouring of a loose, talkative man, fond of awakening an interest in the minds of others about himself, or whether it affords any indication that he was likely to commit suicide. As to the evidence about giving arsenic to horses in France, which would be useless unless given constantly, he did not see its importance. If he was in the habit of taking it in small quantities, he knew its qualities, and therefore this did not aid the notion that he took an immense quantity on the 22nd to destroy himself. No doubt the prisoner was not bound to prove that he poisoned himself, but it was a hazardous thing to set up a defence that L'Angelier went out that night carrying such a quantity of arsenic in his pocket, and that he swallowed it, how, when, and where, no human being could conceive."

[122] "It is very difficult," said the learned Judge, "to say what the exasperated feelings of a female placed in such a situation as this woman was might not lead her to do. And here it is that the correspondence becomes of the utmost importance, as shewing what feelings she cherished about that time, what state and disposition of mind she was in, and whether there was any trace of moral sense or propriety to be found in her letters, or whether they did not exhibit such a degree of ill-regulated, disordered, distempered, and licentious feelings, as shew that the writer was quite capable of compassing any end by which she could avoid exposure and disgrace, and of cherishing any feeling of revenge which such treatment might excite in her mind, driven nearly to madness by the thought of what might follow

the revelation of this correspondence. We have heard a good deal said by the Dean of Faculty as to the character of this person: we have no evidence on the subject, except what these letters exhibit, and no witness to character is brought; and certainly these letters exhibit as extraordinary a frame of mind and of passion as perhaps ever appeared in a court of justice. Can you be surprised, that after such letters as those of the 29th April and 3rd May (inviting him in very plain terms to meet her for that purpose at the garden gate of the country house), that on the 6th May, three days afterwards, he got possession of her person? On the 7th she again writes, and in that letter is there the slightest appearance of grief, of repentance, of remorse? It is the letter of a girl rejoicing in what had passed, and alluding to it particularly in terms which I will not read, for perhaps they were never previously committed to paper, as having passed between man and woman. There could be no doubt of the state of degraded and unholy feeling into which she had sunk, probably not the less so if it was produced by his undermining and corruption."

[123] If this was the use for which the prisoner bought the arsenic, it is at least curious that she did not buy it until the 21st of February, 1857, when she was endeavouring to get her letters back from L'Angelier. The article in *Blackwood* was in December, 1853. *Johnston's* Book was published in 1855, and of the papers in *Chambers*, the first was in December, 1851, the second in June, 1853, and the third in July, 1856.

[124] Without wishing to fight over again the case of *Eliza Fenning*, I would refer any one at all curious on this point to a letter to the *Times*, quoted in the "Annual Register" for July 29, 1855, from the Rev. J. H. Gurney, the nephew of the well-known shorthand writer, in which it is stated,

on the authority of an extract from his uncle's note-book, that *Eliza Fenning* did confess the crime to the Rev. James Upton, a Baptist minister, whose chapel she attended, though she subsequently maintained her innocence to other visitors.

[125] The learned Judge had previously said, "If this had been an appointment about business, and it had been shown that a person came to town for the purpose of seeing another, and he went out for that purpose, having no other object in coming to Glasgow, they would probably scout the notion of a person saying, 'I never saw or heard of him that day that he came;' but the inference they were asked to draw was this, that they met on that night, when the fact of their meeting is the foundation of the charge of murder. Therefore the jury must feel that the grounds of drawing an inference in the ordinary matters of civil business, or the actual appointment of mutual friends is one thing, and the inference from the fact that he came to Glasgow, that they did meet, and that, therefore, the poison was administered to him by her at that time, is another, and a most enormous jump in the category of inferences."

[126] Evidence of *Samuel Peckeridge*, his fellow-workman; *Thomas Denman*, who had seen him near the reservoir on Stamford Hill, on the 24th, vomiting, and going to the public-house for brandy; *James Ashby*, another turncock of the East London Company's; *Mrs. Gillett*, and *Mr. Toulmin*, of Clapton.

[127] On Dr. Letheby's evidence, see remarks in Chapter VII., p. 395.

[128] *A. Andrews* also proved that she had only objected to the *post-mortem* because she knew the deceased objected

to it; that she said “Thank God, I am innocent. Poor dear soul, I loved him too well to injure him;” and had told him that Annie had eaten the rest of the gruel, and that Mrs. Gillett knew it.

[129] *James Urry*, the secretary of the benefit society, proved that the deceased had been insured in it nearly two years—these would not have been completed until February 2nd, and that, in consequence, she would be entitled to only £7 10s. instead of £10. When he saw the prisoner she seemed absorbed in grief.

[130] See on this the remarks in Chapter VII. p. 395.

[131] Tidy (Handbook of Modern Chem., 1878, p. 397) states that 1,000 parts of boiling water, digested for twenty-four hours with the powder, dissolve—of the opaque form, 5·4 parts; of the transparent, 10; of the crystalline, 15.

[132] In this case, which was tried before the late Lord Denman, at the Summer Assizes, 1848, very many of the guests at a dinner given to celebrate the election of an Independent minister were seriously affected, and the death of the chairman (an invalid) hastened, by eating of a blancmange made in the form of a cucumber, surrounded with leaves—all of the natural green colour. In colouring this sweet, emerald green, in which, on analysis, 47½ per cent. of arsenite of copper was found, had been used to such an extent that the colour was in some parts half an inch in depth. The pastrycook (Franklin) had been previously warned, by the chemist who sold it to him, of its poisonous qualities, and for a time had discontinued its use for eatables; and the defence was, that in this case his apprentice (Randall) had used it under the impression that the sweet was only for

ornament. They were both found guilty of manslaughter, and sentenced to three months' imprisonment with hard labour.

[133] According to the *Apotheker Zeitung*, No. 14, April 3, 1879, out of 118 samples of children's toys officially examined in 1878, 53, or nearly one-half, were found adorned with poisonous colours. In the cases of 46 the vendors were punished. As to dresses, see Chem. News, v. 114.

[134] In the case of *Maria Gage*, tried at the Summer Assizes, at Ipswich, on the 2nd of August, 1851, for the murder of her husband, it was proved that she had got a neighbour to purchase for her a pennyworth of stuff for rats and mice, which was found to consist of linseed with arsenic enough to kill half a dozen men.

[135] "Considerable sensation has been excited by the report that arsenic had been detected in the paper collars, &c., manufactured by a Leipzig firm. On a careful examination, conducted by six of the most eminent chemists, the accusation was proved to be utterly unfounded."—*Chemiker Zeitung*, No. 45, 1879.

[136] In this case, which was tried in April, 1835, before Sir Charles Wetherell, as Recorder of Bristol, a widow lady of the name of Mary Smith, who had lodged with the prisoner, was poisoned by her, in October, 1833, for the sake of the money and other property she had with her. The accused was proved to have purchased yellow arsenic about six days before Mrs. Smith's death, and to have been seen putting some yellow powder out of a paper from her pocket into a basin of gruel, after taking which Mrs. Smith was seized with dreadful convulsions, and died. In consequence of suspicions created by the

prisoner's subsequent conduct and false statements, a *post-mortem* was held of the body, exhumed fourteen months after death. The report of this examination was very striking. "A thick, yellow coating, like paint, lay on the mucous membrane of the stomach, particularly over the pyloric third, but it extended more or less with some small interjections of unstained membrane to within two or three inches of the great cul-de-sac." The accused was convicted and executed.

[137] Phosphates give *nothing* with sulphuretted hydrogen, and a *yellow* with silver nitrate.

[138] "A curious toxicological case is reported from Hamburg. The body of a man who died in 1867 was taken for examination. It was thought necessary to determine arsenic, not merely in the corpse in question, but in the soil of the churchyard at different distances from the coffin, and also in the body of another man who had been subsequently buried in the same grave. This latter body was perfectly free from arsenic, which, however, was found in the first corpse in ample fatal quantity (3·6 grains), whilst in the lid of the coffin and in the adjacent ground very minute quantities were traced. Hence the conclusion was fairly drawn that the man in question had been poisoned with arsenic, and that a portion of the poison had been gradually transferred from his body to the wood of the coffin and the adjacent soil."—*Chemiker Zeitung*, No. 7, February 13th, 1879.

[139] See also a case in the *Gaz. Médicale*, 1850.

[140] When we bear in mind how small a space even 200 grains of arsenic would occupy—not more than that of an ordinary seidlitz powder—the suggestion of L'Angelier carrying this means of suicide about him, when keeping

the supposed appointment on the Sunday night, is by no means improbable. And when his evident tendency to attempt self-destruction, when irritated or depresssed, is remembered, it is within the range of probability, that, if either the meeting took place and ended with a quarrel, or he failed to obtain a meeting, in the excited state of mind which either circumstance would have created, he in desperation swallowed the drug very shortly before he returned to his lodgings, only to die. This is a far more probable suggestion than that set up by the defence, that he had been dosing himself with arsenic on the road from Stirling to Glasgow. The difficulty is that purchases of arsenic by L'Angelier could not be proved. But, looking to the careless way in which it was exposed in the shops of some of the firms with which he had relations (evidence of *Fleming* and *Townsend*), he might have got it from thence, without its being known, or he might have purchased it in Edinburgh on his visit there, where he could not be easily recognised. He certainly had an unwholesome hankering after this drug.—G. L. B.

[141] To the medical profession, for whose use, as well as for that of their legal brethren, this volume is intended, any but a detailed report of the medical evidence in this disputed case would be useless.

[142] For the report of this trial I have relied on that published in Edinburgh by William Kay, 1865.

[143] Evidence of *James Struthers*. Registrar of Deaths for the Blythswood district of Glasgow.

[144] According to *Mary Patterson*, Mrs. Taylor was in the kitchen about 7 P.M., as well as usual, only appearing a little peevish in consequence of her night-watching. *Mary McLeod* met her going up stairs from the consulting-

room about nine o'clock, and in a short time her bell rang, and she found her in her daughter's bedroom asking for hot water to make her vomit, when she desired her to go for the doctor.

[145] See evidence, *ante*, p. 414 (note), of *McLeod* and *Paterson*, as to her health and actions during the evening before her seizure.

[146] It was with reference to this visit that *Paterson* afterwards expressed his opinion, that, but for the accident of meeting Pritchard, he would not have been asked to visit his wife. This was severely commented on by Mr. R. Clark as showing the ill-feeling towards the prisoner which was imputed to the witness.

[147] It was proved that he kept large quantities of antimony, poisons, and other drugs in his consulting-room, though no chlorodyne.—*Evidence of McCall, Dr. Penny, McHattie, Foulger, and Kerr.*

[148] In a letter to his father-in-law on the 3rd of March, Pritchard wrote: "I am very much fatigued with being up with dear Mary Jane, who was very much worse yesterday, and passed a wretched night. Wednesday has been a periodic day with her during this illness, and she always dreads it. Her prostration is extreme, and her appetite quite failed. *Dr. Paterson has recommended Dublin stout and some very simple medicine.*"—*Evidence of Mr. Taylor.* Second day.

[149] On Dr. Paterson's evident feeling against the prisoner, the Lord Justice Clerk made the following remarks: "It is said that he exhibited a strong feeling against the prisoner; no human being could feel otherwise if he had formed the impression that Mrs. Pritchard was being

poisoned in the hands of her husband, her medical attendant. It is said that he exhibited this feeling in a marked unpleasant manner in the box. That is a matter of manner, and, if the feeling existed, I do not know that he could have made his evidence really more valuable if he had concealed the existence of it. It may be an unpleasant thing to see what is called an *animus* in a witness exhibited in the witness-box. If he has a feeling strong upon him, and that on good ground, he may come into the box and entirely suppress all appearance of it, because he has more command of his feeling, or a better manner of concealing it. The fact remains, that if he takes up the position I have described, he cannot, as a man of ordinary feeling, feel otherwise than unfavourably prepossessed against the prisoner." Again, on his concealment of his suspicions, the Judge said: "Now, he thought it consistent with his professional duty—and I must also add with his duty as a citizen of this country—to keep this opinion to himself. In that I cannot say he did right. I should be very sorry to lead you to think so. I care not for professional etiquette, or professional rule. There is a rule of life and a consideration far higher than these—the duty that every citizen of this country, that every right-minded man owes to his neighbour—to prevent the destruction of human life in this world, and in that duty I cannot but say that Dr. Paterson has failed. Now you will consider what effect that is to have, or whether it is to have any effect on your minds. It is a very painful subject—a subject which I would fain avoid, but the exigencies of this case drive me to its consideration—and I am bound to say that, because a man is so mistaken in regard to his duty to his fellow-citizens, and his fellow-creatures, it by no means follows that he is undeserving of credit as a witness. You may con sider his evidence always in the light of that failing; if you can see reason to modify anything that he says, because of the existence of

that failing, it is your bounden duty to do that."—*Charge of the Lord Justice Clerk.* Fifth day.

[150] From Western Branch of Glasgow Apothecaries' Company, September 19, 1864, 10 grains strychnia; November 4, ½ oz. tincture conii (Hemlock); November 16, 1 oz. laudanum, 1 oz. tartar emetic; November 24, 1 oz. tincture aconite; December 8, 1 oz. tincture (Fleming's) aconite; December 9, 1 oz. tincture conii. 1865: February 4, 1 oz. tincture conii; February 7, 1 oz. tartarised antimony, 1 oz. tincture of aconite; February 9, 1 oz. tincture of aconite; February 11, 1 oz. tincture of digitalis; February 18, 2 oz. tincture conii (all sold by the manager, *J. Campbell*); November 24, 1 oz. tincture of aconite; December 9, 1 oz. tincture conii; February 4, 1865, 1 oz. tincture conii (sold by the assistant). Fleming's tincture of aconite is six times stronger than the ordinary tincture.—*Evidence of J. Campbell.* From *John Currie*, chemist in Glasgow:—1865: February 18, 2 oz. solution of morphia and 1 oz. of Fleming's tincture of aconite; March 8, solution of atropine, 1 drachm, with 2 grains of atropia to a drachm; March 13, ½ oz. of Fleming's tincture of aconite; March 14, solution of atropine, 1 drachm, with 2 grains to a drachm; March 16, solution of atropine, 1 drachm, with 5 grains to a drachm. —*Evidence of John Currie.* Chloroform from July 13 to December 9, 1864, 132 oz.—*J. Campbell.* This witness said that 2 oz. of tartarised antimony and about 1 to 2 ozs. of Fleming's tincture would cover the whole of their sales for a year, and that the chloroform was also in excess of usual sale to one person. For the defence it was proved that as much as 80 oz. of Fleming's tincture was sold by them within a year.—*Evidence of John Simpson*, of Duncan, Flockhart & Co., of North Bridge, Glasgow. And from 2 to 3 oz. of tartar emetic, besides larger quantities

to veterinary surgeons.—*Thomas Fairgreive*, chemist, of Edinburgh.

[151] Evidence of *Alexander McCall*, superintendent of Glasgow Police, and *John Murray*, an officer of the Sheriff—third day; and reports of analyses by *Professor Frederick Penny*, same day. Another specimen of tapioca, bought direct from Barton and Henderson, had no antimony in it—Same witness.

[152] In reply to the Judge, the witness said that to take 7 grains of Fleming's tincture Mrs. Taylor must have taken 100 drops of the poisoned Battley in a single dose, equal to a teaspoonful; that 100 drops would not be an unusual amount to a person accustomed to the use of it in moderation, and that many opium eaters would not thank you for 100 drops. Aconite might be given in divided doses, and not prove fatal, though the same quantity was taken, the distressing effect of one dose going off before the other was taken.

[153] *Dr. Gairdner* stated that the only time he saw Mrs. Pritchard was on the night of the 8th of February, and that at that interview Pritchard told him Dr. Cowan had prescribed stimulants, which he ordered to be discontinued, and no medicine till he saw her again. Dr. Cowan said that he did not see her until the 11th of February, "to the best of his recollection, stopped all night, saw her again next day, and left in the evening for Edinburgh."

[154] *Dr. Paterson* stated that he was called on the 24th of February to see Mrs. Taylor, and then noticed the state in which Mrs. Pritchard was, but not being asked did not prescribe for her. He was called in to Mrs. Pritchard first on the 2nd of March, when he prescribed powders

containing camomile, blue or gray powder, ipecacuanha, and aromatic powder, and he never saw her again until five hours before her death. There is not a word in his evidence of his having been previously consulted about the use of Battley's solution. The only interviews with the prisoner, other than in the sick-room, were on the 1st of March, when he met him in the street and he asked him to see his wife, and on the 5th of March, when Pritchard called on him, reported that the remedies had had a good effect, and Dr. Paterson recommended their continuance.

[155] *Mary McLeod* stated that she was in the bedroom from the time Dr. Paterson left till Mrs. Pritchard died; that she lay on the sofa, and that Pritchard told her to get the mustard-plaster, and that it was applied to Mrs. Pritchard's stomach, and as it did not seem to do her good, she was sent down again for another, and that when she and Mary Patterson returned with it, Mrs. Pritchard was dead.

[156] From an account sent in to Mr. Taylor after his wife's death, the last purchases appeared to be:—18th January, 1865, 2 oz.; 29th January, 2 oz.; and 4th February, 2 oz. *James Thomson* stated that the last time he took the bottle to be filled was on the night before Mrs. Taylor left for Glasgow, and that for a year or so before her death he took the bottle to be filled at first only once in every two or three months, but latterly every two or three weeks.

[157] Evidence of *J. Foulger* and *George Kerr*.

[158] This had previously been admitted by Dr. Penny.

[159] See remarks of the Lord Justice Clerk on the motive, *post*, p. 445.

[160] See the argument of the Dean of Faculty imputing the murder to McLeod, and the Judge's charge on that point, *post*, 437-440.

[161] "Mr. Clark very properly said," remarked the Judge in this charge, "'it is not his fault that he had abundant opportunities. The relation existing between him and these ladies is not his fault, and it was the existence of this relation that gave him these opportunities.' Quite true, gentlemen—a very just observation; but remember, on the other hand, that as the opportunities did in point of fact exist, he cannot argue the case as if they did not."

[162] "His possession of poisonous drugs," said the Judge in his charge, "to such an extent is not a suspicious circumstance in the case of a medical man. They are in some degree necessary; but the peculiar position of the matter in this case—the nature of the drugs found in his consulting-room—is certainly not to be lightly passed over, and still more the nature of the purchases that he had been making from two different apothecaries during the period to which our inquiries particularly refer. In his consulting-room were found some parcels of tartaric acid —not a very large quantity; some phials, containing the remains of tincture of aconite and white powder to the extent of three or four grains, containing a somewhat strange and unexplained mixture of tartarised antimony or tartar emetic and aconite. These things were found in his consulting-room; but what had he been purchasing during the period to which our inquiry refers? On the 16th of November he purchased an ounce of tartar emetic, and upon the 7th of February another ounce of the same poison—very unusual quantities, as the apothecaries state. He also purchased no less than 5½ ounces of tincture of aconite. That, the apothecaries state, is a very unusual quantity for a medical man to purchase:

but I think it was a mistake in some respects to push this statement to the extent to which the prosecutor pressed it, because some of the other witnesses of the same description said that for external application tincture of aconite is sometimes used in considerable quantities, and if it were used for that purpose we might account for such a large quantity being used by the prisoner. But I do not think anybody said, that two ounces of tartar emetic within a month or two was a usual quantity for one medical man to use who was not in the practice of mixing it at home, which the prisoner, in his conversation with Dr. Paterson, says he was not. Besides, there were other very strange purchases, which have no immediate connection with this case—all of them strong poisons. He was, therefore, undoubtedly possessed of a very large quantity of different kinds of poisonous substances; but what is most important is, that he was in possession of that very poison to which the death of Mrs. Pritchard is undoubtedly to be traced, and to which, in combination with others, the death of Mrs. Taylor is to be traced—that is antimony. So that whether we adopt to the full extent the suggestion of the Crown, it appears beyond a doubt that some one had been practising a system of poisoning, and that in the possession of the prisoner were the agents necessary for carrying it on."

[163] See, *post*, p. 446, the Judge's remarks on this attempt to throw the crime on McLeod.

[164] "It is said," remarked the Lord Justice Clerk, "that it would be very difficult that cheese could be poisoned by antimony—very difficult to make a powder like tartar emetic adhere to a piece of cheese in sufficient quantity to have any effect, and that, if it did, it must have been visible to the naked eye, because the cheese was yellow and the tartar emetic was white. But we know from the

evidence before us that tartar emetic is easily dissolved, and the poisoned cheese could easily have been poisoned by dipping it into a solution, quite as easily as by dipping it into a powder." *See Chapter IX.*

[165] On this argument of the prisoner's counsel the Lord Justice Clerk said:—"It is difficult to offer an answer to that. It is impossible to say what is the precise point to which a poison of this kind will kill—what is the precise amount that will at once destroy life as compared with that which will only inflict suffering and torture. But that Patterson did suffer these severe vomitings and pains immediately after having tasted the egg-flip I suppose you will not disbelieve, looking to the general character of the evidence which she gave here as a witness."

[166] With reference to the finding of the bottle of Battley's solution the Lord Justice Clerk made the following remarks:—"To that scene I beg now to call your attention as given by Mary Patterson. 'When the bottle was found,' she says, 'he expressed great surprise that she should have taken so much of its contents in so short a time.' Now he was quite aware, as you will see by the evidence, that the old lady was in the habit of taking a great quantity, and you will consider whether the surprise was real or feigned. That is but a very small point, however, in reference to this matter. His expression in regard to it, seemed to me much more strong. He expressed surprise at her having sent 'a girl like that for it'—namely, McLeod. I cannot see that there is anything so startling in that. Did he mean to suggest that in sending such a messenger there might be some mistake as to the contents of the bottle? Why, what was it, 'to send a girl like that?' What was the harm of sending a girl—an intelligent servant girl? What was wanted was Battley's solution, because it was what Mrs. Taylor wanted—was

accustomed to take. But still he thought that it was a very serious matter—and further, that it was one of those things that it would not do to have spoken of as having occurred in his house—a man of his profession."

[167] Had she survived the wife, would she not have been a most important witness to aid in the conviction of the prisoner?

[168] For the report of this trial I have used that in the Sessions Papers, Central Criminal Court, 1859, collated with that given by Mr. Justice Stephen in his "History of the Criminal Law of England," vol. iii., p. 438, and that in the Annual Register of 1859.

[169] According to her sister she had for some time suffered from an affection of the uterus requiring the use of an injection.

[170] The prisoner called on the solicitor on the Saturday and asked him to come up the next day to draw the will, to which he consented on the prisoner's representation of the state of the lady—but wished a medical man to be present. The prisoner, however, assured him it was quite unnecessary, as she was suffering only from diarrhœa, and was quite in her right mind. "I went," said the witness, "to the prisoner's lodging, and he informed me that they were not married, which was another reason why he did not wish a medical man to be present. I then went up to the bedroom of the deceased, and the prisoner said to her, 'My dear, this is the gentleman who has come to make your will.' She bowed, and handed me the paper which I had seen on Saturday. I looked at it, and asked her if that was what she wished, and read it to her, and she said it was quite correct, except that she wished to leave a brooch to a friend. I then drew up the will in

accordance with her instructions, in a lower room. The prisoner was with me, and, when the will had been drawn up, said the daughter of the landlady could be one of the witnesses, and he supposed I could say it was some Chancery paper. I told him that would not do. She must know it was a will, and he replied, 'Oh, very well.' Shortly afterwards the deceased executed the will, and I and Miss Wheatley attested it, and I handed the document to the prisoner, who paid me my fee. She appeared perfectly competent to make a will."—*Evidence of Mr. Senior.* The will was proved by Smethurst, notwithstanding opposition, after his punishment for bigamy.

[171] From the sudden and serious illness of one of the jurors, however, the examination of the witnesses had to be suspended, and the trial adjourned to the first day of the next Session. Eventually he was put on his trial, before another jury, on the 15th of August. As the statement of Serjeant Ballantine was fully confirmed by the witnesses, the landladies of the respective lodgings, and the sister, it will be necessary only to report the medical evidence.

[172] It was apparently with reference to this case that the name of a *Dr. Barker*, of *Bedford*, was repeatedly mentioned, but he was not called to confirm or explain the supposed instance of dysentery in early pregnancy.

[173] It must be borne in mind that there was no error in this experiment, and that it was never suggested that the arsenic in this case came from the copper, as it was not destroyed, as when the bottle of chlorate of potash was afterwards tested with copper gauze, which was destroyed by it, and the arsenic in the gauze liberated. Serjeant Parry, of course, said that the experiments in

both cases were the same. So they were so far as copper was used, but the presence of the chlorate of potash in the other case made all the difference.—*See* Chapter IX.

[174] Had this discovery of arsenic not been erroneous, the gap in the evidence, as to the possession of the poison by the prisoner in a form most likely to be administered, would have been filled up. It in no way, however, militated against the discovery of arsenic in bottle 2. See *post*, Chap. IX., how far Mr. Herapath was correct in asserting that more arsenic was found than could have been released from the copper. In his statement before the committing magistrates, on the 20th of May, Serjeant Ballantine stated that bottle 21 had originally been sent by Dr. Julius with a quinine mixture.

[175] On farther *cross-examination, Professor Brande* said that the copper he used in Reinsch's test was generally rolled down from a halfpenny, which he considered pure enough for the purpose.

[176] But see his evidence, Palmer's trial, p. 175, *ante*.

[177] *Handbuch der Pathologischen Anatomie*, by Baron Carl von Rokitansky, Vienna, 1842-46, of which a translation by various English medical men of eminence was published by the *Sydenham Society* in 4 vols. 8vo. 1849-54. It is still considered a valuable book of reference.

[178] Subsequent to the verdict, in a memorial to the Prince Consort, it was stated that "a lady friend of the deceased was a witness," to Miss Bankes' knowledge, of the fact that he was married already, and that she wished the ceremony to be gone through. This lady, the memorial stated, was to have been called, but Mr. Parry deemed it

unnecessary. Upon this, the Lord Chief Baron, in his report to the Home Secretary, observed—"I do not believe Mr. Serjeant Parry gave any such advice; but if it be true that any such evidence was ready, why is not the lady friend named, and why is not her statement or declaration now offered and laid before you? Such evidence would, in my opinion, much alter the complexion of the case."—*Judge Stephen's Hist. of Crim, Law*, iii., 461. [What need was there of this evidence, when it had been proved that for weeks together Miss Bankes had been lodging and associating in the same house with Smethurst and his wife?]

[179] Not quite correct; on the prisoners representations of the effect of the sister's prior visit, Dr. Bird had advised that she should not see her—at any rate at present.—*See his evidence, ante*, p. 450.

[180] When *Dr. Julius* was recalled, and stated that at the first examination before the magistrates the prisoner urged that it was necessary for him to go back to his wife; that her death might be occasioned by his absence; and that it was imperative that he should go; Serjeant Parry asked the witness "whether the magistrates at that time did not direct or require him not to interfere further with the patient?" To this he replied—"I do not think it was addressed to him, but it was addressed generally—it was in his presence. It might have been a general direction, but he might have heard it."

[181] "And not only in the evacuations, where small portions of both were found?" They also laid great stress on the absence of certain symptoms generally present in slow poisoning by arsenic or antimony, or both.

[182] Or he might have added, the results of his experiments on the evacuations, the correctness of which were proved by the subsequent 76 tests by Reinsch's method.

[183] "There were," says Judge Stephen, "*fourteen* reasons in all assigned by Sir B. Brodie, *six* in favour of the prisoner, and *eight* against him, of which only *two* of the first and *four* of the second proceeded on medical or chemical grounds. Until these are published it is impossible to judge fairly of Brodie's opinion."

[184] *Stephen's Hist. Crim. Law of Eng.*, iii., 465.

[185] *Margaret Higgins*, a servant of Mrs. James, told a very different story when put into the box for *cross-examination*, her evidence not being taken for the prosecution. "On the morning of the 10th I went into Mrs. James's bedroom, about half-past eight, and found two or three spoonsful of *warm*sago in a tea-cup by the bedside, and two cups on the table. I took the cup from the chair by the bedside down stairs, and ate the sago, which did me no harm."[As the prisoner said he took it in about 5 a.m., the sago, being in an open cup, could not have been *warm* at 8·30. It was also clear, from other parts of her evidence, that she was in favour of the prisoner, and anxious to throw the crime on the Cafferatas.

[186] Evidence of *Mrs. Cafferata*, *Dr. Cameron*, *Mr. Clarence Pemberton* (surgeon), *Mr. Tennyson Lloyd* (solicitor), Inspector *Horne*, and detective *Kehoe*, who proved the seizure of the medicine bottles, &c., and their safe delivery to *Dr. Edwards*.

[187] "Free antimony" is what has not been taken up into the system. "Eliminated," which has been taken up into the system.

[188] For these acids I have used the systematic nomenclature corresponding to the phosphates, as in Bernay's "Notes for Students," in preference to Fremy's original titles.

[189] Sulphuric acid may be freed from arsenic or antimony by treating it with a few small fragments of charcoal and a little rock salt, and boiling till the hydrochloric and sulphurous acids have been expelled.

[190] Solutions of bismuth give with water white precipitates, which are *not re-dissolved* by tartaric acid.

[191] But it must be borne in mind that it was late in the evening when the cheese was taken up to the bedroom, where the light was not likely to have been strong; probably, on the contrary, was carefully shaded, so as not to annoy the invalid.

[192] This bottle, according to Serjeant Ballantine's statement, had been sent by Dr. Julius to the deceased containing a quinine mixture.

[193] Arsenic is tasteless. See evidence of *Professor Christison*, in Madeline Smith's case, *ante*, p. 322.

[194] This must be an error of the reporter, and must mean McIntyre, who, with Dr. Bird, took possession of the bottles in the bedroom. Dr. Bird delivered only bottles 1, 2, 3.

[195] In his evidence at the trial *Dr. Taylor* said that he found less than half a grain of arsenic, equal to 2¼ per

cent. in the copper dissolved—an impossibility.

[196] "An attempt," says Mr. Justice Stephen, "was made to account for the presence of antimony and arsenic alleged to be discovered by Dr. Taylor, by the suggestion that it might have been contained in the medicines administered to Miss Bankes during her life. Arsenic is generally found in bismuth, and for three or four days doses of bismuth, containing five or six grains, were administered to Miss Bankes. Dr. Richardson put the proportion of arsenic in bismuth at half a grain to an ounce, and as an ounce contains 480 grains, each dose would have contained about $^{1}/_{140}$ of a grain of arsenic. If, therefore, Miss Bankes took twelve doses of bismuth, she would have taken between one-eleventh and one-twelfth of a grain of arsenic in four days. This seems (for it is not perfectly clear), from Dr. Bird's evidence, to have been more than a week before the day on which he obtained the evacuation analysed by Dr. Taylor, and in 4 oz. of which he said he found nearly a quarter of a grain."—*History of Criminal Law of England*, Vol. III., 459.

[197] The authorities relied on for this report are—(1) The Central Criminal Court Sessions Paper, 5th session of 1882; (2) the report in the *Standard*, in which the evidence is in many points given more fully and clearly, including the charge of the learned judge, in which he has kindly made some corrections; (3) the Summary of Affidavits in support of the petition to the Home Secretary, and the affidavits themselves, 70 in number, relating to his conduct and state of mind from his youth to his conviction.

[198] *Dublin Medical Journal*, vol. xix., p. 403.

[199] On the death of Herbert John, in 1879, the prisoner had received £479 India Stock and £269 Consols as his wife's share of that child's property.—*Evidence of Mr. Chapman, and of Mr. Ormond, the trustee.*

[200] At Blenheim House he had two wheel-chairs—one on the basement floor, and one on the bedroom floor. From the evidence of *Mrs. Jolliffe*, at whose house the Chapmans lodged at Shanklin, in August, 1880, he was then able to get himself up and down stairs, but with great difficulty—crawling up on his hands and knees. The spinal-curvature was gradually increasing.

[201] It will be seen later that he went through the form of going to Wimbledon that evening with Mr. Tulloch, and pretending to him that he had been to the school.—*See evidence of John Law Tulloch, post.*

[202] It is incorrectly stated, in the Summary of Affidavits, that symptoms of poisoning did not begin till about three-quarters of an hour after Lamson had left (p. 5).

[203] According to *Banbury*, a pupil, the boy had gone over some examination papers with him after tea, and was in good health and spirits. *Ball*, another pupil, gave the same account of the boy's health.

[204] The following is a list of the various articles delivered to Dr. Stevenson for analysis:—"I received a number of bottles and things from Mr. Bond. There was a bottle, duly secured and sealed, and labelled 'liver, spleen, and kidneys.' That was labelled with the letter A. I received a bottle labelled 'B,' containing parts of small intestines, cæcum and colon, and other parts of the intestines handed to Dr. Bond on December 7. A third bottle was received, containing part of the stomach. The fourth was a bottle

secured, sealed, and labelled ‘stomach,’ handed to Dr. Dupré by Mr. Bond on December 7th, ‘D.’ The fifth was a bottle, sealed and secured as before, ‘urine,’ handed to Dr. Dupré by Mr. Bond on December 7, ‘E.’ The sixth was a bottle, sealed and labelled ‘vomit;’ and on another label, handed to Dr. Bond by Dr. Berry, December 6, ‘F.’ With this was a broken bottle, unlabelled, and a gutta-percha wrapper, with two seals upon it, as Mr. Griffin said. The next, ‘7,’ was a pill-box. It was secured and sealed, and marked on the tape which secured it ‘C.B.’ That is the pill-box (identified), and it is sealed in the same manner as the wrapper of the broken bottle. ‘8’ was a newspaper parcel sealed; ‘9’ was a brown paper parcel sealed; ‘10’ was a paper parcel sealed. That was the whole of what I received from Mr. Bond. ‘11’ I received from Inspector Butcher. That was opened in the presence of Mr. Bond. It contained a box—(this is the box)—with capsules in it. These capsules in the bottle were some of the 107 capsules. There was a paper with some sugar in it; some loose sugar, sweetmeat sugar. It contained a box of quinine powders—(box identified)—labelled ‘quinine powders’ in writing, and had the name ‘J. W. Littlefield, Ventnor,’ in print. There were four pills loose, one large comfit from a Dundee cake, and one of the capsules contained what appeared to be a pill, but which was really a similar comfit.”

“I don’t think you said what was in the newspaper parcel?”

“Eight packets.”

“What did the next parcel contain?”

“Nine packets. Packet 11 I received from Inspector Butcher on December 12, marked ‘1 W. D.’ Inside that there were two little tinfoil packages. Twelve was received from Butcher on December 14. It was a parcel labelled ‘The remainder of the sugar from Dr.

Bedbrook's.' Sherry from the decanter used by Lamson was handed to me by Butcher on the 14th."

"Did you later on receive this box and wafers?"

"Yes. It is marked 14."

[205] See *post*, Chapter XI.

[206] See *post*, Chapter XI.

[207] The only evidence offered of his being at Shanklin on the 29th was an entry, in the "luggage and cloak office" book of the Shanklin railway station, of a ticket having been issued for luggage on the 29th August, in the name of "Lamson," which Mr. Poland proposed the porter (John Durrant) should use to refresh his memory. As the witness could not identify the prisoner as the party; without saying that it was strictly inadmissible, Mr. Justice Hawkins considered it would have little effect, and it was not pressed. Neither *Mr. Chapman* nor *Mrs. Jolliffe* saw him there on that day.

[208] Evidence of *William Tulloch*, and the pawnbroker, *Robinson*, of Mortimer Street, Regent Street.

[209] There is some error in the report, as it was on the 1st December that the prisoner wrote to the deceased that it was too late to come that day; and Mr. Montagu Williams admitted, in his speech, that the prisoner visited Wimbledon, and said he went to the school on the 2nd. It must have been on the 2nd that the witness went with him, the first time, to Wimbledon. In his affidavit in support of the plea of insanity J. L. Tulloch says, that "he saw Dr. Lamson at his brother's (W. Tulloch) for a few minutes on the 1st, and next day proceeded with him to Wimbledon."

[210] He had previously, on the 15th November, tried to change a cheque for £15 at the American Exchange, in the Strand, where a parcel had been sent for him.—*Evidence of Sidney Harbord, the cashier.*

[211] In the *cross-examination* of *Mrs. Bowles*, the school-matron, Mr. Williams endeavoured to get from her an admission that the chemicals kept in the house for the purposes of the scientific lectures were unsecurely kept, and within the reach of the boy. *Mr. Bedbrook*, however, proved that the button of the cupboard in which they were kept was 6 feet 6 inches from the floor It was also proved by the chemical lecturer that the chemicals were only those acids commonly used in the production of gases—acetate of lead, hydrochloric and sulphuric acids. —*Evidence of Eastick and Whalley.*

[212] In the boy's box, on the ground floor, five pills mixed with capsules were found. Twenty white powders, which were numbered 1 to 20, were got from a box in the dining-room, marked "J. Littlefield," six of which—1 to. 6—were large. The tin box with the two pills was handed to the police inspector by Mr. Bedbrook, and a decanter of sherry from the sitting-room, and the remainder of the sugar from the matron. The evidence of *Inspector Fuller*, and other policemen, proved that after being transferred from various hands, these things were handed to the analyst, the Judge remarking on the want of care in transmitting such important pieces of evidence, most unnecessarily, through so many hands.

[213] The assistant at *Messrs. Bell & Co.'s* stated the price of atropia to a medical man as 4*d.* per grain—hence the remark of Mr. Montagu Williams on the entry of "8*d.*" "C." in the cash book of that day. The assistants at Messrs. Allen's altered their minds, on consultation

together, within three hours after they had told the police that it was atropia they had sold to the prisoner.

[214] The fact of this poison having been sold by Allen & Hanbury's assistant to the prisoner, on the faith of finding his name in the *Medical Directory*, was severely commented on by the Judge. No doubt by 31 Vict. cap. 121, sec. 17, Schedule A. Amendment Act, 32 & 33 Vict. cap. 117, sec. 3, it is not required, in the case of a medical man, that the name of the purchaser, the name and quantity of poison sold, and the purpose for which it is to be used, should be entered, and the signature of the purchaser is not required. The following questions and answers call for publication:—

The Judge.—"Suppose I applied and gave a name out of the Medical Directory, and asked for two grains of aconitia, would you sell it me?"

Answer.—"If I were satisfied at the time you were a medical man I should let you have it."

The Judge.—"Then anybody of respectable appearance and well dressed might apply? and is there anything by which you can satisfy yourself that the applicant is not an impostor and telling you that which is not true?"

Answer.—"The only thing would be the style of writing—whether it was in the style characteristic of medical men."

The Judge.—"That hardly seems satisfactory."

Mr. Poland.—"The Act does not require registration in the case of sale to a medical man."

The Judge.—"It strikes me that anyone could go, if he had sufficient knowledge to write in the technical style of medical men, and get poison without difficulty; and though the matter is not before us in this case, it may be that the law requires amendment in this particular."

The jury also appended to their verdict a presentment urging greater restrictions on the sale of poisons, with which the Judge thoroughly agreed, and undertook to forward it to the Home Secretary. During the present Session of Parliament the Government have announced that a "New Poisons Act" is preparing, and that it will deal with patent medicines. It is imperatively required.

[215] Entries in the Register of the New York Bloomingdale Asylum.

[216] Affidavit of Dr. G. H. Boyland, of Baltimore, U.S., a fellow student, and Dr. John Swinborne, of Albany, N.Y., Surgeon-in-Chief of the American Ambulance.

[217] Affidavits of Dr. Charles H. Von Klein, of Hamilton, County Butler, U.S., Surgeon in the Russian army, and Dr. F. P. Carey, of Auburn, N.Y., fellow surgeons with Lamson at Bucharest.

[218] Statutory declarations of about thirty persons—friends, servants, and such as occasionally came in contact with him during his residence at Bournemouth.

[219] Ernest Juch, of 1, New Broad Street, journalist, and formerly a medical practitioner, who met Lamson in New York, August, 1881, and saw him daily for two months.

[220] Mrs. McElroy, when, with Lamson's consent, taking charge of his medicines, found among other things an unmarked box of "sugar pills," which Lamson said were either morphia or quinine, he did not know which. On this evidence the following remark is made on the accused's behalf:—"After he (Lamson) left, and when John was taken ill, several pills were discovered on the table, which were not noticed while Lamson was there. It is believed that as John was suffering from indigestion

(he had dined at one, and portions of his dinner were vomited undigested at nine) he determined to take a pill, and try with it one of the capsules just given him. John's symptoms of poisoning did not begin till about three-quarters of an hour (*really twenty-five minutes*, see p. 520) after Lamson left, and he lived for about four hours after, whereas if he had taken the poison in the capsule, while Lamson was there, it is almost certain that the symptoms would have set in much earlier, especially considering the enormous quantity of poison said to have been taken. He then, unhappily, selected one containing aconitia. From the foregoing evidence of the way in which Lamson used and prescribed aconitia, taken with what Mrs. McElroy says of his ignorance as to what his own medicaments contained, it might well be that he ignorantly or insanely mixed these pills, and sent them to Percy John without any murderous intent."

[221] A sample of "English aconitine," recently obtained from Morson's, was amorphous, slightly coloured, and gave a red-brown colour, with all acids, even acetic; yet its physiological action was perfect.

[222] In "Unbeaten Tracks in Japan" (Isabella L. Bird, 1880), it is stated that the Ainos, an interesting race inhabiting a part of that country, poison their arrow-heads with a paste prepared from the root of a species of aconite, Aconitum Japonicum.

[223] A servant girl was recently poisoned in New York by repeatedly rubbing tincture of aconite on the gums to relieve pain. She died in three days. (British Medical Journal, Aug. 26, 1882.)

[224] Woodman and Tidy, p. 393, wrongly give this as "one ounce of the tincture."

[225] The case of Reg. *v.* McConkey, already referred to (*ante*, p. 515), furnishes us with an instance of aconite root being administered with criminal intent, and with fatal result.

In Aug., 1882, four boys and a girl suffered severely from chewing dried aconite root, which they had found in the street. The symptoms, tingling and numbness, abdominal pain, nausea, vomiting, giddiness, muscular weakness, pains in the legs, and coldness of the feet, set in very rapidly, the greatest delay being a quarter of an hour. There was no dyspnœa, and the pupils in all were *widely dilated*. The treatment adopted was the administration of emetics (sulphate of zinc and vin. ipecac.), coffee and brandy, and castor oil. Recovery in two to seven days. Quantity taken, "a very small piece." (Brit. Med. Journal, 1882, p. 1039.)

[226] An illustration of the dangerous character of these preparations, and of the serious results which may ensue from the mistake of a person ignorant of medicine, is afforded by the following case, reported in the *Medical Times and Gazette*, of January 22, 1853. An inquest was held on January 15th, 1853, to inquire into the death of Emma Forty, an inmate of the Roman Catholic Convent of the Good Shepherd at Arnosvale, near Bristol. The deceased suffered from tapeworm, for which the medical attendant of the convent had prescribed a decoction of pomegranate bark and quinine. According to the general custom at the convent, the medicine was prepared by Miss Ryder, the sister-attendant, who unfortunately took a wrong bottle from the dispensary, and gave, instead of the decoction, *a drachm of Fleming's Tincture of Aconite*. This mixture was given to the deceased on the Monday preceding the inquest (Jan. 10th); and death occurred in about five hours after the draught had been swallowed. After some remarks by the Coroner as to the imminent

danger of unskilled persons being allowed to dispense drugs, the jury returned a verdict that death was occasioned by the administration of aconite by Miss Ryder, and expressed the opinion that much blame was attributable to the authorities of the convent for allowing persons, without the necessary knowledge, to dispense medicines: they hoped that in future such a practice would be discontinued.

[227] A report of the inquest is to be found in the Pharmaceutical Journal, 1872, p. 618. The deceased was the Hon. Gowran Charles Vernon, Recorder of Lincoln, and second son of Lord Lyvedon. According to the evidence of a brother of Mr. Vernon, the latter had for some time past complained of pains in his head, and had been in the habit of using neuraline with the object of relieving these pains. On returning to his residence, after a walk with his wife, the deceased was seized with a fit, and shortly afterwards died. The doctors considered that he was suffering from neuralgia and epileptic fits. Mr. G. Harley, M.D., M.R.C.S., stated that he had analysed neuraline, and found it to be an extract of aconite, mixed with rose-water; it also contained chloroform. The Coroner (Dr. Lankester) said there was no doubt that the deceased had expired from natural causes, and that he had been seized with a fit of convulsions, from the effects of which he died.

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