THE

LADY'S COUNTRY COMPANION;

OR,

HOW TO ENJOY A COUNTRY LIFE RATIONALLY.

BY

MRS. LOUDON,

AUTHOR OF "GARDENING FOR LADIES," ETC.

WITH

An Engraving on Steel, and Illustrations on Wood.

LONDON:

PRINTED FOR

LONGMAN, BROWN, GREEN, AND LONGMANS,

PATERNOSTER-ROW.

1845.

THE

LADY'S COUNTRY COMPANION;

OR,

HOW TO ENJOY A COUNTRY LIFE RATIONALLY.

BY

MRS. LOUDON,

AUTHOR OF "GARDENING FOR LADIES," ETC.

WITH

An Engraving on Steel, and Illustrations on Wood.

LONDON:

PRINTED FOR

LONGMAN, BROWN, GREEN, AND LONGMANS,

PATERNOSTER-ROW.

1845.

The Project Gutenberg eBook of The Lady's Country Companion; Or, How to Enjoy a Country Life Rationally

Title: The Lady's Country Companion; Or, How to Enjoy a Country Life Rationally

Author: Mrs. Loudon

Release date: January 31, 2018 [eBook #56477]

Language: English

Other information and formats: www.gutenberg.org/ebooks/56477

Credits: Produced by Clare Graham and Marc D'Hooghe at Free Literature (Images generously made available by the Internet Archive.)

THE LADY'S COUNTRY COMPANION;

OR,
HOW TO ENJOY A COUNTRY LIFE RATIONALLY.

BY
MRS. LOUDON,

AUTHOR OF "GARDENING FOR LADIES," ETC.

WITH
An Engraving on Steel, and Illustrations on Wood.

FOURTH EDITION.
LONDON:
LONGMAN, BROWN, GREEN, AND LONGMANS.
1852.

PREFACE.

In the present edition of the "Lady's Country Companion," a reduction has been made in the price, to render the work still more generally useful than it has hitherto been; but in all other respects it is essentially the same.

The principal object of this work is to save young housekeepers the pain and trouble of buying their own experience; and though it is particularly addressed to those residing in the country, I have had the satisfaction of finding that it has been in many cases almost equally useful to those living in towns. It may, however, be interesting to my readers to know that it was originally written for the benefit of a young friend, who was precisely in the position I have represented Annie to be in, and who, knowing I had resided in the country in my youth, asked my advice. Of course, in preparing the work for publication, many things were added or enlarged on, particularly in the parts relating to cooking and gardening, and in the suggestions for altering and furnishing the house; but nearly all the housekeeping and farm-yard details were the result of my personal experience. It happened in my youth, that my father, who was in the law, was obliged, from ill health, to give up his profession, and to reside in the country; and as my mother was dead I kept his house. I had thus to practise what I have here attempted to teach; and I shall be only too happy if I am the means of sparing others the annoyances I suffered myself.

I have stated these facts now, as it is possible, from the gradually declining state of my health, I may not have another opportunity of mentioning them in their proper place, and as I think my readers will be likely to place more confidence in my counsels when they know they are founded on realities. I have always been anxious to make my books useful, but I am now still more so than ever I was before.

J. W. LOUDON.

Bayswater, Dec. 10, 1851.

CONTENTS.

Page

PREFACE iii

LIST OF ENGRAVINGS xi

LETTER I.
Introduction. 1

BOOK I. THE HOUSE.

LETTER II.
First Impressions of the Country.—Making Fires. 5

LETTER III.
Hall.—Morning Room.—Book-Cases.—Plants in Pots.—Squirrels, Canary Birds, Parrots and Macaws, Monkeys, Gold Fish, and Cut Flowers.—Drawing-room.—Dining-room. 14

LETTER IV.
Flies.—Servants' Offices, including the Housekeeper's Room and Store Closet, the Kitchen, and the Scullery.—Brewing; making Home-made Wines, Cider, and Perry; and making Bread, Rolls, Cakes, Rusks, Muffins and Crumpets, and Biscuits. 35

LETTER V.
Impromptu Cookery.—Soups.—Poultry.—Pigeons.—Game.—Salads of Cold Meat and Potatoes.—Modes of dressing Potatoes and Carrots.—Sauces.—Omelettes, Creams, and Side Dishes.—Miscellaneous Cookery.—National Cookery.—The French Pot-au-Feu.—Italian Macaroni.—German Sauer Kraut—Polish Barsch.—Spanish Olla Podrida and Puchero.—Scotch Haggis, Barley Broth and Hotch-potch.—English Plum-pudding. Puddings.—Potato Flour.—Pickles.—Pork Pies. 70

LETTER VI.
The Larder.—Salting Meat, Bacon, and Hams.—The

Dairy.—Management of Milk.—Making and keeping Butter.—Making Cheese of various Kinds.—Ice-House, Ice-Cellar, and Ice-Cooler.—Ice-Creams. 119

BOOK II. THE GARDEN.

LETTER VII.
Planting a regular Geometrical Flower-Garden.—List of Plants.—Mode of laying out regular Figures on the Ground.—Rules for arranging Colours.—Planting Side Beds.—Plants with fragrant Flowers.—Culture of Bulbs.—Reserve Ground.—Culture of Annuals, Perennials, and Biennials.—Hotbeds and Frames for raising and keeping Half-hardy Flowers. 153

LETTER VIII.
Use of Plant-Houses.—Nature of Climates.—Different Kinds of Hothouses.—The Dry Stove, the Bark Stove, and the Orchideous House.—Culture of Plants in the Bark Stove.—Aquarium and Water Plants.—Red Spider.—Culture of Succulent Stove Plants.—Culture of Orchideous Plants.—The Greenhouse.—The Australian House, and Culture of its Plants.—The common Greenhouse, the Heath House, the Conservatory, the Orangery, and the Camellia House.—The Culture of Plants in the common Greenhouse.—Potting Plants.—Heaths.—Culture of Plants in the Conservatory.—Culture of Orange Trees.—Aphides. 186

LETTER IX.
The Park and Pleasure-Grounds.—Situation of old Houses.—Water.—Forest Scenery.—Effect of a Shrubbery in harmonising a Flower-Garden with a Park.—Opening Vistas.—Scenes in a Park.—Fences against Cattle.—Styles in Gardening.—Use of a Terrace.—Patte d'Oie.—Planting an Architectural Garden.—Planting an Arboretum.—Renovating Turf. 210

LETTER X.

Laying out a Kitchen-Garden.—Making Gravel Walks.—Box Edgings.—Crops of Culinary Vegetables.—Cucumbers, Melons, and Mushrooms. 226

LETTER XI.
The Management of Fruit Trees.—Planting.—Protecting the Blossoms.—Stone Fruits.—Fig Trees.—Grapes.—Management of a Vinery.—Growing Pine-apples.—Forcing Peaches and Nectarines.—Standard Fruit Trees.—Kernel Fruits.—Fruit Shrubs.—Strawberries.—Tart-Rhubarb. 244

LETTER XII.
Operations of Gardening.—Digging, Forking, and Hoeing.—Sowing Seeds.—Taking off Suckers.—Making Layers and Cuttings.—Budding, Grafting, and Inarching.—Pruning and Training.—Disbudding.—Manuring.—Keeping Fruit in a Fruit-Room. 268

BOOK III. DOMESTIC ANIMALS.

LETTER XIII.
Quadrupeds kept for Amusement.—Horses for riding and driving in Pony Carriages.—Mules, Zebras, Quaggas, and Donkeys.—Dogs and Cats. 284

LETTER XIV.
Quadrupeds kept for supplying Food.—Cows, Calves, Goats, Pigs, Rabbits, and Deer. 309

LETTER XV.
Inhabitants of the Poultry-Yard: Fowls, Turkeys, Guinea Fowls, Geese, Ducks, and Pigeons.—Peacocks and Hens.—Diseases of Poultry, and their Cure. 330

LETTER XVI.
The Inhabitants of the Ponds: Fish and Aquatic Fowls, including Swans, exotic Geese and Ducks.—Inhabitants

of the Woods: including Pheasants and Partridges, Herons and Bitterns.—Aviary.—Apiary, and the Management of Bees.—Silk-worms. 359

BOOK IV. RURAL WALKS.

LETTER XVII.
Shoes and Apparatus for Walking.—Rural Seats.—Natural Objects noted in a Country Walk; the Mole; the Shrike; the Black Snail; the Siller Cups; the Woundwort.—Pleasures of studying Botany.—Granite.—Appearance of the Clouds. 390

BOOK V. COUNTRY AMUSEMENTS.

LETTER XVIII.
Archery: Targets; Self Bows and Backed Bows; Bowstrings; Arrows; Arm Bracer and Shooting-Glove; Belt and Tassel; and Quiver.—Sketching in the open Air: Block-Book and Pencils; Artist's Colours; Touch of the different Trees.—Swinging.—Pleasure-Boats.—Skating.—Sporting Terms. 403

BOOK VI. COUNTRY DUTIES.

LETTER XIX.
Relation between a Landed Proprietor and the Cottagers on his Estate.—How to relieve the Poor.—Establishing Schools.—Teaching the Daughters of the Poor to make Clothes, and teaching them Cooking.—Employing the Poor.—Assisting the Poor in Illness.—Making Clothes for the Poor. 417

INDEX. 425

LIST OF ENGRAVINGS.

Fig.		Page
	Frontispiece.	
	The Manor-House in its original State.	4
1.	Ground Plan of the Manor-House.	16
2.	Spigot and Faucet.	46
3.	Mash-stirrer.	48
4.	Mash-tub.	48
5.	Fruit-crusher.	52
6.	Cabbage-cutting Machine for preparing Sauer Kraut.	99
	Garden Front of the Manor-House in its improved State.	152
7.	Radiated Geometrical Flower-garden.	157
8.	Square Geometrical Flower-garden	161
9.	Diagram for forming the Beds of Flower-gardens.	162
10.	Diagram for forming the Beds of Flower-gardens.	163
11.	Diagram for forming the Beds of Flower-gardens.	163
12.	Compound Geometrical Flower-garden.	164
13.	Park Fence.	219
14.	Poultry-yard.	333
15.	Sitting-box for Hens.	335
16.	Hen-roost.	336
17.	Hen-coop.	338
18.	Nidulària campanulàta.	395

LETTER I.

INTRODUCTION.

Your letter, my dear Annie, informing me that you are about to be married and to settle in the country, has interested me exceedingly, as it reminds me of my own youth, when my first essays in housekeeping were made under circumstances very similar to those in which you will be placed. It is true I was not then married, but, as my mother was dead, the care of the house devolved on me; and I knew even less about household affairs than most girls of my age and rank in life, as my mother had an old and favourite housekeeper, who managed every thing, and who would not suffer the slightest

interference in her department. When my mother died, this person left us; and my father, with a shattered constitution and a greatly diminished fortune, retired to a small estate he had in the country. I was then young and thoughtless; I had no sisters; and having, like you, been brought up in a town, I had no ideas of the country but as a place where eggs, cream, and fruit were in abundance; where I might keep as much poultry as I liked; and where there were shady lanes, and green fields abounding with pretty flowers.

The place we went to live at had a good house, commanding a splendid view; an excellent garden; three fish-ponds, and about thirty acres of grass land, which enabled us to keep cows and horses, without troubling us with any of the laborious duties of cultivating arable land.

At first I was enchanted with the change. I was never tired of feeding my poultry, watching the dairy-maid, and managing the fruit and flowers; but, alas! I soon found that there are few roses without thorns. My first trouble was three gentlemen calling on us one day unexpectedly, and my father asking them to stay dinner. We were seven miles from the town where we had formerly lived; and, though there was a small town within two miles of us, the road was bad, and the miles very long ones; while the town itself, when we reached it, was one of those provoking places the shopkeepers of which never have what is wanted, though they always say they had abundance of the required article the week before, and believe they shall have it again the week after. I need not enter into the details of my troubles in preparing for this well-remembered dinner. Meat was out of the question; and though I was enabled, with infinite difficulty, to give my father's friends enough to eat, no one but a young housekeeper in a similar situation can have any idea of what I suffered. The lesson, however, was not lost upon me; and you may easily imagine that ever afterwards I took care to have a cooked piece of hung beef, or ham, or some similar substantial article of food in the house, that I might be provided for a similar occurrence.

The recollection of what I underwent while buying my experience makes me anxious to spare you, my dear Annie, the pain of a similar ordeal; particularly as it is more disagreeable for a young newly married woman to feel in housekeeping difficulties than a single one; as it makes you fear your husband had a higher opinion of you than you deserve. In your situation the difficulty is increased by your husband not having lived at the Manor-House since the death of his parents, when he was only ten years old; so that he can have no idea of the petty troubles you will be exposed to. Under these

circumstances I will do my best to clear the path that lies before you, and to teach you how to enjoy rationally a country life.

The Manor-House in its original State.

BOOK I. THE HOUSE.

LETTER II.

FIRST IMPRESSIONS OF THE COUNTRY—MAKING FIRES.

You complain, my dear Annie, that when I wrote to congratulate you on your marriage, I did not send you any of the advice I promised. The neglect was intentional. I was unwilling to disturb the happiness of the honeymoon by any allusion to the troubles of life; but now that you are actually arrived at the mansion which is to be your future dwelling, I will not delay any longer beginning the fulfilment of my task. I am sorry to hear that you felt chilled and depressed at the first appearance of the Manor-House; though I am not surprised that you found the room you were ushered into dark and cold, since you tell me that the windows are shaded by some lofty Scotch pines, which are certainly the most gloomy of all the vegetable race, and which must necessarily impede both the light and the warmth of the sun. You add that you are ten miles from a market-town, and at least

seven from any visitable neighbours; that the kitchen-garden is a mile from the house, and under the care of a cross old gardener, who cannot be displaced; that there is no separate flower-garden; and, in short, that if it were not for your affection for your husband, you would be miserable.

Your letter would make me very uneasy on your account if I had not had a good deal of experience of the world; but I am comforted when I reflect that in early youth the vehemence of our feelings always makes us exaggerate both our pains and our pleasures. Have you ever looked at a landscape through a window of coloured glass, and remarked the cold and miserable appearance presented through the purple pane, contrasted with the rich glow thrown upon every object by the orange glass? Both give a false idea of the reality; but the impressions thus received are not more erroneous than those we often experience of what passes around us, when viewed through the medium of our feelings. I thus consider your letter as produced by a view taken through the purple glass; and I am far from believing that you will dislike the country when you know it better; and still less do I give credence to your vehement assertion that you never can be happy in your present residence.

Happiness, I suspect, in most cases, depends more upon ourselves than we are generally willing to allow; and I am quite sure that young married people who are attached to each other, and have a competency, may be happy if they will, particularly in the country, where their principal amusements must all centre in home. You will, perhaps, be surprised to find that I think this a cause of happiness, but you will find in time that I am right; and that our chances of being happy decrease in proportion as we depend upon others for our enjoyments. I cannot conceive a more miserable life than that of a beauty who has no pleasure but in being admired; and who, consequently, must pass her time in fits of alternate depression and excitement. It would give me the greatest pain to see you plunge into this species of mental intoxication, and I rejoice that you are placed in a situation where you will not be exposed to the temptations arising from bad example. In this respect your present abode seems to be everything I could wish; as, from the description you have given me of the difficulties attending visiting your neighbours they seem to be enough to cure the most ardent lover of dissipation; and, unless the neighbours be more than commonly agreeable, I think you will not feel inclined—

——"Frequent visits to make
Through ten miles of mud for formality's sake,

With the coachman in drink, and the moon in a fog,
And no thought in your head but a ditch or a bog."

Do not suppose from this that I think you should be unsociable; on the contrary, I think it a duty to mix occasionally with the world, as, unless we do so, we should soon learn to set a false value upon ourselves and upon every thing around us. The society of persons in our own rank in life is, therefore, essential to teach us our true level; and I have no doubt you will find some agreeable persons among your neighbours when you know them better, whose friendship you will think worth cultivating.

I will now take your objections to your residence in detail; and we will try if some remedy cannot be devised for them. I am glad your house is large. In town, we are often content to put up with the inconveniences occasioned by want of room, as we know that space is valuable, and cannot always be had; but, in the country, where we feel the free air, and see no houses before us, it seems hard to be confined. You may also find it convenient, in the winter, to have room to take exercise within doors; and I hope you have a good-sized hall or gallery to play at battledore and shuttlecock in; for that is a game not to be despised in the list of country amusements. The trees are certainly an objection. Our ancestors seem to have had strange ideas about planting trees in front of a dwelling. It is true, that the modern conveniences of blinds and verandas were then probably unknown; and, therefore, a few trees were judged agreeable to shade the windows from the glaring light and heat of the sun. At least, this appears to me the only way of accounting for the strange manner in which we often see trees placed close to the windows of an ancient manor-house, as though purposely to intercept the prospect, and to impede the entrance of two of the greatest blessings of nature, light and free air. I should hope that your husband will consent to have these trees cut down, or at least thinned out; and I am sure he will find the sacrifice amply repaid by the air of cheerfulness which will be given to his rooms. I have also no doubt that when these rooms are better ventilated, and the sun is permitted to reach them, you will find them warmer; though I confess that a country-house is generally colder than one of the same size in town. I do not mean from the size of the rooms, for large rooms, having fewer draughts, are less difficult to warm than small ones; but because houses in the country are more exposed to the wind, and the air round them is colder than in towns. In some old country-houses the rooms are small, and there are numerous long, narrow passages, which are sure to produce draughts: but to cure this

evil, thick curtains may be suspended over the doors, care being taken not to prevent the doors from opening freely; or there may be double doors and double windows.

In warming a room, if an open fireplace be used, a good deal depends upon the mode of managing the fire. Servants are very apt to throw on a quantity of coals at once, in such a manner as to smother up the flame; and, when this is the case, the heated air produced by the imperfect combustion of the coals passes up the chimney with the smoke, and very little warmth enters the room. If, on the contrary, the coals are carefully arranged on the fire so as to allow a free current of air to pass through them, perfect combustion takes place, and the coals become a glowing mass, from which rays of light and heat spread in every direction; while the cheerful appearance of a bright glowing fire must be felt by every one. Where an opportunity occurs of altering a fireplace, its capability for diffusing radiant heat will be greatly increased by making the back and sides of fire-brick or fire-stone; as these substances retain heat much longer than any kind of metal, and are consequently more likely to prevent the fire from being chilled by the addition of fresh coal. Drying the coal before burning it is an excellent plan to prevent smoking, as it makes the fire exceedingly bright and fierce. It is true that the coal appears to vanish with extraordinary rapidity, but the combustion is so complete, that a much greater quantity of radiant heat is evolved from the same quantity of fuel.

In many country places it is convenient to burn wood, especially where the fireplaces are large, as wood burns best on the hearth, or with the logs supported by what are called andirons or dogs; and fires of this kind harmonise admirably with large rooms and the general appearance of the fittings up of an old country-house. A wood fire, however, requires a good deal of attention to manage it well, as, without care, it will often go out before the logs are half burnt; especially when wood is burnt in a grate, unless it is mixed with a little coal, and there is a plate at the bottom of the grate to keep in the ashes. It must also be remembered, that, though large logs are very useful to make a large fire, yet, when a quick supply of heat is required, it is best to use wood cut into short thick pieces; and that wood burns much better when dry than when green. Green wood, indeed, contains about one-third of its weight of water, which of course evaporates in the shape of vapour, and this vapour aids in carrying the heat up the chimney; dry wood, on the contrary, produces a clear bright fire, which gives out radiant heat. Opinions differ as to what kind of wood is best for fuel. Pine wood burns

freely, from the quantity of turpentine it contains, but it does not give out much heat. Beech is preferred on the continent of Europe, and maple in America; but Count Rumford says that the greatest mass of radiant heat is produced by the fuel of the lime tree. Generally speaking, close-grained smooth woods make better fuel than those the grain of which is open and rough. Pine cones are admirable for lighting a fire; and you will find the gloomy Scotch pines, which have so annoyed you with their shade, may be useful in this respect, as producing an article of domestic economy.

If any of your chimneys should smoke, the usual remedy is contracting the mouth of the chimney, or raising it higher by the addition of a chimney-pot. The last is a most unsightly remedy, and I hope you will not have occasion to try it. Indeed, old houses seldom smoke, unless their chimneys are damp for want of use, or that birds have built in them; though nothing can be more common than to have smoky chimneys in modern houses. One reason, I believe, is, that newly built chimneys very often smoke because they have not been properly cored; that is, the projecting pieces of mortar, &c., which are formed inside the chimney while it is building, have not been removed, and prevent the proper ascent of the smoke. Another common fault in modern fireplaces is, that they are too shallow to allow sufficient space for the grate; and, when the grate is set too far forward into the room, it is evident that a very strong draught will be required to draw the smoke up the chimney. Neither of these faults is common in old houses; in them the chimneys are generally as smooth inside as the walls of the room, and the fireplaces are usually two feet deep, or even more, instead of being only nine inches, as I am told is the case with some modern villas. I say nothing about stoves, as I confess myself prejudiced against them, from the numerous fires they have occasioned; and I think open fireplaces not only safer and more agreeable, but much more conducive to health, as they aid in ventilating the apartments, and without a constant change of air there can be neither health nor happiness.

In speaking of the different kinds of fuel, I forgot to mention peat and charcoal, but you will find these more useful in the kitchen than in the parlour; and coke I would not advise you to employ, on account of its close unpleasant smell.

LETTER III.

HALL.—MORNING ROOM.—BOOK-CASES; PLANTS IN POTS; SQUIRRELS; CANARY BIRDS, PARROTS AND MACAWS; MONKEYS; GOLD FISH; AND CUT FLOWERS.—DRAWING-ROOM.—DINING-ROOM.

I have just received your letter, enclosing a plan of your house and a sketch of its present appearance; and, I confess, it appears to me that you have not complained of its gloominess without having abundant reason for doing so. Pray tell your husband, however, that I fully sympathise with his reluctance to cut down trees that he has been familiar with from his boyhood; and that, so far from liking to see wood felled myself, I feel positive pain when even the large limb of a noble tree falls to the ground. But I think it a weakness to give way too much to this feeling; and, if I had a favourite tree that I was convinced was injurious to the health, or even to the comfort, of human beings, I would instantly have it cut down, in the same manner as I would submit, without hesitation, to the amputation of an arm or a leg, if I had sustained an injury that I was quite sure could not be cured in any other way. You say you felt excessively pained when your husband said, that, though he did not think any circumstances could ever have induced him to order those trees to be cut down, he was quite delighted to have such an opportunity of pleasing you; and that, when you heard the workmen employed in cutting the trees down the following morning, you felt every blow they struck, and you thought he must hate you for wishing him to make such a sacrifice. These feelings are quite natural; but, in my opinion, the readiness with which your husband complied with your wishes will strengthen the bond of affection between you instead of weakening it, as there cannot possibly be a stronger proof of love than is shown in sacrificing our prejudices in favour of the beloved object; and I am sure, with your grateful and amiable disposition, you will be delighted to prove that you can make sacrifices in your turn, whenever a proper opportunity for doing so may occur.

I am sure the removal of these trees will make the house appear more cheerful; and I can now only recommend you strongly to take care that your rooms are well ventilated, by the windows being always opened in fine weather, whenever the rooms are unoccupied, for, I repeat, though you laughed at my former assertion, that a free circulation of air is essential both to health and happiness. You ask, how is it possible that fresh air can contribute towards happiness? and I, in return, ask you if you have never felt the influence of a fine clear bracing morning in making you feel gay and happy, quite independently of moral causes. On such occasions,

"The bosom's lord sits lightly on his throne,"

and we feel equal to any exertion that may be required of us. Look at the contrast between country children, as they run shouting and laughing only from the irrepressible glee of their own hearts, and the children of a close and over-populated town, who creep from school shivering and sad, with countenances as dull as the appearance of the atmosphere they are compelled to breathe. You enjoy in the country the inestimable advantage of being able to procure as much fresh air as you like, only by opening your windows; but the inhabitants of towns, when they throw open their sashes, often admit air more impure than that already in their rooms.

I will now give you my opinion as to the best method of furnishing your rooms, so as to make them look as cheerful as possible.

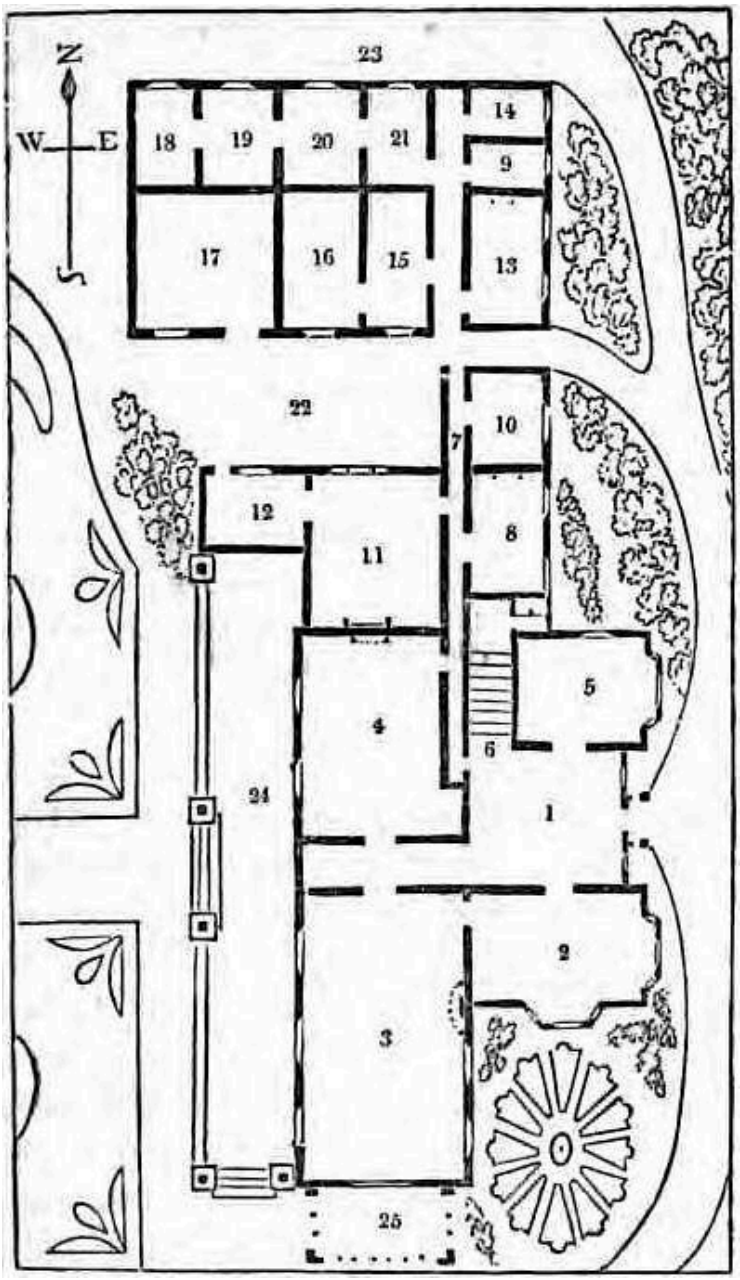


Fig. 1. *Ground Plan*—1, Hall. 2, Morning room and library. 3, Drawing-room. 4, Dining-room. 5, Gentlemen's business room. 6, Staircase. 7, Passages to offices. 8, Housekeeper's room and store closet. 9, Dressing-room for men-servants. 10, Butler's pantry. 11, Kitchen. 12, Scullery. 13, Servants' hall. 14, Room for female servants. 15, Dry larder, or pantry. 16. Wet larder and salting room. 17, Laundry. 18, Cheese room. 19, Butter room. 90, Churning-room. 21, Dairy. 22. Kitchen court. 23, Road to stable. 24, Terrace. 25, Conservatory.

I see by the plan (fig. 1.) that you have a good-sized *hall*, so that you will have room for playing at battledore and shuttlecock after all; and I repeat that it is a game not to be despised, though you do speak so contemptuously of the

"Transports that shuttlecock yields."

I think you do wrong to treat with so much scorn these trifling amusements. It is the part of true wisdom to enjoy every harmless pleasure which falls within our reach, provided we do not occupy, by so doing, those hours which ought to be devoted to more serious employments. Thus, if you do not like battledore and shuttlecock, perhaps you may billiards, and your hall would do admirably for a billiard-table. The small room on the right hand is your husband's business-room, and it is very conveniently situated, as people who want to see him on justice-business, or to show him dogs, or any thing relating to sporting, &c., can go in by the side glass door, without entering the house.

On the other side of the hall is the room you thought so gloomy the night you first arrived; and this I would advise you to fit up partly as a *library*, and partly as a *morning sitting-room*. I see that one of the windows faces the east; and this you will find is in itself sufficient to make the room pleasant for a morning room, as you will have the rising sun upon it, and that always diffuses an agreeable warmth in a room, at a period of the day when warmth is particularly agreeable. I wish the other window looked on a flower-garden, as it faces the south; and, now that the gloomy Scotch pines have been cut down, it would be just a little sheltered place, where flowers would delight to grow, particularly if your husband would consent to remove a small cedar that I see still casts a shade upon it. However, we must not ask for too much at once; and, till your flower-garden is made, I would advise you to have a few plants in pots in the east window. Remember though, you must have only a few plants, as more than

five or six would give the window the appearance of being a substitute for a greenhouse, a most unpleasant idea at any time, and particularly so in the country. Two rather tall and spreading geraniums, with showy trusses of flowers, a large well-trained Sóllya heterophýlla, a fine Polýgala oppositifòlia, and two showy well-grown Fuchsias, will be quite enough. They should be in large handsome pots, standing in saucers for the sake of cleanliness; and care should be taken not to fill the pots with earth higher than to within about an inch from the brim, so as to leave plenty of room for watering. The space left should be filled with water every morning, and the water suffered to run through the pots into the saucers; which, after waiting about ten minutes, or more if necessary, so to allow as much water as possible to drain through the earth in the pots, should be emptied, as nothing can be more injurious to most kinds of plants in pots than to let water stand in their saucers. If a constant fire be kept in the room so that the air is always hot and dry, the pots in which the plants are kept should be set within other pots, and the space between the two filled with moss. This is also a good plan with plants in balconies, to prevent the roots of the plants becoming dry and withered. Plants in rooms always require a great deal more water than plants in a greenhouse, to counteract the dry atmosphere of a living-room; and when practicable they should be set out in the rain, or syringed over head, to wash off the dust which, from sweeping the room and other causes, will inevitably rest on the leaves and choke up their pores, thus impeding the action of these very important organs. Air also is as essential to the health of plants as it is to that of human beings, as both live by decomposing it; and thus when plants are kept in a room, that room requires to be more carefully ventilated than would otherwise be necessary.

You say that all your rooms must be completely new furnished, and ask my advice as to the colours of the curtains, &c., in the different rooms. It is extremely difficult to give this, as taste differs exceedingly as to colours. As general rules, however, it may be observed that cold colours, such as pale blues and greens, never look well in rooms lighted from the north; and that warm colours, such as rich yellows and reds, should be avoided in rooms lighted from the south. As, however, it is desirable, if possible, to shake off the dislike you have taken to what I hope you will make your morning sitting-room, and as that dislike has arisen partly from the gloomy dark green curtains and dingy tapestry on the walls, I would advise you to adopt only light colours in the furniture; particularly as the room will be generally used by daylight. First, the tapestry must be entirely removed: indeed you say it is already half-decayed from age

and damp; and I would then advise you to have the walls, if they are in a proper state, painted or papered according to your fancy; taking care that the colour of the curtains and other furniture harmonizes with that of the walls. If your curtains are of moreen or damask you should have inner curtains of white muslin, which may be trimmed with lace, or have a coloured border: and these white curtains alone you will probably find sufficient during summer. There should be two sofas, an easy chair or two, comfortable footstools, and several small tables of different kinds, in addition to the ordinary chairs and tables; and I should add a chiffonier and a cabinet piano. You can, if you wish to be economical, have brown holland covers to the sofa and chairs; and you can pin plain white muslin over the silk of the piano and the chiffonier, to save them from the flies. The carpet may be Brussels, or Kidderminster, or a printed drugget, the first of the three being far the most expensive; the Kidderminster carpet and the drugget are nearly alike in price, but the drugget looks best, though it does not wear well. Whatever the material of the carpet may be, the colours should correspond with those of the furniture and the walls. As your books will be in daily use, they will be best in open cases with a little curtain of leather nailed along the shelves to keep out the dust. They should always, if possible, fill up entirely the space left for them; and on this account it is best to have movable shelves where it is practicable. Should the books not stand high enough to fill the space for them, the housemaid may remove the dust with a goose's wing, or with one of those brushes with long hairs now sold for similar purposes; but do not let her take the books down oftener than twice a year, as frequent removals will not only injure the binding of your books, but will occasion you great annoyance, from the confused manner in which they are sure to be replaced on the shelves.

I know you were always fond of pets, though you never kept any, as your aunt did not like them; but now you are your own mistress, I think it very likely you will have a canary bird, and perhaps a parrot; and I am sure you will have some gold fish, which you will keep in your morning room. I would not advise you to keep a squirrel, on account of its unpleasant smell in a cage, and its hiding propensities out of one; though in other respects squirrels are pretty little creatures from their gracefulness and agility, and the intelligence that sparkles in their bright little eyes. If you do keep a squirrel, feed it with bread scalded in hot water, and plenty of nuts; and take care that its cage is cleaned, its hay changed, and its tin for food washed out with hot water, every day.

Your canary bird, if you have one, should be kept scrupulously clean, and the bottom of its cage should be strewed with clean sand every morning. It should also have fresh water every day, both for drinking and bathing, the latter being in a shallow vessel; in the moulting season a small bit of iron may be put in the water for drinking, but no other medicine should be given. Its food should be as simple as possible, and should consist principally of summer rape seed, that is, those small brown rape seeds which are produced by plants sown in spring, and are ripe in summer; and not those sown in autumn and reaped in spring, which are large and black. A little duck-weed in spring, lettuce leaves in summer, endive in autumn, and slices of sweet apple in winter, may be added; and occasionally a few poppy or canary seeds, and a very small quantity of bruised hemp seed: but this last should be given as a great treat, and only sparingly: all sugar, bread, and other delicacies, are very injurious. It must never be forgotten that birds kept in cages are in a most unnatural state, and that they require the greatest care to keep them in health. Three things should be especially attended to: viz. cleanliness, simple food, and abundance of fresh air. This last particular may appear strange to those who know that the canary bird, being a native of a warm climate, is easily injured by cold; so much so indeed, that in winter its cage should never be hung in a room without a fire. But, notwithstanding this, it should have the windows of the room open frequently when the sun shines, even in winter; and in summer it should be kept as much as possible in the open air. The poor little creature shows its own feeling on the subject indeed very distinctly; for, as soon as it is placed near an open window in the sunshine, it begins to bathe, and to preen its feathers, and then it sings gaily its loudest songs of joy, frequently fluttering its wings at the same time, as though from a sensation of intense enjoyment. The cage for a single canary bird should never be less than eight inches in diameter and a foot high, and should have sticks placed across it at different heights for the bird to perch on.

Parrots, macaws, and cockatoos thrive best on a pole with a stand at the bottom for sand, as their tail and wing feathers generally become ragged when they are kept in a cage. Some grey parrots and blue macaws are very apt to pull out their breast feathers; but this is the result of a disease brought on by eating too much meat. The same cause also brings on gout in the feet, and other complaints. All the parrot tribe are hard-beaked birds, and consequently not carnivorous: their food in their native country is grain and fruit, and their habits in this respect should always be kept in view in feeding them; for though birds in confinement are in an unnatural state, and require

more indulgences than they would need if wild in the woods, yet they should never have food given to them which their organs are quite unfitted to digest. Parrots and other similar birds should therefore be fed as much as possible on ripe fruit, boiled wheat or Indian corn, and milk; or, if these articles be not attainable, bread or captain's biscuit soaked in boiling water, with enough milk added to enable the bird to drink, will be found the best substitute. Bird-fanciers use generally bread made without salt, and very well baked, crumbled into water and then slightly squeezed; but the birds get very thin if kept for a long time only on this diet, and require a little milk, though that is a food they certainly never can have in their natural state. Bechstein says that they will get fat on the seed of the safflower (*Cárthamus tinctòrius*), and indeed these seeds are called by the French *graines de perroquets*. Though the parrot tribe are not carnivorous, they are all very fond of a bone to pick; and I believe that they may be indulged with one occasionally, provided there is no fat and very little meat on it. Parrots should be supplied every day with clean water to wash, and their feet should be frequently examined and cleaned from any dirt that may be adhering to them.

Should you take a fancy to a pet monkey, most of the common kinds are kept chained to a pole on a stand, and fed like parrots; but marmozets, which are pretty little creatures, are very tender, and are generally kept in a cage like squirrels. They will eat animal food, and one that was at liberty is said to have snatched a gold fish out of the water, and devoured it. The most interesting circumstance relating to them is, however, their fondness for their young, which is nursed by both the male and female like a baby.

Gold and silver fish are very ornamental and suitable objects to keep in a lady's morning room. It is generally supposed that they are quite incapable of affection; but some that we have certainly knew me again when I came back after having been out of town; and one, which I call Goldy, and which we have had four or five years, will come and nibble my finger when I put it near him, or swim after a feather when I draw it gently along the surface of the water.

It is, however, very difficult to keep gold fish long in a room, particularly in a glass globe. When it is wished to do so, only two or three should be in one globe, and the water should be changed every day in winter, and twice a day in summer; the fish having no food but the animalcula which they find in the water, which should always be from a pond or river, as spring water is not only too cold, but often contains some mineral substance which is likely to prove injurious. When several fish are kept in a small space, the water

should either be kept continually changing by a fountain, or in some other mode; or the fish should be fed with some farinaceous substance, but never with baker's bread, as it is decidedly injurious to them. I am told that the dealers in gold fish, who always keep a great number together in darkness, in a large tub or tank, feed them twice a day with boiled grits; other persons recommend crushed barley or oats: in France they use a kind of paste made of maize or Indian corn; and in America, I am told, they prefer brewer's grains, or a paste made of bran and flour. Whenever farinaceous food of any kind is used, it should be given in small quantities, and be quite fresh; the vessel in which the fish are kept being always cleaned thoroughly every day, to prevent the possibility of any of the food in a sour state remaining in it.

Though gold and silver fish certainly look best in a glass globe, I doubt whether they live so long in one as they will do in an opaque vessel. When I kept my fish in a large oblong china vase, I lost only one in five years; but in a glass globe I lost seven in about six months. I tried various modes of treatment, such as putting gravel in the water, and giving the fish duck-weed and pond-weed to shelter them from the sun; but I had still the mortification to see my fish die, and generally without any apparent cause. The first symptom was the fish appearing languid and unwilling to move; but in a few hours, it began to swim on one side, and when turned on the other side it instantly resumed its former position; shortly after, the tail drooped down, so as to throw the body into an angular position, and in the course of a few hours the poor fish was dead. It is true that the year in which these experiments were tried appears to have been decidedly unfavourable for gold fish, as a great many died, even in ponds, where they are generally much more healthy than when kept in rooms. In one instance, especially, nearly twenty died in the marble basin of a fountain, where fish had been kept for years with an average of not more than two or three deaths in a year. In many cases, the cause of death in gold fish is evidently a plant nearly allied to the green scum formed on stagnant water. This plant, which is called Achyla prolífera, consists principally of threads so exceedingly fine as to be imperceptible to the naked eye, but which take root in the body of the fish, as the mistletoe grows on the apple tree, and in time produce a soft downy substance like mould, that first appears on the gills and tail, but gradually covers the whole body of the fish. When this extraordinary disease, if it may be so called, is discovered in its first stages, it may be stopped by sprinkling salt on the back and sides of the fish; but the application appears to cause intense pain, as the fish, as soon as it feels the salt,

darts from one side to the other of the vessel that contains it, and appears to be writhing with agony. This, however, soon goes off, and the fish appears quite restored, seldom requiring a second application.

The best way of keeping gold and silver fish is certainly in a pond in the garden; particularly if the situation be warm and exposed to the sun. It is necessary, however, if the pond be shallow, and the water clear, to have two or three bundles of faggots thrown into it, that the fish may find shade, when they wish it. Faggots are also very useful when it is wished to breed gold fish; as they afford both warmth and shelter, without which gold fish never produce young. When first hatched the gold fish is nearly black, but it gradually becomes streaked with gold or silver; the metallic hue increasing every year, till the black finally disappears.

As you are fond of having flowers in your room, and as your present garden is so far from your house, you will perhaps be glad to know how to preserve cut flowers as long as possible. The most simple rules are, not to put too many flowers in a glass, to change the water every morning, and to remove every decayed leaf as soon as it appears, cutting off the end of the stems occasionally, as soon as they show any symptoms of decay. A more efficacious way, however, is to put nitrate of soda or nitrate of potash (saltpetre) in powder into the water; as about as much as can be easily taken up between the forefinger and the thumb, put into the glass every time the water is changed, will preserve cut flowers in all their beauty for above a fortnight. Camphor in powder has nearly the same effect.

The *drawingroom* should be fitted up with more elegance than any other room in the house. The walls may be panelled, and the panels filled in with fluted silk, with a gilt moulding round them; or the walls may be covered with flock or satin paper, with a gilt moulding under the cornice. In either case the cornice should be rich; and there should be bosses on the ceiling to indicate the place for the chandeliers, if you have any. A slight degree of conformity between the style of the furniture and that of the house is, I think, advisable; but, as your house appears to have had additions made to it in different reigns, almost any style of furniture that suits your own taste may be adopted without incongruity. There should be several large looking-glasses, two or more chandeliers; and against the walls there should be a few choice cabinet pictures, which should be characterised by delicacy and beauty rather than force. A Claude or two, some of Guido's exquisite female heads, and one of Raphael's Madonnas, would be very suitable, or modern paintings of first-rate

artists; but I think no picture should be admitted unless its subject is elegant as well as pleasing. There should be large mirrors in panels, or in richly gilt frames, and a very handsome white marble chimney-piece, as I see there is but one indicated in the plan, with a very rich-looking steel grate, made low to show an ornamented back. I suppose the windows near the fireplace are false ones, as otherwise there would be a cross light; the three windows opening on the terrace are, however, quite sufficient to give light to the room; and that at the south end I should like to see opening into a conservatory. I scarcely know what colour to recommend for the hangings of the walls. Full-toned colours lessen the size of a room, and light colours enlarge it. Crimson is very becoming to female beauty, and it has besides the advantage of being in perfect keeping with the character of a drawingroom in an old mansion. The curtains should be silk or silk damask, and made with either a piped valance or very deep gold fringe; and the inner muslin curtains should have a rich border, and be trimmed with either lace, or with silk fringe of the same colour as the outer curtains. The chairs should correspond, and should have a great deal of gilding about them. The carpet should be Wilton, and made in one piece, of a pattern to fit the room; and this pattern should consist chiefly of flowers. There should be several sofas and ottomans and ornamental footstools, an excellent piano, and a harp, ornamental screens to correspond with the style of the curtains; consoles with richly gilt frames, and looking-glass slabs and brackets for ornamental china; candelabra for lights; an elegant ormolu clock; and in short, a variety of articles that will suggest themselves; only take care not to crowd the room too much, lest you should give it the air of an upholsterer's warehouse rather than a drawingroom.

The *dining-room* should be characterised by the massive appearance of its furniture, and the richness of its hangings. The curtains may be of maroon-coloured cloth, or moreen, trimmed with gold. The carpet should be Turkey or Axminster, and need not quite cover the room, but may leave a part to be rubbed bright or painted. You should have a large handsome chimney-piece, and a large grate, so contrived with a plate at the bottom, as to contain wood as well as coal. Some persons advise having no light in a dining-room except from one large chandelier hung just over the dinner-table, but sufficiently high above it to cast no shade; while others recommend side lights to show the pictures, if there should be any, on the walls. If there are, they may be of quite a different character from those in the drawingroom, and of more solemn and serious subjects, though still not painful ones; and they may include pictures by the Dutch

masters, and those by English artists in the domestic style. Your dining-room is very conveniently placed in being so near the kitchen; and it is also convenient to have folding-doors opening into both the dining-room and the drawingroom, placed exactly opposite each other. The passage or vestibule between them is useful in keeping out sounds from the drawingroom, and also the smell of dinner; and it may easily be made ornamental by filling the end next the window with greenhouse plants in flower. These will also have a good effect from the hall; and in addition to them, the vestibule may contain a bust or some choice piece of sculpture, before which may be placed a lamp. The sideboard in the dining-room may be placed in the recess left for it.

I have now given you all the advice that I think you will find requisite; for, after all, you must remember that, notwithstanding any thing I may have said, the furniture and decorations of the rooms must depend principally on your own taste; I can do no more than point out what kind of style is suitable to the different rooms, and you must do the rest.

LETTER IV.

FLIES.—SERVANTS' OFFICES, INCLUDING THE HOUSEKEEPER'S ROOM AND STORE-CLOSET, THE KITCHEN, AND THE SCULLERY.—BREWING; MAKING HOME-MADE WINES, CIDER, AND PERRY; AND MAKING BREAD, ROLLS, CAKES, RUSKS, MUFFINS AND CRUMPETS, AND BISCUITS.

It gave me the greatest pleasure, my dear Annie, to hear that your husband is so well pleased with the improvement produced by the removal of the Scotch pines, that he wishes you to follow my advice in other things, and that you have actually ordered furniture for your morning room in accordance with my suggestions. You ask, however, why I have said nothing of your husband's business-room, and add that you suppose I forgot it; but this was far from being the case. The reason I omitted it was, that I wished, if he asked your opinion respecting it, you might be able to speak entirely from your own feelings, and not from the advice of another. No female friend should ever, on any account, interfere between a man and his wife. In any matter that falls within your own province, I shall always be delighted to give you the best advice I can, but that is all. Should any quarrels arise between you and your husband, (and it would be very strange, indeed, if there should not,) your best plan is to keep them

entirely to yourself, and never to ask advice respecting them from any friend whatever.

But to return to your house. I was very much surprised to find that you were annoyed with flies, till I read "notwithstanding all the pains our careful housemaid takes to catch them with saucers of sugar and water." This explained the mystery. It is the saucers of sugar and water that attract the flies, and, indeed, one half of what are called remedies for these little pests only increase the nuisance. Besides, without pretending to any morbid sensibility, I must confess that I always think the sight of the poor flies struggling to get out of the liquid grave into which they have been entrapped extremely painful to the feelings. I know it is a law of nature that all creatures should prey upon each other; but I do not like killing creatures by wholesale, when there appears no absolute necessity for so doing. I think if you remove your sugar and water, your flies will disappear of themselves; and, if they do not, you must, in such rooms as are lighted from one side only, adopt our kind friend Mr. Spence's admirable plan of putting network over the window-frame, so that whenever the window is opened, either at the top or the bottom, the space is still covered with the net. You will be astonished to see how efficacious this simple plan is; as, though the flies could easily get through the meshes, they are afraid of trying, lest they should be entrapped.

I will now proceed to say a few words on your servants' offices, and of these the *housekeeper's room* generally ranks first. As I see no store-closet marked in your plan, I suppose you will make the housekeeper's room serve for that purpose; particularly as you say you mean to be your own housekeeper; and you will find the store-closet a most important place in the country, as it is necessary to lay in larger stores of all the common articles of daily consumption than are ever required in a town, where shops can be sent to on any emergency. Your housekeeper's room should therefore have ranges of cupboards and drawers all round it, to contain the household linen, china, glass, pickles, preserves, cakes, tea, coffee, sugar, and in short every article wanted by the family, a store of which is kept. There should be a bureau, or desk with drawers beneath, to keep the account-books, receipts for bills, and other papers relating to housekeeping; and on one side of the fireplace you may have a cupboard with iron doors enclosing a small oven, and a range of charcoal stoves, for making any dishes in French cookery, or any cakes or preserves that you may take a fancy to do yourself, with the assistance of your maid, apart from the observation of the other

servants. On the other side of the fireplace may be a similar cupboard, containing a small sink with a wash-hand basin furnished with a plug and waste-pipe to let off the water, and two pipes, one to supply cold water from a cistern, and the other hot water from a boiler behind the fireplace.

Before fixing up the cupboards the walls should be made perfectly dry, and, if they are not so, they should be battened, that is, covered with canvass strained over slips of wood nailed to the walls, strong brown paper being afterwards pasted over the canvass. This preserves a stratum of air between the walls and the backs of the cupboards, which effectually excludes damp. You may easily know when a room is damp by its appearance, before you have kept any thing in it. If the walls have been whitewashed, they will show various-coloured stains; and, if they have been papered, the paper will hang loose. No expense should be spared to make a room dry, that is to be used for keeping stores in, as the mischief done by damp is incalculable. Lump sugar crumbles into powder; moist sugar hardens into lumps; saltpetre and bay salt turn to water; preserves become mouldy or candied, cakes soft, and linen mildewed. Nor is the mischief done by damp confined to any one part of the house. In the butler's pantry the silver will become spotted; in the cellar the wine will lose its strength and flavour; and, in the living-rooms, the oil paintings will become blistered, and the books and engravings stained.

But to return to the housekeeper's room. In one part you can have a cupboard to open with folding-doors like a wardrobe, for keeping tea and sugar and similar articles. There should be shelves in this, on which should stand numerous tin canisters marked with the names of the different articles they contain. In the upper part should be a shelf suspended by cords passing through holes bored in the corners, for loaves of sugar, or any similar articles likely to be attacked by mice. The common tea should be kept in a chest lined with lead, which may stand in the lower part of the closet, and the finer kinds should be kept in canisters. A bag of raw coffee may also stand on the lower shelf of the closet; but, after the coffee is ground, it should be kept in a canister, and as far apart from the tea as possible, as, if it is near it, it will give the tea an unpleasant taste. Moist sugar should be kept in a large tin canister, the lid of which opens with a hinge. The coffee-mill, if in this apartment, must be fixed to some part of the room where it will be quite firm, and yet be so placed that the person grinding may have room to use the arm freely; but many persons have the coffee-mill in the kitchen, and also a mill for pepper. When

any thing is to be ground in a mill, of a different nature from what it is generally used for, the mill should be first cleaned by grinding in it a hard crust of bread.

A second cupboard should be set aside for the soap and candles. In this there should be some strong hooked nails driven into the wall, for the kitchen candles; and a kind of bench or wooden stand for the boxes containing mould candles, if you use any, though most persons now prefer the composition or stearine candles with plaited wicks, as they do not require snuffing. These candles, and those of wax or spermaceti, may be kept a long time without injury, if they are covered with paper within the box, to prevent them from becoming discoloured, which they will soon be, if much exposed to the air; but tallow candles of all kinds should never be kept more than six months, as, when old, they are very apt to gutter. Soap, also, should never be kept too long, or be suffered to become too dry. It is true that, when used too new, it wastes away very rapidly; yet, if it is kept more than six months, and particularly if it becomes too dry, it cracks and shrinks so much, as to render it very troublesome to use, and nearly double the quantity is required.

Dried currants and raisins, for cakes and puddings, should be kept in canisters in another closet; and almonds and raisins for dessert in boxes. Sage and other herbs I have found keep best in powder, after they have been dried in an oven. Every leaf should be pulled off separately into a kind of tray made of tin, and put into an oven when about the right heat for baking bread: as soon as the leaves are dry enough to rub into powder, they should be crushed with a rolling pin, and after being sifted, put into wide-mouthed bottles, which should be carefully corked. Herbs thus prepared will keep good without losing their flavour for years; and they have the advantage of being always ready for use when wanted, without the smallest particle of dust.

As I think you have told me you are several miles from a town, it will be necessary to recollect every thing that may be wanted when you send there, to avoid the inconvenience of sending frequently. For this purpose, I think you will find it useful to have a slate hanging up beside your desk in the housekeeper's room, on which you can write down the name of any article that you find is nearly exhausted when you are giving it out.

Your *kitchen* appears, by the plan you have sent me, to be of a very good size, and well lighted, which is essential to both comfort and cleanliness, as it is impossible for the cooking to be performed

properly, or the culinary vessels to be kept clean, without abundance of light. It is also well placed, as it faces the north, which a kitchen should do whenever it is practicable, to keep it free from too much sun. In old country houses the ceiling of the kitchen is frequently furnished with racks for bacon; and there are hooks driven into the beams for hung beef, tongues, and hams, but in other places these are kept in the larder. In either case I would advise you always to have a plentiful supply of salted meat in the house, to be ready for emergencies; and I would always have a ham, a tongue, or a piece of hung beef, ready cooked; which will not only be useful for breakfast, and luncheon, but will be found a most potent auxiliary in the case of unexpected guests arriving when the larder may be at a low ebb. In the course of my experience I have always found that there are few things more agreeable to a husband than to be able to take a friend home unexpectedly, and yet to be sure that he will find a good and even elegant dinner, without any bustle or ill-temper being caused by his appearance. In large establishments the sudden arrival of a stranger is of very little consequence; but as your husband has an ancient name to keep up on limited means, and, above all, as you have undertaken to be your own housekeeper, you must remember that, in places where the butcher lives several miles off, and calls for orders only once or twice a week, it is essential you should make such provision as to be never taken off your guard. To aid in this I will, if you like, at some future time, give you a few hints on cookery, particularly on *impromptu* dishes, which I trust you will find useful; but I must now return to the fitting up of the kitchen.

You tell me you shall want a new kitchen-range, and ask what kind I would recommend. I would advise you to shun all those that are said to burn remarkably little fuel, as they are generally very complicated, and of course extremely liable to go out of order; a serious inconvenience any where, but particularly in the country. I should recommend you to have an open grate from four feet to eight feet wide, having of course a contrivance to make the part intended to contain the fire larger or smaller at pleasure; and the fireplace should be at least two feet deep, to allow of a boiler behind the fire, communicating with another on the side of the grate, care being taken either to have the boilers fed constantly by a pipe from a cistern, or to have them filled every night when the fire is low, as it is very dangerous to pour cold water into a boiler when it is nearly empty and quite hot. The sudden change from heat to cold sometimes indeed makes the iron contract so rapidly as to burst the boiler. It is useful to have an oven on one side of the grate, not, indeed, for baking any thing, for food seldom has its proper flavour

when cooked in such ovens, but to keep plates and dishes warm. The floor of a kitchen is generally laid with stone, but it is a great comfort to the cook to have a part boarded near a table under one of the windows, for the convenience of standing upon the boards when in the act of cooking. The kitchen doors should have their hinges on the side next the fireplace, to avoid disturbing the current of air near the fire when they are opened.

As your kitchen is large, you may perhaps be able to have a small range of charcoal pans for French cooking, in addition to the ordinary kitchen-range, if you have not something of the kind in the housekeeper's room; and among your kitchen utensils you should have two or three that will be useful in French cooking. One of these should be a braising pan, with a deep concave rimmed lid, in which fire can be put whenever you have any dish cooked that requires fire above and below; another should be two saucepans, one going within the other, like a gluepot, forming a *bain marie*. German saucepans, and other enamelled articles for the kitchen, are very convenient in all dishes where milk or cream is used; but it is a long time before any liquid boils in them; and when it does boil, it continues to do so for a minute or more after the saucepan is taken from the fire, on account of the enamel retaining the heat. You ought also to have a cupboard in the kitchen, for the cook to keep her spices and other articles in, fitted up with shelves and canisters: and there should be another closet for the flour tub and bread jar, which should stand on a board raised at least six inches above the floor, to keep them from the attacks of mice and black beetles. The egg-basket and the salt-box may also find a place in this closet, so as to keep the general appearance of the kitchen neat and clean. Of course you will have one or two dressers for plates and dishes, made with drawers and cupboards below. Every kitchen should also contain a clock, that the cook may see exactly how the time goes, and have no excuse for not being punctual.

The *scullery* should be as close to the kitchen as possible. It should be paved with Yorkshire stone or brickwork, and it should have a cistern of water closely adjoining it. In every scullery there should be a stone sink, with a plate-rack at one end, and under the plate-rack should be a slanting dripboard with a kind of gutter at the base, to convey the water that drains from the plates and dishes to the waste-pipe of the sink; and it will be found a great convenience to have a pipe carried to it from the boiler behind the kitchen fireplace, in order to afford a constant supply of hot water. The scullery should

also contain two coppers, one small, for boiling hams or large pieces of beef, and another of a much larger size for brewing.

For *brewing* twelve gallons of *table ale* at a time, the copper should hold eighteen gallons, as about six gallons of water will be absorbed by the malt. The usual proportion of malt and hops required for this quantity is, one bushel of malt and three quarters of a pound of hops. Pale malt is the best, and it should be plump and crisp, breaking readily, and full of flour; it should also taste sweet. The hops should have no bad smell, and they should be in condition, that is, they should abound in the yellow powder called by chemists lupuline, which makes them feel sticky when rubbed between the fingers. The malt must be crushed or ground before it is used. River water is preferred for brewing, and it should be heated in the copper to about 175°, or rather more.

Fig. 2. ***Spigot and faucet.***

A large deep tub is then provided, called a mash-tub, in one side of which, at the distance of an inch or two from the bottom, is fixed a cock, or what is called a spigot and faucet (fig. 2.), with the end which projects within the tub covered with basket-work to prevent the escape of the grains when the wort is drawn off. About six gallons of hot water are then poured into the mash-tub, and some of the malt is shaken in, a little at a time, and mixed with the water by the help of a wooden instrument called a mash-stirrer (fig. 3.); more water is then added, and then more malt, till nearly all the water has been poured in, and only a peck of malt is left dry. The dry malt is then strewed over the mass of malt which has been mixed with the water, and the mash-tub, having some sticks laid across it, is covered with an old blanket, a piece of sacking, or a coarse cloth, and the malt is left for an hour and a half or two hours to steep. This is called mashing the malt; and the goodness of the ale depends upon the care with which this operation is performed. The water should never be suffered to become cooler during the operation than 160°, or it will not dissolve the starchy matter contained in the malt; and, if it is hotter than 180°, the malt will be set, as the maltsters call it, that is, it will become changed into a glutinous paste, from which no strength can be extracted. When the malt has been sufficiently mashed, the wort is drawn off by the spigot, and it will be found that the eighteen gallons of water have only yielded about thirteen gallons of wort, and sometimes not so much.

Fig. 3. ***Mash-stirrer.***

A new kind of mashing-tub (fig. 4.) has been invented, which has a false bottom pierced with holes, through which the wort filters, instead of being drawn off by the spigot; and, by an improvement on this, the hot water is poured through a tube into the part of the mashing-tub which is below the false bottom, and suffered to rise up through the malt. When ale and beer are to be made, the ale wort is drawn off first, and then more water is heated to 175° and put to the malt, to make the beer; but when all the liquor drawn from the malt is mixed together, it is called in some places "table ale," and in others "one-way beer."

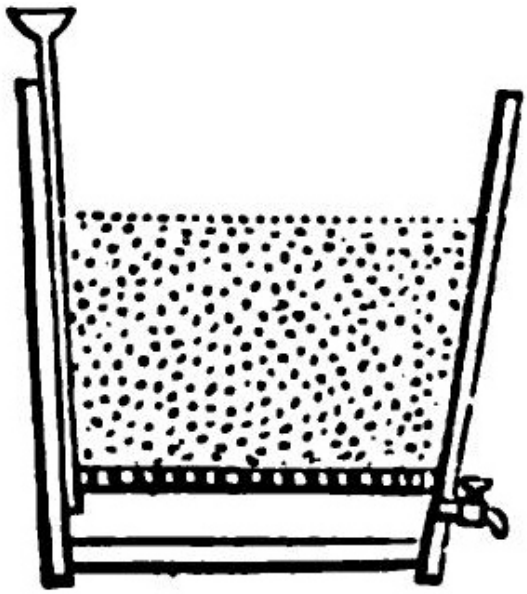


Fig. 4. ***Mash-tub.***

While the malt is being mashed, the proper quantity of hops should be steeped in water, having been first well rubbed and separated; and when the wort is drawn off they should be added to it, and the whole put into the copper to be boiled. During the boiling the mass should be frequently stirred, to prevent the hops from either floating at the top or settling to the bottom, which they would otherwise be very apt to do. The boiling should continue briskly till the liquor begins to break, the time for which varies from half an hour to two hours and a

half, according to the strength of the wort. The "breaking" is known by large fleecy flakes which appear to float in the liquor; and, when it appears, a bowlful of the liquor is taken out and set aside, when, if the flakes part and subside, leaving the wort clear, it is considered enough. Some large shallow vessels called coolers are then provided, and some sticks being laid across one of them, a sieve or wicker basket is set upon them, and the liquor is ladled out of the furnace into the sieve, to strain it from the hops. The other coolers are afterwards filled in the same manner, and then the whole are exposed to a cool current of air, in order that the liquor may cool as rapidly as possible.

When the liquor is about 70°, it is generally tunned off into a large vat or cask for it to ferment. About three quarters of a pint of yeast is mixed with a little of the wort, and as soon as it begins to work it is added to the rest. Another mode is, as soon as the wort has cooled to 70°, to convey it in the coolers to a cellar, where the temperature is about 55°, and then to mix two gallons of it with a pint of good thick yeast, and put it into an upright eighteen-gallon cask, the head of which has been knocked out, but which is covered with a piece of flannel, on which the head is laid loosely. As soon as the fermentation has begun, about three gallons more of the wort are added, provided it has not cooled below 65°; but, if it has, a pailful must be taken out and heated, so that when mixed with the rest of the three gallons, the whole shall be about 70°. When this has been added to the wort fermenting in the cask and well stirred, the cask should be covered and left to work for the night. Early the following morning the working wort should be tried with a thermometer, and, if it is between 70° and 75°, five gallons more of the wort should be added, heated as before to about 68°. The liquor should then be stirred, and left for six hours, after which three gallons more wort at 65° are added. It is then covered and left for four hours more, after which nearly all the remaining wort is added, reserving only about two quarts.

This process is very tedious, but it is said to make the ale exceedingly fine and clear; and, if the proportions be one bushel and a half of malt to a pound and three quarters of hops to make twelve gallons, it is said exactly to resemble the celebrated Indian ale. If the heat of the working wort be ever found above 75°, the remaining wort should be added cool, and the whole should be tunned out as soon as possible.

In the usual mode of brewing, when the fermentation has gone on till the yeast begins to look brown, the beer should be tunned; that is,

the yeast is removed, and the beer is put into the casks in which it is to remain; and, in general, the beer is not taken down into the cellar till at this period. The casks are placed slantingly, with the bung out; and they are always kept quite full, being filled up with beer reserved for that purpose, as the beer they contain works out. In about a fortnight all the fermentation will be over, and the casks may be bunged up.

According to the *Indian ale* process, two quarts of wort were kept back from that fermented; and when the beer is to be tunned, which it is into two six-gallon casks, a quart of this unfermented wort is put into each cask, with two table-spoonfuls of flour and one of salt. The frothy yeast is then taken off the beer, which is poured into the barrels till it reaches the bunghole, and the froth begins to flow over: as the froth subsides, the barrels may be filled up with fresh beer, and the yeast which flows down should be caught in a vessel placed for the purpose. In a few days the yeast will become thick, and will cease to flow over: the barrels should then be filled up and the bungholes covered with brown paper, coated with thick yeast: the fermentation will afterwards proceed more slowly, and in a fortnight the barrels may be bunged down, and the bungs covered with a mass of moistened clay and sand. The Indian ale should be kept six months before it is tapped; but the other kind may be drunk in a month.

Home-made wines may be manufactured from almost any kind of fruit; and they are divided into two kinds, viz. those made with cold water, and those made with hot water.

Fig. 5. ***Fruit-crusher.***

Green Gooseberry wine is made in the first manner, by crushing the fruit in a deep tub with a fruit-crusher (fig. 5.), and pouring cold water on it, in the proportion of one gallon of water to ten pounds of fruit. It is then left to stand about six hours, when the mass, or marc, as it is called, is put into a coarse bag and pressed; more water is afterwards poured over the marc, which is again pressed, till as

much water has been added as will make the proportion in all four gallons of water to ten pounds of fruit. The marc is then thrown away, and to every gallon of the liquor, or must, as it is called, three pounds of lump sugar are added, and the whole is well stirred together; the tub is afterwards covered with a blanket, and the wine is left to ferment in a temperature of from 55° to 60°. In twelve hours, if the fermentation has begun rapidly, or in twenty-four hours, if it is slow, the liquor is put into a cask and left to ferment, the bung being put in loosely, and the cask being kept filled up with fresh must as it works off. When the hissing noise subsides, the bung is driven in firmly, and a little hole is made in the head of the cask, near the bung, which is stopped with a wooden peg. In two or three days this peg is loosened to let any air out that may have been generated; and this is repeated, at intervals, several times, till no more air escapes, when the peg is driven in tight. An excellent wine may be made in a similar manner of the stalks of the giant tart rhubarb, which, if old, should be peeled and cut in pieces before they are crushed.

Ripe Gooseberry wine is made with hot water; first crushing the fruit, and, after letting it stand twenty-four hours, pressing the juice through a linen cloth. Hot water is then poured over the marc, in the proportion of two quarts of water to every gallon of the fruit before it was crushed; and, after remaining in the tub twelve hours, the marc is again pressed, and the liquor from it mixed with that produced by the fruit. Two and a half or three pounds of lump sugar should now be added to every gallon of the liquor, and the whole left to ferment. If moist sugar be used, the quantity should be four pounds to every gallon of the liquor. The rest of the process is the same as before; but when the fermentation has ceased it is usual to add British brandy, in the proportion of one quart to two gallons and a half of the wine.

When *Currant wine* is made, it is said to be best to boil the liquor after the sugar is added, before fermenting it in the cask.

Elderberry wine is generally made with moist sugar, and ginger and other spices are added to it.

Cowslip wine is made by boiling sugar and water together, and pouring the liquor over the rind of lemons and Seville oranges, in the proportion of four of these fruits to a gallon of sugar and water: the juice of the oranges and lemons is added, and the whole is fermented with yeast. The cowslip flowers are then put into the wine, in the proportion of one quart to every gallon of liquor, and stirred up well

till they sink. When the wine is tunned, a few sprigs of sweet briar are often put into the cask, and one ounce of isinglass for every gallon of liquor; in a few days it is bunged up close. In six months it will be fit to bottle; but it will be better for remaining longer in the cask.

Any other kind of wine may be made when the wine is to be made of English fruit, either as was directed for the green or the ripe gooseberry wines; and when not made of English fruit, by boiling sugar and water, and fermenting it, before adding the substance that is to give the flavour as directed for the Cowslip wine.

Cider is made by grinding apples, and then expressing the juice, which is fermented with yeast, but without sugar. *Perry* is made in the same way; and both may be made on a small scale by bruising apples or pears in a deep tub, as was recommended for bruising fruit in made wines.

A brick oven for baking Bread is often placed in the scullery. The ordinary size of an oven of this kind is about six feet long by four feet deep; and it is about eighteen inches high in the centre of the arch: the floor (which generally inclines a little from the head of the oven to the mouth) is laid with tiles, and the arch is formed of fire-brick, set in fire-clay or in loam mixed with powdered brick; the whole being surrounded by a large mass of common brickwork, to keep in the heat.

When the oven is heated, the faggots, or other kind of wood which is used for that purpose, are lighted near the mouth, and then pushed on till they are as nearly as possible in the centre of the oven, so that the heat may spread as equally as possible through every part. When the heat is between 250° and 300°, it is judged sufficient, and the fire is drawn out to prepare the oven for the reception of the bread. As, however, few cooks can be expected to have a proper kind of thermometer at hand for ascertaining the heat exactly, it is necessary to have some easier rules for judging; and the following, the correctness of which I have experienced, are taken from the first volume of that excellent and useful work, the *Magazine of Domestic Economy*.

"A judgment must be formed by the clear red heat of the bricks of the arch and sides of the oven, and the lively sparkling of the embers on its floor. The former criterion proves that the bricks have received enough of body heat to consume that black carbonaceous coating which the smoke communicates to them at the early stage of fire; the second shows that the principle of combustion is in full activity, and

not rendered inert by a cold surface, either at the top, bottom, or sides. Finally, if the brickwork be hot enough, and the point of a long stake be rubbed forcibly over any part of it, so as for the moment to make a black trace of charcoal, this trace will be burnt off, and the bricks left clear in a second of time."

When the oven is sufficiently hot, the remaining embers are drawn out with an iron hook fixed at the end of a long pole, and the bottom of the oven is cleaned with a wet mop, made of long shreds of woollen cloth or coarse sacking. The oven is then quite ready to receive the bread, and it should be put in immediately. It generally takes about an hour to heat a moderate-sized oven properly; and it takes an hour and a half, or two hours, to bake loaves of the ordinary size.

Little iron grates are sometimes sold for heating ovens, but they are more suitable for coal than wood; and, though an oven may be heated with great rapidity with coal, it does not retain its heat so long, and is more fitted for baking French bread, or cakes, than large-sized household loaves. When, on the contrary, a brick oven is heated with wood, and the hot embers are pushed by the scraper to every part of the oven, the whole mass of brick becomes what is technically called soaked, and is in a fit state for a family baking of bread. When the bread is in, the oven door should be stopped quite close; but over the door is a small opening called the stopper, which should be opened when the bread has been in a little time, in order that the vapour from the bread may escape. It is from not attending to this that home-baked bread is so frequently heavy.

Home-baked bread is generally best when made of what is called grist flour; that is, wheat ground at a mill, and only the coarse bran removed from the flour. Twenty-four pounds of this flour will make about thirty-two pounds of bread; but if the best white flour is used, two or three more pounds of it will be required to produce the same quantity of bread. Bread is made either with leaven or yeast.

Leaven is made by mixing flour with warm water into a thin paste and then leaving it to ferment. When it begins to rise in bubbles, more water and flour is added, and it is again left to ferment, and then more flour with a little salt is added to make the dough. The dough must be kept warm during the whole operation, as fermentation will not take place unless the heat be from sixty to seventy, or seventy-five degrees. Bread of this kind is very light, but it soon becomes acid. Nearly all the household bread in France is made in this way.

When *yeast* is used, the usual proportion is half a pint of brewer's yeast mixed with a pint of warm water to twenty-four pounds of flour.

If no fresh yeast can be procured, it may be made by putting a teacupful of split peas into a basin and pouring about a pint of boiling water over them. A cloth is then put over the basin, and it is set near the fire to keep warm. In about twelve hours it will begin to ferment, and a kind of scum will rise, which may be used as yeast. This is called Turkish yeast; but a better method is practised by the Americans, which is as follows:—Take as much hops as may be held between the thumb and finger, put them with a few slices of apples into a quart of water, and boil the whole for about fifteen or twenty minutes. Then strain the liquid, and when it is lukewarm stir in a little flour with three or four table-spoonfuls of treacle so as to make a thin paste; then set the whole in a warm place, and in a few hours the fermentation will be sufficiently strong to allow enough flour and water to be added to make a proper sponge for bread.

If you have a small quantity of yeast it may be increased in the following manner:—Take one pound of fine flour, and mix it to the thickness of gruel with boiling water; add half a pound of brown sugar, mixing the whole well together. Then put three table-spoonfuls of yeast into a large vessel, and pour the mixture upon it. It will ferment violently, and the scum which rises to the top will be good yeast, which may be used immediately, or may be preserved for some time in an earthenware vessel covered closely from the air, and kept in a warm dry place.

In the *Magazine of Domestic Economy* it is said that when yeast has become sour, and even slightly putrid, it may be recovered by adding a tea-spoonful of flour, the same of moist sugar, a pinch of salt, and a little warm water: this is to be stirred together and left to ferment for half an hour. I have never tried this, but it is very nearly the same as the receipt I have given above. The yeast from home-brewed beer is very apt to be bitter; but it is said that this may be cured by pouring it through a sieve containing about a pint of bran. To keep home-brewed yeast it should be put into a large pan and have three times the quantity of water poured upon it, being well stirred up, and then left to settle. The next day the water is to be poured off, and fresh put on, and in this manner it is said that yeast may be kept for six weeks. All yeast is best purified before it is used; that is, the yeast should be put into a vessel, and cold spring water being poured upon it, they should be stirred together and then left to settle. The

water is afterwards poured off, and the yeast taken out carefully, leaving a brown sediment at the bottom.

The best way of keeping yeast is to hang it up in a cabbage net, so as to let it dry with the air about it on all sides. This is the way the Germans prepare their solid yeast, which is now so much used in London.

When bread is to be made, the necessary quantity of flour is put into a kneading trough, or into a deep-glazed earthenware pan, and a round hole is made in the centre for the yeast and water, which is slightly mixed with the surrounding flour, so as to form a light batter, and over this is strewed enough dry flour to cover it. I remember, when I was a child in my father's house, I have often watched the cook perform this operation (which I now find is called setting the sponge); and I always used to see her, when she had done, make a cross in the flour sprinkled over the batter, without which she declared the bread would never rise. As soon as the sponge is set, the earthenware pan is placed before the fire, and a linen cloth laid over it. In a short time the sponge begins to rise, and forms cracks in the covering of flour. More water is then added, heated to about the warmth of new milk, and salt is scattered over the flour, which gradually mixes with the water, kneading it well with the hands so as to form a fine compact dough. Some dry flour is then laid under it, and sprinkled over it; and the dough, being again covered with a cloth, is left to ferment, which, if the yeast were good, it does in about an hour, sufficiently to allow the dough to be made into loaves of bread.

A kind of bread, which is very good for toast and butter, is made by boiling and mashing some mealy potatoes, and then rubbing them into flour which has been previously warmed before the fire, in the proportion of half a pound of potatoes to two pounds of flour. When well mixed, add a proper quantity of salt, with enough yeast, warm milk, and water to make it into dough. It should be left to rise for two hours before it is made into a loaf, and it should be baked in a tin.

For *Rolls*. Warm an ounce of butter in a pint of skimmed milk, and add a spoonful and a half of yeast and a little salt. This will be sufficient for two pounds of flour, and will make seven rolls. The dough should rise before the fire half an hour, and the rolls should stand another half hour before the fire after they are made. They should be baked in a quick oven, and will take about half an hour. The butter may be omitted.

To make *French rolls*. Add half an ounce of soda to the above quantity; make them long in shape, and rasp them when they are baked.

For *Sally Luns*. Take two pounds of flour, and add half a pint of milk and half a pint of cream, with a bit of butter the size of a walnut; when a little warm, put to it three well-beaten yolks of eggs, three or four spoonfuls of well-purified yeast, and a little salt. Mix the whole together, and let it rise for an hour; then make it into cakes, and lay them on tins lightly rubbed over with a little butter. Let them stand on the hearth to rise for about twenty minutes, covered with a thin cloth, then bake them in rather a quick oven.

For *Yorkshire* or *milk cakes*. Dry a pound and a half of flour before the fire; beat up the yolk of an egg with a spoonful of yeast; add three quarters of a pint of new milk lukewarm; strain the whole through a hair sieve into the flour; mix it lightly into dough, and let it rise by the fire an hour; then make it up into cakes. Rub the tins with a very little butter, and let them be warm when you lay the cakes on them; cover with a thin cloth, and let them rise on the hearth about twenty or thirty minutes; bake them in a brisk oven. This dough makes very good buns, with the addition of a little good moist sugar, and a few caraway seeds or dried currants.

Both the Sally Luns and the milk cakes may be washed over with the white of an egg before they are put in the oven.

For *Rusks*, or *Tops and Bottoms*. Beat up four eggs with half a pint of new milk, in which a quarter of a pound of butter has been melted; add two table-spoonfuls of yeast, and three ounces of sugar. Mix with this as much flour as will make a very light batter, and set it before the fire for half an hour; then add a little more flour, to make it stiff enough to work. Knead it well, and, if wanted for *rusks*, roll it into cakes about six inches long and two broad; when baked and cold, cut them into slices, and dry them in a slow oven. For *tops and bottoms*, make the dough into little square cakes, and flatten them. When baked, just cut them slightly round, and then tear them in two, and put them again into the oven.

To make *Banbury Cakes*. Set a sponge with two table-spoonfuls of thick purified yeast, half a pint of warm milk, and a pound of flour. When risen, mix with it half a pound of currants, well cleaned and dried, half a tea-spoonful of salt, half a pound of candied orange and lemon shred small, one ounce of spice, such as powdered cinnamon, allspice, ginger, and nutmeg, or mace. Mix the whole well together with half a pound of honey. Roll out puff paste a quarter of an inch

thick; cut it into rounds with a tin cutter about four inches across; lay on each with a spoon a small quantity of the mixture; close it round with the fingers in an oval form; place the joining underneath; press it gently with the hand, and sift sugar over. Bake them on a baking-plate a quarter of an hour in a moderate oven, and of a light colour.

For *Bath buns*. Rub half a pound of butter in a pound and half of flour, quarter of a pound of powdered sugar, a little salt, and half an ounce of caraway seeds. Beat the yolks of four eggs and three whites; put half a pint of warm milk to four spoonfuls of good yeast; when settled, pour it off on the eggs, and mix all into the middle of the flour till about a third of the flour is mixed in. Cover it with flannel, and set it before the fire to rise, about half an hour, then mix all up, and cover it till well risen. Make up the buns, and set them before the fire on a baking-tin about a quarter of an hour; bake them in a quick oven; when done, brush them over with sugar and beaten egg.

For *Oat cakes*. Merely mix oatmeal and water together till about as thick as ordinary dough, then roll out as thin as possible, and bake on a hot flat iron called a girdle, hung over the fire. A few eggs are sometimes added to make what is called in Scotland Car cake.

For *Muffins* and *Crumpets*. Take a pint and a half of warm milk and dissolve in it a tea-spoonful of salt of tartar (subcarbonate of potash), then mix with it five table-spoonfuls of yeast. When it has stood to settle, pour it off by degrees, if for crumpets, into two pounds of flour with a little salt, stir it well, and then beat it till it looks like a thick batter, and may be drawn out to a great length when you lift up the spoon. Set it before the fire to rise, and when it bubbles up bake the crumpets on a hot stove, or a girdle. For muffins, take three pounds of flour, and roll the dough into balls, and let them rise before putting them on the iron plate. When the muffins begin to bake they will spread into the proper shape; and when one side is done they should be turned on the other side. The crumpets do not require turning; but if they are wished to be thick, they may be baked in an iron hoop. Potato crumpets are made by adding to three pounds of mealy potatoes boiled and rubbed through a coarse sieve, half a pound of flour, an egg, a little salt, and a spoonful of yeast.

For a *Brioche*. Take a pound of fine flour, divide it into three parts, to one of which put a table-spoonful of yeast, mixed with warm water into a light batter, then set it before a fire if the weather is cold, and let it rise half an hour. In warm weather it need not be put to the fire, as it will rise immediately. Mix the rest of the flour with a

quarter of an ounce of salt, three eggs, a quarter of a pound of butter, and enough warm water to make it into a stiff dough. Work it well, and then add the portion that was previously prepared. Knead the whole well together, and then wrap the dough in a white napkin, and leave it for seven or eight hours. Then divide the dough into pieces, as if for buns, and make them into the usual half-twisted form of a brioche, using a little warm milk to moisten them if necessary. Lastly, wash them over with eggs well beaten, and put them in the oven.

I shall now give you two or three receipts for biscuits, and sweet cakes.

For *Butter biscuits*. Warm two ounces of butter in as much skimmed milk as will make a pound of flour into a stiff paste, knead it well, and beat it with a paste roller; roll it out thin, cut the paste into round cakes with a glass, and prick them with a fork. Bake in a quick oven.

Stamped biscuits are made by rubbing a quarter of a pound of butter into a pound of flour, then mixing it with cold water and a tea-spoonful of yeast into a paste. Knead it till it is quite smooth; then cover it on the board with a basin for half an hour, and afterwards make it into balls, stamping each with the print.

Abernethy biscuits may be made by adding caraway seeds and a very little sugar to the above.

For a *Sponge-cake*. Take half a pound of flour, three quarters of a pound of lump sugar powdered, and seven eggs, leaving out three of the whites; beat all well together, and add the rind of a lemon grated on some of the sugar before it is pounded. Bake in a mould, and in a quick oven.

For *Naples biscuits*. Put a quarter of a pint of water, two spoonfuls of orange-flower water, and half a pound of fine sugar into a saucepan, and let it boil till the sugar be melted; then pour it upon four eggs well beaten, stirring the whole as fast as possible while the syrup is poured in. Continue beating it well till cold; then stir in half a pound of flour. Make clean white paper into moulds of the proper size for the biscuits, pour the batter into them, and put them on tins to bake; sift fine sugar on, and set them in a brisk oven, taking great care that they are not scorched.

For *Wine cakes*. Mix two pounds of flour, one pound of sugar, and one ounce of caraway seeds, with four eggs, and a few spoonfuls of water to make a stiff paste; roll it thin, cut the cakes in any shape, and bake them on floured tins. While baking, boil half a pound of

sugar in half a pint of water to a thin syrup; and, while both are hot, dip each cake into it. Put them into the oven on tins, to dry for a short time; and when the oven is cool put them in again, and let them remain in four or five hours.

For a *Pound cake*. Take two pounds of flour, one pound of butter, one pound of sugar, one pound of currants, a little cream, lemon-peel, mace, and cinnamon; first rub the butter in the flour, then put in the cream, a little yeast, and five eggs, and set it to rise; when risen enough add the other ingredients. Bake in a tin lined with paper well buttered.

For *Ratafia drops*. Blanch and beat four ounces of bitter and two ounces of sweet almonds with a little rose-water, a pound of sifted sugar, the whites of two eggs well beaten, and a table-spoonful of flour. Drop this mixture so as to form balls about the size of a nutmeg, and bake them on wafer paper.

For *Macaroons*. Blanch four ounces of sweet almonds, and pound them with four spoonfuls of orange-flower water; whisk the whites of four eggs to a froth, then mix them, and a pound of sugar sifted, with the almonds, to a paste; and, laying a sheet of wafer-paper on a tin, put the paste on in different moulds, or cut into little cakes, the shape of macaroons.

Gâteau d'Avranches. Grate one pound of loaf sugar to a fine powder, and add it to the yolks of fourteen eggs. Beat them well together for half an hour, and then add the juice of two lemons, some orange-flower water, and half a pound of potato flour. In the mean time another person must beat the whites of the fourteen eggs for half an hour or more till they look like snow, as, should any liquid remain, it will spoil the cake completely. Put this snow to the yolks, and beat the whole together for ten minutes; then pour the whole quickly into a mould that has been well buttered before the fire, and put it directly into an oven, which must be hot, but not quite so much so as for bread; three quarters of an hour will bake it.

For *Gingerbread*. Put into a Maslin kettle half a pound of fresh butter and three quarters of a pound of treacle, and keep them on the fire, stirring them together, till they are melted and thoroughly incorporated. In the mean time mix half a pound of moist sugar with two pounds of flour and three quarters of an ounce of ginger, and pour the treacle and butter quite hot on the flour, sugar, and ginger; work the whole well together, and when almost cold roll the paste out, and cut it into cakes. Bake them in rather a slow oven. If it is wished to have the gingerbread very rich, only half the quantity of

flour must be used; and the paste, which is rolled very thin, is cut into squares. This kind of gingerbread is called Parliament.

LETTER V.

IMPROMPTU COOKERY.—SOUPS.—POULTRY.—PIGEONS.—GAME.—SALADS OF COLD MEAT AND POTATOES.—MODES OF DRESSING POTATOES AND CARROTS.—SAUCES.—OMELETTES, CREAMS, AND SIDE DISHES.—MISCELLANEOUS COOKERY.—NATIONAL COOKERY.—THE FRENCH POT-AU-FEU.—ITALIAN MACARONI.—GERMAN SAUER KRAUT.—POLISH BARSCH.—SPANISH OLLA PODRIDA AND PUCHERO.—SCOTCH HAGGIS, BARLEY BROTH, AND HOTCH-POTCH.—ENGLISH PLUM-PUDDING.

The anxiety you express to see my promised hints on cookery has induced me to send them to you without waiting till I had finished all that I have to say of the servants' offices of your house; and you will observe that I shall first confine myself to what may be styled *Impromptu Cookery*, or cookery for the country, in contradistinction to cookery in towns; my principal aim being to enable you to have a nice little dinner ready in a short time on any emergency, without keeping an expensive table in ordinary. I have already advised you always to have a supply of salted meat in the house; but this is not enough, as a single dish of meat with vegetables and pudding, though quite sufficient as far as regards mere eating, does not form such a dinner as your husband would like to see on his table, if he were to bring a friend home unexpectedly. If, however, you are able to give them a well-flavoured soup, and two or three nicely cooked made-dishes to support the joint, (or *pièce de résistance*, as the French call it,) you have at once a dinner that is not expensive, and yet gives an air of elegance and refinement to the table.

I suspect indeed it would be a good plan to have several dishes on your table every day, whether you have company or not. It is not more expensive; for made dishes, by employing more vegetable matter, actually save the consumption of solid meat: and it is certainly more wholesome, as the stomach will more easily digest food of several kinds than a dinner taken from a single dish. The French know this perfectly well; and hence, however heartily a Frenchman may eat, he is scarcely ever troubled with indigestion, while many English people find indigestion the misery of their lives. "The Frenchman," says a writer on Domestic Economy, "begins his dinner with light soup, and successively disposes of his four dishes

and his dessert. The whole quantity that he has eaten is, however, much less than the Englishman's meal from his single joint, and he experiences no inconvenience. In eating of a number of dishes, a little of each, the imagination is acted upon, and exaggerates the quantity really taken; the appetite is, therefore, satisfied with much less. The different matters received into the Frenchman's stomach, independently of their greater or less approximation to chyme by the process of cookery they have undergone, form a light heterogeneous mass or tissue, through which the gastric juice readily passes, whilst many of the different varieties he has swallowed act upon each other as solvents, and help the work of digestion." Besides, it is well that the servants should be accustomed to the same style of living when you are alone as when you have company, to prevent the awkwardness inevitable when persons do any thing that they are not in the habit of doing frequently. One of the greatest dangers of a country life is, indeed, that of getting into habits of slovenliness, both of the person and the table. If you once allow yourself to say, "It is of no consequence how I dress, or what we have for dinner to-day, for we are not likely to see any one," all my exhortations will have been thrown away.

In the first place, in order always to keep up a good table at a small expense, take care never to be without plenty of *Stock for soup*. The best way of preparing this is to have two or three pounds of lean beef cut into pieces, and put into a stewpan with five quarts of water, a bunch of sweet herbs, two onions sliced, and a little pepper and salt. Let it stew very gradually for two or three hours, without being suffered to boil. When all the goodness is drawn from the meat, the gravy should be strained off clear and kept in an earthen jar for use. When a stock like this has been provided, it is easy to make any kind of soup from it that may be required. For instance, if hare soup be wanted, it is only necessary to cut a hare in pieces, and to let it stew gradually in this gravy till it becomes tender. If a vegetable soup be desired, it is simply adding onions, carrots, and turnips cut into dice, with perhaps a little celery and a few cabbage lettuces cut small: or these vegetables may be cut in slices and fried in butter, and then stewed till tender in the soup, which should have been previously thickened with a little butter worked up with flour. On other occasions, the soup may be varied by adding macaroni, rice, or vermicelli, or, in fact, any thing else usually put into soups; or partridges or giblets may be stewed in it, according to circumstances. The receipt for this excellent stock is taken from Dr. Hunter's *Receipts in Modern Cookery*; and the following is another from the same work, of much richer quality, but which I have also

tried and found excellent:—Take beef, mutton, and veal, of each equal parts. Cut the meat into small pieces, and put it into a deep saucepan with a close cover; the beef at the bottom, then the mutton, with a piece of lean bacon, some whole pepper, black and white, a large onion in slices, and a bundle of sweet herbs. Over this put the veal. Cover up close, and put the pan over a slow fire for ten minutes, shaking it now and then. After this pour on as much boiling water as will a little more than cover the meat. Stew gently for the space of eight hours, then put in two anchovies chopped, and season with salt to the taste. Strain off and preserve for use. If properly made, this gravy will become a rich jelly, which will keep good a long time, and a piece of which may be cut out occasionally, when a made dish or a rich soup is wanted in haste.

The two following receipts for *impromptu* soups are from a French cookery book. The first is called *Soup made in an hour*. Cut into small pieces a pound of beef and a pound of veal; put them into a casserole, or wide shallow saucepan, with a carrot and an onion cut in slices, a few slices of bacon, and half a glass of water. Hold it over the fire for a short time till the meat and vegetables begin to brown, taking care, however, that they are not burnt; then pour over the whole a pint of boiling water, and let the soup stew gently for about three quarters of an hour; after which the soup only requires to be strained through a sieve to be fit for use. The other is for *Soup made in a minute*, and it consists in taking the congealed gravy from roast meat, either from the dish or from under the dripping, after the dripping has become cold and has been removed, in the proportion of a quarter of a pint of jelly to a quart of boiling water, and adding pepper and salt to the taste.

An excellent *white soup* may be made by boiling a knuckle of veal down to a strong jelly, with a bundle of sweet herbs, and another of parsley. The liquor should then be strained from the meat and herbs, and flavoured with mace and nutmeg, adding milk or cream, and thickening with arrow-root. A few Jerusalem artichokes or young turnips (particularly the Teltow turnips), boiled quite soft and rubbed through a sieve, and a little celery, are a great improvement to this soup. Partridges stuffed with forcemeat and stewed in the stock of this soup till they are perfectly tender, but not so much so as to fall to pieces, make a delicious dish; but in this case the soup will not require either to be flavoured with mace and nutmeg, or to be thickened, unless it is wished to be very rich. Vegetable marrow or pumpkin, boiled and rubbed through a sieve, will form a variety to thicken this soup; or chestnuts boiled, peeled, and mashed, may be

used for that purpose; celery may also be employed occasionally to flavour it.

For Hare Soup, cut a large hare into pieces, and put it into a stewpan with five quarts of water, one onion, a few corns of white pepper, a little salt, and some mace. Stew over a slow fire for two hours, or till it become a good gravy. Then cut the meat from the back and legs, and keep it to put into the soup when nearly ready. Put the bones into the gravy, and stew till the remainder of the meat is nearly dissolved. Then strain off the gravy, and put to it two spoonfuls of soy, or three of mushroom or walnut catsup. Cayenne pepper to the taste may be added, and wine in the proportion of half a pint to two quarts of gravy, if it is wished to make the soup very rich. Lastly, put in the meat that was cut from the back and legs, and when it is quite hot send the soup to table.

A Green Peas Soup may be made by taking six or eight cucumbers pared and sliced, the blanched part of as many lettuces, a sprig of mint, two or three onions, a little parsley, some white pepper and salt, a full pint of young peas, and half a pound of butter. Let these ingredients stew gently in their own liquor for an hour. Then have in readiness a quart of old peas, boiled tender. Rub them through a cullender, and put to them two quarts of strong beef gravy. When the vegetables are sufficiently tender, mix all together, and serve up the soup very hot. This receipt is very suitable for the country, where vegetables are abundant. In this respect you have a great advantage over the dwellers in towns; and you will find it easy to make a great variety of soups, by boiling any kind of vegetable till it is tender, afterwards rubbing it through a coarse sieve, so as to make what the French call a *purée*, and then mixing it with beef gravy or stock, as before directed. A *purée* of old peas or carrots makes an excellent soup.

I have only to add to my chapter on soups, that it is an excellent plan to have the bones of a sirloin of beef or roast leg of mutton, the remains of a hare, or, in fact, any thing of that kind, put into a large deep earthen pan, with rather more than enough water to cover them, a couple of carrots sliced, and perhaps a leek or an onion. The pan should then be carefully tied down, or have a cover fitted on it, and it should be put into an oven after the bread has been drawn, and suffered to remain all night. This makes an excellent *consommé* or stock for any kind of brown soup: and it is a good plan to have a stock of this kind prepared every time there has been a baking of bread, so as to leave the oven in a proper state; as it not only saves the purchase of fresh meat for soup, but makes an excellent use of

food that, under other circumstances, would very probably be wasted or given to the dogs. The liquor in which veal or fowls have been boiled should always be saved, and when cold, after the fat has been removed, it should be poured off clear from the sediment and used as a stock for white soups; and the scrag end of a neck of mutton, the root of a tongue, and various other portions of beef and mutton, which would be unsightly if sent to table, should, also, always be stewed down for brown soups. In the latter case, if the stock made in this manner looks pale or dingy, it may have a rich colour given to it by the following composition or *Roux*, which is also useful for made dishes and sauces. Put a quarter of a pound of lump sugar into a pan, and add a quarter of a pint of water, with half an ounce of butter. Set it over a gentle fire, stirring it with a wooden spoon till it appears burnt to a bright brown colour; then add some more water. When it boils, skim, and afterwards strain it; and then put it into a bottle, which should be kept closely corked till the composition is wanted for use.

I shall say nothing about roast meat, or any of the routine of ordinary cooking; but I shall confine myself to a few extemporaneous dishes for the table; and on these occasions the poultry-yard and the dove-cot will be found of the utmost importance.

Any kind of *poultry* will be tender if cooked as soon as it is killed, though it will be tough if kept till the following day; and the feathers may be removed almost instantaneously by dipping the dead bird for a moment into boiling water. The only objection to fowls is, that many persons, particularly gentlemen, are very apt to become tired of them if they are served too frequently, and it is therefore advisable to vary the modes of dressing them as much as possible.

Sometimes a forcemeat may be made for roast fowl, by boiling about a dozen and a half of sweet chestnuts, and pounding part of them with the boiled liver of the fowl, and about a quarter of a pound of bacon, adding parsley and sweet herbs chopped very fine, with pepper, salt, and other spices, to the taste. Fill both the body and the crop with this mixture, and then roast the fowl; when it is done, make a sauce by pounding the remaining chestnuts very smooth, and putting them with a few spoonfuls of gravy and a glass of white wine into some melted butter. The sauce is generally poured over the fowl when it is served up.

A broiled fowl should be split open at the back, and made as flat as possible, and sometimes the breast-bone is removed. The thick parts are generally scored, and seasoned with salt and pepper, after which

it is laid on the gridiron with the inside of the fowl next the fire. The fowl is, however, very much improved by putting it, after it has been split down and seasoned with pepper and salt, into a stewpan, with a little butter, and only enough water to prevent it from burning. When the fowl has stewed in this manner for about twenty minutes, it should be laid for about five minutes over the fire on a gridiron previously made quite hot, and served with a sauce made of the liquor in the stewpan, flavoured with mushroom catsup, or in any other way that may be preferred. Fresh mushrooms stewed and added to the liquor are a great improvement to this dish.

For a Dunelm of chickens. Take a few mushrooms, peeled as if for stewing; mince them very small, and put to them some butter, salt, and cream. When put into a saucepan, stir over a gentle fire till the mushrooms are nearly done; then add the white part of a roasted fowl, after being minced very small. When sufficiently heated, it may be served up. If fresh mushrooms cannot be had, a very small quantity of mushroom powder or a little catsup may supply their place.

The French frequently put some rice tied quite loosely in a cloth into the pot with a fowl, when it is to be boiled; and, when the fowl is sufficiently done, they cut it up and *fricassee* it, by putting the pieces into a casserole, with a lump of butter worked into a paste with a dessert-spoonful of flour and a wine-glassful of water, and the same quantity of new milk, with salt, white pepper, mace, &c., to the taste. Sometimes they add mushrooms, and sometimes small Welsh onions, and artichoke bottoms which have been previously boiled, to the fricassée; and sometimes they make the sauce much richer by adding to it the yolks of four eggs well beaten, in which case they generally put in a little lemon-juice or a very small quantity of vinegar, just before serving up. In the mean time, a little salt is thrown into the water in which the fowl was boiled, and the rice is kept simmering in it till the fowl is ready. The rice is then drained, and, being taken out of the cloth, is heaped round a dish in the centre of which the fricassée is put. When the dish is wished to be of a superior description, only the best parts of the fowl are used, and the back and side bones are kept back.

Pigeons are still more useful in extemporaneous cooking than fowls, as, being smaller, they are sooner cooked; besides, they are said to lose their flavour when kept. They are very good roasted, either plain or larded (that is, covered with slices of fat bacon, over which are put vine leaves tied on with string): and when the pigeons are nearly done, the string and the remains of the larding are taken off,

and the birds browned before the fire. Sometimes they are stuffed with forcemeat before roasting. Another way of dressing pigeons is to cut each in two, and put them into a casserole with a little butter and a few slices of bacon. The casserole should then be held over the fire for a few minutes, shaking it frequently to prevent the pigeons from burning; and, as soon as they have acquired a light brown, a few green peas should be added, and a sufficient quantity of the simple kind of stock I first mentioned poured over them to cover the whole. The pigeons should now stew gradually till they are done, and then a lump of butter worked into a paste with flour should be put into the casserole, to thicken the gravy before dishing up. This is a French dish called *Pigeons aux petits pots*; and the following is another, which is called *Pigeons à la crapaudine*. It is made by splitting pigeons down the back, and flattening them as much as can be done without breaking the bones too much. The pieces are then rubbed over with oil, salt, and pepper; and, some crumbs of bread having been prepared and mixed with parsley and Welsh onions chopped very fine, they are rolled in the mixture so as to be covered with it as much as possible, and then broiled. Sometimes the pieces of pigeon are dipped in yolk of egg instead of oil. They are served with a sauce made of shallots chopped fine, and mixed with pepper, salt, and vinegar, with a little melted butter or oil.

Ducks and *geese* are generally best plain roasted with green peas, or with apple or onion sauce. Dr. Hunter, however, gives the following receipt for a savoury sauce for a roasted goose:—"A table-spoonful of made mustard, half a tea-spoonful of Cayenne pepper, and three spoonfuls of port wine. This mixture is to be made quite hot, and poured into the body of the goose through a slit in the apron, just before serving up."

Game is generally very abundant in a country house. *Hares* may be either roasted, jugged, or made into soup. *Pheasants* are generally roasted, either larded or plain. Dr. Hunter recommends the inside to be stuffed with the lean part of a sirloin of beef, minced small and seasoned with pepper and salt.

Partridges are cooked in various ways in France; but in England they are generally either roasted, or dressed in the French way with cabbages. The following is the French receipt for dressing *Perdrix aux choux*. Take two partridges, and put them into a casserole with butter, a very little flour, three cupfuls of gravy, a quarter of a pound of fat bacon cut into dice, a little bunch of sweet herbs and a laurel leaf, and let them stew gradually. In the mean time boil a savoy cabbage with three quarters of a pound of pickled pork, or two

spoonfuls of dripping, filling the pot with water. When the savoy is tender, take it out and drain it, and then put it into the casserole with the partridges; let the whole stew for about half an hour, and then serve it quite hot. Sometimes a carrot is cut in round slices and stewed with the partridges, and this is a great improvement. Care must be taken to remove the bundle of sweet herbs and the laurel leaf before adding the cabbage, as otherwise it might be difficult to find them, and they would not look well if sent to table. Brussels' sprouts may be used instead of a savoy, and they render the dish more delicate. A half-roasted duck may be stewed in this way instead of the partridges, and is excellent.

Any kind of cold game makes an excellent *salad*, the meat being cut from the bones and mixed with lettuces cut small, and dressed in the usual manner. The French add capers, anchovies, or any other seasoning, to salads, and garnish them with the flowers of the nasturtium and the borage, which may be eaten without danger.

A *Magnonnaise* is a salad with alternate rows of cold fowl or roast veal, and lettuce, hard eggs cut in quarter slices, or carrot, or beet, gherkins, anchovy, &c. Cold potatoes cut in slices, and dressed with oil, vinegar, salt, and pepper, make an excellent salad, which may be varied by the addition of fine herbs, slices of beet-root, or anchovies taken from the bones and chopped fine. *Boulettes* of cold meat, chopped small, and mixed with crumbs of bread or mashed potatoes, are also very useful *impromptu* dishes. The mixed meat and bread or potatoes is seasoned with pepper, salt, a little parsley, and other herbs, and a shallot or two cut very small; the yolk of an egg or two is then added, and the mixture is made into balls, which are just glazed over with white of egg, and then fried; after which they are served with a little gravy or sauce of any kind, or covered with parsley put before the fire till it is quite crisp. Cold potatoes may also be cut in slices and warmed in a casserole, with some butter mixed first in a plate with a little flour, some parsley cut very fine, pepper and salt, and a very little lemon-juice or vinegar: this is called *à la maître d'hôtel*. They may also be cut in slices and fried, and then served with *sauce blanche*.

Sauce blanche is made by mixing butter with some flour on a plate, and then putting it into a casserole with a little water. It should be held over the fire, and frequently shaken, till it boils; it is then taken off the fire, and a little salt and vinegar thrown in; after which it is again shaken, and held over the fire till it is quite hot, but not boiling, when it is served. Some cooks add a little of the yolk of eggs, well beaten up with the salt and vinegar. *Carrots* are very good

boiled, and then cut in slices, and dressed *à la maître d'hôtel*, or fried and served with *sauce blanche* like potatoes. Carrots are also very good cut into small pieces and stewed till they are tender, with a little butter, and only just enough water or gravy to prevent them from burning. A sauce is made of the yolk of an egg beaten up with some cream, a little salt being added, and it is poured on the carrots; the saucepan is then again put on the fire, and when the whole is quite hot it is served.

It may be useful here to mention two or three kinds of sauce which may be used either for cold meat or fish; and also some of the ways the French have of dressing cold fowl or veal, which are very nice.

Dutch sour sauce. Take the yolks of two eggs, a lump of butter, a little bit of mace, and a table-spoonful of good white-wine vinegar. Put all together into a saucepan over a gentle fire, and keep stirring all one way till the sauce is thick enough for use.

Onion sauce. Melt some butter in a little thick cream, but add neither water nor flour. Boil the onions, and take two coats from their outsides. Chop the inside smooth, and put them into the melted butter, with salt to the taste. Stir one way over the fire for a quarter of an hour, and send up the sauce quite hot. Another way is to boil the onions soft, and to rub their pulp through a cullender or coarse sieve before adding it to the butter.

Sauce à la Bechamel is made by putting sliced onions and carrots into a saucepan with a little butter and flour and a pint of cream; pepper, salt, and nutmeg are added, with mushrooms and finely chopped parsley, if desired. The whole is suffered to stew gently three quarters of an hour, and then it is strained and thickened with a liaison of yolks of eggs. Another kind is made by adding an equal quantity of veal stock to the cream; and dressing any dish *à la bechamel* means serving it up with a white sauce; either made as above or in any other way, provided it consists principally of cream or thickened milk.

Sauce velouté is a white sauce, the base of which is veal stock instead of cream.

A Liaison of eggs is made by taking some fresh eggs (it is essential that they should be quite fresh), and separating the white carefully from the yolk. The yolks are then beaten up, and two or three spoonfuls of the liquor they are wanted to thicken is added to them, stirring them carefully. The saucepan is then taken off the fire while the eggs are gradually mixed with its contents, and only put on the

fire again for a minute, carefully stirring the contents so as to make them quite hot, but not boiling, before they are served up.

Sauce à la Tartare is mixed by putting shallots and other herbs cut very fine, with mustard, salt, pepper, oil, and a little vinegar. The ingredients are all mixed well together and served cold, or they may be made hot for fish.

A Blanquette is made by cutting cold meat into thin slices, and then putting it into a saucepan with a lump of butter, a little flour, pepper, salt, a bunch of sweet herbs, and a little gravy. Simmer it gently five minutes, and then put the meat into a dish; and after thickening the sauce with the yolks of eggs beaten up with a very small quantity of vinegar, and putting it over the fire for a minute, pour it quite hot over the meat.

A Marinade is made by stewing the remains of a fowl or slices of cold meat with butter or oil, vinegar, pepper, salt, onions, and sweet herbs; and then draining the pieces, dipping them in white of egg, and flouring them or covering them with bread crumbs, and frying them.

A Capilotade is a brown fricassée or hash, and a *Terrine* is a pie baked in a dish, but without crust.

Croustades are pieces of stale, firm bread, cut like sippets, but much thicker, and hollowed out into the centre, keeping the piece cut out to serve as a lid. The croustades are then fried a fine brown, and while hot they are filled with minced fowl or veal; or if a sweet dish is required, with some kind of marmalade or jam made hot.

Omelettes are always a great addition to a dinner table, and they are easily made. The following is the French receipt for the *Omelettes aux fines herbes*. Take any quantity of eggs and beat them well, adding pepper, salt, parsley, and any other herbs, with a few shallots or small onions chopped very fine. Melt enough butter in a frying-pan to cover the bottom of the frying-pan with liquid, and when it is boiling pour in the omelette, and fry it till it becomes a fine brown. When served, fold it so that only the brown side may be seen, and pour over it a kind of sauce made by putting a little butter, flour, and catsup in the pan, and shaking it for a few minutes over the fire; or a little gravy may be heated and poured over it. The frying-pan should not be too large, as an omelette should always be rather thick. About six or eight eggs will make an omelette of the ordinary size, and about two ounces of butter will be required for frying it. Other omelettes may be made by omitting the herbs, and adding

mushrooms cut very small, or mushroom-powder, grated ham, grated cheese, or, in fact, any other substance that may be thought desirable.

Dr. Hunter gives the following receipt for a *Potato omelette*. Take three ounces of potatoes mashed, and add to them the yolks of five eggs, and the whites of three. Add white pepper, salt, and nutmeg to the taste. Fry in butter, and serve up with clear gravy, to which some add a little lemon-juice. Sweet omelettes may be made by adding to the eggs orange-flower water, and sugar, or grated lemon-peel and sugar, or marmalade of apples or apricots, or raspberry or currant jam. The omelette is then fried in the usual way; but it is usually served without doubling it up, sugar being grated over the upper side after it is put in the dish, which is then set in front of the fire for a few minutes, or the omelette is browned by holding over it a flat red-hot iron called a salamander.

The following is a receipt for making an *Omelette soufflée*, taken from a French cookery book. Break six eggs; separate the whites from the yolks, and beat up the latter with four ounces of grated lump-sugar, and a little orange-flower water, or the rind of a lemon cut very fine, or grated. Then beat the whites of the eggs into a froth, and mix them quickly with the yolks, and pour them into a dish in which two ounces of butter have been melted, and which is quite hot; hold a salamander over the eggs for about five minutes, when they will rise in blisters; then, sprinkling a little powdered sugar over the dish, serve it quite hot, without losing a moment, as, if it be allowed to cool, the puffed up part will fall, and the appearance of the dish will be spoiled. When this dish is made in England, the butter is generally melted in a frying-pan, into which the eggs are poured, and suffered to fry for a minute or two, after which the omelette is put into a hot dish, and set in the oven to rise. A little grated sugar is then sprinkled over it, and it is served immediately.

Apples and apricots cut in slices and dipped in a light batter make a very agreeable addition to a small dinner; and the flowers of the Judas tree, and vine leaves, sugared and steeped in brandy, and the young shoots of the vegetable marrow, all make nice dishes when dipped in batter and fried.

Frangipane is made by beating up two or three eggs, and then adding to them two spoonfuls of flour, mixed quite smooth with a little milk. Put the whole into a casserole, and set it on the fire for a quarter of an hour, shaking it continually that the frangipane may not

burn. The dish may be flavoured with sugar, orange-flower water, or crushed macaroons; and it is eaten with tarts or preserved fruit.

Fromage à la crème is a very elegant addition to the dessert. It is made by taking a pint of new milk, and adding to it a spoonful of rennet, and keeping it warm till the curd rises; the curd is then carefully taken up without breaking it, and laid in a wicker basket, or on a sieve, to drain. When nearly all the whey has run off, it is served with cream poured round it, and sugar grated on the top.

For *Syllabubs*, to one quart of cream put the rinds and juice of two lemons, a teacupful of white wine, two table-spoonfuls of brandy, a little nutmeg, and sugar to the taste; and then whip them to a froth with a whisk.

A *Devonshire syllabub*, or *junket*, is made by putting a pint of cider, with two table-spoonfuls of brandy, and sugar to the taste, into a large bowl, and milking upon it till the bowl is nearly full. In twenty minutes some clotted cream is heaped up in the middle of the dish, and powdered cinnamon, grated nutmeg, and Harlequin comfits strewed over the top. When cider cannot be procured, half a pint of port is used instead, omitting the brandy; and when a cow is not accessible, lukewarm milk poured from a coffee-pot spout, held up as high as possible, will do almost as well.

For *impromptu Cheesecakes*. Take a quarter of a pound of butter, and the same quantity of pounded lump-sugar, two eggs well beaten, and the juice of a lemon, with the grated rind. Beat the butter into a cream, and mix the whole well together. Then put some light puff paste in pattypans, and drop a little of the mixture into each. Another way of making impromptu cheesecakes is with butter, sugar, and sweet almonds, taking of each a quarter of a pound, and adding the yolks of four eggs, with the white of two, and the grated rind of a lemon.

Common Cheesecakes made with curd take more time to prepare, but are, I think, better; they are made by turning some milk with rennet into curd, as if for making cheese, and then beating three quarters of a pound of the curd, which should be quite dry so as to crumble, with five ounces of butter till the mixture is quite smooth. Two ounces of sweet almonds and five or six bitter ones, pounded in a mortar, and mixed with four ounces of lump-sugar, crushed and sifted, should be added; and the whole should be moistened with the yolks of four, and the whites of two eggs beaten up with three spoonfuls of cream, two of brandy, and a little nutmeg. The pattypans should be rather large, and rubbed with butter before the

paste is put into them, and the space left for the curd should be filled quite full. These cheesecakes should be baked about twenty minutes, and they are excellent. As I have said you are to line your pattypans with puff paste, you will probably now ask how it is to be made. There are numerous receipts given in the cookery books, and I really don't know which is the best; but I will tell you how I have seen most excellent paste made when I was a girl, by one of the best plain cooks I ever met with.

For *Puff Paste*, the flour was put in a wide earthen pan set before the fire, till it was quite warm, turning it frequently with the hands. A little butter was then rubbed into the flour, and enough warm water was added to make the whole into a very smooth and even paste, every lump in the flour having been carefully crumbled in the process of mixing. The paste was rolled out rather thick, and little bits of butter stuck all over it; flour was then dusted over the butter, and the paste was folded up so as to cover the flour. This was repeated as often as required, and half a pound of butter to a pound of flour was considered to make a very rich crust, a quarter of a pound of butter to a pound of flour being the usual proportion.

Short or *Sugar Paste* was made by rubbing two ounces of lump-sugar, crushed by a rolling-pin so as to be very fine, into a pound of dry flour, and adding three ounces of butter, both the butter and the sugar being so mixed as to leave no lumps. The yolks of two eggs were then beaten up well, with some cream, and added to the flour, so as to make it into a paste, and if more moisture was required, milk or cream was used, but no water. This paste only required rolling out once, and it was delicious.

In some of the modern cookery books equal quantities of butter and flour, in addition to the yolks of two eggs, are recommended for rich puff paste; and it is directed that the greater part of the butter should be made into a ball, and the buttermilk having been squeezed out of it, it should be put into the crust and covered with it, like an apple in making an apple-dumpling. The crust is then to be floured and rolled out five or six times. I have never tried this paste, and I should think it would be difficult to make. Regular pastrycooks, I am told, use oil, which they mix with the flour without any water; and lard or dripping is often used in large families to save butter. Eggs give a great richness to paste; but when used the whites should be omitted, as they are apt to make the paste hard.

Having thus broken through my determination to give you only receipts for impromptu cookery, I think I must give you a few hints

on what may be called National Cookery, or, in other words, that I may teach you how to make the favourite dishes of most of the nations of Europe. I do this principally to amuse you, and to enable you to produce variety in your entertainments, as the greatest enemy you have to dread is monotony; but you may occasionally find it useful to know how to produce the favourite dishes of foreigners, when you have to entertain them.

The Pot au Feu is the popular soup of France, which is found in every house, from the prince to the peasant: it is made by putting a solid piece of beef into cold water, in the proportion of one pound of meat to a quart of water, and letting it simmer in an earthen pot on a hot hearth for six hours, taking off the scum as it rises. A little salt is thrown in after the liquor has begun to simmer, and carrots, cabbage, an onion or two, and any other vegetable that may be in season are put in, after the scum, caused by the addition of the salt, has been taken off. This pottage can never be made properly unless wood is burned in the kitchen, as it requires to be kept constantly simmering, but never boiling rapidly during the whole of the six hours; and this can scarcely be accomplished with a tin kettle or saucepan placed at the side of a coal fire. In France they generally use a piece of the rump for the *pot au feu*, as they have their meat (which they call *bouilli*) sent to table, with the best of the vegetables, taken carefully out of the liquor, laid round it. The soup is then strained off and poured quite hot on a slice of bread, either toasted or untoasted, according to taste, which is laid at the bottom of the tureen. Sometimes, instead of using bread, the pottage is served plain; or vermicelli is added in the proportion of from one to two ounces to each quart of soup. The vermicelli is put into a saucepan, and enough of the bouillon to cover it is strained over it, and it is stewed very gently for about half an hour, so as to be ready to add to the soup when it is put into the tureen. In winter, instead of vegetables, rice is frequently put into the *pot au feu* about two hours before it is served up; or it is stewed for about an hour in a separate saucepan, and added when the pottage is served up.

Macaroni is the national dish of Italy, and it is prepared by covering it with ten times its volume of boiling water, and letting it remain till it becomes soft. When this is the case, some salt is thrown into the water, and the saucepan is held over the fire for a minute, till the liquid begins to bubble, when cold water is thrown in to stop the ebullition: the macaroni is then drained, and placed in a dish alternately with small bits of butter, pepper, and grated cheese; or, instead of butter, gravy of any kind may be used, or tomato sauce.

The Italians use the same kind of soup as the French, but they always serve a dish of grated cheese to eat with it; and sometimes they add parsley chopped very small to the potage before serving it. The cheese used in Italy is either Parmesan or Gruyere, but any strong flavoured, dry cheese will do.

Sauer kraut is the national dish of Germany, and it is made from very large close cabbages, which are deprived of their outer leaves so as to leave only the hard white part, or head. The first process of preparing them is to scoop out the interior part of the stalk with an iron instrument or scoop; they are then cut into small shreds by a wooden machine, composed of a flat board or tray, which has a ledge on two sides, to steady a box or frame, into which the cabbages are put. In the middle of the board are four flat pieces of steel, similar to the steel part of a spokeshave, placed in an oblique direction, and the near edge of each being a little raised up, with small spaces between each, to let the shreds fall down into a tub placed underneath to receive them. The cabbages are then put into the box before described, which is pushed backwards and forwards, when the cabbages, being cut by the steel, fall in small shreds into the tub placed below. A barrel stands ready to receive them when cut, the sides of which are first washed with vinegar. A man stands on a chair by the barrel, with clean wooden shoes on, whose business it is to salt and prepare them, which is done in the following manner:—The man first takes as much of the cut cabbage as covers about four inches above the bottom; he next strews upon it two handfuls of salt, one handful of unground pepper, and a small quantity of salad oil; he then gets into the barrel, and treads it down with his wooden shoes till it is well mixed and compact. He next takes another layer of cabbage, and puts salt and pepper on it as before, and treads it again, and so goes on till the barrel is filled. A board is then placed on it, and upon the board some very heavy weights are put, and it remains so ten or fifteen days, when it partially ferments, and a great deal of water swims on the surface: it is then put into the cellar for use. The men who prepare sauer kraut are Tyrolese, and carry their machine on their backs from house to house.

In the annexed sketch (fig. 6.), *a* is the cutting-tray, *b* the box into which the cabbages are put, *c* the scoop, and *d* the tub into which the shreds fall.

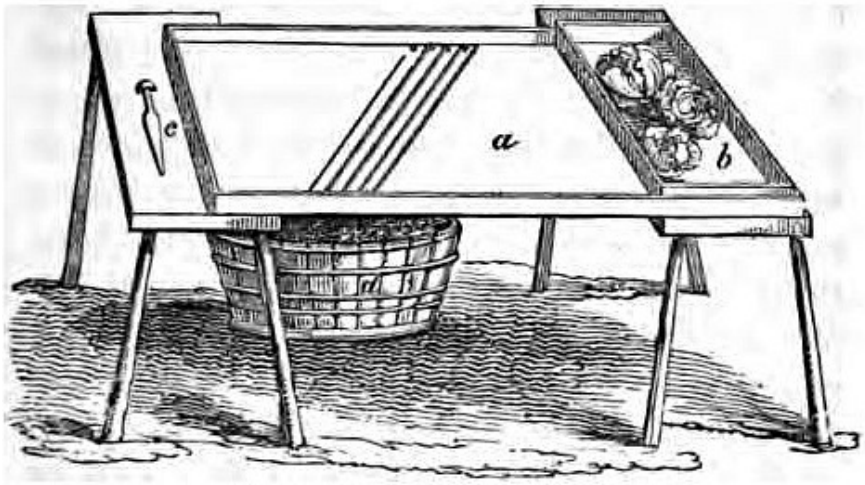


Fig. 6. ***Cabbage-cutter for Sauer kraut.***

The Beet-root soup called Barszez or Barch is the national dish of Poland. It is made by putting the siftings of rye into a barrel, and filling it with warm water in the proportion of three quarts of siftings to four or five gallons of water. The barrel is set in a warm closet heated to about 70°, and soon begins to ferment. In twelve hours it is ready for use. The liquor is then strained off, and set near the fire, with any meat or poultry that may be required. When the meat is sufficiently stewed it is taken out of the soup, which, after it has been well skimmed and strained, is mixed with a pint of cream in which four table-spoonfuls of flour have been beaten up, and into which a red beet-root has been grated. The soup is then set on the fire for a minute, and when quite hot it is served up. The meat is served on a separate dish, and it is garnished with another beet-root cut in slices, and dried mushrooms which have been previously boiled in a separate saucepan. Another much superior kind of barch, (which may be called a *beet purée*,) is made by boiling several roots of beet, taking care not to break the skin, so that they may preserve their bright red. When quite soft they are taken out of the water, peeled, and rubbed through a sieve. Half a pound of flour is mixed with a quart of thick sour cream, and added to five or six pounds' weight of pulp, and this is thinned with stock from any kind of meat previously boiled and strained. The whole is then suffered to simmer till the raw taste of the flour is gone off, and it is then served quite hot. It should be of the colour and consistency of raspberry cream, and, when properly made, it is delicious. Both these receipts were given to me by an English lady now residing in Poland, so that you may rely upon them as being genuine; and the following receipts for Spanish dishes were procured for me by a friend from a gentleman who is a native of Spain.

The Olla Podrida is decidedly the national dish of Spain, and, prepared according to the receipt I am going to give you, it is really excellent. It is composed of the following ingredients:—a fowl, pieces of beef, mutton, veal, and bacon; half a Spanish sausage, and some garvanzos (Spanish peas). The garvanzos should be soaked all night in, warm water and a little salt. Next morning the whole of the above are to be slowly boiled together for three hours or more; add some onion, one or two cloves, salt, carrot, garlic, and open cabbages. Pour the soup upon *very thin pieces* of bread, not toasted. After the soup, the vegetables, bacon, and sausage are served on one dish, and the fowl and meat on another. Sometimes vermicelli or rice is put into the soup instead of the thin pieces of bread; but the bread appears to be most generally used.

To make a Puchero, put from two to six pounds of beef into a stew-pan, adding a quart of water for every pound of meat. Place the saucepan on a moderate fire, which should be gradually increased in force so that the scum may be carefully removed, which should be done as it rises to the surface until no more of it appears. The saucepan is then to be left on a fire, kept uniformly moderate, for the space of four hours. When it has boiled two hours, put into it three carrots of moderate size, two turnips, four leeks, and a parsnep, each cut in half, a handful of parsley, more or less, a roasted onion pierced with two or three cloves, and a good proportion of salt. Warm water must be occasionally added, according as the soup evaporates. The above, with the addition of a whole fowl, or even the half of a chicken only, the giblets of a turkey, or a bone of roast lamb, makes an excellent dish in the class of plain cooking. There should be put in this dish some garvanzos soaked in warm water the previous night, and put into the saucepan as soon as the soup begins to get warm. A piece of ham or bacon, or a piece of the Spanish sausage, should be put in at the same time as the vegetables.

A Scotch haggis. Take the large stomach of a sheep. After being nicely cleaned, put it to soak in cold water for a night. Boil the pluck of a sheep till it becomes very tender; mince it small, together with a large portion of suet, and season with white pepper, salt, and a little onion shred small; add a quart of the liquor in which the pluck was boiled, and as much oatmeal, previously browned before the fire, as will make the mixture as thick as batter. The ingredients are then put into the stomach, which must be firmly sewed, to keep out the water; and, after boiling for three hours, it is served up in a deep dish. Though the pluck is here mentioned generally, we must observe that neither the liver, nor what is called the cat's-piece or spleen, is to be

used. When the haggis comes to table a portion of the skin where it is sewed is taken up with a fork, and a hole is made by cutting the skin all round it. If the haggis has been properly made the gravy will spurt out to a great height the moment the skin is pierced.

Scotch barley broth is considered best when made with a sheep's head, the wool from which has been singed off with a red-hot iron. This operation requires great care, as every particle of the wool should be removed, and yet no impression should be made on the skin. When singed the head should be soaked in water all night. In the morning it is scraped and washed, and then it is split open, and the brains taken out. Some persons rub the brains over the skin of the head to remove the blackness; but others do not like either the broth or the head unless both are black. When properly prepared it is put into a kettle with some turnips and carrots cut small, some onions, and some salt; and a gallon of water should be added, in which a teacupful of Scotch or pearl barley has been boiled slowly for half an hour. The whole should then be boiled very gently for two or three hours, or longer, in a close kettle. When served the soup should not be strained, but only the head should be taken out and served on a separate dish, and the broth should be sent to table with the barley and vegetables in it. The meat on the head should be quite tender and thoroughly done. If the taste of the head be disliked, the soup may be made by adding to the stewed barley, the vegetables, and three pounds of the lean end of a neck of mutton, instead of the head. A pint of green peas may also be added, if in season.

A Scotch hotch-potch. Take equal quantities of fresh beef and mutton, a pound and a half of each to three pints of water; chop them finely, and let them simmer gently in a stew-pan. When the meat is tender, season with salt and pepper, and add a peck of green peas, three or four or more carrots, two cauliflowers, a few onions, and any other vegetable that may be in season, cutting them small, and dredging them with flour. The whole should stew gradually till the vegetables are tender, when it should be served without straining. In the winter, when other vegetables are scarce, potatoes may be substituted for some of them; but carrots should always be most abundant.

For an Irish stew. Take four pounds of potatoes, and a pound and a half of meat, with a few onions, and one carrot, which will make a good stew for six or seven persons. The meat must be cut into small pieces; if it is half mutton it will be all the better; add about three pints of water. When the greater portion of the potatoes are in pulp, it will be done. Season it with salt and pepper.

The English national dishes are, I suppose, roast beef and plum pudding. I need not tell you how to roast your beef, but I may give you a receipt for a pudding under it, as I think puddings of that kind are peculiar to England.

For an excellent Yorkshire pudding, take six eggs, six heaped table-spoonfuls of flour, and one tea-spoonful of salt. Beat the eggs well, strain them, and mix them with the flour, and then add gradually about a pint of milk, so as to make the whole into a rather thin batter. Warm the pan, and rub it with dripping or butter before the batter is poured into it, and let the batter be about an inch thick. When the pudding is browned on one side cut it into quarters, or eight pieces, and turn them to brown the other. In some places the pudding is made very thin, and not turned; and sometimes currants are added. A plainer pudding may be made with half a pound of flour, a tea-spoonful of salt, three eggs, and a pint of milk.

For a Plum pudding, take suet, flour, currants, and stoned raisins, one pound each, the grated rind of a lemon, four eggs, a wine-glassful of brandy, and as much milk as is required to make it of a proper consistence. It should be boiled eight or nine hours in either a cloth or a mould, and served with wine sauce.

Sir Joseph Brookes's Plum pudding. "Take the crumb of a twopenny loaf, six ounces of suet, two apples grated, three ounces of sugar, the rind of a lemon grated, a little candied orange, half a pound of currants, two table-spoonfuls of flour, the yolks of four eggs, half a nutmeg, a little ginger, and three table-spoonfuls of brandy. Mix all well together, and boil two hours. Eight ounces of apple or gooseberry pulp, with five ounces of sugar, may be substituted for the suet."

Mr. Sopwith's Victoria pudding. "Take half a pound of flour, half a pound of currants, a quarter of a pound of suet shred very fine, a quarter of a pound of moist sugar, half a pound of mashed potatoes, a quarter of a pound of carrots boiled and beaten smooth, and one ounce of lemon-peel. Mix all well together the night before the pudding is wanted, and boil it four hours." Another similar pudding is made as follows:—"Take of flour, suet chopped fine, currants, raisins, and grated carrot, half a pound of each; mix the ingredients well together, without any liquid, and boil five hours. A little grated lemon-peel may be added, and the pudding should be served with sweet sauce poured over it."

I shall now give you a few miscellaneous receipts of various kinds, which I know to be good.

A Charlotte de pommes is a French apple pudding, made by lining a mould or dish with thin slices of stale bread that have been dipped in clarified butter. The middle is then filled with apples, stewed as if for sauce; and a piece of bread being laid on the top, the charlotte is baked with fire above and below.

A French Apple pudding is made by baking or stewing some apples with sugar till they become a sort of marmalade. A custard is then made of half a pound of sweet almonds, blanched and pounded smooth, with an ounce of bitter ones, half a pint of cream, the yolks of two eggs, and the white of one, and poured over the apples, which should then be baked in a slow oven. As this is what is called a French apple pudding in England, it may amuse you to give you now what is called an English apple pudding in France; it is as follows:— Take twelve moderate-sized apples, pare and core them, and then put them into a saucepan with four or five table-spoonfuls of water. Stew them till they are soft, and then mix them with half a pound of powdered lump sugar, the juice of three lemons, and the grated rind of two, and the yolks of eight eggs well beaten. Mix all well together; cover a dish with a light puff paste, and pour the mixture into it. Put it into the oven, and bake it half an hour.

A Parsnep pudding is made by boiling two parsneps, draining the water from them, mashing them, and adding grated bread, the yolks of two eggs, sugar and spice to the taste, and a little cream; the whole, when mixed, is poured into a light puff paste, and baked.

Mr. Sopwith's Almond pudding. Take five or six bitter almonds, blanched, and pound them in a mortar, with seven or eight pieces of lump sugar. Then beat up the yolks of two, and the whites of three eggs, and add them to the almonds and sugar, with two spoonfuls of cream made lukewarm. Pour the whole into a mould or basin well buttered, and steam it for twenty minutes.

To make a *Cabinet pudding*. Butter a pudding basin, and line the inside with a layer of raisins that have been previously stoned. Then cut some thin bread and butter, taking off the crust, and fill the basin with it. In another basin beat up three eggs, and add to them a pint of milk, with sugar and spice; mix all well together, and pour the whole into the first basin upon the bread and butter. Let it stand half an hour, and then tie a floured cloth over it in the usual manner, taking care that the basin is quite full. This is a most delicious pudding; and when turned out of the basin it has a singular appearance, the outside being quite covered with raisins.

For *Lemon cream*. Take a quart of lemonade made very sweet, strain it, and put it in a saucepan on the fire. Add the yolks of eight eggs beaten, and stir it always one way till it is of a proper thickness. Serve it in custard-glasses, or in a cream-dish. To make the lemonade, dissolve five ounces of sugar in two pints of boiling water, having previously, with part of the sugar, rubbed the yellow rind off a lemon; then add the juice of three lemons. Some persons put the lemon and sugar into a jug, and pour the boiling water upon them.

Rice flummery, which is a very nice side dish, is made by mixing a quarter of a pound of ground rice with a little cold milk, and then adding a pint of hot milk which has been boiled with a stick of cinnamon and a bit of lemon-peel; add sugar to the taste, and, if required, a few drops of essence of almonds. Boil it up, stirring it carefully, and then pour it into a mould.

Dutch flummery is made by boiling two ounces of isinglass in three half-pints of water very gently for half an hour. Strain the liquor, and add a few lumps of sugar which have been rubbed on the rind of two lemons, and the juice of three lemons strained; then beat the yolks of seven eggs, and add them gradually. Put the whole over the fire, and stir it carefully, all one way, till it boils, and then pour it into a mould, or put it first into a basin to settle before putting it into the mould. The whites of the eggs beaten up to a froth will look very pretty over preserves; or they may be coloured with some kind of preserve, to form a dish.

The following is a receipt to make *Rice cream*, which was sent to me by a friend, and is said to be most excellent. Take a quarter of a pound of ground rice, one quart of cream, the peel of a lemon, and a small piece of butter. Put all into a stewpan, and place it over the fire, stirring it carefully till it boils, when it should be of about the same thickness as bread sauce. After boiling two minutes, add a spoonful of prepared isinglass, and turn it out, as you would any other cream. Send it to table with a little raspberry or currant syrup.

Blancmange may be made quickly by boiling, or rather simmering, two ounces of isinglass in three pints of milk till it is dissolved, which will be in about half an hour. Then strain it into a pint and a half of cream; sweeten it, and add a little peach-water, to give the flavour of almonds. Let it boil up once, and then stand a few minutes to settle before it is put into the moulds. Use tin moulds, and set them in cold pump-water changing the water when it becomes warm, and the blancmange will very soon be quite firm.

I will now give you a few miscellaneous receipts, and then I think you will have had enough; for I know, as far as my own experience goes, I have always felt perplexed, when I have taken up a cookery book, by the great number of receipts which I found in it, and all of which appeared to me so excellent that I knew not which to choose. I have, naturally enough, supposed you to have the same feeling; and thus, in what I have written, I have endeavoured as much as possible to save you the trouble of selection, by giving you only such dishes as I either know to be good myself, or which have been given to me by friends I can fully rely upon. But I am forgetting your receipts; they are as follow:—

To make *Potato flour* or *starch*, to serve also instead of arrow-root. Peel and wash the potatoes, cutting out all the specks; then grate or rasp them into a pan of water; stir it up well, and let it remain for about ten hours, or till all the flour is settled down. Then pour off the water with the fibrous parts of the potatoes, and put some fresh water to the flour, which, as it settles very hard, must be well stirred and strained into another pan, where let it remain till it is again settled down, and so do till the water is quite clear, which will be in four or five times mixing in fresh water; once straining is sufficient. When clear enough, break the flour up into a dish, and dry it gently before the fire; it takes a good while, as it must be thoroughly dried and broken into a fine powder. It may then be put away for use, and keeps a long time. Very small potatoes answer the purpose as well as large; and, when persons grow them, it uses up those that are too small for boiling. Ten ounces and a half of starch have been produced from very small potatoes, which weighed only seven pounds and a half before peeling them. When this flour is made on a large scale, the potatoes may be washed, and then ground in a cider-mill without paring.

To pickle Lemons. Grate off the rind, then lay them in salt for six days; boil vinegar with a little turmeric, and pour over them boiling; let them stand till next day; then boil in best vinegar, mace, shallots, anchovy, Cayenne pods, and cloves; boil the lemons and liquor together two minutes, and cover them close up. In a few days they will be fit for use, and are much admired with fish, cutlets, or cold meat.

Mixture for India Pickle. One gallon of vinegar, a quarter of a pound of garlic, half a pound of salt, a quarter of a pound of ginger, two ounces of white mustard seed, and two teaspoonfuls of Cayenne pepper; mix all well together. Any vegetables, such as small onions, cauliflowers, French beans, radish pods, and gherkins, may be laid

in salt three days, dried, and put into the above mixture, and it is an excellent pickle for general use.

Cucumber Vinegar. Pare and slice fifteen large cucumbers, and three or four onions, a few shallots, and a clove or two of garlic. Then put a layer of slices of cucumber in a deep jar, and strew over it some pepper and salt, and a little Cayenne pepper; then a layer of onions and shallots, with pepper and salt as before; repeating alternate layers of cucumbers and onions till the jar is about half full, when three pints of vinegar is to be poured on the whole. After standing four days the vinegar is strained off, and is ready for use. It is a great improvement to cold meat.

Excellent Walnut catsup. Take walnuts of the size fit for pickling; cut and pound them in a marble mortar to obtain the juice. To a pint of this juice put a pound of anchovies. Boil till the anchovies are dissolved, and then strain through a piece of muslin. Then boil again, and add a quarter of an ounce of mace, half a quarter of an ounce of cloves, some whole white pepper, and seven or eight shallots, a few cloves of garlic, and a pint of white wine vinegar. Boil all together till the shallots become tender; then strain, and, when cold, bottle for use.

Tomato sauce may be made by putting ripe tomatoes into an earthen jar, and setting it in an oven from which the bread has been just drawn. When the tomatoes have become soft, the skins should be taken out, and the pulp should be mixed with vinegar, a few cloves of garlic pounded, Cayenne pepper, powdered ginger, and salt, to the taste. Another way is to stew a gallon of ripe tomatoes with a pound of salt till they are reduced to a pulp; then rub them through a sieve, and add half a drachm of cochineal, and Cayenne pepper, mace, allspice, and ginger to the taste. Let the whole boil gently for twenty minutes, and when cold put into wide-mouthed bottles for use. By adding a little brandy to each bottle, this sauce will keep several years. Tomatoes are also very good, boiled gently in salt and water.

For Tomato sauce (*the Spanish way*). Cut six tomatoes in half, and, having pressed out their juice, put to them a sufficient quantity of gravy, a quarter of a head of garlic, a little parsley, and a few drops of vinegar. All this must be boiled together for a short time and passed through a sieve. This sauce is a great improvement to mutton chops, ham, boiled beef, or beef steaks.

The Spanish mode of keeping Tomatoes. Boil some sugar, in the proportion of an ounce to each tomato, until it becomes candied. Add a tenth part of onions; and when they begin to colour put in the

tomatoes, with salt, pepper, cloves, and nutmeg in suitable quantities. Boil the whole on a very quick fire, and, when of sufficient thickness, strain it through a hair-sieve. Place it on the fire again immediately, and, when it becomes solid, put it into jelly-pots. These must be covered with two plies of paper, and kept apart from the light. The onions may be omitted from the above; in which case it can be used as a sauce for a variety of dishes.

Sirop de Cerises. Prepare some ripe cherries by pulling out their stalks, crush them, and leave them to ferment for twenty-four hours. Press the cherries, and strain their juice through a sieve. The liquid should be quite clear, and to every seventeen ounces of juice add two pounds of lump sugar. Put the liquid into a stewpan on the fire, and let it boil once, then take off the scum, and when the liquor is nearly cold bottle it. All other syrups of fruit are made in the same manner.

I think you will now be as much tired of reading receipts for cookery as I am of writing them, and therefore I will only add two receipts for making *Pork pies*, the first of which is the mode practised in my native county, Warwickshire.

Half a pound of lard is put into a saucepan containing a quart of water. The saucepan is set on the fire, and stirred till the water boils. The boiling lard and water is then poured slowly into as much flour as will suffice to make it into a smooth and very stiff paste, and mixed with a wooden spoon, after which it must be beaten with a rolling-pin. When the ingredients are thoroughly incorporated, the paste is put into an earthen pan, covered with a linen cloth, and placed near the fire, where it is left for about half an hour. The meat is now prepared by being separated from every particle of bone, skin, and gristle, and cut into pieces about the size of dice. Care is taken to keep the fat and lean separate; but both are well seasoned with pepper and salt. A piece of the paste large enough to form one pie is then broken off the mass, and the rest is again covered up, as it cannot be worked if it is too cold, though it will not stand if it is too warm. If it breaks and crumbles, instead of being plastic, it is too cold; and if it is too soft, and falls when raised, it is either too warm or too rich. When it is of just the right heat to bear being moulded, and yet to retain whatever shape may be given to it, the piece of paste is worked with the hands on a pasteboard, into the form of a high-peaked hat, with a broad brim; and then the peak of the hat being turned downwards on the board, one of the hands is put inside the hat, and the other used to raise and smooth the sides, till the pie is gradually worked into a proper shape. The meat is then put into the crust in layers, two of lean to one of fat, and pressed as closely as

possible, in order that the pie may cut firm when cold. When the pie is quite full, the lid is put on, and wet round the edge to make it adhere to the top of the walls, on which it is laid, the two being pinched together, in order to unite them more thoroughly.

In Leicestershire, and some parts of Staffordshire, a layer of raisins is often put below the meat, and, in Northamptonshire, pork pies or pasties are made with the same kind of crust as I have described, but, instead of being raised, it is rolled out, and then cut into pieces of a proper size for the top and bottom, with a long piece of the necessary width for the sides. The bottom is cemented to the walls with egg, the two parts which are to adhere being pinched together; and the crust is filled with well-seasoned meat, put in layers of fat and lean as before; the lid is then put on, and, after it has been made to adhere to the walls, it is washed over with a feather dipped in white of egg.

These pies are frequently baked in a tin, which is made so as only to support the walls, and is fastened on one side with a kind of skewer, which may be drawn out, so as to allow the tin to be removed without breaking the crust. As, however, the sides sometimes look too pale, when the pie is baked in a tin, the pie may be put into the oven again for a few minutes after the tin is removed, in order that the walls may be properly browned.

All pork pies should be baked slowly, on account of the solid nature of the meat; and a hole is generally made in the middle of the lid to let out the steam. No water should be put into the pie when it is made; but, when it is baked, a little gravy made from the bones of the pork may be poured in through the hole in the lid. Pork pies are never cut till they are cold. Those persons who dislike lard may use butter instead of it for the crust; but it is not quite so good.

LETTER VI.

THE LARDER.—SALTING MEAT, BACON, AND HAMS.—THE DAIRY.—MANAGEMENT OF MILK.—MAKING AND KEEPING BUTTER.—MAKING CHEESE OF VARIOUS KINDS.—ICE-HOUSE, ICE-CELLAR, AND ICE-COOLER.

I will now proceed to say a few words on the other servants' offices. The *Larder* in a country house is generally a square or oblong room near the kitchen, and sometimes sunk a step below it. It should be

kept as cool as possible, and should be contrived to be on the north side of the house. Where practicable, there should be two windows, or rather openings in the walls, opposite each other, filled in with wire network instead of glass, to allow a free current of air through the room, and yet to exclude flies and other insects. The floor should be of brick, and furnished with a drain, so that it may be frequently washed with plenty of water, without much trouble. The walls should be whitewashed, and there should be fixed in them at intervals strong iron hooks or holdfasts, for the purpose of suspending uncooked meat. Other hooks should be fixed in the ceiling, for hung beef, tongues, hams, &c. When the larder is dry, there may be also bacon racks fixed to the ceiling; but, if the situation should be damp, these will be better in the kitchen. In some places a circular rack is hung in the centre with hooks round it for game; but in very large establishments there is a separate larder for game, as the smell, when it is high, gives an unpleasant flavour to the fresh meat kept near it. In the centre of the larder there should be a strong wooden table or chopping-block for cutting the meat upon; and close under the walls there is frequently a raised settlice or dais of brick, about two feet high, which serves to support earthen, slate, or wooden troughs for salting meat. In one of the deepest of these should be a kind of pickle or brine, in which anything that is to be salted for keeping may be put; and the other more shallow troughs may be employed for slightly salting meat that is soon to be used.

The pickle for the large brine trough is made by mixing four gallons of water with a pound or a pound and a half of coarse sugar, four ounces of saltpetre, and six pounds of common or bay salt. This mixture should be boiled in a large kettle, and the scum taken off as it rises. When no more scum appears, the vessel should be taken from the fire, and the liquid suffered to stand till it is cold. Another pickle is made by adding to four gallons of water, fourteen pounds of common salt, eight pounds of bay salt, half a pound of saltpetre, and two ounces of sal prunella. Boil the whole together for half an hour, and take off the scum; when cold it is fit for use. The first kind is best for hung beef and tongues; and the latter for salt beef and pickled pork.

When the pickle is ready, the meat to be salted should be examined, and carefully wiped dry with a coarse cloth, any flyblows or bruised parts being removed. If tongues are to be salted, the roots should be cut off, and laid aside for soups; and then the tongues should be scraped and rubbed dry before putting them into the pickling-trough. The skin of the pork should be scraped and cleaned, and the fleshy

part should be carefully examined, and wiped dry, any mass that there may be of congealed blood being removed. All the meat that is to be cured being properly prepared, it should be laid in the pickling-trough and the brine poured over it; and, if there are several pieces of meat, care should be taken to lay them so that the brine may touch every part, and completely cover the whole. Meat which has been preserved in the first pickle for ten weeks or more, if cooked without being hung up to dry, will be perfectly tender, and will eat as well as meat that has been only freshly and slightly salted.

It is said that meat may be kept in this pickle for twelve months, provided the pickle be boiled and skimmed about once in two months, and that during the boiling, two ounces of sugar, and half a pound of salt be added. In general, the articles which have been salted, after remaining about a fortnight or three weeks in the pickle, are taken out and hung up to dry. Some persons lay them to drain, and then hang them up without any other preparation; but others advise them to be wiped quite dry and put in paper bags before they are hung up. Whenever fresh articles are put into the pickle, every thing should be taken out of the trough, and the brine boiled up, the scum being taken off and fresh salt and sugar added, as before directed. Sometimes meat is merely salted when it is to be used in a few days; in which case the meat is put into a smaller trough or pan, and only salt is used in the proportion of a quarter of a pound of salt to every two pounds of meat. The salt should be well rubbed in, and the meat turned every day.

The following general observations as to curing meat will probably be of more use than multiplying receipts. What is called bay salt (that is, salt made by evaporating sea-water) gives a finer flavour than common salt, but rather more should be used, to produce the same degree of saltness. Sugar makes meat tender, and gives mellowness and richness, but the quantity used should never be more than one quarter of the quantity of salt, or it will make the meat taste insipid. Saltpetre gives a fine red colour, but it is apt to make the meat hard; and, whenever it is used, there should be at least an equal quantity of sugar to counteract its hardening tendency. The usual proportion is, a quarter of an ounce of saltpetre to a pound of salt; or, if used with sugar, one ounce of saltpetre to three pounds of sugar. Meat should never be salted in very hot weather, unless it is wanted for use in a few days; and it should never be put in pickle at that season. If any meat in the slightest degree tainted be put into the pickling-trough, the brine will be spoiled, and should be thrown away. When it is absolutely necessary, in very hot weather, to salt

meat to keep, it is said that a tea-spoonful of muriatic acid and of nitric acid (spirits of salt and aquafortis), in equal parts, should be added to every pound of salt. It is also said that a dessert-spoonful of pyroligneous acid added to every pound of salt will give a fine smoky flavour, without any of the trouble attendant on smoking dried meat; but this last must be used with great care, as too much would spoil the meat.

As *Hams* require to be salted with more care than any other kind of meat, I have given below two or three particular receipts for curing them, all of which I know to be excellent. The first is very useful in the country, as the hams cured by it may be cooked without steeping.

For a ham twenty-four pounds in weight, take two ounces of saltpetre, half a pound of common salt, one pound of bay salt, and one ounce of black pepper. Mix these together, and rub them well into the ham: then let it stand three days, and at the expiration of that time pour one pound of treacle over it, and let it remain twenty-four hours; after that time, let it be turned every day for a month, and each time rub the liquor well into it. After this, steep the ham in cold water for twelve hours, then dry it well and hang it up. It will not require any further steeping when it is to be boiled; and it should be boiled slowly, say at the rate of about three hours for a ham of the weight of ten pounds. This receipt was given me by Mr. Beaton, and it is impossible for any hams to be better than those cured in this way.

The following is the way of curing hams to give them the Westphalian flavour. For two large hams, take one pound and a quarter of common salt, two ounces and a half of saltpetre, three pounds of bay salt, one pound and a half of brown sugar, and one quart of old beer; boil them all together, and pour the mixture over the hams boiling hot. Turn them and rub them well every day for sixteen days; then smoke them with short horse-litter, and hang them up to dry.

The following is another mode of giving hams the Westphalian flavour, and it is said to be excellent. For two hams weighing thirty pounds, take one pound of common salt, half a pound of bay salt, three ounces of saltpetre, and one ounce and a half of black pepper, the latter ground, and finely sifted. Mix all these well together, and rub the hams with the mixture for four days, turning them every day, and having first washed them well with vinegar. On the fifth day, pour over the hams two pounds of treacle, and rub them well with two ounces of juniper berries bruised. Let them remain in this pickle

six weeks, turning and rubbing them daily; then take them out of the pickle, and lay them in spring water for four-and-twenty hours; then wipe them dry and send them to a chimney where wood is burnt. When thoroughly smoked, take them down and put them in a chest with wood ashes. I may here observe that, when hams are cured in any ordinary way, it is said that the Westphalian flavour may be given to them by rubbing over them three table-spoonfuls of a mixture of tar and spirits of wine, when they are just taken out of the pickle.

The following is a mode of making *Mutton hams*, which some persons are very fond of, though they are too strong for delicate stomachs. Cut a hind quarter of mutton like a ham, and rub it with one ounce of saltpetre, one pound of sugar, and one pound of salt. Lay it in a pan, with the skin downwards for a fortnight, then roll it in bran, and hang it up to dry.

In some places there is no regular larder, but the uncooked meat is kept in a hanging *Safe* in the open air, which is drawn up and down by a pulley. Cooked meat is either kept in a similar safe, in a fixed safe, in a separate room called a dry larder, or on a table in the centre of the common or wet larder; but, in the latter case, every dish should be covered with a wire-cloth cover to keep off the flies. In many places the salting-room is apart from the larder, and this is a great improvement.

The *Dairy* should have thick walls, and a brick or stone floor, so contrived that it may be washed with abundance of water every day, and yet have all the water run off by means of a waste-pipe or drain. There should be a kind of shelf of stone or slate round it, about four feet from the ground, and a table of similar materials in the centre, for the convenience of holding the vessels containing the milk and cream; and the window, if there is but one, should look towards the north, and be filled in with wire-cloth, so as to admit the air and yet exclude the flies and other insects. Besides this wirework, the window should also have either a sash frame with ground glass to open inside, or outside shutters, to exclude the sun in very hot weather, and the cold in winter. A thermometer should be kept in every dairy, and the heat should never be allowed to rise above 55°, or to fall below 50°. There should always be a scullery attached to the dairy containing a fireplace and boiler, as the vessels in which milk is kept require to be frequently washed with scalding-hot water to keep the milk sweet, and to prevent the butter and cream from acquiring an unpleasant taste.

Though I do not imagine your knowledge of a dairy to be very great, I suppose you are aware that the milk is drawn from the cow into a can or wooden pail, and brought into the dairy, where it is strained, and then put into shallow vessels or milk-pans, in which it is left for several hours in order that the cream may rise. Cows are generally milked twice a day; the morning's milk being skimmed in the afternoon, when the afternoon's milk is put into pans, or set up as the dairy-maids call it, and the afternoon's milk being skimmed in the morning. The cream, after what is wanted for the table has been taken out, is put into a large wide-mouthed jar or stein, and saved for butter. Cheese is generally made of new milk, which is put at once into the cheese-tub without setting it up in pans. The cheese-tub and cheese-press, the churn and all the apparatus for making butter, generally stand in the dairy scullery, where the operations of cheese and butter making are carried on.

Various kinds of vessels have been recommended for milk, and they have been made of lead, zinc, slate, and other materials. China are the best; but the old-fashioned wooden or earthenware pans appear to be the most general favourites; the only objections being, that wooden pans require a great deal of care to keep them clean, and that the leaden glaze of the earthenware pans is apt to be affected by the acid of the milk, if it should be kept till it becomes sour. No good dairy-maid, however, would ever keep milk in her pans till it became acid: and, if by any chance wooden vessels became tainted by having had in them sour or otherwise spoiled milk, they should be soaked in water in which a large piece of soda has been dissolved; and, if this does not sweeten them, they must be boiled in soda and water, and then immersed in pure cold water for a day or two.

Milk when drawn from the cow is warm, and it should be set up in the dairy before it is quite cold, or the *Cream* will not rise properly. Cream for butter may stand twelve hours on the milk, but the cream that rises in two or three hours after the milk is set is considered the richest. In many places the milk is skimmed twice, the second time twelve hours after the first; but the second skimming is considered very inferior to the first. In Devonshire, the dairy-maids set the milk-pans on a hot hearth, in order to raise the rich cream peculiar to that county.

In Scotland, *Butter* is made by churning the whole of the milk, which is put into the churn as it comes from the cow, and kept there till it is slightly sour before it is churned; but this makes the operation of churning very laborious, and the butter has always a sour taste. In England, butter is made only from the cream, which is

not put into the churn till wanted for churning, but is kept previously from three days to a week in a deep earthen vessel, and is stirred every day when fresh cream is put in.

Churns are of two kinds, viz. the plunge-churn, the motion of which is up and down; and the barrel-churn, which turns round, and is considered much the best. Churning is generally performed in the open air in summer, and in the dairy scullery near the fire in winter. If kept too cold, the butter will not "come;" and, if too hot, the butter will be soft, and will soon become rancid.

When the butter has come, as the dairy-maids call it, it is gathered together with the hand or a net, and put into a kind of shallow tub; the buttermilk is then emptied out of the churn, which should be left to drain for half an hour or thereabouts, and be afterwards well washed with scalding water and a little salt. The butter in the mean time is kneaded and worked with the hand, or with two small and very smooth pieces of wood, to get all the buttermilk out of it; and in England water is generally poured over it to assist in this operation, though in Scotland it is said that water spoils the butter. When all the buttermilk is worked out, the butter is slightly salted, and then made up into rolls or lumps with the two pieces of wood. In the South of England, as soon as the butter is made, it is put into water; but in the North it is laid in a dry cool place, and covered over.

When butter is intended for salting, it is not made into rolls, but the salt is worked into it as soon as the buttermilk has been removed. The following composition is recommended as a very good one for salting butter for home use. Take two parts of salt, one part of lump sugar, and one part of saltpetre. Beat them well together, and add one ounce of this composition to every sixteen ounces of butter.

When cows are fed on turnips, an unpleasant taste is given both to the milk and butter; but it may generally be removed in the following manner. Pour a quart of boiling water on two ounces of saltpetre, and, when it is thoroughly dissolved and cold, bottle it for use. If two table-spoonfuls of this mixture be put to every four gallons of milk, as soon as it is brought into the dairy and strained, it is said to take off the unpleasant taste; or a lump of saltpetre about the size of a walnut may be put into the cream-pot and well stirred twice a day, when the fresh cream is added. In winter, butter is sometimes so pale as to look almost like lard, but it may be coloured by a little arnatto, which is sold for that purpose in the grocers' shops; or the juice of carrot scraped and strained through muslin, or

that of the flowers of the marigold, may be used. In either case the colouring matter is mixed with the cream before churning.

Cheese is made by coagulating milk with rennet, and then separating the whey or watery part from the curd, which, when salted, pressed, and dried, becomes cheese. Rennet is the stomach of a calf washed, cleaned, and salted thoroughly inside and out, being left in an earthen jar, with a thick coating of salt on it, for three or four days. It is then taken out of the pickle and hung up to dry, and in many places it is kept in this state till wanted; but in others, after it has become dry, it is resalted and placed again in the jar, which has a bladder or a piece of thick paper pierced with pinholes tied over it, the rennet being kept twelve months in this state before it is used. In London, calves' stomachs and those of lambs, prepared for rennet, are kept in large casks and sold in the oilmen's shops. In whatever way the rennet has been pickled and preserved, it is always soaked in brine made of salt and water or salt and whey, before it is used, and a bunch of sweet herbs is generally put into the brine in which the rennet is soaked, in order to give an agreeable flavour to the cheese. The whole, however, must be strained off clear before it is put to the milk.

Whenever cheese is to be made, the milk must be warmed to about 90° of Fahrenheit, or the rennet will not act. As soon as the curd has set, it is separated from the whey in several different ways, and on the manner in which this is done the kind of cheese produced will principally depend. When a *Stilton*, or any other kind of rich buttery cheese, is to be made, a very strong brine is prepared of salt and cold water, in which is steeped a bundle of sweet herbs, consisting of thyme, hyssop, marjoram, and savory, with a branch of sweet-briar, and a few peppercorns. This is suffered to remain three or four days, after which it is strained off, and the rennet having been put into it and soaked four or five days, is then ready for use. When all is prepared, the morning's new milk, together with the cream from the last night's milking, is put into a narrow, but deep, circular pan, and the liquid rennet put to it.

As soon as the curd is formed, it is very carefully removed from the pan, without breaking it, if possible, and laid on a deep circular sieve, where it is slightly pressed, in order that the whey may drain from it. It is then put into the cheese-vat, which should be ten inches and a half deep, and eight inches and a quarter over, with a moveable hoop of wood on the top, over which a piece of flat board is generally laid. As soon as the cheese has acquired a sufficient consistency, it is removed from the vat and firmly bound round with

a clean cloth, which is changed every day, and the cheese bound tighter and tighter, till at last it becomes sufficiently firm to stand alone. Every time the cloth is changed, the cheese is wiped at the top and bottom and turned, so that each end may be equally level. When it has become sufficiently firm to support itself without the cloth, the cheese is removed to the cheese-room; but it still requires to be turned twice a day, and brushed, for about three months.

Single and double Gloucester cheeses are made very differently from Stilton, though the rennet is prepared for both in nearly the same manner, except that some allspice and a little saltpetre are generally added to the brine. In some places the brine is made of whey, in which enough salt is put to make it float an egg; but it is said that cheeses made in this manner are very apt to heave.

The best *single Gloucester* cheese for toasting is what is called a one-meal cheese; that is to say, it is made entirely of new milk taken fresh from the cow. An inferior kind is called a two-meal cheese, and it is made with the evening's milk after it has been skimmed in the morning, mixed with the morning's new milk. The milk is then warmed, and coloured with a little arnatto, care being taken, however, that none of the solid part of the drug goes into the milk; the usual practice, indeed, is to dip the arnatto in a little milk, and then to rub it on a flat stone or plate. The colouring matter thus produced is washed off into a basinful of milk, which is then allowed to stand and settle, so as to deposit its sediment before it is poured into the cheese-tub. The rennet is then added, and the whole is kept moderately warm (the milk should never sink below 80°) till the curd is come, which is generally in about an hour. The curd is then broken up with a flat piece of wood called a cheese-knife, and the whey is strained from it; the fragments of curd being frequently moved about, to allow the whey to escape from them. Some boiling water is then mixed with a little of the cold whey, and poured quite hot upon the curd, so as to cover it, the curd being stirred briskly about, and afterwards left for half an hour to sink. The liquor is then drained off, and the curd taken up by the hands and carefully squeezed as it is put into the cheese-vat, which is not only filled, but has as much piled on the top as it will hold. When this is done, the curd in and on the vat is turned into a cheese-cloth, and the vat is washed with whey. The cloth, with the curd in it, is next placed in the vat, and the ends of the cloth are turned over the top of the curd, and tucked into the vat round the edges. It is then put into the cheese-press, where it remains about three hours, after which it is taken out and the cloth changed, before it is again put into the vat

and into the press. In this state it remains three or four hours longer. It is then taken out of the vat and out of the cloth, and rubbed well with salt all over, taking care that the salt touches every part, after which it is put into the vat without a cloth, and replaced in the press. The next morning it is taken out of the press and again salted and turned, and the same operation is repeated in the evening. After this it is suffered to remain five or six days in the press, being taken out every morning and turned, but not salted. It is then removed to the cheese-room, where it is turned every day for ten or twelve days, and frequently scraped and rubbed. In some places, when the cheese is thoroughly dry, the outer rind is painted with a mixture of Spanish brown and Indian pink, rubbed in with the hand. The whey from this cheese produces a great deal of butter; and, indeed, it is generally set up for cream as soon as it comes from the curd.

The *double Gloucester cheese* is always made with one meal's milk warm from the cow, and the dairy-maids generally put a lemon, stuck with cloves, into the brine in which they steep their rennet. The cheese-making then proceeds in the same manner as for the single Gloucester, except that, when about half the curd has been put into the vat, an ounce of salt is sprinkled over it before the rest of the curd is put in. The remainder of the operation is the same as for the single Gloucester; the principal difference being in the thickness of the cheese, which, of course, is occasioned by the greater depth of the vat in which the curd is put.

In many parts of Gloucestershire, what is called *Sage cheese* is made. For this a couple of handfuls of sage leaves and a handful of parsley are generally put into a portion of the evening's milk, and suffered to remain all night. In the morning the milk is warmed, and, after being strained from the leaves, it is turned to curd with the rennet in the usual way. In the mean time a portion of the morning's milk, into which no colouring matter is put, is turned to curd by rennet; and the curds of both kinds are kept separate through the processes of draining and scalding, till they are ready to be put into the vat, when they are mixed according to the fancy of the dairy-maid. Sometimes the green curd is pressed into a tin or wooden mould, so as to form a dolphin or some other fanciful figure; in which case it is taken carefully out of the mould, and put into the vat without breaking it, and the white curd is crumbled between the fingers and pressed carefully and firmly round it. In other cases the sage and parsley leaves are only bruised, and the juice which is pressed from them is mingled with a portion of the morning's milk; or one portion of the milk is coloured red with the juice of boiled

beet-root, another green with the juice from spinach leaves flavoured with sage, and another yellow with the bruised petals of the marigold. Portions of milk are coloured with these different substances and coagulated separately, the curd being varied when putting into the vat, according to the fancy of the dairy-maid. In other cases the whole of the milk is coloured and flavoured with sage.

Cheshire cheeses are generally very large, most of those made in spring being one hundredweight each. The rennet for a Cheshire cheese is not considered fit for use till it is three years old. It is soaked in warm water the night before it is wanted, and in the morning the liquor is considered ready without any further preparation. The evening's milk is set up for cream in the usual way, and in the morning the cream is taken off and put into a brass bowl made hot by rinsing it with boiling water. A third part of the skimmed milk is then put into another brass bowl, warmed in the same manner; and the two are put into the cheese-tub, and mixed with the morning's milk warm from the cow. The whole is coloured with the juice of scraped carrots, or of the bruised flowers of the marigold. The liquor from the rennet is then added, and, being well stirred in, the tub is closely covered and kept in a warm temperature till the coagulation is complete, which is generally in little more than half an hour.

As soon as the curd is well set, it is divided and turned over with a bowl to separate it from the whey; after which it is broken into small pieces by the hand, and suffered to settle down, while the whey, which swims at the top, is poured off. The curd is pressed on one side of the tub with a loose board, and the whey that runs from it is again poured off. The curd is then drawn into the centre of the tub, and formed into a heap, and the board is laid on the top and heavy weights placed on it, generally amounting to a hundred pounds. This presses the curd into a solid mass, and squeezes out an additional quantity of whey.

The mass of curd is then cut into slices, and boards and weights put upon each slice. This is repeated several times, till not a drop more whey will run from the curd; after which it is removed to a dry tub, and crumbled with the fingers as small as possible. It is then well salted, and put into a cheese-vat made warm by being scalded with boiling water, and heaped up as high as it will go, the additional curd being kept in its place by a movable tin hoop. A flat board is then laid across the top to press down the curd, which generally rises to a point in the centre of the vat, and the heavy weights are again put on

it. At the same time wooden skewers are run into the cheese, in order that every particle of whey may be drawn out of it.

After standing some time, the cheese is taken out of the vat, and laid on a large cheese-cloth, and the curd again broken from the top down the centre, and more salt mixed with it; after which it is pressed into the vat by the hand as before, and weights are again put upon it, while skewers are run through holes purposely left in the vat, into the sides of the cheese, as before. Another vat having been scalded by being rinsed with boiling water, the cheese is wrapped in a cloth and put into it; the ends of the cloth being folded over the cheese as tightly as possible, and tucked inside the vat, where they are kept down by a tin hoop called a binder, which is forced in between the cheese and the upper part of the vat. The cheese is then put into the press under a pressure of about a ton weight, and a number of thin iron skewers are passed through the holes in the vat into the sides of the cheese. After four hours it is turned, and the skewers removed to fresh places, when the cheese is put into the press for another four hours; after which, the process is repeated. It is then put into the press, and left there all night; the following morning it is again turned, and put into the press without the skewers. It remains in the press for four or five days, being regularly turned every morning and evening; and it is taken from the press into the cheese-room, where it is salted on the outside, and tightly bound with a linen cloth. It is kept in this state and turned twice a day for a week; after which it is put on the shelves to dry for a fortnight or three weeks, during which period it must be turned and wiped every day. Lastly, it is then laid on straw, and kept rather warm, lest the rind should crack; and, when the rind begins to feel hard, its surface is rubbed over with butter, and the cheese is ready for the market. It is rather singular that, notwithstanding the pains taken to drain every drop of whey from the Cheshire cheese, its whey yields no butter, and is seldom made any use of except for feeding pigs.

Cheddar cheese is made like Cheshire, except that when the cheese is broken down to be resalted, before it is put in the cheese-press, the curd is crumbled, and four or five pounds of fresh butter are mixed with it. The cheese is then put in a cloth into the vat, and placed under the great press, where it remains only about a quarter of an hour, before it is turned and put into a clean cloth: this process is repeated three or four times; after which the cheese is wrapped in a very fine cloth, and has three or four other cloths wrapped round it. It is then put into the press, and remains there for forty-eight hours;

after which it is taken from the press, washed in whey, and then laid on a shelf upon a clean cloth to dry. It is afterwards laid on a shelf without any cloth, and turned every day till it begins to ripen.

The *Wiltshire cheeses* are of four kinds: the thin, the thick, the loaf cheese, and the pine-apple, or net, cheese. The first two kinds are made nearly the same as the Gloucester cheeses; for which, indeed, they are frequently sold in the London markets. The principal difference in the manufacture consists in the curd, before it is scalded, being cut into dice of about an inch square each, and a thick layer of salt being thrown over them, which is said to harden the surface of the curd, and to prevent its buttery particles being washed away by the hot water. The curd is also put into the vat while it is as hot as the dairy-maid can handle it; and salt is strewed in between every layer. In all other respects, the manufacture of the cheese is exactly the same as in Gloucestershire till it is ready to be carried to the cheese-room, where it is either laid upon elder leaves or the shelves are washed over with their juice, in order to prevent the devastations of mites. The loaf cheeses are made the same as the others; but their vats are from ten inches to a foot in diameter, and six inches deep; and, when the curd is put into the vat, it is in four layers, with alternate thin layers of salt. These are what are generally sold in London as Wiltshire cheeses. The curd for the pine-apple cheese is prepared in the same way as the others; but, instead of being put into a vat and then into the cheese-press, it is put into a net with no other pressure than from the hand of the dairy-maid; who, however, prides herself on getting as much into the net as it can possibly hold. The net is then hung up in the cheese-room, and requires no further care.

I shall now give you only one more receipt for making keeping-cheeses, and that shall be for the far-famed *Parmesan*. This celebrated cheese is made with skim-milk. The night's milking is skimmed in the morning, and the morning's milk is skimmed about two o'clock in the afternoon: the two are then mixed together and put into a large copper kettle, suspended over a fire by a crane. The milk is stirred till it has reached 125° of Fahrenheit. The kettle is now turned from the fire, between which and it a wooden screen is placed; and, when the bubbling of the milk has subsided, a piece of rennet, tied in a linen rag, is put into the milk, and squeezed several times in different places. The rennet is then taken out, and the milk well stirred; after which it is left till the curd has formed, which is generally in about three quarters of an hour. As soon as this is the case the kettle is again turned on the fire, and the mass of curd is

heated to 150°, being well stirred and divided while it is heating. A fourth part of the whey is now taken out of the kettle, and the curd is heated to 180°, stirring it rapidly all the time; and a few pinches of powdered saffron are thrown in, which not only colour it, but give that peculiar flavour always perceptible in Parmesan cheese. The cheese-maker (for as Parmesan cheese is always made by a man, I must not say the dairy-maid) then takes a small quantity of the curd in his hand, and squeezes it; when, if he finds it adhere together, the kettle is instantly turned off the fire, the wooden screen is again interposed, and the curd is left to settle. The whey which rises is immediately poured off, and two or three pailfuls of cold water are thrown over the curd. The cheese-maker immediately plunges his arms into the kettle, and, gathering the curd to one side, contrives to slip the whole mass into a large cloth, which is raised as rapidly as possible, and transferred to a mould without a bottom. This is an operation which requires both strength and skill; for the cheese hardens so rapidly, that it requires the greatest exertions to get it into the mould without spoiling its shape. By its own power of contraction it presses out every drop of whey. An iron plate, with a slight weight on it, is laid on the top to keep it flat; but, by the time it is cold, it is become so hard as to require no further pressure. It is then taken out of the mould, and a thick layer of salt put on its upper surface. The next day the cheese is turned, and the under surface salted in the same manner. In this way the cheese is turned and salted every day for thirty or forty days, till the salt will no longer dissolve. The rind of the cheese is then scraped, and, after a little colouring matter has been rubbed over it, it is covered with linseed oil.

I will now say a few words on *Cream cheeses*, and then, I think, you will have had quite enough of this subject.

A *York cream cheese* is made by taking a quart of new milk warm from the cow, into which is sometimes put half a pint of cream, and adding to it two spoonfuls of the water in which a piece of rennet has been steeped all night. The milk is then set before the fire till the curd is formed, when it should be taken up without breaking, if possible, and put into a frame made of oak wood, seven inches long within, four inches wide, and three inches and a half deep. This frame being open at the top and bottom, it must be placed upon rushes to permit the whey to run out; to encourage which, a board must be put within the frame to support a weight to press down the curd, between which and the curd some rushes must be put. After standing two days, the rushes must be renewed, when the cheese

should be taken from the vat and turned as often as necessary. This will make an excellent cream cheese without the cream; and, indeed, the York cheeses sold in the shops are always made of milk only, without any cream. The rushes should be sewed together with thread.

A kind of cream cheese is, however, made in Yorkshire of cream only, without any rennet. "Take any quantity of cream and put it into a wet cloth. Tie it up, and hang it in a cool place for seven or eight days. Then take it from the cloth and put it into a mould (in another cloth) with a weight upon it, for two or three days longer. Turn it twice a day, when it will be fit for use."

The following is a receipt for making a *Bath cream cheese*. Add half a pint of cream to a quart of new milk, and warm the mixture till it is about 80° of Fahrenheit; then stir in as much rennet as will coagulate it. As soon as the curd has formed, put a cloth over the bottom of a large shallow vat, and, taking the curd up with a skimming-dish, place it in the vat and wrap the cloth over it. As the curd shrinks, the vat must be filled up with fresh curd, till the cheese is of a proper thickness. When the cheese has become a little firm, it is turned out of the vat and laid in a dry cloth. A board is then put over it, on which is placed a weight of two pounds. At night it is put into another clean cloth, and the next morning it is slightly salted with a little fine dry salt, and placed on a bed of fresh nettles or strawberry leaves, being covered with leaves of the same kind. These leaves are changed every morning, and the cheese is turned twice a day for a fortnight, after which it is fit for use.

I think I have now told you almost all I know relative to those points of domestic economy in which a country life differs from a life in town. I have, however, omitted to mention an *Ice-house*, which you will find an important addition to your comfort in summer. A common ice-house is a kind of well, built in Roman cement, and sunk in the ground. It is arched over, and the ice is put in through a hole in the top. A door is on one side for taking the ice out, and there is a drain at the bottom for carrying away the water that runs off as the ice melts.

A more modern invention is a small *cellar* built adjoining the house, with double walls, the space between the walls being filled with charcoal. The cellar has double doors with a space between, so that one may be shut before the other is opened, to prevent the entrance of the atmospheric air. The ice is kept in a sunk part made like a bath, at the farther end of the cellar, furnished with a drain to carry

off the superfluous water; and in the other part of the cellar are shelves, on which wine or food can be placed to be kept cool. The old-fashioned ice-house was always made in the park at some distance from the house, and consequently was of very little use; but the modern ice-cellar is very useful for keeping cool, water, butter, and other articles of daily consumption; which can be fetched out of it when they are wanted, as easily and expeditiously as they could be out of a common dairy or pantry.

When ice is supplied from a distance, it will soon melt, if exposed to the atmospheric air during summer. To prevent this it may be kept in an *ice chest*, that is, a large deep coffer lined with cork, and with a double lid; or in a box called a *refrigerator*, which may even be brought into the dining-room. The refrigerator consists of a double frame of wood, with the space between filled in with charcoal. The bottles of wine are placed in little tin cases left for them, and ice is put between the cases. Below the ice is a tin grating, through which the melted water runs, and is let off when requisite by a cock. The box is made to hold two bottles of wine on one side, and a bottle of water and a glass for butter on the other.

The *American refrigerator* is another contrivance of the same nature, which will keep the ice unmelted for a fortnight even during the hottest weather in summer. This box, like the other, is double, the inner part being of lead, and the space between the two being filled with sawdust. There are two lids so as completely to exclude the air when both are closed.

The usual mode of cooling wine and other liquids by ice, is to surround the bottle, or other vessel in which the liquor is contained, entirely with ice, observing that the hottest part of the wine is always at the top of the bottle, but that if the top is chilled faster than the bottom, the cold wine descends, and that which is still warm rises and takes its place. As, therefore, the wine is liable to be set in motion by the process of cooling, it is best to decant it before it is put into the refrigerator, as otherwise there will be danger of disturbing the sediment of white wine and the crust of port. When ice is perfectly clean and clear, like that of the Wenham Lake, it is sometimes broken into small pieces, and put into the liquid which is to be cooled; but this could not be done with the ice collected from the dirty ponds near London.

When it is wished to cool wine rapidly, it is only necessary to put it into a thin glass bottle, and to wet the outside with ether; as cold is

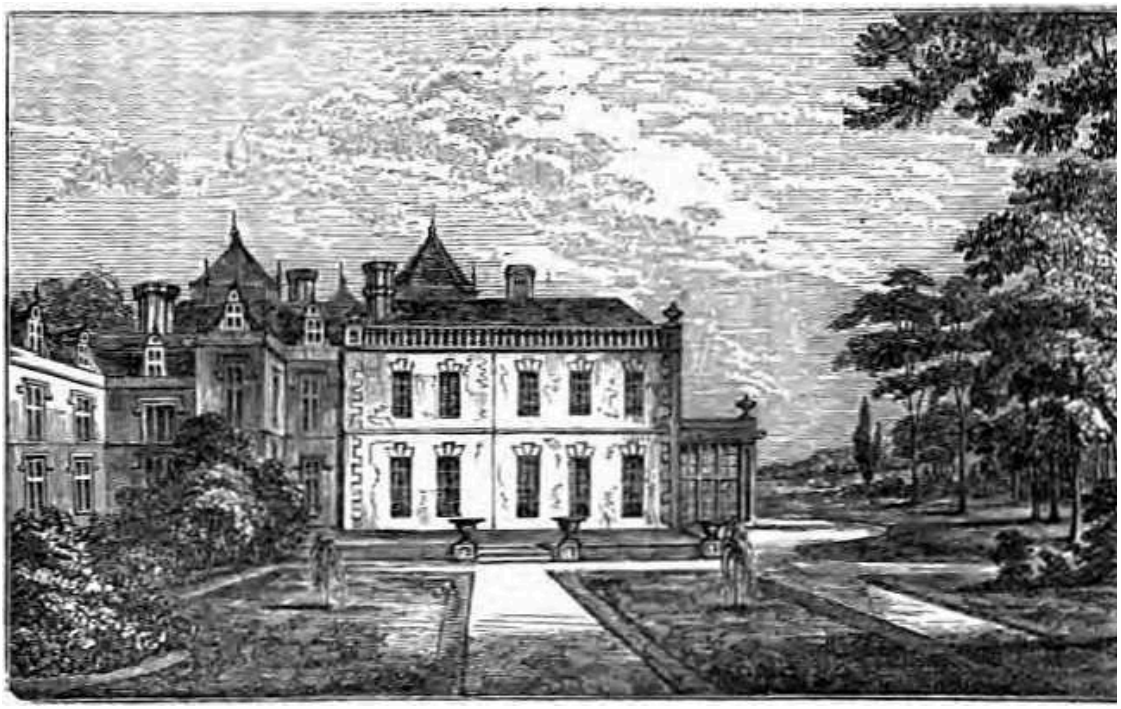
produced by rapid evaporation sooner than in any other manner, wine-coolers are formed on this principle.

A freezing mixture for cooling wine, and for freezing ice-creams, may be formed by mixing five parts of sal ammoniac with five parts of nitre and sixteen of water. A mixture of snow or pounded ice and salt produces a most intense cold, but it is only while the salt is melting the ice or snow that the cold is felt. Muriate of lime, mixed with snow, produces a still greater degree of cold. Several other mixtures may be used for freezing; but those producing the most intense cold are mixtures of nearly equal parts of sulphate of soda with nitrous or sulphuric acid, the sulphate predominating. Eight parts of sulphate of soda, mixed with five parts of muriatic acid, will produce a cold equal to zero. When any liquid is to be frozen by these mixtures, the bottle containing the liquid is put into a wooden vessel containing the mixture; and if the cold is to be very intense, the outer vessel may be placed on a flat piece of cork in a much larger empty vessel, the whole being covered with a woollen cloth. Water freezes soonest when it has been boiled, and forms the most compact and beautiful ice.

The principal utensils required for making ice-creams are a tub large enough to contain about a bushel of ice, which must be pounded small, and mixed with salt, nitre, or soda, and a freezing-pot made of pewter, like those sent out with ice-creams. Copper spoons or spaddles are also required for stirring the ingredients of which the ice-creams are composed, while the process of freezing is going on. When all is ready, the ingredients for the ice-creams are poured into the freezing-pot, which is put up to its cover into the tub full of ice and salt, and kept turning round continually by its handle till the freezing is completed. The turning the pot is the most difficult part of the operation, and it requires great attention, as, unless the ingredients are kept in constant motion, the sugar, which is the heaviest, will sink to the bottom, and the other articles will be unequally frozen, so as to form unsightly lumps. The cover must be taken off occasionally, to see how the process is going on, and the cream that has adhered to the sides of the freezing-pot should be scraped off, and mixed with the rest by the spaddle, in order to prevent waste. The whole of the ingredients should also be mixed together with the spaddle if they appear to be settling irregularly.

Ice-creams and water-ices should be perfectly smooth, and soft enough to break easily with a spoon. The ice-creams are made by mashing the fruit with which they are to be flavoured, and adding to a pint of the juice, after it has been strained, a pint of thick cream,

the juice of half a lemon, and sugar to the taste. The lemon-juice should be put in last. Sometimes whipped cream is used, the cream being first mixed with sugar, and laid on a fine sieve, turned the bottom upwards in a bowl, as it is whipped, so that the cream which drains from it may not be wasted. Water-ices are generally only the juice of the fruit strained and sweetened, as, if water is added, the ice is apt to freeze too hard. Lemon-ice is composed of the juice of four lemons, and the rind of one, to a pint of clarified sugar-syrup, the whole being strained before putting it into the freezing-pot.



Garden Front of the Manor-House in its improved state.

BOOK II. THE GARDEN.

LETTER VII.

PLANTING A REGULAR GEOMETRICAL FLOWER-GARDEN.—LIST OF PLANTS.—MODE OF LAYING OUT REGULAR FIGURES ON THE GROUND.—RULES FOR ARRANGING COLOURS.—PLANTING SIDE BEDS.—PLANTS WITH FRAGRANT FLOWERS.—CULTURE OF BULBS.—RESERVE GROUND.—CULTURE OF ANNUALS, PERENNIALS, AND BIENNIALS.—HOTBEDS AND FRAMES FOR RAISING AND KEEPING HALF-HARDY FLOWERS.

It gives me great pain, my dear Annie, to find that you still think that you shall never like the country so well as town. I do not, however, despair; for I am convinced that you do not at present know whether you shall like it or not. The pleasures of the town and the country are, indeed, so different, that it requires some time to become accustomed to the change; but, when you are sufficiently well acquainted with country pursuits to take an interest in them, I am sure you will never feel any want of the pleasures of the town. The great secret of being happy is, to be able to occupy ourselves with the objects around us, so as to feel an interest in watching their changes; and, when you can once do this in your present situation, you will no longer complain of dulness or want of excitement. To be convinced of the truth of what I say, you need only remember the pleasure your friend Mrs. P. C. takes in the cultivation of her garden; the interest with which she watches the opening of her flowers, the coming up of the seeds she has sown, and the growth of the trees she has planted. It is not the positive beauty of these things that occasions the pleasure she experiences in them, but the interest they have created in her mind; for the entomologist will find pleasure in the most hideous caterpillars, and the geologist will pass whole days delightfully among barren rocks. All that is wanted to give an interest in any subject is, a sufficient degree of knowledge respecting it to be aware of its changes, and our own natural love of variety will do the rest.

It is a great advantage in a country life, that its principal objects of interest must be found at home; and hence, as home is woman's peculiar dominion, the noblest and the best feelings of the female heart are more likely to be called into action in the country than in the town. In youth, especially, the ameliorating effects of country pursuits will soon be perceptible, both morally and physically; and

your health, which has always been delicate in a town, will, I have no doubt, in the country become positively robust. As the first step towards the attainment of this desirable object, let me recommend to you to have a flower-garden laid out as near the house as possible. I should like to have those cedars, and the remainder of those gloomy firs, cleared away, which I see close to your house in your sketches, and your flower-garden so placed that you could step into it at once from the windows of your usual sitting-room. I hope that this may soon be the case, and, as I must have a *locale* to make my descriptions understood, I will proceed to give you some hints as to the laying out and planting of such a garden as I should like you to have in the warm and sheltered corner under the southern window of your morning room.

In the first place, it will be absolutely necessary that the remainder of the trees should be not only cut down, but grubbed up; as it will be quite impossible for any flowers to grow under the shade of tall thick trees, and leaving the roots would prevent the possibility of digging the ground. In other respects the situation is admirably adapted for the purpose, as it is open to the south and south-east, and protected from the north and north-west. Supposing the Scotch pines and cedars to have been cut down, their roots to have been grubbed up, and the ground to have been dug over and levelled, the next thing is to determine upon the plan for the garden. I think it should certainly be a regular geometric figure, and planted in masses, each bed containing flowers of one kind, so as to produce something of the effect of a Turkey carpet when looked down upon from the windows of the house. I enclose you a design which I think will suit the situation, and I will adapt what I have to say to it, though my observations may easily be made suitable to another plan, if another should be found more desirable.

We will suppose the plan (fig. 7.) to consist of twelve flower-beds on grass, with a gravel walk round, which may be bordered on the side next your room by beds for flowers, with little gravel openings opposite each of your windows; or be plain gravel, as you like. There may be a conservatory into which the drawingroom windows facing the south may open, and on the other side a shrubbery to unite the garden with the lawn. In the centre of the flower-garden there may be a fountain; and, as the flower-garden is to be seen principally from your windows, the beds nearest you should be planted with dwarf flowers, so that those in the back beds may be seen. I should also advise the shrubbery behind to consist of laurustinus and arbutus, so as to furnish a handsome green back-ground to the

flowers in summer, and yet to afford a few flowers themselves in winter and spring, when flowers are scarce in the beds.

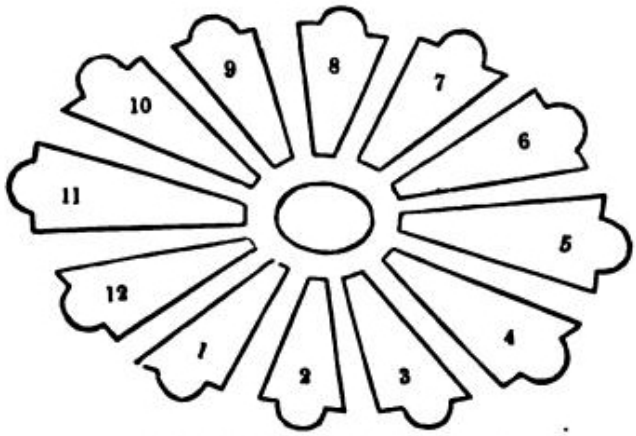


Fig. 7. ***Plan for a Flower-Garden.***

I will now tell you how I would plant the beds. As this is the beginning of May, and as I wish your garden to look well immediately, I would advise you to get a few pots of Californian and other annuals, usually raised in pots, from the nurseryman at the neighbouring town, and to plant them, putting three potfuls in each bed, but no more. In No. 1. put Phlóx Drummóndi, the flowers of which are crimson of various shades, and let the stems be pegged down, so as to spread over the bed. No. 2. may be Lasthènia califórnica, the flowers of which are yellow, and the stems generally procumbent; but they may be pegged down to keep them in their proper places, that is, to spread completely and regularly over the bed. No. 3. should be Nemóphila insígnis, the flowers of which are of a beautiful blue, and which will not require pegging down. No. 4. may be Erýsimum Perofskiànum, the flowers of which are of a bright orange, but the stems must be pegged down, or they will grow tall and straggling. No. 5. may be Nolàna atriplicifòlia, the flowers of which are blue, and resemble those of a convolvulus; this is a procumbent plant, and will not require pegging. No. 6. may be Nemóphila atomària, which has white flowers, and is a dwarf plant. No. 7. may be Leptosìphon densiflòrus, a dwarf plant, with pale purple flowers. No. 8. may be Gília bícolor, a dwarf plant, with nearly white flowers. No. 9. may be Clintònia pulchélla, a beautiful little plant with blue flowers. No. 10. may be Gília trícolor, a dwarf plant, the flowers of which are white and very dark purple. No. 11. may be Leptosìphon androsàceus, a dwarf plant, with pale lilac flowers: and No. 12. Schizopétalon Wálkeri, the flowers of which are white, and the stems must be pegged down. These are all annuals, which if properly treated by pegging down, and not planted

too close, will produce a mass of flowers in each bed only just above the surface, and will have a very pretty effect from the windows. Most of them like a poor clayey soil best, and they will only require turning out of the pots without breaking the ball, into the places prepared for them.

If you think there are too many white beds, you can substitute Sanvitàlia procúmbens, the flowers of which are yellow, for No. 8., but the seeds must have been sown the previous autumn to bring it forward, as otherwise it will not flower till late in the summer; and Bartònia aúrea, the flowers of which are of a golden yellow, may be planted instead of No. 12. Cladánthus arábicus, formerly called Ànthemis arábica, which has yellow flowers, may be planted in No. 8., if Sanvitàlia cannot be obtained.

I do not think you have ever told me what soil yours is, and perhaps you hardly know. You will, however, easily recognise gravel or chalk; if the soil be red, it is probably, if loose, a sand, and if close, a marl; a peaty soil is black and loose; and a clay may be known by water standing in little pools after rain, without running off. This is one of the worst soils for gardening purposes; but it may be improved by mixing it with sand.

I shall now give you a list of half-hardy plants for autumn, as most of the annuals will begin to look shabby in July or the beginning of August. No. 1. Verbèna Melíndres, bright scarlet; No. 2. Œnothèra Drummóndi, yellow; No. 3. Lobèlia bícolor, blue; No. 4. Calceolària rugòsa, pegged down; No. 5. Verbèna Tweediàna, crimson; No. 6. common White Petunia; No. 7. Verbèna Arraniàna, or Henderson's purple; No. 8. Calceolària integrifòlia, yellow; No. 9. Purple Petunia; No. 10. Verbèna teucrioìdes, white; No. 11. Frogmore Pelargonium, bright scarlet; No. 12. Musk plant, yellow.

In October the following bulbs and other plants may be put in for flowering in early spring. No. 1. Von Thol Tulips; No. 2. Cloth of Gold, or common Yellow Crocuses; No. 3. Blue Hepatica; No. 4. Yellow Crocuses, or White Anemone; No. 5. Scílla vérna and sibírica, blue; No. 6. Àrabis álbida, white; No. 7. Double Pink Hepatica; No. 8. Winter Aconite; No. 9. Purple Crocuses; No. 10. Snowdrops; No. 11. Primroses; No. 12. White Hepatica, or Àrabis alpìna.

If you do not like the plan for a garden which I have sent you, you can draw one according to your own fancy, of any figure you like; but, as I believe you have not yet a regular gardener, it will be necessary to teach you how to transfer the plan you have decided

upon from the paper to the ground. In the first place, the ground must be dug over, raked, and made perfectly smooth. The pattern, if a complicated one, must then be drawn on Berlin paper, which is covered with regular squares, and the ground to be laid out must be covered with similar squares, but larger; the usual proportion being that a square inch on the paper represents a square foot on the ground. The squares on the ground are usually formed by sticking in wooden pegs at regular distances, and fastening strings, from peg to peg, till the whole ground is covered with a kind of latticework of string. Each string is then chalked, and made to thrill by pulling it up sharply and letting it go again, which transfers the chalk from the string to the ground. When the ground is thus covered with white squares, it is easy to trace upon it, with a sharp-pointed stick, any pattern which may have been drawn on the paper; the portion in each square on the ground being copied on a larger scale from that of the corresponding square on the paper.

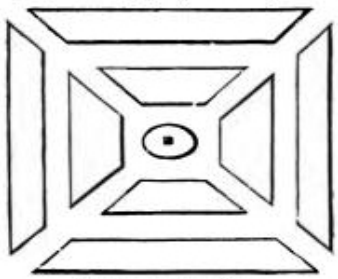


Fig. 8. ***Plan for a Flower-Garden.***

Simple patterns (fig. 8.), consisting of straight lines, need only to be measured, and pieces of string stretched from pegs put in at the proper distances, so as to form straight lines, oblongs, squares, triangles, or diamonds. If a circle is to be traced, it is done by getting a piece of string half the length of the diameter of the circle, with a piece of stick tied to each end. One stick is then driven into the ground in the centre of the circle, and a line is traced with a stick at the other extremity of the string which is drawn out quite tight. An oval is made by tracing two circles, the circumscribing line of one of which just touches the centre of the other; short lines are afterwards made at the top and bottom, and the central lines are obliterated. A square only requires a peg at each corner, with a chalked string drawn from peg to peg; and an oblong, or parallelogram, is made by joining two common squares, and taking off the corners if required.

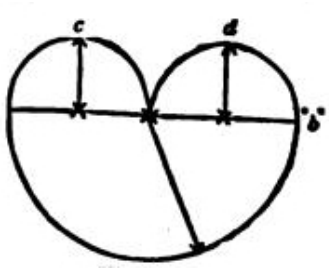


Fig. 9.

A heart-shaped pattern (fig. 9.) is made by drawing a straight line from *a* to *b*, and then fixing a peg with a string tied to it, half the length of the straight line, and another peg at the end, exactly in the middle of the line, and drawing a half-circle with it; then taking a peg with a string half the length of the other, and another peg tied to the end, and tracing with it the smaller half-circles, *c* and *d*. With the same strings and pegs you may easily trace, or rather have traced, figs. 10 and 11. Even the latter, which appears at first sight a very difficult figure to form on the ground, will be just as easily traced as the others. You will observe, that in all these figures the straight line is only to serve as a guide to show the proper places for fixing the pegs; and that it is only to be formed by a piece of string stretched by pegs from one end of the figure to the other, which is to be removed as soon as the figure is sketched, and which is not to be traced on the ground at all.

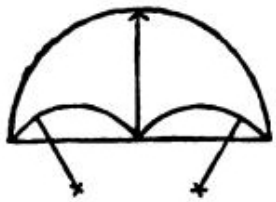


Fig. 10.

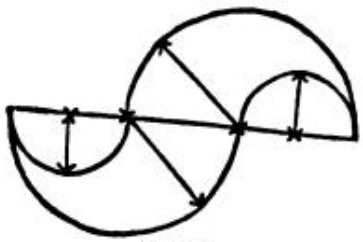


Fig. 11.

With the aid of these figures, and the pegs and strings, several very complicated gardens may be formed; for instance, that shown in fig. 12. This garden is composed of a bed in the centre for a tree rose with a circle of dwarf roses; a gravel walk surrounds these; and there are five heart-shaped beds, which may be planted with Scarlet Pelargoniums, yellow Calceolarias, Petunias white and purple, and tall yellow Mimulus; and the crescent-shaped beds, which are on

grass, may all be planted with different kinds of Verbenas. This plan is also a good design for a rosery, the roses to be planted in the beds, and in the half crescents which must be on grass, with gravel walks between the grass plots.

Fig. 12. ***Plan for a Flower-Garden.***

All the beds intended for bulbs and half-hardy plants should be particularly well drained; and the best way of doing this is, to dig out the soil to the depth of two feet or more, and then to put in a layer of brick-bats and other rubbish, to the depth of nine inches or a foot. On this should be placed a layer of rich marly soil, in which the bulbs should be planted. Dahlias, hollyhocks, and other tall-growing, showy-flowered plants, may have similar beds prepared for them, but the soil should be made very rich by the addition of the remains of an old hotbed, or some other kind of half-rotten animal manure.

You will observe, that when I give directions for planting the beds in any of the plans I send you, I merely say what may be done, and not what is absolutely necessary. Indeed, it will be better for you to vary the flowers as much as possible, according to your own taste, provided you take care that the plants are, as nearly as you can contrive it, of the same height, or that they rise gradually, and that you contrast the colours well. The rule in the latter case is, always to put one of the primitive colours (red, blue, or yellow) next another of these colours, or some colour compounded of the other two; using white wherever you cannot find any handsome plants of a colour that will suit the bed you want them for. Thus, for example, if you

plant one bed with red, you may plant the next with blue, yellow, green, hair-brown, or white, but never with any shade of purple, as red enters into the composition of that colour; nor with any shade of reddish brown: purple, indeed, must always be next yellow, hair-brown, or white, but never next blue, red-brown, or red. Orange will not look well near yellow or red; and lilac must not approach blue or pink. A little practice will do more than any lengthened details; generally speaking, you may take the same taste to guide you in arranging the colours of the flowers in your parterre, that you use in choosing the colours of your dresses; and if you are in any doubt, you have only to colour the beds in the plan, and see how they look; or to stick coloured wafers on a piece of paper for the same purpose.

When you have settled what to plant in the beds of your garden, supposing you to choose the plan fig. 7., you must next think of the beds round it. I should advise these to remain unplanted, unless they are sown with mignonette, or something of that kind. The shrubberies, I have already stated, should, I think, consist chiefly of the finer kinds of hardy evergreens; at least that should which is opposite the windows of your sitting-room. The other shrubbery, which is intended to unite the garden scenery with that of the park, may be planted with rhododendrons, acacias, and kalmias; the rhododendrons being farthest from the walk, and carried a little out into the park, so as to make a broken line, projecting in some places and receding in others, and here and there mixed with bushes of phillyrea, alaternus, holly of various kinds, and cratægus, so as gradually to mingle with the clumps of trees in the park. On the side next your room, if there are to be beds under the windows, there should be spaces left in them which should be gravelled so that you may throw the window open, and not only walk out on gravel, but walk round the garden on gravel also. This you will find a great convenience if the weather should be wet, though you must not mind going upon the grass, if you are to be a real gardener, and to attend to the flowers in the regular beds. With regard to the beds near the house, I would have a Lonícera flexuòsa trained over each window, on account of its delightful fragrance in summer; for a similar reason I would have Chimonánthus fràgrans against the walls between the windows, and mignonette and violets in the beds.

I think nothing can be more delightful than to throw open your window, and to inhale a refreshing odour from growing flowers when they are swept over by a balmy breeze, particularly after a slight shower; and, for this purpose, I would strongly recommend you to plant flowers near your windows which have a refreshing, but

not a heavy, scent. The flowers of the evergreen magnolia, and those of the orange, have an oppressive fragrance, as have those of the heliotrope and the tuberose; but those of the mignonette, the lemon-scented verbena, the rose, the violet, and Lonícera flexuòsa are refreshing, at the same time that they yield a delicious perfume.

I must now give you some hints on cultivating your flowers. To begin with the *bulbs*, as they flower first in spring. The crocuses and snowdrops should be planted, five or six together, as close as possible, so as to form little tufts; and these, when once planted, should never be removed, unless they should grow out of bounds, so as to spoil the shape of the bed. The tulips, on the contrary, should be taken up as soon as their leaves begin to decay, and kept in a dry place till the proper time for planting them next year.

You must observe that there are three kinds of plants which are said to have bulbous roots: those which are solid, and which should be properly called corms, such as the crocus, the corn-flag, and many of the half-hardy plants with similar half-tubular flowers; the tunicated bulbs, which consist of a number of distinct layers, called tunics, that may be peeled off, such as the onion, the hyacinth, and the tulip; and the scaly bulbs such as the lily. Now the real roots of all these plants are the long fibres sent down by the lower part of the bulb, which may be seen plainly in hyacinths grown in glasses, and in any of the kinds if taken up while in a growing state; and what is called the bulb is, in all the corms, only a contracted stem; but, in the tunicated and scaly bulbs, the bulbous part is formed of a contracted stem and metamorphosed leaves. If you will take the trouble to examine a hyacinth, you will find at the base of the bulb a flat fleshy substance, called the root-plate, and this is, in fact, the contracted stem of the plant; while the tunics are metamorphosed leaves. In the scaly bulbs the stem is plainly perceptible in the centre, and the scales are evidently metamorphosed leaves. You will easily remember these distinctions, and you will find it useful to attend to them in cultivating your garden, as all plants having corms never flower well till they have been allowed to form a mass, which they will not do till they have been in the ground three or four years.

Many persons fancy that the Cape bulbs require to be taken up every year, but this is altogether a mistake: all the kinds of gladiolus, ixia, tritonia, and other similar plants, will live in the open ground, and flower well, if suffered to grow in masses, which would be killed by a single English winter if planted separately. The finest bed of the scarlet gladiolus I ever saw was at Blair-Adam, near Stirling, where it was suffered to remain year after year without alteration; and the

Honourable and Reverend William Herbert, now Dean of Manchester, in his celebrated work on the Amaryllidàceæ, states that he has had beds of gladiolus, ixia, tritonia, and other Cape bulbs, at Spofforth in Yorkshire, which have remained for several years, without protection, in the open ground. Some persons say that, by manuring the beds every year, tulips and hyacinths may also be grown in the same beds without taking up, for several years in succession; but this I have never seen tried.

You must observe that you have no chance of keeping your flower-garden in a proper state, unless you have in some retired place what is called a *reserve-garden*, in which the plants may be brought forward till they are in a proper state for transplanting into the proper flower-garden. This reserve-garden is generally placed near the stable, both to have it out of sight, and for the convenience of manure; as it must contain hotbeds and frames, for rearing tender annuals, striking cuttings, and, in short, for performing all those gardening operations which require to be carried on behind the scenes.

In this reserve-garden you must bring forward your *Californian annuals*; and for this purpose choose a piece of hard ground, a walk will do, or any place that has been much trodden on, and cover it about an inch thick with light rich soil. In this the seeds of the annuals should be sown the first week in September, and suffered to remain till the bulbs have faded, and the annuals are wanted to cover the beds, which will probably be about April. The annuals must then be taken up with the spade, in patches, and being removed to the flower-garden, they must be laid carefully on the beds, so as to cover them exactly; the spaces between the patches being filled with soil, and pressed gently down, so that the surface of the beds may be as even as possible. These annuals will come into blossom in May, but they are killed by the dry heat of summer; and, though they would sow themselves if permitted to seed, it is better to remove them as soon as they have done flowering. It is always a bad plan to permit annuals to sow themselves; as early in autumn, when the plants have done flowering, the ground not only becomes rough, but it is covered with dead stalks and leaves, which have always a most miserable and desolate appearance; and these cannot be removed till the seed has fallen, while the beds must not be forked over and raked for fear of destroying the seedlings. It is therefore much better, as soon as the annuals have done flowering, to take them up, and throw them away; a supply of seed being preserved by having left some plants in the reserve-ground for that purpose. A second or spring

sowing of the Californian annuals may be made in the reserve-ground, to be ready for use in case any should be wanted to flower in the autumn.

Though I have only advised you to have Californian annuals in your beds, I may here say a few words on the culture of *annuals* generally. You are, of course, aware that what are called annuals are plants that live only one year, or, rather, only a few months; for they are generally sown early in spring, and die as soon as they have ripened their seeds, at the latter end of summer, or the beginning of autumn. These plants are of three kinds; viz., hardy, half-hardy, and tender.

The *hardy annuals* are sown in March, April, or May; but the first month is to be preferred, if the weather is tolerably open. The ground in which they are to be sown is first forked over and raked, and a little round firm place having been made by pressing the bottom of the saucer of a flower-pot on the ground, a few seeds are scattered over it, taking great care that the seeds do not lie one upon another. The seeds are then firmed, as the gardeners call it, by pressing the saucer again upon them, and some earth is strewed lightly over to finish the operation. You will observe, that, though I have recommended you to take the saucer of a flower-pot to firm the ground, both before and after sowing your seeds, regular gardeners perform this part of the operation with their spades, and farmers roll their land before they sow their seeds. The principle, however, is the same in all; and it is that every seed requires to be securely fixed in the ground before it begins to germinate, in order to produce a strong and healthy plant. After the seeds are sown, it is customary to put a piece of stick into the ground, with the name of the seeds written upon it, to mark the place; or, if you like it better, you can write the name on a card, or a bit of pasteboard, and stick it in a notch or cleft cut in the stick.

When the seeds have come up, which, in the spring, is generally from a fortnight to six weeks after sowing, according to their nature, the seedlings may be thinned out, and the supernumerary plants either transplanted or thrown away. If the seedlings are to be transplanted, care should be taken not to break or injure the roots, and a little hole should be made with a stick for each seedling in the place to which it is to be removed; the earth being pressed close to the root at the bottom of the hole before the rest is filled in; as, if any hollow place is left round the root, it is sure to decay instead of growing. Seedling hardy annuals are, however, very seldom worth the trouble of transplanting. Many persons turn a flower-pot over

every patch of seeds, from the idea that it will make them come up sooner, and protect them from the birds. It is, however, a very bad plan, as air and light are particularly necessary to seedling plants; and when they are even partially deprived of these important agents, they become drawn up with weak slender stems, and thin discoloured leaves.

Some annuals, such as the mignonette and the larkspur, are much longer before they vegetate than others; and these are better sown in autumn. Others, such as the escholtzia, the coreopsis, and the Erýsimum Perowskiànum, will often last two or three years, especially if they happen to be late in flowering the first season. They also do best sown in autumn, but they must be protected, if the winter should be very severe, by laying a mat over the bed. You must observe, however, that the mat must only be resorted to in frosty weather, as, in case the weather should be at all damp, the plants will be much better exposed to it, however cold it may feel, than they would be under any protection whatever.

The *half-hardy annuals*, such as the French and African marigolds, the German and China asters, the zinnias, the purple jacobæa, the sweet sultan, the purple and yellow everlastings, and other similar plants, should be sown in pots, and plunged into a slight hotbed in February or March. As soon as they come up, and have got their second pair of leaves, the earth should be turned out of the pot, and the seedlings being carefully picked out should be transplanted into other pots, three or five in each, according to the size they are expected to attain when full grown, and the pots again plunged into the hotbed. Sometimes they are transplanted a second time, but they are generally left till the beginning of May, when they are removed to the open border, to the places where they are intended to flower. When they are planted in the border, they may either be transplanted in the ordinary way, or the ball of earth may be turned entire from the pot into a hole made to receive it. This last plan is generally considered the best, as it prevents the plants from receiving any check by their removal. Brompton ten-week, and German stocks, though quite hardy, make better plants when treated like half-hardy annuals, as they flower earlier and much more vigorously.

Tender annuals, such as balsams, cock's-combs, globe amaranths, &c., must be sown in February or March in pots of light rich earth, and plunged in a hotbed. As soon as the plants come up they should be transplanted into pots of the very smallest size, one in each pot; and these small pots should be set in the hotbed again, as near the glass as possible, and slightly shaded during sunshine. In a week or

two, as soon as the roots have made their appearance on the outside of the ball of earth within the pot, which is known by turning the ball of earth with the plant in it carefully out of the pot without breaking it, the plants are shifted into pots a size larger than what they were in before, and the space filled up with light rich soil. In another week or two the plants must be shifted again into pots a little larger, always using light rich mould to fill up the pots, and taking care that the pots are well drained, by putting potsherds, that is, pieces of broken pot at the bottom. As soon as the plants are shifted, the pots must be replunged in the hotbed, and shaded for the remainder of the day. The shifting and replunging must be continued till the plants begin to show flower-buds; after which they must neither be shifted nor plunged in the hotbed any more, but gradually hardened, by the frame in which they are placed being left open all day, and, at last, only partially closed, even at night, till the plants will bear setting out entirely in the open air; unless they should be intended to flower in a greenhouse, in which case they may be removed to the greenhouse as soon as they have formed flower-buds.

As I shall treat of the management of the greenhouse plants, which are to succeed the annuals, in my next, I may as well fill up my present letter by saying a few words on the management of hardy perennials, in case you should prefer planting biennials and perennials in your beds at once, to going through the routine that I have marked out for you in the former part of this letter.

Perennials are those permanent plants which are not woody, and yet remain in the ground as long as most kinds of shrubs, producing flowers and seeds every year. Perennials are of two kinds: those that die down to the ground every autumn, and send up fresh stems from the root the following spring; and those which remain green all the year, as, for example, the pinks and carnations. Besides these kinds, there are other sorts of perennials, as, for example, those that have tuberous roots, such as the dahlia. Bulbs are also perennials; but of these I have already spoken.

Most kinds of perennials are propagated by dividing the roots; but, in the case of the dahlia, ranunculus, and anemone, care must be taken to choose only those portions of the tubers that have buds or eyes, as they are called, as otherwise the tuber, though it will send out fibrous roots, will never produce a stem; and, in dividing fibrous-rooted plants, care must be taken that the divided part is furnished with buds. Almost all kinds of perennials may also be propagated by cuttings; and those of pinks and carnations are called pipings, because, instead of being cut, they are pulled asunder at a

joint, and this gives the separated parts a hollow appearance like small pipes. Tubers are frequently taken up every autumn; and those of the ranunculus and anemone are replanted in November or January, the former season being much to be preferred. The tubers of the dahlia are generally taken up in November, and replanted in May or June.

Most perennials are improved by taking them up occasionally and replanting them in another place. This used to be accounted for by supposing that plants threw out excrementitious matter, which, after a few years, poisoned the soil in which they grew; but it is now supposed that, as every plant requires peculiar earths for its nourishment, they must be removed when they have exhausted all the particular kind of earth they want which lies within their reach. It is rather difficult to explain this without entering into long details; but it will be sufficient for our present purpose merely to state the fact, that plants do require their roots to have a constant supply of fresh earth; and, to meet this want, nature has provided that the roots of trees, and of all plants that are intended to remain for several years in the soil, elongate themselves every year, so as to be continually able to obtain a fresh supply of nourishment. In gardens, however, the constant digging that is going on for the culture of annual plants is unfavourable to the elongation of the roots of the perennials, and consequently it is absolutely necessary that those plants should occasionally be taken up and replanted. The season for taking up and replanting perennial plants is either in autumn, after they have done growing, or in spring, before they begin to shoot; and, if the soil about the roots looks black and wet, or, as the gardeners express it, sour, the roots should be washed quite clean before replanting. When the roots of plants are divided, it is either done with a sharp spade or a knife, care being taken in both cases to make what is called a clean cut, and not to leave any part bruised or jagged.

Biennials are plants raised from seeds, which do not flower till the second year, but which generally die as soon as they have ripened their seeds. Biennials are usually sown in a bed of light rich earth in the open air in the reserve-ground, and then transplanted in September to the place where they are to flower the ensuing year. The finer kinds, such as the Brompton stocks and hollyhocks, should have a bed or pit prepared for them, of rich loamy soil, in which they are planted, with a small quantity of manure. Wallflowers, snapdragons, and Canterbury bells do not require any further care than transplanting to the border; and, though they are called

biennials, they will frequently live and flower three or four successive years.

A *hotbed* may be made of any material that will ferment, so as to produce heat. Stable manure and dead leaves are, however, generally preferred to all other materials; and stable manure is unquestionably the best. A cart-load of this manure will make a hotbed sufficiently large for rearing tender annuals; but as, when it is taken out of the stable, it consists partly of the dung of the horse, and partly of what is called long litter, that is, straw moistened and discoloured, but not decayed, it must first be thrown together, so as to form a heap till the straw is decomposed. A most violent heat is produced by the fermentation of the straw while decomposing; and, as this heat would be too much for any plant exposed to it, it is absolutely necessary to let the heap remain for about a fortnight, turning it over two or three times during that period with a fork, till the straw is sufficiently decomposed to be easily torn to pieces with the dung fork. When the manure is in this state it is fit for use. The hotbed should be formed in an open situation, on a surface raised about six inches from the surrounding ground, with a gutter or shallow ditch cut round it, to allow the water to drain off. The bed is then made; and, if only intended for raising annuals and striking cuttings, it may be five feet long by four feet wide. The manure should be first regularly spread over the lower part of the bed, and then continued, in successive layers, made as smooth and level as possible, till the whole of the cart-load of manure has been used.

As soon as the bed is finished the frame should be set on it. The frame consists of a box without a bottom, and with a movable top, formed of a glazed sash or sashes. A frame for a bed of the size I have mentioned will only require one sash, or light as the gardeners call it; and it should be three feet wide and four feet long, so that the bed may be half a foot larger than the frame on every side. The back of the box may be two feet high, and the front one foot, so that the glass may slope from the back to the front. About two days after the bed is made, the fermentation will recommence, and a steam will be observable on the glass. The surface of the bed should now be covered two or three inches thick with light garden mould, and any common seeds may be sown in this. It is more general, however, to sow the seeds in pots, and then either to set them on the surface of the bed, or to plunge them into it up to the rim. No bed for raising annuals should ever be hotter than 60°, and when it exceeds this heat the glasses should be left open so as to cool it. The thermometer for ascertaining the heat should be put on the surface of the bed, with

the glass shut above it; and it should be examined in this situation, as it will fall a degree or two immediately on being taken into the open air, if the weather should be very cold.

You will, of course, have your hotbed made in the reserve-ground; and, as the one I have given directions for will be a very small one, you will probably find it necessary to have one much larger for your cuttings, or to have three or four small ones. I should advise the latter course, as small hotbeds are much more easily managed by inexperienced gardeners than large ones. A hotbed of two or three lights will require two or three cart-loads of manure, and will, of course, produce a great deal of heat from the immense mass of fermenting materials it contains; and, as you would find this additional quantity of heat very difficult to regulate, you might chance, some fine morning, when you visited your plants, to see them turned black, with their leaves shrivelled up, or, as the gardeners term it, burnt, from the too great heat of the bed. There is also danger of a hotbed getting too cold instead of being too hot, and, when this is the case, the heat should be renewed by the application of dung linings, that is, a quantity of fresh stable manure, round the outside of the bed; or by having linings of dead leaves piled up round the outside of the bed. If, however, you use your hotbeds only for raising seeds, they will not want any linings; as it will be advantageous for the young seedlings to let the beds gradually become cool as the plants increase in size, so that they may acquire strength and hardiness before they are turned into the open ground.

I will now say a few words on the *greenhouse plants* that you will want for planting in the open ground in your flower-garden. Petunias may be all raised from seeds with the other half-hardy annuals; as seedling plants both grow and flower much more vigorously when planted out into the open ground, than plants that have been raised from layers or cuttings. Célsia or Alonsòa urticifòlia may also be raised from seeds; as may Thunbérgia alàta, and its white variety. Phlóx Drummóndi is almost always raised in this manner; as are the beautiful climbing plants, Lophospérmum scándens and its varieties, Maurándya Barclayàna, Cobœa scándens, Eccremocárpus or Calámpelis scàbra, Rhodochìton volùbile, the beautiful canary-bird flower (*Tropœ'olum peregrìnum*), the most splendid of the ipomœas, and several other well-known plants.

Geraniums, or pelargoniums, as they are now more properly called, being half-shrubby plants, require to be raised by cuttings. These are generally taken off the points of the shoots in autumn; and, a good

many being put into one pot, they are plunged into the hotbed till they have struck root, and then gradually hardened and placed on the back shelf of a greenhouse, or in a cold frame, till the spring, when they are removed to separate pots till they are wanted for planting out. Some gardeners do not put themselves to the trouble of potting them, but keep them in the same pots in which the cuttings were struck till they are wanted for planting out; but this is a slovenly mode of culture, as, when the plants are kept so long in one pot, they become drawn up, and never have the compact bushy appearance that they have when they are properly transplanted early in spring. Verbenas may be either preserved by cuttings or layers, or raised afresh from seed. The usual way of propagating them, however, is by layers, as they strike root readily at the joints, if the joints are covered with a little earth. All the other greenhouse plants which you may want to grow for planting out may be treated in the same manner as those I have mentioned.

A *cold frame* is a bottomless box of the kind described for a hotbed, but formed of brick or stone instead of wood. These frames have a glass sash at the top, but contain no manure; and they are generally sunk in the soil, that the warmth of the earth around may aid in protecting the plants they contain from the frost. These frames, if they have only one light, are generally five feet in width; that is, from the back to the front; but, if they have two or three lights, the width is generally seven feet, as these are the dimensions of the frames used for hotbeds in kitchen-gardens. The greenhouse plants that are to be preserved in the cold frame are merely set in their pots close together, and, the glass sashes being then closed, mats and other coverings are laid on to keep out the frost.

Sometimes greenhouse plants which are left in the open ground are preserved from the frost by coverings of wicker-work like beehives being put over them, or tin hoops over which mats have been stretched; or, where the plants are small, a flower-pot may be turned over them, or a hand-glass used for the same purpose. It is seldom, however, worth while to take much pains to preserve greenhouse plants that have flowered in the open air. The ordinary way is to make abundance of cuttings in autumn; to strike them in a hotbed, and then, after hardening them by degrees, to preserve them in a small greenhouse, or in a cold pit, till the time for planting out next year.

LETTER VIII.

USE OF PLANT-HOUSES.—NATURE OF CLIMATES—DIFFERENT KINDS OF HOTHOUSES.—THE DRY STOVE, THE BARK STOVE, AND THE ORCHIDEOUS HOUSE.—CULTURE OF PLANTS IN THE BARK STOVE.—AQUARIUM AND WATER PLANTS.—RED SPIDER.—CULTURE OF SUCCULENT STOVE PLANTS.—CULTURE OF ORCHIDEOUS PLANTS.—THE GREENHOUSE.—THE AUSTRALIAN HOUSE, AND CULTURE OF ITS PLANTS.—THE COMMON GREENHOUSE, THE HEATH HOUSE, THE CONSERVATORY, THE ORANGERY, AND THE CAMELLIA HOUSE.—THE CULTURE OF PLANTS IN THE COMMON GREEN HOUSE.—POTTING PLANTS.—HEATHS.—CULTURE OF PLANTS IN THE CONSERVATORY.—CULTURE OF ORANGE TREES.—APHIDES.

Before I say any thing of the management of the plants in your greenhouse, I must remind you that, in order to grow plants well, it is not enough merely to preserve them from the frost, but we must imitate as well as we can their native climate: that is, the degree of heat, light, and moisture they have been accustomed to in their native country, together with the air and the soil. The latter is the easiest condition to fulfil; as, by combining different kinds of earth, we can, without much difficulty, produce a very tolerable imitation of any soil we please: but it is not so easy to give plants abundance of light and air in combination with heat; and, though we can readily give plants plenty of water, it requires some management to surround them with a moist warm atmosphere, like that they have been used to in their native woods. To meet these difficulties, buildings have been constructed, suited for the reception of plants, with various contrivances for producing heat and distributing air and moisture, and with a glass roof, front, and sides, to admit abundance of light.

These structures are what we call plant-houses; and they are not only divided into hothouses for tender plants, and greenhouses for half-hardy plants, but subdivided into various kinds to suit the various climates in which plants are found. These climates, however, are not so numerous as might at first be supposed; as it is a curious fact in the history of plants, that many of the most ornamental grow in patches in some parts of the world without being found anywhere else, as, for example, the pelargoniums or shrubby geraniums at the Cape of Good Hope. Even when the same plant is found in different parts of the world, it is generally in the same climate, though in different countries; and thus pines and firs, oaks and birches, spread like belts or zones round the globe, from Asia, through Europe, to America, almost in the same degree of latitude, making an allowance for islands being warmer than continents, and mountains

colder than valleys; as you must always remember that knowing the degree of latitude from which a plant comes is not sufficient to teach its culture, unless we know also whether it grows on the mountains or in the valleys, and whether the climate of the locality is moist or dry. A plant will be soon killed by a dry atmosphere, if it requires a moist one; and it will be as much injured by being kept too hot as too cold. Furze and heath will not grow within the tropics; and the first camellias introduced into England were killed by being kept in a hothouse.

From what I have said, you will perceive that as plants will only thrive in climates suitable to them, it is not enough to have a hothouse for tropical plants, and a greenhouse for those of moderately warm countries, but that you must have three or four houses imitating different climates, if you wish to grow different kinds of plants to perfection. Philosophers who have written on the subject describe sixteen distinct kinds of climate, including our own; but, as these would be too many to imitate, gardeners are obliged to content themselves with the following kinds of plant-houses and pits.

The *dry stove* is generally kept at a heat of from 70° to 84° in the day, and never allowed to fall below 65° at night, even in winter. It should be placed in a situation sheltered from cold winds, but quite open to the sun; as the plants grown in it require a strong light, most of them being natives of dry sandy plains, on which there is no tree high enough to cast a shade. The plants are grown in pots, which are generally placed on a frame or stage of wooden or stone shelves, so as to have abundance of air around them; and the stove is best heated by flues. The plants suitable for a stove of this kind are some of the kinds of Cactàceæ, such as the genera Melocáctus, Epiphýllum, and Cèreus, with the tender kinds of Euphórbium, Mesembryánthemum, Stapèlia, Crássula, Sèdum, Sempervìvum, and Agàve, and some kinds of bulbs.

The *bark stove* has a brick pit filled with tan or dead leaves in the centre; and it is generally heated with pipes of hot water or steam, from 60° at night to 80° in the day; the pots in which the plants are grown being either plunged in the tan, or placed on the walls of the pit, or on a stone shelf near the glass in front. Sometimes the trees of hot climates are grown in the bark bed in the centre without pots; and sometimes there is no bark pit, but the space in the centre of the house is filled with boxes containing tropical trees. This last kind is frequently called the botanic stove, as it is most common in botanic gardens; and it is best adapted for growing palms, and other

monocotyledonous plants with large leaves, such as bananas, which require abundance of air and light.

The *damp stove*, or orchideous house, is only suited for orchideous plants and exotic ferns. The heat should be from 70° at night to 90° in the day, or even more; and the house should be heated with hot flues, on which water should be thrown twice or three times a day, and hot-water pipes with open tanks; as all the plants to be grown in this kind of house require excessive heat and constant moisture. As they are also plants that love the shade, the house should have only a subdued light; and though I cannot say that I approve of the coloured glass adopted by some cultivators, as it decomposes the rays of light, and deprives the plants of a portion of the heat they would otherwise derive from the sun, yet I would certainly advise that some of those climbing plants which will grow in a moist warm climate should be trained close under the glass, to produce shade.

Forcing-houses for grapes and early stone fruits are of the nature of the bark stove; and in them the pit in the centre is frequently filled with pine-apple plants, in pots plunged up to the rim in the tan; but these houses belong to the kitchen-garden, as do pits for growing pines, cucumbers, and melons.

You will thus observe that there are only three distinct kinds of hothouses in use in British gardens, viz. the damp stove, or orchideous house, which is the hottest; the dry stove, or house for succulent plants, which is the rarest; and the bark stove, which is the most common, and which may be said to have two varieties, viz. the botanic stove and the forcing-house.

The culture of hothouse plants in the *bark stove* requires more care than can be expected from any one not a regular gardener; and, as most tropical plants are valuable in this country, I would not advise you to try to manage them yourself, as you would be very much vexed if you should chance to kill them. I will, however, give you a few general hints on the subject, if you should like to have a house of this kind.

All bark-stove plants require a great deal of water when they are in a growing state, and, as it is necessary that the water should be of the same temperature as the house, there should be either an open cistern in the house, or a cistern in the shed behind, near the furnace, and communicating with the house by a pipe. The best plan is to have a cistern in the house, as it can be used as an aquarium; and there are many beautiful tropical aquatics, such as the different species of Nymphæ'a and Nelúmbium, which deserve growing for

their beauty, while others are interesting for their curiosity, such as the Papyrus. In summer, bark-stove plants require very little care, except to prevent them from receiving any sudden check, as, if the heat be not kept up regularly, the plants are very liable to stop growing, and, when the heat is renewed, to shoot a second time, and thus to waste their strength in sickly and imperfect growth. Great care is also required in autumn to increase the fire heat in proportion as the weather grows cold, so as to prevent the plants from receiving any check from the decrease of temperature in the atmospheric air, as tropical plants may be said to have only two seasons, viz. summer and winter; and thus they should be kept as nearly as possible at the same heat as long as they are in a growing state; and then have a complete change to a season of rest, by never letting the heat rise higher than from 60° to 65° during the dark days of winter. During the winter months very little air can be admitted, on account of the great difference between the air of the atmosphere and that within the house; but in the spring, advantage should be taken of every warm day, even in March and April, to open the sashes a few inches wide for half an hour or an hour in the middle of the day, when the sun shines; but the house should be shut up immediately if the sun should go in and the air become chilled. As the summer advances, air should be admitted freely, and continued till the beginning of September, when it should be gradually reduced till the cold of winter prevents any being given at all. Most gardeners repot, or shift, as they call it, all their bark-stove plants about the middle or end of April; but this is too indiscriminate a practice, and, therefore, only those should be repotted that appear to want such an operation.

One of the greatest difficulties attending the culture of plants in a bark stove is, guarding against the ravages of the immense number of insects that are engendered by the heat; and one of the most troublesome of these is the active little mite called by gardeners the red spider (*Àcarus telùrius*). This little pest breeds in the bark, and when first hatched it is so small as to be scarcely perceptible; particularly as it is of a pale green, nearly the colour of the under side of the leaf, to which it fixes itself, and there spins a web. As it gets older it becomes of a brownish red, and having eight legs, it runs with the greatest rapidity. It is also furnished with a proboscis, with which it sucks the juices of the leaves, making them wither and shrivel up; and thus the flowers and the fruit of the trees are both spoiled, as neither can attain perfection unless the sap that is to nourish them be first properly matured in the leaves. Tobacco smoke, and most of the other usual remedies against insects, have no effect on the red spider; and, though sprinkling it with very cold

water will kill it, it is difficult to apply without injuring the plants. The best remedy is allowing plenty of air to pass through the house, whenever the weather is hot enough to allow the atmospheric air to be admitted with safety.

The culture of the plants contained in the *dry stove* requires considerable care. The Cáctus family may be arranged in three groups; first, the Tree Cacti, which are included in the genus Cèreus, and have long slender stems without a single leaf, sometimes thirty or forty feet high, and not thicker than a man's arm. These plants grow on the summits of the mountains in Brazil, and only require greenhouse heat in England. Secondly, the Mammillàriæ and Echinocácti, which grow in the valleys of the temperate parts of South America, and should be kept in a warm greenhouse in this country; and thirdly, the Melocácti, the Epiphýllum, the Opúntiæ, and the Rhípsalis, which grow in the tropics, and require a dry stove in England. These plants should be grown in pots well drained with cinders, and they should be kept almost without water from October till March, and then watered profusely till they are about flowering, when the quantity of water given to them should be gradually diminished. Some cultivators keep a few of their plants in a bark stove, and plunge the pots in the tan, and they are said to thrive on this treatment, if carefully managed; but as it requires a great deal of care to prevent them from damping off, the ordinary way is the safest for an inexperienced gardener. Mesembryanthemums, which are also kept in a dry stove, require the same treatment as the Cácti.

The orchidaceous plants grown in a *damp stove* are all epiphytes, which, in their natural state, grow either on the branches of trees, or on exposed rocks. The former of these are found in their wild state with their roots hanging down in the air, and growing in dense forests, where shade, moisture, and excessive heat are essential to their existence. Most of these plants, in a state of culture, are grown in the husks of cocoa-nuts, half filled with moss, from which the roots hang down, or they are tied with wire to pieces of wood hung from the rafters. The wood generally preferred for this purpose in England is the robinia, or false acacia, on account of the roughness of its bark, and the softness of its wood: and moss is generally put between the epiphyte and log so as to make it quite compact. Some genera of orchideous plants, such as Dendròbium, Epidéndrum, and Cattlèya, are always grown in pots, which are filled with turfy peat, chopped moss, and lime rubbish. Others, such as Stanhòpea and Catasètum, should be grown in baskets half filled with moss, or in a curious kind of frame, made of pieces of turf fastened between four

upright pegs of wood; as the flowers of these plants come from their roots, and they must be allowed abundance of room to enable them to protrude properly. The baskets or frames for the Stanhòpea and other root-flowering plants should be from three to six inches deep, and from six to ten inches wide; and the frames should be filled with strips of turf, two or three inches wide, piled up on one another so as to fill the frame, and yet leave a sufficient space between to admit the passage of the flower stems which protrude downwards from the root. When orchideous plants are grown in pots, the pots are drained with cinders, and then filled with chopped turf mixed with lime rubbish to keep it open. The exotic ferns grown in the same house require no particular care, except that of potting them so as to insure perfect drainage, and keeping them frequently syringed overhead.

There may be said to be five kinds of greenhouse; viz., the Australian house, the common greenhouse, the heath house, the conservatory, and the orangery, to which is sometimes added, the camellia house, though these plants are generally kept in the conservatory.

The *Australian house* contains all the curious New Holland plants, such as Bánksia, Dryándra, Grevíllea, Melaleùca, Callistèmon, Metrosidèros, and various genera belonging to the Leguminòsæ, together with the Cape plants belonging to the Proteàceæ and Compósitæ. These plants require a considerable degree of heat, and also as much air and light as can be given to any plants which require shelter from the open air. On this account they are generally grown in curvilinear houses, that is, houses that have glass on all sides, like that in the garden of the London Horticultural Society at Turnham Green. All the plants contained in this house are extremely difficult to grow, and they require the greatest care in watering, so that they may never have too much, and yet never be suffered to become too dry. Houses of this kind are generally heated by pipes of hot water, and kept at a temperature of from 40° to 50° or 60°. There is no pit in the centre, and the plants are either planted in the ground as in a conservatory, or kept on a stage formed of wooden shelves.

The *common greenhouse* has a brick wall at the back, with a glass roof at an angle of about 45°, and upright glass at the front and sides. The plants are grown in pots placed on a stage or range of wooden shelves rising one above another, with a path all round, and a shelf for the plants under the glass in front. All the sashes are made to open, as it is essential that there should be a free circulation of air; and so little fire is necessary, that one fireplace will be sufficient to heat a greenhouse from thirty to forty feet long, and from twelve to

fifteen feet wide. The house may be heated either by hot-water pipes or by flues; in the latter case the flue should go round at the front and return at the back, being about twenty inches high and twelve inches wide. The heat of a greenhouse of this nature need never be more than 50° in the day, and it may be allowed to sink even as low as 35° at night, the object being merely to keep out the frost.

The *heath house*, like the Australian house, requires to be as transparent, and as thoroughly ventilated, as possible. A heathery, however, is generally a span-roofed house with a walk down the centre, and shelves for the plants on each side. It is usually heated by hot water, the pipes for conveying which are placed in the centre of the house. The width of the house should be about ten feet, and the height in the centre of the span should never exceed nine, as it is of great importance to have the plants as near the glass as possible. The floor of the house should stand one foot above the level of the ground: and, where expense is not an object, the house is sometimes built on arches to insure perfect dryness. All the windows are made to move in every possible direction so as to admit of a current of air through the house, whenever the state of the atmosphere will permit it.

The *conservatory* has all the plants growing in the soil, instead of being in pots and placed on shelves. It is generally more lofty and architectural than a greenhouse, and of much greater extent; and it is frequently attached to the house, being so contrived that it can be entered from one of the living-rooms. The temperature of the conservatory is generally rather warmer than that of the common greenhouse, as it is kept at 60° during the day, and seldom allowed to fall lower than 40° at night.

The *orangery* is a still more architectural-looking building than the conservatory, and it has an opaque roof. It is used only for preserving orange trees and other plants that remain in a dormant state during the winter, and it requires no more heat than is absolutely essential to keep out the frost.

The *camellia house* is generally formed like a common greenhouse, but so contrived as to allow the whole of the sashes to be taken off during the summer. The plants are kept on stone shelves, raised one above another; and there is generally no walk at the back.

Of the culture of the plants in the Australian house I have already spoken; and of those in the greenhouse I need only detail the management during the winter months, as your greenhouse will, I suppose, be in the reserve-ground, and will be only used to preserve

those plants during winter which you have kept in other more conspicuous situations during the summer.

Many persons injure greenhouse plants by keeping them too warm, and giving them too little air during winter, and then are surprised that their plants become sickly and remain without flowering, notwithstanding all the care and expense that have been bestowed upon them. No greenhouse ought to be kept at a greater heat at night than from 35° to 40°; and in the daytime it should not be allowed to rise above 50°, or at most 52°. When there happens to be sunshine, the fire ought to be lessened, and whenever the air is not frosty the windows ought to be opened from twelve till two every day. If a greenhouse is kept too warm, it will induce premature vegetation, and the plants will waste their strength in an attempt to produce flowers and fruit, at a season when nature requires them to be kept in a state of complete repose. Greenhouse plants should be watered generally every morning; but in frosty weather water need not be given every day, and some plants will not require watering oftener than once a week. This, however, must depend in a great measure on circumstances, and, as a general rule, it may be observed, that water may always be given in small quantities when the surface of the earth contained in the pot looks dry. The pots should never be allowed to stand in saucers, as stagnant water is peculiarly injurious in winter. Whenever the earth looks black and sodden, the plant should be turned out of the pot, and, after the black earth has been carefully shaken from the root, it should be repotted in fresh soil, an inch or more in the bottom of the pot being filled in with small pieces of broken crocks.

In February or March greenhouse plants should be looked over, and repotted where necessary; those that are too tall should be cut in, and cuttings made of their shoots. The young plants raised from cuttings made in autumn should be repotted in larger pots for flowering; and where the plants do not require fresh potting, but have the surface of their mould become green and mossy, the moss should be taken off, and the ground slightly stirred with a flat stick, taking care, however, not to go so deep as to injure the roots. When trouble is not an object, all greenhouse plants are the better for repotting once a year, either in spring or autumn; and when the ball is taken out of the pot for this purpose, it should be carefully examined, and all the decayed parts of the roots should be cut off. Sometimes, when the ball of earth is turned out, nearly half of it will fall off almost without touching it; and when this is the case, it will generally be found that there is a worm in the pot. Worms do a great deal of mischief to

greenhouse plants in cutting through the roots, as their instinct teaches them to make their way through the earth straight across the pot and back again, and they cannot do this without tearing the roots asunder every time they pass.

Another point to be attended to in the management of a greenhouse is, keeping the plants as near as possible to the glass, as, unless this be done, the plants will become what gardeners call "drawn up," that is, they will be unnaturally tall and slender, from the efforts they make to reach the light.

As I have frequently mentioned *repotting*, I may as well tell you here the best mode of performing the operation. The pot to which the plant is to be removed should always have been previously washed quite clean, and be perfectly dry. Some bits of broken pots, called potsherds, should then be put at the bottom of the pot, the quantity varying from three or four pieces (so as just to cover the hole) to a mass an inch in depth, depending upon the nature of the plant. If the plant has not been in a pot before, the roots are then placed just above the potsherds, and the earth is filled in, the plant being occasionally shaken so as to allow the earth to get amongst its roots. The soil is next consolidated by shaking the pot, and then lifting it up and setting it down again with a jerk; and is rendered firm and neat round the rim by means of a broad smooth piece of stick shaped somewhat like a table-knife, and called a potting-stick. When a plant has been in a pot before, and is repotted or shifted, as it is called, into a pot a size larger, the plant is turned out of its old pot by putting the hand upon the earth and turning the pot upside down; or, if the ball of earth does not come out readily, striking the rim of the pot against the edge of the potting-table or shelf. The ball containing the plant will thus drop out into the left hand; and the potsherds that adhere to the bottom of the ball having been picked off, and any part of the root that appears decayed having been removed, a little mould is put on the drainage in the new pot; and the ball of earth, containing the plant having been placed in the centre, the space between it and the pot is filled in with light rich mould, and made firm with the potting-stick. The operation is concluded by shaking the pot, and then taking hold of the rim with both hands, and striking the bottom of the pot two or three times with a jerk against the potting-bench. The plant is then watered, and set in the shade for the remainder of the day.

Heaths are very difficult plants to manage; but a great improvement has taken place in their culture within the last few years. They are grown in what is called heath mould, that is, a mixture of peat and

sand; and when this earth is put into the pot, it is mixed with good-sized entire pebbles, some of which are suffered to protrude through the surface of the soil. The roots of heaths are extremely fine and hair-like, and the shelter afforded by the pebbles is so congenial to them, that, if one of the stones be taken out, a cluster of fine, white, vigorous roots will be found below it. The plants are always potted high, so as to let the base of the stem be above the level of the rim of the pot, as the plants are very apt to damp off if the collar of the plant be buried in the ground. Heaths should never be suffered to become too dry, and never kept too wet. They require very little heat; and many experienced cultivators never apply fire-heat to their heatheries at all, but merely keep out the frost by having wooden shutters to the sashes, and covering them with mats. Heaths, when growing rapidly, should be repotted whenever the roots have filled the pot; but they should not be shifted too often; and, when they have attained their full growth, they may be suffered to remain in the same pots three or four years without injury.

As plants in the *conservatory* are grown in the free soil, they are in a much more natural state than any plants can be in pots, and consequently they require much less care in their culture. There is usually a walk all round the conservatory, next the glass, and one down the middle, on each side of which are the beds containing the plants, and under which are placed the hot-water pipes that warm the house. The consequence of this arrangement is, that the beds on each side the middle walk are so planted as to have their highest shrubs in the centre, shelving down to those of lower growth on each side; and hence the centre is generally planted with tall camellias, acacias, metrosideros, eucalyptus, &c.; while near the walk are placed oleanders, myrtles, fuchsias of different kinds, together with chorozemas, and many of the other most ornamental New Holland plants; and up the pillars that support the roof are trained kennedyas, bignonias, ipomœas, and passion-flowers in great variety. Cliánthus puníceus and Polýgala oppositifòlia ought to find a place in every conservatory; and a plant of Wistària sinénsis may be trained under the rafters so as to afford shade to the camellias; as, under shelter, the wistaria will flower twice in the year, and its flowers will yield a delightful, though very delicate, fragrance.

As it is of the greatest importance to the health of the plants to have the soil in a conservatory well drained, many persons form the beds by excavating pits of the proper size, about two feet and a half deep, and put at the bottom a layer of brick-bats, stones, and other materials for drainage, about six inches thick. On this is deposited a

thin layer of coarse rough gravel; and on the gravel a layer of rich mould, which should be about two feet thick in the centre of the bed, where the largest shrubs are to be planted, and shelving off to about sixteen or eighteen inches at the sides next the walks. All the sashes should be made to open, and there ought to be large glass doors in front, which should generally stand open during the day in summer, in order to admit as much air as possible.

In some places a movable frame is contrived for a conservatory, into which sashes fit in winter, and which, in severe weather, is covered with tarpauling, made to pull down, like a blind, from a roller along the ridge of the roof; the whole frame being so contrived as to be entirely removed in summer. The upright posts of this frame are let into holes in the ground, like the posts in a drying-ground, so that when the posts are taken out, the holes may be stopped up with wooden plugs with rings attached; and the roof and horizontal pieces fit into each other, and into the uprights, the whole being kept firm by bolts. When a conservatory of this kind is to be removed for the summer, the side sashes and doors are taken away first, generally about the middle or end of April. A week or ten days after, the sashes of the roof are taken off, but the frame and tarpauling are left in case of spring frosts; and, when all danger from these is over, the whole of the framework is removed, and the orange trees, camellias, and other exotic trees that have been planted in the conservatory, appear to be growing in the open air.

The *orangery* is often contrived so as to be used as a kind of living-room during summer, as it is only intended for the reception of the orange trees, and other plants belonging to the genus Citrus, during winter. The trees are generally grown in large tubs and boxes, in a rich loamy soil, and are set out in the open air during summer, when they require but little care, provided they are frequently watered over the leaves, though they do not like much water to their roots. When young plants are raised from seed, they seldom flower till they have been budded or grafted from an old tree. Orange trees are generally put in the open air in May, and kept there till September or October; and they are very seldom shifted. They require scarcely any light or water during winter, and no heat beyond what is necessary to protect them from the frost.

Some of the varieties of Caméllia japónica are sufficiently hardy to grow in the open air in the neighbourhood of London, provided their roots and the lower part of their stems are mulched; that is, covered with straw or litter, and the main trunk wrapped round with a hay-band a few inches from the ground. The hardiest kind is the

variegated red. Camellias seldom do well in pots, except when they are very small, as, when they attain a tolerable size, the flower-buds are very apt to fall off without expanding. The best mode of growing camellias is, therefore, to plant them in the free soil of a conservatory, taking care that some creeping plant is trained along the rafters over their heads, as they do not like to be exposed to too much sun, unless they have also a great deal of air, and are frequently and regularly watered. The soil for camellias should be peat mixed with a little sandy loam. The temperature of the camellia house should be from 50° to 60° during the whole of the growing season; but, when the flower-buds have formed, the glasses are generally taken off during the rest of the summer. Early in autumn, however, when the flower-buds begin to swell, the glasses should be put on and the house kept warm, the plants being regularly watered morning and evening, as, if the watering be neglected a single day, or if stagnant water be suffered to remain about the roots, the flower-buds will be sure to drop off without expanding. Camellias do not require frequent repotting. Small camellias are generally shifted only once in two years, and large ones, that is, those above five feet high, not oftener than once in three or four years. The time for shifting camellias is just when they have done flowering, before they are beginning to send out their young shoots. Great care must be taken when they are repotted not to bruise the roots, as they are very easily injured.

Both camellias and orange trees are very subject to the attacks of the *black fly*, a kind of aphis. The best way of destroying these insects is to syringe the plants well, laying them down on their sides when they are in pots, or, if they are planted in the free soil, syringing them with a garden engine so as to throw the water in a powerful stream upwards, in order to get at the under surface of the leaves, where the insects are generally found. Some persons recommend fumigating with tobacco smoke; but I have never found it so efficacious as syringing, and washing the under surface of the leaves with a sponge, in case the insects should be very numerous.

LETTER IX.

THE PARK AND PLEASURE-GROUNDS.—SITUATION OF OLD HOUSES.—WATER.—FOREST SCENERY.—EFFECT OF A SHRUBBERY IN HARMONISING A FLOWER-GARDEN WITH A PARK.—OPENING VISTAS.—SCENES IN A PARK.—FENCES AGAINST CATTLE.—STYLES IN GARDENING.

I am very glad to find that you have procured some plants, and that you begin to feel an interest in the cultivation of your flowers. I do not at all agree with you, however, in thinking, that this is merely because gardening has with you, as yet, the charm of novelty; on the contrary, I am quite sure that as you become better acquainted with the subject, you will find your interest in your garden increase; as gardening is one of those happy arts in which there is always some not quite certain change to look forward to, and to be anxious about. Landscape-gardening is, however, the highest branch of the art, and it is the more necessary that you should study it, as, from the view you have sent me of your house, it appears to me that the general aspect of your park is at present very monotonous.

An ancient mansion embosomed in tall trees, with a fine broad terrace at the back, having a piece of still water lying like a liquid mirror below it, and a large park beyond, overgrown with majestic trees whose lower branches repose upon the turf beneath them, form a scene which sounds exceedingly well in description, but is very wearying to the eye which is destined continually to rest upon it. It is also not very healthy; as chilly vapours are sure to rise from the water, while the mass of trees beyond will obstruct the free current of air.

You must not, however, suppose from these remarks that I admire a house in an open exposed situation, as I think nothing can have a more bleak and naked appearance. Besides, a house entirely unsheltered by trees is sure to be a very uncomfortable residence, from its exposure to the heat in summer, and the cold in winter. It is, therefore, most desirable to have a sufficient quantity of trees near the house to shelter it, and yet to have numerous openings through those trees to admit distant prospects, and a free current of air. If a few openings could, therefore, be made in the plantations near your dwelling, I do not think there would be any danger in leaving the water in its present position; as, from your description, the house is elevated very much above it, and as, notwithstanding its appearance of stillness, there is a current through it. The elevation at which the house is above the water will also prevent the unpleasant consequences which sometimes ensue, when water overflows its banks, and makes its way into the basement story of a house. As to your house being on the ridge of a hill, I do not think that is any objection, as the rise is not very great on either side, and it is a proof that the prospect would be good if you would only cut down a

sufficient number of trees to show it. Houses quite in a valley are frequently damp, and if on the summit of a high hill they are apt to be bleak; so that the side of a hill or the ridge of a knoll is, in fact, the best situation that can be imagined. Our ancestors, indeed, rarely went wrong on this subject; and it is quite an extraordinary case to find an old house badly placed. In the old times the country gentry lived in their mansions all the year, and only visited London occasionally, so that they were more anxious to make their homes comfortable than persons of the same rank at the present day, who live in London, and only visit the seats of their ancestors as they would a watering-place.

You complain bitterly of your house not having an extensive view from it. You see nothing but trees, you say, in whichever direction you look; and you detest trees, because their foliage is monotonous, and so thick that you cannot see two hundred yards before you. This last is the real point of complaint.

Forest scenery is extremely beautiful in itself, and principally from the great variety it presents in the same objects. A fine tree, even when bare of leaves in winter, is beautiful, from the delicate tracery presented by its branches, which look like the masts and rigging of a large ship, intricate, yet without confusion. In snow, trees assume a new character; the weight sustained by the branches makes them droop, and a thousand graceful and elegant forms take the place of what was before a stern and rigid outline. In hoarfrost trees glisten with a thousand gems, reflecting the rays of light in so many different colours, that they remind one of the description of Aladdin's magic garden. In spring they present vivid ideas of youth and fertility, and all nature appears awakening into new and vigorous life; the buds swell, their coverings burst, and the young leaves display their tender and delicate green; at first only half-unfolding their beautiful forms, and reminding one of a young and timid girl half-wishing and half-fearing to make her first appearance in the busy world. Trees now begin to assume each a new and decided character of its own. The leaves of no two trees are alike: those of the beech are of clear dark green, and so thin that they are almost transparent, and yet they are deeply marked with a strongly indented feather-like set of veins. The bark of the beech is clear and smooth, as though nature had intended it for the use to which it has so often been applied by lovers—to carve on it a fair one's name. The leaves of the elm are of a thick coarse texture, rugged and distorted, wrinkled, and of a dingy green; and the bark of the tree is cut into a thousand furrows. The leaves of the ash are light and pendulous, and

cut into numerous leaflets; those of the oak are deeply indented, and generally grow in tufts. The palmate, drooping leaves of the horsechestnut contrast with the long, slender, and nearly erect leaves of the white willow; and those of the black poplar, which present a smooth outline, with those of the sweet chestnut, which are remarkable for their finely indented edges. In short, the leaves of every tree have beauties peculiar to themselves, in form as well as in colour. In autumn these colours become more decided; the lime trees take a yellowish tint, and the oak a reddish brown; the liquidambar becomes of a rich purplish crimson, and the maples and American oaks show a thousand varied dyes.

Yes, my dear Annie, I repeat, the fault is not in the trees, for they are beautiful; you dislike them only because they are so crowded that you cannot see their beauties. I allow it is a very difficult task to know how to proceed in a case like yours. Cutting down indiscriminately will never do; the trees must be thinned, not only with a view to make openings through the wood, but with care as to themselves. I think the first point will be, to find out the handsomest trees among those in the plantations near the house, in order to see which you would have left. Some will have been drawn up so much, and will have been forced into such awkward forms by their present crowded state, that they would be hideous if the trees that now surround them were removed. Others want room, but have grown so that they may easily be trained into a better form when space is given to them. One great point to be attended to is, to break the present formal outline; but, in doing so, it is scarcely possible to avoid destroying some trees that your husband might wish to spare, from local associations. I hope, however, he will allow a sufficient space to be cleared, not only to make your flower-garden, but to allow the plants in it to grow without being overshadowed by trees.

When the flower-garden is formed it will be necessary to have a *shrubbery*, so that the transition may not be too abrupt from the high state of culture in a flower-garden, to the wild nature of the forest trees. This shrubbery, indeed, will afford the only means of harmonising a newly laid out garden with the general scenery of the park, as it will contain, first, dwarf flowering shrubs next the garden; then shrubs of a larger growth, such as the laurustinus and arbutus; and, lastly, flowering trees, from the different kinds of Cratæ'gus to those of loftier growth, such as Pyrus spectábilis, Sophòra japónica, and the tulip tree, which last equals in height some of the loftiest forest trees in the park.

When a sufficient space for the flower-garden and the adjoining shrubbery has been cleared, and the most interesting trees marked, the next point is to ascertain what distant prospects will be admitted by cutting an opening through the wood, before it is finally decided in what direction the intended openings shall be made; as, for instance, if the view of a church or castle would be admitted by cutting an opening in a particular direction, that direction should be chosen in preference to any other, and a vista made in that line, even though an opening in another line would be preferable on other accounts. Should such an object be discovered, you must take care not to obscure it when planting your shrubbery; and should the object you wish to catch a view of be very distant, and not distinctly marked, the eye may be guided to it by planting some whitish-leaved low tree, such as Elæágnus angustifòlia, in the shrubbery, backed by dark-leaved shrubs, such as alaternus and phillyrea; and again, at a greater distance, planting an abele tree or white poplar in the same direction, where it will be backed by dark masses of Scotch pines or other similar trees. Before you make an opening, you must also ascertain whether any disagreeable objects will be exposed by your so doing; and, before cutting down even a single tree, you must consider what effect its removal will produce upon the trees around it. You have often told me of the exquisite taste your husband possesses, and his fondness for fine paintings: he must, therefore, be admirably qualified for improving the scenery round his house himself. Landscape-gardening is, in fact, but landscape-painting on the largest scale, and with the noblest materials; the same taste is required in both.

As the plantations near the house have been suffered to become so completely overgrown, I have no doubt those in the *park* are in a similar state, and that the park itself will require considerable improvement. The same general observations with regard to thinning out plantations will apply in every case; but in the park I think you will find it advisable, whenever an opportunity occurs, to take advantage of any natural feature to introduce what landscape-gardeners call a scene; as, for instance, should your park contain a rocky glen, advantage may be taken of it by planting it with different kinds of pines and firs, to form an imitation of alpine scenery, as was done, in a very striking manner, by the late Mr. Beckford at Fonthill. Another part of the grounds might be planted in imitation of American scenery, with magnolias, American oaks, and maples, and tulip trees, as was done by the late Duke of Marlborough at White Knights. A pond, in a secluded part of the grounds might have a degree of interest given to it by planting its banks with alders and

willows. A variety of similar scenes will no doubt suggest themselves to you, which do not occur to me, from my ignorance of the peculiar features of the place.

I suppose neither deer nor cattle are allowed to graze in your park, as you speak of several of the trees sweeping the grass with their foliage. Cows are particularly destructive to the beauty of park scenery, as they are very fond of tearing off the lower branches of the trees, and thus producing the hard line which looks as though the branches had been shaved off about five feet from the ground, and which is called by landscape-gardeners and painters the browsing line.

It is disagreeable to have even deer come close to the windows, and they are not only fond of the young shoots of trees, but they would be decidedly injurious to your flower-garden and the clumps of ornamental shrubs in the pleasure-ground. Should your husband have any deer, it will be necessary to have some fence or line of demarcation between the park and the pleasure-ground; and it is always considered a proof of skill in the landscape-gardener to conceal such a fence as skilfully as possible. When an iron fence is used it is generally extremely slight, and painted green, so as to be almost invisible; and when this fence is used, it is sometimes concealed by a plantation of trees thrown together indiscriminately, as in fig. 13., or planted artistically in groups. In other cases a sunk wall, forming a kind of ditch, is used, which is concealed by plantations; or iron hurdles are stuck in, and the line is varied occasionally. Any of these plans may be adopted in the front of your house, to protect your garden if necessary.

Fig. 13. ***Park Fence.***

As I have already alluded to the improvement that will be effected by introducing a shrubbery to harmonise the intended flower-garden with the trees in the park, you will probably wish to know if any thing of the kind will be required on the back-front of the house; but in that case there will be less difficulty, as the terrace affords an admirable medium for uniting the architectural stiffness of a mansion with the beautiful wildness and grace of nature. There is always a degree of incongruity in passing abruptly from the stiff symmetrical forms of a building, to the unsymmetric, though graceful, forms of a tree left in a state of nature; and it was no doubt a feeling of this kind which induced our ancestors to surround their houses with formal architectural gardens and trees clipped into stiff and regular forms. In more modern times something of the same kind was done, by always adding to the house verandas, porticos, and terraces, which formed a connecting link between the building and its grounds. After a time these also were laid aside; and about the beginning of the last century, when Brown and his followers would admit nothing but what they called nature in garden scenery, the park was allowed to come close up to the windows of the house, and, as a writer in the *Gardener's Magazine* observes, the inhabitants of the mansion might "leap from their windows into jungles, and steppes, and wildernesses, where the lion and the panther would be more at home than the lady in her silken sheen."

You will see from these observations that there are styles marking different periods in gardening, as well as in architecture; and, in some cases, it is advisable to preserve a

certain degree of similitude between the style of the garden and that of the house. Of course, however, this can only be done as far as is consistent with modern comforts; and the fact of your house being partly Elizabethan does not entail upon you the necessity of having a formal garden with high clipped hedges, and trees cut into a thousand fantastic forms, any more than it obliges you to sit in rooms darkened by stone mullions and small-paned casements, because the courtiers of Queen Elizabeth were obliged to submit to such inconveniences. With regard then to the back-front of your mansion, I would leave the terrace in its present form, with its stone alcoves at each end, as it corresponds so well with the style of that part of the house which appears to have been added in the reign of Anne or George I.; and I would preserve and repair the stone balustrade with urns at regular intervals, and the stone steps leading from the terrace, which are all in the same style as the house; I would also have them lead into an architectural garden below. The form of this garden should be quite regular, or, if you prefer the term, quite formal; and it should be ornamented with fountains, urns, and statues. The natural boundary of this garden is the piece of water before alluded to, the borders of which should be planted with a few tufts of shrubs to break, but not disguise, the regularity of the outline. On the other side of the water these tufts must be continued, but in a much wilder and more natural manner; and here and there the plantation must take the character of a clump, and consist of low trees, mingled with shrubs of the largest size. This will unite the house and garden with the park scenery as regards the view from the drawingroom windows, and on the side of the garden, gravel walks may be carried on through the various scenery of the park, a stone bridge being thrown over the water on the side nearest the entrance-front; and, farther on, a rustic bridge may be thrown over the stream in a situation where it is not seen from the house.

I think it very desirable that openings should be made in several places through the mass of wood, to admit views of the distant scenery from the drawingroom; as, for instance, if there is a church or a tower, or any other object that would form a suitable termination to a vista. In the reign of William and

Mary, when the Dutch style of gardening was fashionable, nothing was more common than long vistas of the kind called *patte d'oie*, all springing in rays from one point, and each terminating in some ornamental object, such as a temple, an obelisk, or a statue. Some slight approximation to this style, by cutting long vistas through your woods, might therefore be very consistently introduced wherever a suitable occasion for it may occur.

In planting your *architectural garden*, you must observe that it should have rather a different character from the small garden in front of your sitting-room window. The architectural garden should contain standard rose trees, almond trees, double-blossomed peaches and cherries, the Chinese magnolia, or yulan tree, and other showy-flowering trees, planted in company with arbutus, phillyrea, Minorca box, and other evergreens of a similar character. In the shrubbery, at each end of the garden, but not forming part of it, these trees should be continued, and mixed with variegated hollies, the different kinds of Cratæ'gus, and other trees that are ornamental, and that never attain a large size.

I have already suggested that in various parts of the pleasure-grounds advantage should be taken of any natural inequalities that may exist, to form different scenes; and I have now only to add that advantage may be taken of singular peculiarities, should you wish to form in your grounds one of those arboretums which are now so fashionable.

An *arboretum* is a collection of trees and shrubs, in which all the different species of natural order are planted together; and it does not necessarily imply that these orders should be arranged in any particular manner; as indeed botanists are not agreed as to how they should be placed, Jussieu having adopted one plan, De Candolle another, and Dr. Lindley another. The only essential point is, that all the plants which agree sufficiently to form an order should be placed together; as, for example, all the Coníferæ or cone-bearing trees, such as the pines and firs, the cedars, the cypresses, and the junipers; and all the Cupulíferæ or nut-bearing trees, such as the oak, the chestnut, the beech, and the hazel. Thus in your grounds, where there is a valley, it may be formed into what is called an

American ground, consisting of the shrubs allied to the heath family, and planted with rhododendrons, azaleas, kalmias, and other similar plants. A glen may be planted with pines and firs, so as to form it into a kind of pinetum; and an open space among trees may be turned into a rose-garden or rosery. In this way most of the exotic trees and shrubs that will stand the air in English gardens may be planted in groups, without going to much expense, and with less formal appearance than that of a regular arboretum. Besides, the beautiful colours which some of the exotic trees will take in autumn give them a splendid appearance, when they are backed by other trees with verdant foliage.

The *rose-garden* will be a very beautiful object if skilfully arranged; and, by thus forming your park into a succession of scenes, you will not only increase its beauty in the eyes of strangers, but add very materially to your own enjoyments by increasing the objects of interest within your reach.

I do not suppose you will have any occasion to renovate the *turf* in any part of your park; but, if you should, the best way is to get a mixture of the seeds of several sorts of grasses, such as the fox-tail meadow grass (*Alopecùrus praténsis*), the sweet-scented vernal grass (*Anthoxánthum odoràtum*), the crested dog's-tail grass (*Cynosùrus cristàtus*), and other valuable kinds. If ever you find a patch of grass has become bare, have an iron rake drawn over the ground two or three times, so as to loosen it, and then sow a few seeds of the grasses I have mentioned, when the ground is in a tolerably moist state from rain. This will generally be sufficient; but if it should not, as the seed of the fox-tail meadow grass is very often bad, you have only to add a little seed of the common white clover, and the ground will appear green in a few days.

LETTER X.

LAYING OUT A KITCHEN-GARDEN.—MAKING GRAVEL WALKS.—BOX EDGINGS.—CROPS OF CULINARY VEGETABLES.—CUCUMBERS, MELONS, AND MUSHROOMS.

I had not intended saying any thing about the kitchen-garden, as it hardly comes within a lady's province; but as you tell me you are so much annoyed by your old gardener never having the things you want when you want them, that you think of forming a small kitchen-garden near the house, I shall be very happy to give you my advice as to what appears to me to be the best method of doing so.

Every kitchen-garden ought, if possible, to be either square or oblong, for the convenience of planting the beds, and you will find a garden of one acre in extent quite as much as you will be able to manage. I would advise you to have it surrounded by a wall about ten feet high for fruit trees; and in front of this wall there should be a border ten or twelve feet wide; beyond which should be a gravel walk four feet wide, leaving a square or oblong plot of ground in the centre for culinary vegetables. This central plot may either have a main walk up the centre, and two or three side walks, or be left all in one bed, which may be divided into compartments, with paths between, to suit the convenience of the gardener. The best situation for your kitchen-garden will be as near the stable as possible for the convenience of manure; and, of course, it will join the reserve-ground. The surface of the ground should be level, or gently sloping to the south, and there should be no high trees near it. The whole of the garden should be well drained, and you should contrive it so as to have easy access to either pond or river water. A valley or a hill is a bad situation for a kitchen-garden; as the valley is very liable to injury from frost on account of the damps that hang over it; and the hill is not only cold, but exposed to injury from high winds.

I have already mentioned that the form of a kitchen-garden should be either square or oblong; and I may add, that the walks should always be straight, as, if they were serpentine, it would be difficult to wheel a barrow of manure along them without overturning it. The square form of the garden, however, is not only on account of the walks, but in order that the compartment in the centre may be divided into oblong beds, as it is most convenient to sow vegetables in straight lines to allow of weeding and hoeing between them, earthing them up, &c. The best soil for a kitchen-garden is a sandy

loam, and the surface soil should be from two to three feet deep. You will find it very convenient to have a vinery or forcing-house close to the kitchen-garden; and you can either have a small separate garden for melon and cucumber-beds, called a melon-ground, or this may form a part of your reserve-ground.

The first thing to be done when you have fixed upon your ground is to form the *walks*, marking them out by two garden lines, and then digging out the space between in the shape of an inverted arch, which should be from one to two feet deep in the centre. The arch is then partly filled in with brick-bats, stones, or any other hard rubbish which can be procured, leaving a little hollow space exactly in the centre to serve as a drain. Care must be taken, when filling in the rubbish, to put the largest pieces in first, then pieces somewhat smaller, and then pieces broken very small, which are rammed down as hard as possible, so as to make a smooth surface immediately under the gravel. The gravel before laying it down should be sifted, and all pieces larger than a moderate-sized gooseberry should be thrown on one side. As soon as the small gravel is laid down and evenly spread it should be rolled, and this rolling should be repeated occasionally till the walk becomes quite hard and firm. If the gravel does not bind well, it may be improved by mixing with it powdered burnt clay, in the proportion of one wheelbarrow full of clay to a two-horse cart load of gravel. The clay may be burnt by making it into a heap, intermixed with, and surrounded by, faggot wood. Gravel walks should always be slightly raised in the middle, in order that the water may run off on each side. If you should have an old gravel walk that wants renovating, the gravel should be loosened with a pick, turned over, raked, and firmly rolled, adding a coating of fresh gravel if necessary. If weeds should appear on a gravel walk, they are best killed by watering them with salt and water, and this liquid will prevent any other weeds from appearing.

Box edgings are the best for gravel walks, and March or April is a good season for planting them. The following is the mode of performing this operation, which requires some attention, as the beauty of the edging depends on its regularity. The margin

of the bed for about a foot in breadth should be watered, and afterwards beaten firm and level with the back of a spade; a garden line should then be stretched along close to the walk, and a shallow trench opened, sloping towards it at an angle of rather less than 45°. Some dwarf box having been procured from the nurseryman, it should be divided into separate plants, and the branches and roots trimmed, so that the plants may be nearly of a size. These are laid along the sloping face as regularly as possible, with their tops rising about an inch above the soil, and the earth is drawn upon them, so as to fill up the trench and make them quite firm. The plants are then watered, and nothing further is required but to supply the place of any that may chance to die, and to keep the tips neatly trimmed.

The crops of culinary vegetables are of two kinds, those that are permanent, and those that are temporary. Of the *permanent crops*, the most important are the *asparagus* beds, on account of the great length of time they take in preparing. The ground must be first trenched three or four feet deep, and plenty of stable dung buried at the bottom of the trench. The beds are then marked out four feet wide, and paths left between them; and the plants, which must be procured from a nurseryman (as they should be two years old when they are first put into the bed), must be planted in rows nine inches apart, and deep enough to have the crown of the root two inches below the surface of the ground. The beds are covered with rotten manure during winter, which is forked into the ground in the spring. The asparagus stalks are not cut till the second or third year after planting; but after that the beds continue to produce for twelve or fourteen years, or even more. All the shoots that push up from April to Midsummer may be cut off and used for the table; but those that spring after Midsummer should be suffered to expand their leaves, in order that they may elaborate their sap, and thus strengthen the roots.

Sea-kale is planted in beds in the same manner as asparagus, when the plants are a year old. The first year the plants will require little care, except cutting down their flower stems whenever they appear; but the second year, each plant must be covered with river-sand, and then have a sea-kale pot turned over it, on which must be heaped stable dung fifteen or twenty

inches high, in order that the heat may make the young shoots grow rapidly, and thus make them tender and succulent.

Artichokes, tart-rhubarb, and *horseradish*, are other permanent crops found in kitchen-gardens, but they do not require any particular care in their culture.

The *temporary crops* in kitchen-gardens require a constant change, as it is found from experience that the same crop cannot be grown on the same ground for two years in succession, without becoming of an inferior quality; and thus it is found necessary to fix what is called the rotation of crops, and to arrange that in each compartment a fresh crop shall be grown every year, as different as possible from the one that grew in it the year before. Thus, onions may be succeeded by lettuces, carrots by peas, potatoes by cabbages, and turnips by spinach. These plants may of course be varied according to circumstances; but the principle is never to have two fleshy-rooted plants like the carrot and the potato succeed each other; but always to let a plant cultivated for its leaves or seeds follow one cultivated for its root, and so on.

The *cabbage tribe* is very much improved by cultivation, but the plants contained in it require a great deal of manure and frequent watering to make them succulent and good. It seems strange that such different plants as broccoli, cauliflowers, cabbages, Scotch greens, and savoys should all spring not only from one genus, but from one species (*Brássica oleràcea*), which is, in fact, a British plant, and which I have no doubt you have seen growing on the cliffs at Dover, though you would have no idea that a tall straggling plant, with alternate leaves and very pretty yellow flowers, could be the wild cabbage.

The first change from this loose-leaved plant appears to be to what are called Scotch Greens, Borecole, or Kale; and these plants accordingly require the least care in their cultivation. They are generally sown in April, and transplanted in rows into the kitchen-garden, where they only need to be occasionally hoed and earthed up. There are a great many sub-varieties of these greens, all of which generally come true from seed.—Cabbages properly so called have a fine head or ball formed of

leaves folded closely over each other; and when eaten young, before the heads have formed, they are called coleworts. Cabbages are sown three times, for the spring, summer, and autumn crops. The spring cabbages are sown in the first week of the August of the previous year, and in October or November they will be ready for transplanting into rows twelve inches apart, where they will remain till they are wanted for use the following spring. The summer crop is sown in February, and transplanted in April, the plants being eighteen inches apart every way; and the autumn crop is sown in May, and planted out in July. All kinds of cabbage require a soil well enriched with animal manure, frequent hoeing-up, and abundance of water, or they will become dry and tasteless instead of being succulent. The stalks of the summer and autumn crops are generally left standing to produce what are called sprouts; and some gardeners only grow one crop of regular cabbages, leaving the stalks standing during the rest of the season for sprouts.—Savoys are large cabbages with wrinkled leaves, which are sown in March, and transplanted in May or June to a bed where they stand two feet apart every way. The crop is generally ready in November, but savoys are never considered good till they have had some frost.—Brussels Sprouts are a variety of the Savoy cabbage, and, as they are said to be very inferior in quality if raised from seed ripened in Britain, you must inquire if the seed you purchase has been procured from abroad.—Broccoli should be treated like cabbage, the soil should be deeply trenched and manured before the plants are transplanted.—Cauliflowers require too much care in their culture for me to advise you to have any thing to do with them.

Peas and *beans* should be grown in an open sunny situation, and in a light soil that is tolerably rich, but not freshly manured; and hence they are well adapted to succeed the cabbage tribe, the soil for which is always well manured.

Some sow their early peas in November and December, but very little is gained by this; and, if the winter should be severe, the crop is sometimes lost. The best time, therefore, for sowing early peas is in February, and the late ones in two or three sowings from April to July. Before sowing, the ground should

be marked for drills, by stretching a garden line along the length of the bed, and then making a drill or furrow along it with a dibber, pressing the earth firm at the bottom of each drill. As soon as the drill is prepared, the peas are regularly dropped along it, two or three to an inch, if they are small, and an inch apart if large, and then they are covered with the soil, which is firmly pressed down over them with a spade or roller. The drills should be an inch and a half deep, and from two to three feet asunder, according to the size of the peas, the marrowfats and blue Prussians requiring more room than the early kinds. A pint of peas will sow from twenty to thirty yards of drills, according to the size of the peas. Dried furze is sometimes put over peas when they are sown, and before they are covered with earth, to save them from mice. If the weather should be dry, the drills may be occasionally watered; and when the young plants are two or three inches high they should be hoed up, the earth being carefully drawn up to their roots. When about six inches high, they should be stacked with two rows of sticks to each row of peas, care being taken to have the sticks higher than the expected height of the peas, and not to let them cross at top. Many persons do not grow any early peas (which are always inferior to the larger kinds), but sow a crop of dwarf marrowfats and green Prussians in March and April for the principal crop, sowing the tall marrowfats and blue Prussians in June and July for a late crop. In this manner a supply of fine-flavoured peas may be obtained all the summer, and in open seasons till the end of September or October.

Beans are sown at the same time as peas, but they should be grown in stronger soil; they do not require sticks, and they are generally topped, that is, the upper part of the leading shoot of each plant is cut off; an operation that would be fatal to peas.

Kidneybeans are of two quite distinct kinds. The dwarf kidneybeans are annuals, which should be sown in drills about two feet apart, the first or second week in May; but the scarlet runners are perennials, the seed of which should be sown two or three inches asunder, and very lightly covered; and the rows should at least be three feet apart. The plants will require sticks like peas. Kidneybeans are generally eaten in England only in an unripe state, the pods being eaten as well as the seeds; the

ripe seeds are, however, commonly eaten in France under the name of *haricots blancs*.

Potatoes are propagated by what are called sets, that is, pieces into which the tuber is cut, each of which contains a bud or eye. Before they are planted, the ground should be trenched and rotten dung dug into it. The early potatoes are planted in March, and the late ones in May or June. When the potatoes are to be planted, a garden line is stretched across the beds, and holes are made along it with a dibber, about six inches deep, and nine inches or a foot apart. The sets are then put into the ground, one in each hole, with the eye upwards, and the earth firmly pressed down on them. When the plants come up, they are frequently hoed and earthed up; and as soon as they come into blossom some cultivators cut off the tops, to prevent the formation of the seed.

The *Jerusalem artichoke* is propagated by sets, like the potato; and the *turnip*, the *carrot*, and the *parsnep* are propagated by seed sown in drills about March.

Red beet is cultivated in the same manner, and plants that are sown in March will have roots ready for the table in September or October. Great care, however, must be used while taking them out of the ground, not to wound the outer skin; and in the kitchen they must be only washed and not scraped, as, if the outer skin should be removed, all the colouring matter will escape when the root is boiled, and the root, instead of its being of its usual bright red, will be of a dingy whitish pink.

Radishes are sown at different seasons; generally every fortnight, from January to July or August.

Spinach is of two kinds: the round-leaved variety, which is generally sown for the summer crop in January or February, and the roots of which may be pulled up and thrown away as soon as the leaves are gathered; and the Flanders spinach, which has triangular leaves, and which is sown for the winter crop in August. This last kind should have only the outer leaves pinched or cut off; and, thus treated, it will continue producing fresh leaves all the winter, as it is quite hardy, and not injured by frost. The seeds of this plant will keep good four years.

I do not suppose you will attempt to grow *onions*, as they will require a great deal of care; but you can sow a few in March for salads. If you wish to grow onions of an enormous size, you should raise the seed on a hotbed in February, and transplant them into the open ground in April or May. The soil into which they are transplanted should be very rich, and mixed with charcoal roughly powdered. The onions should be planted a foot apart every way, only the fibrous roots being buried in the soil, and they should be watered regularly every day. All the onion tribe require a very rich soil, which is very much improved for them by mixing charcoal with it. When it is wished to grow onions to a very large size, a hollow space or cup is made in the ground, in the middle of which the onion is placed when it is transplanted, the fibrous roots being buried in the ground at the bottom of the cup. The bulb of the onion, when thus treated, and well watered, swells to an enormous size, and becomes extremely delicate.

Lettuces are of two kinds: the cabbage lettuces, which may be sown broad-cast at any time from February to August, and require no after care, except thinning out and watering; and Cos lettuces, which are generally blanched by bending the tips of the leaves over the heart, and tying them in that position with a bit of bast mat. Endive and succory are blanched in the same manner, and mustard and cress only require sowing, as they are cut for salads while in their seed leaves. In France, lettuces are often cut for salads in their seed leaves like mustard and cress.

Celery requires a good deal of care in its culture. The seed must be sown in March or April, in a bed the soil of which is formed of equal parts of loam and rotten dung. When the young plants come up, they are transplanted into another bed of very rich soil, and when they are about a foot high they are removed into trenches for blanching. These trenches are made four feet apart, eighteen inches wide, and twelve inches deep, and they are filled nine inches high with a rich compost of strong fresh soil and rotten dung. The plants are taken up with as much earth as will adhere to their roots; and, their side shoots having been removed, they are set in the centre of the trench nine or ten inches apart. As they grow, the earth is

drawn up to them, a little at a time, taking care never to let the earth rise above the heart of the plant; and this earthing up is repeated five or six times, at intervals of about ten days or a fortnight, till the plants are ready for use.

The *potherbs*, as they are continually wanted in cookery, are much better in a garden near the kitchen. One of the most important is parsley, which is generally sown in a drill in February or March, and the plants of which do not seed till the second year. Fennel is a perennial, which, when once introduced, requires no further care, except to prevent it from spreading too rapidly. Thyme, sage, pot-marjoram, and winter savory, are all dwarf shrubs, which require no care after they have been once planted. Mint, winter marjoram, and the common marjoram, are perennials; but the sweet or knotted marjoram, summer savory, and basil require sowing every year like parsley.

I would not advise you to grow *cucumbers* or *melons*; but, should you feel inclined to try your skill, you have only to have a hotbed made like that for raising flower seeds; but with a two- or three-light frame, remembering that it will take a cart-load of stable dung for every light. The plants are raised in pots, and, when they are about five weeks old, they are planted three together in little ridges of earth made under each light. When the plants have produced two rough leaves, the ends of the shoots are generally pinched off, and this is called stopping the runners. When the plants come into flower, the pollen of the male flowers should be conveyed to the female ones, as otherwise the fruit very often drops off as soon as it is set. Seeds for the first crop of cucumbers are sown in December or January; but the principal crop is sown in March. The great difficulty is to grow the cucumbers long and straight, and to keep them green, and with a beautiful bloom. For the first purpose a brick may be placed under the fruit, and for the second, abundance of leaves should be left on the plant; and the ground in which it grows should be kept quite moist, as it is found that the plant succeeds best when it has abundance of heat and moisture, and has grown in the shade. Melons require the same treatment as cucumbers, with the exception of their beds being about 10° hotter; as, for example, the seed-bed

should not be less than 65°, and the fruiting-bed should not be less than 75°.

Gourds and *tomatoes* should be sown in a hotbed in March, and planted out in May, the latter against a south wall.

Mushrooms are generally grown in the back shed of a vinery or forcing-house, in beds made of fresh horse-dung, which has lain in a heap under cover, and been turned over several times for about a fortnight or three weeks, till every part has thoroughly fermented. A bed is then marked out about twelve or fourteen feet long, and five feet broad; and, if it is on the earth, a pit is made of that size by taking out the soil about six inches deep. The bottom of the bed should be formed by a layer of long fresh stable manure about four inches thick. On this several other layers must be placed of the prepared dung, each being beaten flat with the fork, so as to make the bed as close and compact as possible, till it is about five feet high, when the top should be finished off like the ridge of a house. In this state the bed should remain about a fortnight, and then some bricks of mushroom spawn having been procured from a nurseryman, they should be broken into pieces about an inch or an inch and a half square, and strewed regularly over the bed, each piece of the spawn being buried by raising up a little of the dung and inserting it. After this, the surface of the bed must be beaten flat with the spade, and the whole covered with a loamy soil, and beaten quite smooth. The bed is then covered about a foot thick with oat straw, and again with mats, and it will require no further care for a month or six weeks, by which time the mushrooms will be ready for the table. Care should be taken in gathering them to twist them up by the roots, as, if they are cut off, the root, which is left in the ground, will decay, and be injurious to the young plants. Mushrooms may be made to grow in lawns, by procuring some bricks of mushroom spawn, and, after breaking them into pieces about an inch or two inches square, burying these pieces by raising a little of the turf wherever the mushrooms are wished to grow, and placing the spawn under it. This is sometimes done in April or May; but if the season should be dry, the spawn will not germinate. Others put the spawn into the ground in August, or in the first week in September; the lawn is afterwards rolled,

and no other care will be requisite until the mushrooms are ready for gathering, which will be in a month or six weeks after the spawn is buried.

LETTER XI.

THE MANAGEMENT OF FRUIT TREES.—PLANTING.—PROTECTING THE BLOSSOMS.—STONE FRUITS.—FIG TREES.—GRAPES.—MANAGEMENT OF A VINERY.—GROWING PINE-APPLES.—FORCING PEACHES AND NECTARINES.—STANDARD FRUIT TREES.—KERNEL FRUITS.—FRUIT SHRUBS.—STRAWBERRIES.—TART-RHUBARB.

The fruit trees in a kitchen-garden should be all trained against the walls, and those trees which are grown as standards should be in a separate garden or orchard. The walls are best when about eight feet high, and they should have strong hooks or holdfasts built into them at the top, for the convenience of supporting a wooden coping, or of suspending mats or nets. Some persons recommend the walls to be built on arches; but this is a bad plan, as it is of importance to the gardener to confine the roots as much as possible to the border within the garden. The roots of fruit trees should never go deeply into the ground, as, if the roots are suffered to get so deep as to be out of the reach of the air, the trees will produce more leaves and branches than fruit. On this account care should be taken that the soil should not be more than eighteen inches deep; and the easiest and most effectual mode of doing this is, to dig out the border to the depth of two feet, and put a layer of brick-bats and other rubbish covered with gravel well rammed down to the depth of six inches, and to fill up the remaining eighteen inches with a fine rich mould. When a fruit tree border is in its proper state, the gardener should always be able to show the fibrous roots of his trees by removing a little of the earth with his hand. When the trees are planted the roots should be carefully spread out to their full extent, and care should be taken always to keep the collar of the plant above the earth, as when it is buried the tree is very liable to become cankered. As the blossoms of peaches, apricots, and nectarines appear early,

they are very liable to be injured by spring frosts, and many plans have been devised for protecting them. All, however, are liable, more or less, to objection, as it is extremely difficult to put up mats without knocking off the blossoms. The best way is to have a deep wooden coping placed on the holdfasts that were let into the wall, with hooks in front, from which a curtain of bunting may be suspended, which should be kept up night and day during frosty weather; as there is quite as much danger from the sun during frosty weather, as from the frost. In fact, in most cases where plants are injured by frost, it is in consequence of a warm sunny day having succeeded a severely cold night.

Peaches and *nectarines* are the most valuable of our wall fruit trees. They should be grown in tolerably rich soil, but which has been enriched with decayed leaves rather than animal manure; as, when they are manured with dung, they are very apt to produce what are called water shoots or gourmands, that is, strong vigorous shoots without any blossom buds. Peach trees are generally kept in the nursery till they are three or four years old, and they should be removed about the latter end of October, or the beginning of November. They are best trained in the fan manner, that is, with the branches spread out regularly against the wall in the shape of a fan; and, as they always bear their fruit on shoots of a year old, those shoots must be left on in pruning, and the old wood cut out. The pruning should be performed either in November or February; but the trees should never be cut during a severe frost. When the fruit has stoned it is thinned out, and never more than two should be left growing together.

Peaches and nectarines are generally grafted close to the ground, so as to make dwarf trees, and they are considered best planted about twenty feet apart, with some kind of plum or cherry, grafted standard high, placed between them.

Apricots are trained somewhat horizontally, and they bear not only on the shoots of the last year, but on close spurs formed by the two years' old wood. Apricot trees are very apt to have large limbs die off without any apparent cause; but this may be prevented by covering all the principal limbs in October with hay-bands, and letting them remain on till all danger is over

from frost. Apricot trees should be five and twenty feet apart on the wall, as they spread rapidly, and do not bear cutting in. The fruit should be thinned in May, or the beginning of June.

Plum trees will bear a little manure being laid on the surface in autumn, and slightly forked in in spring. They are trained horizontally, and they bear on what are called spurs; that is, short rugged-looking little branches, jutting out from shoots two or three years old, and which will continue fruitful for several years. Plum trees, in consequence, require very little pruning; and, in fact, as they are apt to gum when they are wounded, they should be very seldom touched with a knife.

Cherry trees resemble plum trees in their culture, and, when grown against a wall, most of the kinds are trained horizontally, and their branches kept six or eight inches apart. The morello cherry is, however, an exception to this rule, as it requires pruning and training, like the peach.

Fig trees should never be pruned, except to remove shoots that cannot be trained, as the fruit is produced on the young wood at the extremity of the branches. Fig trees should be planted thirty feet apart, and trained horizontally, their long branches being bent backwards and forwards, in order to make them throw out side shoots for bearing fruit, which they will generally do where the bend is made. Fig trees require to be well supplied with water, though they will not grow if any stagnant water be suffered to remain about the roots.

The *pomegranate* resembles the fig tree in producing its flowers only on the points of its shoots, and on short twigs projecting from its trained branches. Pomegranates require a rich soil; and when it is wished to throw them into fruit, the blossoms should be shaded during the time of expansion, as otherwise the pollen will dry up without fertilising the stigma.

Grapes are frequently grown against a wall in the open air; and in some cases, as, for example, by Mr. Clement Hoare, near Southampton, with very great success. Grapes have been also produced of excellent quality against a flued wall; that is, a hollow wall heated by means of flues in it, as at Erskine, near Greenock; but as, in both cases, extraordinary care is required, I would advise you only to have a common sweet-water vine

or two in your garden on the open wall, for the purpose of using its leaves in garnishing, and to grow vines in a vinery to produce the grapes you require for the table.

A vinery is a common hothouse or bark stove, heated with hot-water pipes or flues, and with a pit in the centre, which is generally filled with tan for pines. This appears a very simple and economical arrangement, but it has one great disadvantage; namely, that the pines require heat at a season when the vines should be in perfect repose, unless very early crops of grapes are desired. In other cases the centre of the vinery is planted with peach and nectarine trees for early forcing, the branches of the trees being trained over a curved trellis, and other peach and nectarine trees or vines, planted in the house, being trained against a trellis at the back. The vines for the main crop are, however, planted on the outside of the house, in a border prepared like that for the fruit trees, but richer; and their stems are brought into the vinery, through holes left for that purpose in the front wall. Several compositions have been recommended for making a compost for a vine border; but that most approved is, two parts of turfy loam mixed with one part of very rotten dung or decayed leaves, one part of lime rubbish, and one part of road drift. On the Continent they frequently bury the parts cut off the vine in pruning, in the border, and this is said to make excellent manure.

Vines are generally not planted in the border till about a year old, and they are best struck from cuttings of one bud or eye each, with about half an inch of stem left above and below the eye; the cutting is then planted in a small pot (60), and covered with soil half an inch thick, after which the pot is plunged to the rim in a common hotbed, or into the tan-pit in the centre of the vinery, covering it in the latter case with a hand-glass; the object being to keep the young plant growing in a moist heat of 60°. The young plants should be afterwards shifted into larger and larger pots, as they require it; and their stems, which will grow rapidly, should be trained either to a single stick or to a framework of sticks tied together, according as the plant is wanted to be spreading or trained to a single stem. If the eye has been a large and healthy one, and the wood of the stem

from which it was taken firm and well ripened, the cuttings will grow rapidly. Care must be taken to give the young plant a gentle sprinkling of water every four or five days, and to let it have plenty of air, and not too much heat from the bed. The water should be given at night, and the glasses of the frame should be shut close immediately, as the steam thus generated is found very beneficial to the young plant. As when the plant is shifted the first time the stem, or cane as it is called, is generally six or eight inches long, great care must be taken not to injure either it or the spongioles of the roots in shifting; and, as the stem or cane is of course always longer every time the plants are shifted, additional care is required every time of performing the operation. While the plant is in the hotbed, the wires or tendrils, and also the weak lateral shoots, must be pinched off as fast as they are produced.

If the cutting was made in the first week of March, and has been properly treated, it will have a strong stem of ten or twelve feet long, and perhaps more, by the middle of June or the beginning of July. Many gardeners advise planting the vines out at this season, as they say they grow more vigorously, and form better wood, with only their stems in the hothouse, than when they are confined to the moist close heat of the bed. Other gardeners, however, keep their young vines in the pots till the following February, when the canes are generally five feet long, and as thick as the little finger.

When the plants are put into the ground there should be one vine to each hole; and, as every hole is made opposite a rafter, there is thus one vine allotted to every sash or light. A shallow pit is made in the ground for each vine, and, the pot being either broken with the spade or the plant carefully turned out of it, the ball of earth containing the roots is placed in the pit, in such a manner as to leave the cane as nearly as possible in the same position as it occupied when the plant was in the pot. The ball of earth is then covered with light rich mould about two inches thick, and the stem of the vine is brought through the hole in the wall into the house. This is an operation of some difficulty, particularly if the cane be long, and it is carefully wrapped up in matting or in hay-bands, to prevent it from receiving any injury. While the vines are in pots they are

pruned, so as to leave only the main shoot, or at most two shoots, in case one should be broken off; and in the latter case, as soon as the main shoot has been safely introduced and attached to the rafter, the other is removed. The side shoots are also taken off as they appear till the main shoot has reached nearly to the end of the rafter, when its point is pinched off, and the strongest of the side shoots are allowed to develop themselves.

If the vine was planted in May or June the same year the cutting was struck, and nothing else is in the vinery, it should be allowed to remain all summer with the glasses off, and without fire heat; in September, however, the glasses should be put on, and enough heat applied to keep the temperature of the house at 55° or 60°, but always giving air in the middle of the day, in order to ripen the wood. In December, when the leaves begin to fall, the vines should be pruned, and they should then have a season of rest, till the leaf-buds begin to swell in spring. When only vines, or vines and peaches, are grown in a vinery, it is easy to give this season of rest by leaving off all fire heat, except what is necessary to keep out the frost, till the middle of February; but, when pines are grown in the same house, the stems of the vines are generally drawn out of the house during part of December, January, and February, and kept on the outside carefully wrapped up in mats and hay-bands, or laid along the ground and covered thickly with dead leaves and straw. The vine border should always be covered in the same manner during frosty weather, as neither stems nor roots should ever be exposed to a greater degree of cold than 40°. When the vines are planted out in June, they should not be suffered to bear any fruit that year; but, when they are not planted out till the February following, they may be allowed to bear one or two bunches each the following summer.

In pruning the vine great care should be taken never to cut close to a bud or eye, but generally to cut through the stem just in the middle of the internode or space between the buds, or at least half an inch from the bud left. The sap of the vine rises with great force; and if the pruning be delayed till spring, or if the cut be made too near the bud, the sap will flow profusely, and will very seriously weaken the plant. English gardeners

call this overflowing of the sap bleeding; but on the Continent they call it the tears of the vine. There are three modes of pruning and training the vine; but the best for vineries is what is called the spurring-in system. This consists in training the plant with one long main shoot, which is always suffered to remain, and shortening the strongest of the side shoots to one or two eyes every winter, and removing those that are weakly, or that grow too closely together, as the shoots left, which are called the spurs, should always be about twelve inches apart.

The time of beginning to force grape vines depends upon the season at which the grapes are wanted, but the usual season is February. The cane of the vine is then taken into the house, if it has been wintered outside, and carefully trained to the rafter, the part next the ground being still kept wrapped round with hay-bands, and the hole stopped close round the stem, so as to prevent the vine receiving any check from the cold of the external air. Want of attention to this particular is very apt to produce a disease in the vines, which ends in what is called shanking, that is, a shriveling of the short stems of the grapes after they have set. The vine border has then its winter covering removed; and, after being forked over, a coating is laid on of rotten dung, two or three inches thick; or, what is better, a coating is laid on of turfy loam chopped up, and old lime mortar, about two inches deep, and on that a coating of rotten dung, two inches thick; over these may be replaced the coating of decayed leaves a foot thick, and straw or reed mat, which was laid on the bed during the severe frosts of winter. The grand point is, to keep the roots and part outside the house in the same temperature as that within, or even warmer.

When fire heat is first applied, the thermometer should be 55° at night, and 60° or 65° in the day; but the heat should be gradually increased as the buds begin to swell, keeping the heat at night about 10° lower than that of the day till the flower-buds appear, when the spurs are generally stopped about one bud beyond the flower-bud, and the leaf-shoots, which are opposite the flower-buds, are each stopped at a single leaf. The bunches must also be thinned, and not more than nine or ten allowed to each vine, if trained in the spur manner. The heat of the house should now be about 80° by day

and 70° by night, and a little air should be given for half an hour every day, whenever it can be done without lowering the temperature below 74°. The hot-water pipes or flues should be frequently sprinkled with water when the vines are going out of flower, and the grapes beginning to swell; and the grapes in each bunch should be thinned out with a pair of scissors, and the shoulders of the bunches tied up to allow the grapes to swell. The house should now be at its greatest heat, viz. 85° by day, and 74° or 75° at night; air should be given freely, whenever it can be done without lowering the temperature below 77°; and the hot-water pipes should be sprinkled with water six or eight times during the twenty-four hours. When the fruit begins to change colour for ripening, this sprinkling should be left off, and air admitted freely, even at night, whenever it can be done without lowering the temperature too much. During the whole of the forcing, the border should be watered with dung water; and, as soon as all danger from frost is over, the leaves and straw should be thrown off, and the bed slightly forked over, to admit the warmth of the sun to penetrate the earth, and the air to reach the roots of the vines, as unless the air is allowed to reach the roots the grapes will not set well.

If the forcing was commenced in February, the grapes will be ripe in July and August; the Sweetwaters ripening first, the Hamburgs next, and the West's St. Peter's and Muscat of Alexandria last. When grapes are wished to be ripe in May or June, the forcing must begin the first of December, and pines may be grown with the same heat as will be required for the vines; but, when this is the case, the vines must have an artificial winter given to them, by ceasing all fire heat as soon as the fruit is cut, and taking off the sashes; the stems are afterwards kept in the shade, and as cool as possible through September and October, and they are pruned in November. When, on the contrary, grapes are not required before September, very little forcing is requisite; but the bunches of grapes must be carefully thinned, and not more than ten or twelve bunches should be allowed on each vine. When the vines are in flower and the fruit setting, the house should be kept close, and the pipes or flues frequently sprinkled with

water; as a hot dry air makes the calyx shrivel up before the pollen has reached the ovary, and, when this is the case, the grapes will be small and frequently without stones.

It would take too much space to explain to you the other methods of training and pruning, and I need only say that the long method, which is the only one except the spur system in general use, consists in cutting out the old wood every second year, and supplying its place with wood of the previous season's growth.

You will thus see that the principal points to be attended to in the culture of the vine are:—1. To prune the plants so as to prevent them from forming too much wood, but not to cut too near the buds; 2. To keep the roots and collar of the plants, when forcing begins, at the same temperature, or nearly so, as the upper part of the stems; 3. To admit air to the roots as soon as all danger is over from frost; 4. To thin both the branches and grapes properly and in due time; 5. To keep the air of the house moist when the fruit is setting and swelling; and 6. To give the plants a proper season of rest.

Pines are propagated by crowns, that is, the bunch of leaves on the upper part of the fruit; or suckers which form by the side of the old plant. These are potted in small pots in proportion to their size, in a soil composed of seven eighths of pure loam and one of silver sand; and plunged about two thirds of their depth into a bed of tan, at the heat of about 95° in the bed, and the usual heat of a forcing-house in the atmosphere, if grown in the vinery. Young plants are sometimes grown without pots in propagating-pits; from which they are transferred, after being repotted, to what are called succession pits; and, after remaining there a long time, they are either removed to the tan-pit in the vinery to fruit, or to fruiting-pits. I shall not attempt to give you directions for their culture during all these changes, which take up a great deal of time; Jamaica pines being two years before they are ready to cut, Providence pines about twenty or two and twenty months, and Queen pines sixteen or eighteen months. Your only chance of growing pines is, therefore, not to have them till they are put into fruiting-pots; these are plunged into the tan-pit in the vinery in February or March, when the forcing of the vines begins; and

afterwards they will require no other care than watering them frequently, and keeping the atmosphere moist, to make the fruit swell. Pine-apples are sometimes grown without pots, in peat soil, through which pipes of hot water are carried so as to heat the earth to 95°, while the atmosphere is kept moist, and decayed leaves are laid on the surface and drawn up round the plants. In this way, Queen pines have been grown to the size of five or six pounds, and New Providence pines from twelve pounds to fifteen pounds.

When *peaches* are forced in a vinery, the trees should be three or four years old before they are put into the house. The best kinds are, the Grosse Mignonne, the Royal George, the Bellegarde, and the Late Admirable; and, where only one kind is wanted, the Bellegarde is preferred, as it is not so liable to the mildew as the others. The best kinds of *nectarine* for forcing are the Elruge and the Violette hâtive. If the forcing begins in December, the fruit will be ready in May. The leaves should be frequently syringed with water at the temperature of the house; and, in other respects, the culture is the same as for peaches in the open air, and the forcing the same as for vines. The greatest objection to growing peaches in a vinery is, that the shade thrown by the leaves of the vines prevents the proper colouring and flavouring of the fruit.

Standard fruit trees should never be planted in a kitchen-garden, as from their drip and shade it is impossible to grow good culinary vegetables under them; while, on the other hand, the constant digging and movement of the soil required for culinary vegetables, make the roots of the trees descend so far that they get beyond the reach of the air, and can never produce good fruit. Dwarf standards are fruit trees grafted near the collar of the plants, and trained in various ways to form bushes rather than trees. Sometimes a hoop is placed inside, and the branches are trained into a cup-shape; at others, the branches are formed into a kind of umbrella; and, at others, they are trained into the shape of a distaff (*en quenouille*), or like a pyramid. All these and many other modes of training dwarf standards may be seen at the London Horticultural Society's Garden at Chiswick: but only pears, apples, and dwarf cherries are treated in this manner; and, though they are

convenient to gather the fruit from, they are in so unnatural a state as to be subject to canker and other diseases, and seldom live long. Espalier trees are subject to the same objections, as they are in a still more unnatural state than dwarf standards. The hardy kernel and stone fruits are therefore best grown in an orchard, and I shall now say a few words on their treatment.

Apples are the most useful of all fruits, and there are three distinct kinds, the dessert or eating apples, the kitchen or baking apples which fall or become soft in cooking, and the cider apples which are good for nothing but cider. Apple trees are generally grafted on crab stocks; and, when they are planted, the collar should be raised a little above the soil, as if it is buried the tree will very probably become cankered, or affected with the American blight. Canker is sometimes cured by cutting out the cankered part, and admitting air to the roots; and the insect called the American blight may be removed by washing the tree with a brush and soft soap and warm water, or by plastering it over with a mixture of stiff clay and water.

Pear trees are very apt to send their roots down to a great depth, and then cease bearing; so that it is desirable to keep the roots near the surface by mulching with manure or dead leaves. The fruit is produced on spurs, and when pear trees are grown against a wall they are trained horizontally, with short projecting branches or spurs. Pear trees against a wall are very apt to bear their fruit in clusters, and to leave a great part of the tree barren; and this arises from their flowers having naturally very little pollen, and, where the flowers are exposed to great heat, the pollen drying up without fertilising the stigma. The best remedy is to syringe the branches occasionally, and to shade them when in blossom.

The *quince* thrives best near water; as does the *medlar. Mulberry trees* are best planted on a lawn, for the convenience of picking up the fruit clean from the grass; as it falls as soon as it is ripe. *Plums* and *cherries* require no particular care when grown as standards, except to be sparing in the use of the knife, as both trees, when wounded, are very apt to produce gum; and this, which is an unnatural exudation of the sap, similar to the bleeding of the vines, is very injurious to the trees.

The *almond* is a kind of peach tree, with a leathery fruit instead of a juicy one, the almond being the kernel of the stone. The bitter almond abounds in Prussic acid; but this powerful poison scarcely exists in the kernel of the sweet variety. Almond trees are generally grafted on plum stocks; and they should be grown in a dry soil and a sheltered situation, as the branches are brittle and apt to be broken off by high winds. When almond seeds are sown, the sharp end should be pressed downwards; and the young plants should not be transplanted except when absolutely necessary, as they have very long tap-roots. When the almond is planted for ornament it should have a back-ground of evergreens, as its flowers appear before its leaves.

The *walnut*, being a spreading tree with large leaves, should only be planted where no injury will be sustained by a deep shade being cast upon the ground; but it must be observed that its leaves are disliked by all cattle, and are injurious to cows. In pruning it the tips of the branches should be taken off, to make them throw out fruit-bearing shoots.

Sweet chestnuts are always propagated by seeds, and never grow well unless the soil contains a portion of sand. The wood is worthless when old. Both walnuts and chestnuts are generally planted in the park.

The fruit shrubs grown in gardens may be considered to include the *elder*, the *berberry*, and the *filbert*, though these are frequently called trees. The elder and the berberry will grow anywhere, and require no particular care in their culture; the filbert is only a variety of the common hazel, and both are generally grown on the borders of walks, where they are planted from five to ten feet apart, according as they are to be trained upright or spreading. As the fruit is produced on the young shoots, the bush should be kept open and trained in the cup fashion, in order that the main branches may throw out short young wood. Filberts are propagated by sowing the seeds; and hazel trees by suckers, which they throw up in abundance.

Gooseberries are generally propagated by cuttings, which strike easily; and they should be grown in soil which is well

drained, and well manured by a coating of rotten dung being laid upon it every third year. The bushes should be planted in rows eight or ten feet apart, the plants being about six feet from each other. They should be pruned twice a year; in the winter to remove the branches not likely to produce fruit, and early in summer to remove those shoots that are not likely to ripen. The fruit is produced partly on the old and partly on the young wood, and it should be thinned when gathered green for pies and puddings, by taking only a few from each bush, instead of gathering all that may be wanted from one.

Currants are raised from cuttings generally about a foot long, all the buds from which are taken off, except five or six at the top; and the cutting is then firmly fixed in the soil about six inches deep. The currant bears chiefly on spurs of the old wood, so that these only are generally left in the winter pruning. The currant is very hardy, and will grow in any soil or situation, even under the drip of trees.

Raspberries always bear on the young shoots, so that the art of pruning them consists in cutting out the old wood. They are propagated by suckers, and thrive best in a light rich soil, and an open situation.

The *cranberry* is generally grown in moist soil or peat earth; but it may be grown in beds in the common garden like the strawberry. When cranberries are once planted they require no after care, except removing the runners when they extend too far.

Having now, I believe, told you a little, though I confess not much, of all the kinds of trees and shrubs usually grown in this country for their fruit, I have only to say a few words of strawberries and tart-rhubarb, and then I think I shall have given you all the information you will require for so small a garden as yours.

Strawberries are rather difficult plants to give directions for, as they succeed apparently equally well with different kinds of treatment. It is certain, however, that they like a deep rich soil, well manured; and that, when a new strawberry bed is planted, the ground should be trenched at least two feet deep, and a good deal of rotten dung (the dung from an old hotbed is best)

should be mixed with the soil. Some persons make fresh strawberry beds every year, and some every third year; but strawberry beds will continue to produce for ten or twelve years, if a thick coating of decayed leaves be put on the bed every winter, and their remains forked into the bed in spring. When a new bed is to be formed, the strongest runners should be selected from the old plants; and they may be planted in beds containing three rows each, eighteen inches apart, the plants being about twelve inches apart in the line. Alpine strawberries may be raised from seed, and will fruit the first year. The Pine is an excellent strawberry for flavour, but Keen's seedling is the best for general use. The Hautbois requires a great deal of manure, and, as the male and female flowers are on different plants, nearly one half the plants in a bed are unproductive. Strawberries grow very well on banks facing the south or south-east, or on little terraces supported by walls, but in these situations they must be regularly watered twice a day. Strawberry plants never produce good fruit unless they have abundance of leaves, as shade is essential to the fruit being juicy and of a good flavour. Most gardeners take off the runners in August or September, and plant them in nursing beds for the winter, transplanting them to their proper beds in March.

Tart-rhubarb is propagated by seed or by division of the root, but the former method is generally considered the better. When beds of rhubarb are to be formed, the soil should be deeply trenched and richly manured, and the seed then sown in drills two feet apart for the scarlet rhubarb, and three feet apart for the larger kinds. When the plants come up they should be thinned out so as to leave the plants about the same distance apart as the rows are asunder. A few leaves may be gathered from each plant the second year, but it is generally considered to strengthen the plants if no leaves are gathered from them till the third year. Rhubarb may be forced in the open garden by putting pots over it, in the same manner as is done for sea-kale; or the plants may be taken up and potted, after which they may be placed in the kitchen near the fire and covered with matting or old carpet, being watered every day with warm water.

LETTER XII.

OPERATIONS OF GARDENING.—DIGGING, FORKING, AND HOEING.—SOWING SEEDS.—TAKING OFF SUCKERS.—MAKING LAYERS AND CUTTINGS.—BUDDING, GRAFTING, AND INARCHING.—PRUNING AND TRAINING.—DISBUDDING.—MANURING.—KEEPING FRUIT IN A FRUIT-ROOM.

Digging is the first operation necessary in gardening, as nothing can be done in the way of cultivating the soil till it has been first pulverised, so as to allow the fine delicate roots of the plants to penetrate among its particles. It is also necessary that the air should have access to the roots of plants, as they depend for their nourishment almost as much on the carbon and other elements which they absorb from the air, as on those which they obtain from the soil. On this account it is necessary, not only to dig the soil well before any thing is planted in it, but also to fork it over occasionally whenever its surface becomes hardened and impervious to the air and rain. When manure is applied also, it is customary to dig it into the soil; and ground is occasionally trenched in order to bring up fresh soil to the surface, whenever the surface soil appears to be exhausted and to want renewing. The operation of digging requires considerable strength, as it requires first to be able to force the spade into the ground, and then to raise as much earth as will lie upon the blade and turn it over. It is, however, a fine healthy occupation, not only from its calling the muscles into vigorous action, but from the smell of the new earth being particularly invigorating; and you might have a lady's spade, with a smooth willow handle, that will enable you to dig a small bed without much difficulty. You will be surprised, however, to find, if you try the experiment, that there is an art in digging as well as in every thing else; and that it is extremely difficult, both to dig in a straight line, and to make the ground look even tolerably level after it has been dug over. *Raking*, though it appears so simple, also requires considerable skill to make the ground look smooth and perfectly level. *Forking* is not so difficult, as it merely requires to have the fork pressed into the ground, and then pulled backwards and forwards, so as to loosen a portion of the soil without turning it over.

There are two sorts of *hoes*: the *draw-hoe*, which is used for drawing up the earth to any plant that is to be earthed up; and the *thrust-hoe*, which is principally used for destroying weeds. There are many varieties of both these forms, but the common kinds, I think, you will find the best. The most useful instrument, however, for you will be a *trowel*, and this you will find indispensable, as, without it, you will not be able either to transplant or pot a single plant. Some persons use what is called a *transplanter*, to enable them when they take up a plant, to remove it without disturbing the roots; but, as far as my own experience goes, I think these instruments are more troublesome than advantageous, and I prefer using a trowel. You will also want a *budding-knife*, and a sharp knife for making cuttings; and you will find a pair of *pruning-shears* with a sliding-joint extremely useful for cutting off dead wood, or removing any badly-placed branches.

Plants are propagated either by seed, or by division. When they are to be propagated by *seeds*, the ground must be either dug or forked over and made level. It is then firmed by beating it with the flat part of the spade, rolling it, or in any other manner; and the seeds are scattered over it, if they are to be sown broad-cast, and covered with earth the same thickness as themselves. When seeds are to be sown in drills, a narrow furrow must be made, by drawing a stick along the ground in a straight line, or in any other way so as to make the bottom of the furrow firm, and the seeds must be dropped into it at regular distances. The furrow is then filled in, so that the seeds may be covered to the same depth as their own thickness; and the earth is slightly pressed down, and afterwards raked over. Larger seeds are sown in separate holes made by a dibber, as are the sets of potatoes; but the after processes are the same in all. Bulbs and tubers are also planted in the same manner; taking care that the eyes of the tubers are uppermost, and the flat part of the bulbs downwards. In planting Ranunculus tubers the claws should be downwards, and if any are broken they should be cut off smooth with a sharp knife.

There are several ways of propagating plants by division, viz. taking off suckers, making layers and cuttings, and budding, grafting, and inarching.

Propagation by *suckers* is very simple. Many plants have a portion of their stems under ground, from the buds in which new upright stems rise into the air and fibrous roots descend into the ground. It is thus only necessary to divide the horizontal underground stem by the spade, or by opening the ground till the stem is found, and then cutting it through with a knife, and to take up the young plant which has sprung from it carefully and without injuring its roots, cutting off the remains of the old plant before the new one is replanted. Suckers sometimes spring from the collar of the old plant, and when this is the case they require more care in removing them, to avoid injuring the plant from which they spring.

Runners are suckers proceeding from horizontal stems above ground, and *offsets* are the suckers of bulbs, as they proceed either from the root-plate, which is the compressed stem of the hyacinth, or from the main body of the corm, which is, in fact, the stem, as in the crocus.

Layers are produced by imitating the process of nature in making suckers; as, in making layers, a joint of the upper stem is buried in the ground, and kept moist to induce it to throw out roots; the buried stem being generally slit or twisted at the joint, so as to prevent the return of the sap, and to occasion it to expend itself in roots instead of circulating in its ordinary way through the branch. As soon as a layer has produced roots it becomes the same as a sucker, and may be treated in exactly the same manner.

Cuttings are portions of a plant cut off just below a bud, and buried in the earth to induce them to throw out roots; which is done most effectually by exposing them to warmth and moisture, and shading them from the light, as that has a tendency to draw the sap towards the leaves, whilst warmth and bottom heat dispose the cuttings to throw out roots. On this account cuttings always strike most readily when the pots, in which they are planted, are plunged into a hotbed, and covered closely with a hand-glass. It must be observed in making cuttings, that they ought in most cases to consist of two buds; from the lower one of which the new roots are to spring, while the upper one is to produce the stem of the new plant. Cuttings must always be made quite firm at the base;

and they generally strike most readily when the bottom of the cutting, which is cut through a joint and quite flat, rests against a piece of the drainage, or even the bottom of the pot, being in both cases pressed so closely against its earthenware support as to exclude the air. When a cutting is made, most of the leaves are removed, as the evaporation from them is greater than the plant can support while it is without roots. Cuttings of succulent plants are generally laid upon a shelf to dry before they are put into the ground, as if this is not done the wounded part is apt to become rotten, and to decay. Cuttings are generally struck either in sand or very light earth, in order that the young roots may meet with as little obstruction as possible.

Pipings are portions of pinks and carnations pulled asunder at a joint instead of being divided with a knife, and afterwards planted, and treated exactly like cuttings.

Budding is taking off a single bud or eye, called a scion, from one plant, and inserting it in another plant called the stock. This operation is generally performed in July or August. In the first place, a slit is made on each side and above and below a leaf which has a healthy bud in its axil, that is, just between the foot-stalk of the leaf and the branch on which it grows. The bark of the branch containing the bud and the leaf is then detached from the branch, by passing under it the bone handle of the budding-knife, which is made flat and thin on purpose, and raising it gradually up. If the bark has been raised carefully and properly, there will generally be a little bit of wood just under the bud, which must be carefully taken out, so that not the smallest particle of wood is left on the under side of the bark. A long slit is then made in the bark of the stock, with a cross slit at the top, and, the bark being gently raised at each of the corners made by the intersection of the long slit and the horizontal slit, the piece of bark with the bud attached is carefully introduced under the bark of the stock, which is closed over it, and bound tightly with a bit of bast mat, in order that the bark containing the new bud may be pressed as closely to the wood of the stock as possible. If the operation has been properly performed and the bud was a healthy one, it will soon begin to swell; and, when it does so, it will push off the foot-stalk of the old leaf that was taken off with it, so that when this

foot-stalk falls it is a sign the bud has taken. When the bud has developed itself into leaves, the ligature should be loosened to allow the branch of the stalk to expand. The operation of budding requires a good deal of nicety: first, to avoid wounding the wood of the stock in slitting the bark; and, secondly, to make the bark of the scion fit quite closely to the wood of the stock, as, if the least vacuity is left between them, the bud will wither instead of beginning to grow.

Grafting differs from budding, in the scion consisting of several buds instead of one. It is also performed at a different time of the year; as March and April are the proper seasons for grafting, whereas budding is never performed till after Midsummer. In grafting, sometimes the head of the stock is cut off, and sometimes only the branch, and the scion is selected according to the size of the part to which it is to be attached. When the scion and the stock have been both chosen, they are cut slantingly, so that one may fit into the other; and care being taken that the bark and soft wood of the two unite, at least on one side, the two pieces are bound together, and the ligature is covered with what is called grafting clay, that is, a mixture of stiff clay, with a fourth part of fresh horse-dung, and a small quantity of cut hay. Another kind of grafting clay is composed of equal parts of stiff clay and cow-dung. It is of very little consequence whether the scion and the stock are of the same diameter, provided they are so cut and fitted, as to leave no vacuity between them, in those parts where the union is to be effected; and, to keep them quite closely attached to each other, it is customary to form a tongue, or little projecting part, by making a slanting cut in the scion, and to make a corresponding slit in the stock to receive it. There are several kinds of grafting; but that which I have described, and which is called whip or tongue grafting, is the most common, and it is always performed with the firm or ripened wood. There is, however, another kind of grafting, now becoming common in the nurseries, which is performed with the young, or unripened wood, and this is called *herbaceous grafting*, because the parts of the stem with which it is performed are as succulent as the stems of herbaceous plants. In this kind of grafting, the shoot of the stock is broken off about two inches below the point,

and all the leaves are taken off except two, one on each side, which are left to draw up the sap. The stock is then split with a very sharp knife between the leaves left on it; and, the base of the scion having been cut into a wedge-shape, it is fixed into the cleft made in the stock, which is bound tightly up with strips of cerecloth, or coarse cotton cloth covered with grafting wax, made of equal parts of turpentine, bees' wax and rosin, with a little tallow, melted together. Sometimes plants, especially camellias in pots, are grafted in this manner, and placed in a hothouse under hand-glasses, and the pot surrounded with moss, to keep the cutting as close as possible. This mode of grafting is of French origin, and it is called *la greffe etouffée*.

Inarching bears considerable resemblance to layering, as it is performed without separating the part which is to form the new plant. A branch is bent from a living plant, and partly cut through, and, the tongue thus formed being introduced into a slit made in another plant, the two are bound closely together. It is obvious that this mode of grafting, which is called inarching, can only be practised with plants in pots, as it requires the two plants that are to be united to be brought close together, and to remain so till the graft has taken effect.

You must observe that, in all kinds of grafting and budding, there must be a considerable degree of resemblance between the scion and the stock, for the graft to take effect. Thus, though one stoned fruit may be grafted on another, such as the almond or peach on the plum, a stoned fruit cannot be grafted on a kerneled fruit, such as a plum on an apple or a pear. In the like manner, an apple cannot be grafted on an orange, which was formerly supposed to be done, to produce a pomegranate; nor a rose on a black currant, which it was formerly believed would produce a black rose. It is true that plants are sometimes sold in Italy which appear to have been unnaturally grafted, such as a rose upon an orange; but it will be found, when closely examined, that the pith of the orange has been artfully scooped out, and the stem of the rose tree introduced into the hollow space thus formed, through a hole made in the stem close to the root. In this way the two plants may appear to be one for some time; as the stem of the orange tree will live and

produce leaves two or three years after the pith is removed, provided the operation has been performed carefully.

The other operations of gardening are *pruning* and *training*, and, as I have already spoken of these when treating of the different trees, I have only to add here that the great art in pruning is to give a clean sloping cut without bruising the bark, as nature will make an effort to cover the wound if the edges of the bark are left in a healthy state. The use of a sloping cut is, to prevent the water from lodging on a wounded part. Trees should never be cut in a hard frost; and as little as possible in summer, as every branch taken off while the plant is in a growing state excites it to make fresh efforts to throw out new shoots. Many persons look over their trees in summer, and rub off all the buds which they think likely to produce useless shoots; and this practice, which is called disbudding, is a very good one, as it prevents the tree from wasting its strength unnecessarily. The principal object to be attained in training a fruit tree is, to make the plant produce as much fruit as possible; and for this purpose the branches are bent backwards and forwards to cause obstructions in the sap, as it is only from places where there is an accumulation of sap that flowers and fruit are produced. Another object in training standard trees is to let the air into the centre of the tree, so that it may ripen the wood; and a secondary object in training trees against a wall is, that every part of the wall may be covered.

I cannot quit the subject of gardening without saying a few words on *manures*. The object of manuring ground is, to supply the soil with certain properties which are necessary for the nutrition of the plants, and this is done partly by mixing with it some kind of animal or of vegetable manure, and partly by adding some earth, in which the soil of the garden may be deficient. The new manures which have lately been so fashionable are of both kinds: guano is the dung of sea birds, which has been accumulating for ages on islands off the western coasts of Africa and South America; and nitrate of soda and Humphrey's compound are mineral substances which are very efficacious in promoting vegetation. The best vegetable manure is formed from decayed leaves, and this is a manure which may always be used with perfect safety;

whereas the others are very injurious if used in too huge a quantity.

No kind of animal manure should be used in a garden (except for making hotbeds) till it is thoroughly decayed and all fermentation is gone off; as while it is in process of decay the gases it evolves are decidedly hurtful to plants. Those manures which abound in nitrogen, such as stable manure and the dung of birds, are the strongest and most dangerous; as if used incautiously they will blacken and shrivel up the leaves of the plants to which they are applied. Guano and pigeon's dung are very much alike in their properties, and both are of an extremely caustic nature; so that they should only be used in very small quantities, or be very much diluted. One ounce of guano to a gallon of water is a common proportion; or the guano may be mixed with six or seven times its own bulk of loam, peat, or charcoal, and dug into the ground before the crops are sown: if applied afterwards as a top dressing, it should be either in wet weather, or the soil should be well watered. Charcoal is very efficacious in some cases, but it appears variable in its action; as sometimes it produces scarcely any effect. Nitrate of soda and saltpetre act principally by supplying a particular kind of earth to plants that are in want of it, and of course will not suit all plants; but they are also of service in keeping the earth moist, and this, when not carried to an excess, is always useful.

When it is wished to keep plants constantly in a growing state, the soil should be rendered rich, and the plants should also be watered frequently, so as never to suffer the soil to become quite dry; equal care being taken to keep it free from stagnant water, which would rot the roots. When, however, the plant is to be hardened, to stay out the winter, it should be kept as dry as possible, and no manure should be applied for some time previously to the cold weather setting in. Nothing is less generally understood than the use of manures. They are in fact food; and should not be given to plants in excess, any more than children should be crammed with food. Starving and repletion should both be carefully avoided; and the great art of the cultivator is shown in supplying plants with food only when they need it. Too much water will sometimes produce

leaves and stems instead of fruit and flowers; and shoots of great luxuriance very frequently do not ripen, and are killed by the first frost.

After telling you how to grow fruit, I must next tell you how to keep it. A proper *fruit-room* should be fitted up with broad shelves, or wooden trays with rims in front to prevent the fruit from falling off, and divided into compartments for the different kinds. There is generally a large table in the centre for sorting the fruits, and a thermometer should be hung on one side to regulate the temperature. According to Dr. Lindley, the essential points for a fruit-room are, "a low and steady temperature; dryness to a certain point, for apples are found to keep best in a rather damp atmosphere; and exclusion of the external air:" to this he adds, that it is necessary to keep the fruit in comparative darkness, to prevent it from becoming shriveled and ripe prematurely; that the temperature of the room should not be much above 40°; and that the shelves should be of white deal, as that wood does not give an unpleasant taste to the fruit.

Fruits keep best when laid separately, so as not to touch each other; and sometimes pears may be kept by packing them in fern, and grapes by packing them in jars in sawdust. Walnuts and chestnuts should be kept in rather a moist place, and covered with fern to exclude the air as much as possible, as they are much injured if they are kept too dry.

I may here mention that when sweet chestnuts are sent to the table, they ought always to be boiled first, and roasted afterwards; as, if roasted without previously boiling, it is scarcely possible to cook them sufficiently to make them wholesome, without burning them. After they have been boiled, before they are put down to roast, care must be taken to prick the skins; as, if this is neglected, the chestnuts will fly about in all directions as soon as the outer skin becomes parched.

BOOK III. DOMESTIC ANIMALS.

LETTER XIII.

QUADRUPEDS KEPT FOR AMUSEMENT.—HORSES FOR RIDING AND DRIVING IN PONY CARRIAGES.—MULES, ZEBRAS, QUAGGAS, AND DONKEYS.—DOGS AND CATS.

I am delighted, my dear Annie, to find that you are fond of riding. There is something noble and invigorating in the exercise. If your horse is tractable and docile, you will soon begin to consider him as your friend; and if he is refractory, you will feel a pride in being able, by skill, to conquer a powerful being possessing strength so superior to your own. I like to see a lady ride well and fearlessly; and, in short, the only drawback I can find to the pleasure your letter gave me is, the somewhat mysterious malady of your horse, on which you consult me. You say that, though a fine spirited creature when you are on its back, it appears dull and stupid when first brought out, and that it shuffles against things as if it were half-blind. You say you have consulted a veterinary surgeon, who says that there is no disease in the eyes, so that I suspect the evil lies where you have probably never thought of looking for it, viz. in the stable. If your stable is dark, the mystery is explained at once; and I think it is very probable that this may be the case, as you tell me that your horse is kept in a stable apart from the rest, that it may be taken more care of.

I believe, indeed, that more of the diseases of horses depend on the *stable* than is generally imagined. If the stable be dark the eyes are affected; and if it be damp the horse is liable to catch cold; and coughs, inflammation of the lungs, and finally broken wind, are the results. Another evil in many cases arises from the stable that you would not readily think of, and that is, if the doorway is too small and the posts on each side of it sharp-edged, the hair of the horses is frequently injured in going in and out. Horses are, in fact, much more delicate than is generally imagined, and many of the diseases with which they are afflicted arise from a want of proper attention to their comforts. On this account, the first thing in the management of a horse is, to see that its stable is spacious, light, well aired, and dry. In attending to the latter point, however, care should be taken that it is kept dry by a drain in the centre and at the

back of the stall, and that the paving is as nearly level as possible. It has for some years past been the fashion to make the pavement of stables slope so considerably towards the door that the horse's fore-feet stand much higher than his hind feet; and this is not only a most uncomfortable position for a tired horse, but it is very apt to bring on diseases in the fore-feet and legs. It is also of great importance that the stalls should be large enough to allow each horse room to turn himself, and to lie down comfortably in any position he may fancy. We all know what a comfort it is when we are tired, to stretch ourselves out how we like; and a hunter turned into a loose box, after a hard day's work, will often be found lying with his legs stretched out like a dog, instead of having them doubled under him as horses are obliged to sleep when confined in narrow stalls.

It is a great advantage when there is a wide space between the stalls and the door, as it prevents the wind from blowing directly upon the horses every time the door is opened. It is also best not to have the stable in an exposed situation, but to have it so placed that it may be sheltered by some other building from the north and east winds. The loftiness of the stable is another very important point. It is the custom in many places to have the hay-loft over it; but this is bad in every point of view, as it not only makes the ceiling of the stable low, and by confining the air renders the horses liable to take cold every time the door is opened, but the dust and seeds from the hay are apt to fall from the loft whenever the horse is supplied with hay, and to injure him by getting into his eyes. I am fully aware when I am saying this, that you can neither alter the position of your stables nor make them larger, without more expense being incurred than your husband would perhaps approve of. I do not, however, think that he would object to having an additional window made, or to adding to the height of the stable by removing the floor of the loft, particularly if there be any small room adjoining the stable in which the hay can conveniently be kept.

A great deal, also, may be done by cleanliness. Whenever the horse is out, the stable should be thoroughly cleaned and the windows opened, and whenever there is an opportunity the

rack and manger should be well cleaned and scoured with a brush. It is, however, important that the stable should be dry when the horse returns to it. In some places stables are warmed by flues or hot-water pipes, or by a fire being kept in the harness-room adjoining; and, when there are no means of this kind, the stable may be kept dry by having a lamp constantly burning in a lantern suspended from the roof. It is, indeed, said that any stable, however damp, may be dried with this expedient in twenty-four hours; and that a similar lamp hung in the harness-room will be sufficient, without fires, to keep the harness uninjured for years. A great deal of the comfort and health of your horses must, however, depend on the care and attention of your grooms. Nothing is more injurious to a horse than to be kept standing on his litter all day. To use the words of an exceedingly clever writer on the subject (Sir George Stephens), "it makes the hoof brittle; dries up the sole, and destroys its elasticity; cankers the frog, and is a common cause of grease and swelled legs. If, on the other hand, the dung is regularly removed, and the dry and clean straw carefully separated every morning, and placed under the manger till wanted, the stable is free from unpleasant smells, and about half the quantity of clean straw will be consumed."

Horses should always be *cleaned* in the open air, if the weather will permit; as they frequently hurt themselves against their stalls when cleaned in the stable, and sometimes acquire a habit of crib-biting. Many horses have skins so fine as to be unable to bear the use of the common curry-comb, and these horses should be cleaned with brushes the bristles of which are of uneven length. Good cleaning is a most essential point in the management of a horse; and the horse ought to be so clean as not to soil your hand, or your pocket-handkerchief, if drawn over his back. Another point to be attended to, after a horse has had unusual work, is, to let the groom rub his legs down well, particularly his back sinews: each leg should be rubbed for at least ten minutes. When horses come in warm, with their legs very dirty, they should not be washed immediately, but they should be rubbed dry with straw, and only some of the dirt taken off with a dry brush. The feet should, however, be examined, and any stones that may be in should be picked out,

and the soles of the feet washed. A horse, when very hot, should also not be covered with a cloth, till he has been rubbed dry with straw. Washing the legs of a horse with cold water, when the horse comes in hot and dirty, is sure to give a sudden chill; and putting on a cloth, while the hair of a horse is wet from the effects of violent exercise, sends the perspiration in, and is sure to lay the foundation for disease. When a horse is very hot, he should be rubbed for half an hour before any cloth is put on at all; and then, if the heat of the horse break out into moisture again, the horse should have a second rubbing, after which he should be covered with another quite dry cloth. The coat of a horse generally becomes thick and shaggy in winter, and when it does so the horse may with perfect safety be clipped, and indeed it will be an advantage, as the hair, if short, is much easier dried when wet, and can be more thoroughly cleaned. Great care, however, must be taken to protect a horse when newly clipped from cold; and, should the weather be severe, the horse not only ought to have an additional cloth on in the stable, but his legs may be bandaged with flannel rollers. The feet of a horse should be stopped every other night with a mixture of clay and cow-dung, and this, and anointing the hoof with tar in hot weather, will keep the horny part of the foot moist and elastic. A great improvement has taken place in shoeing horses within the last few years, by interposing a thick piece of leather, and, in some cases, of India rubber, between the iron shoe and the hoof of the horse.

Horses should always be fed and exercised regularly. If the hay be cut, less will be wasted; and if the oats be bruised and mixed with cut straw, three feeds a day will generally be sufficient instead of four. If the servants complain of the additional labour of bruising the oats, a mill may be procured for that purpose, which will cost a mere trifle, and the turning of which will afford employment for the poor. It is seldom advisable to give a horse that is only moderately worked beans, but it should never be stinted in its water, except when going out. If horses are kept short of water, they will drink too much when they have an opportunity; and thus often injure their wind. When a horse is over-tired, and refuses his corn, he

will frequently take a mash of oatmeal and water, particularly if slightly warm, and nothing can be better for him.

When a horse is slightly indisposed, I would not advise you to put him immediately into the hands of a farrier. Most country farriers are ignorant people, who have a certain set of recipes which have been handed down from father to son, and who are as far behind the present age as Culpeper, when he recommends ointments of certain herbs gathered under Mercury to be kept in every house, as a sovereign remedy for all complaints, even broken bones. It is said that horses thrive most if they have always a lump of salt and another of chalk in the manger. Many persons turn a horse out to grass to cure a cough, but this generally only makes matters worse, if the horse has been previously kept in the stable. When a horse has taken cold, he may frequently be cured by stopping his corn and giving him mashes of thin gruel and bran for a few days. Slight feverish symptoms, which often attend a cold, and are known by the nose feeling hot, the eyes looking dull, and the coat rough, with loss of appetite, may generally be cured by similar means, with a dose of two drachms of aloes for a horse, and somewhat less for a pony. If these means are not sufficient, the horse may be bled; but, if it still continues ill, a veterinary surgeon must be sent for. For a bruised leg or a light strain a common bread poultice may be applied; a large coarse stocking being drawn over the leg first, and then the poultice put into it so as to lie on the diseased part. Should a horse break his knees, the part ought to be washed with warm water and a sponge, to remove any dirt or gravel; and then a little unsalted lard or butter should be applied, with a little powdered alum in it if the wound be large; and, taking care to make the hair lie as smooth as possible, a bit of linen should be laid on the place, and kept on with a knee-cap, not tied too tight. If the knee be bruised as well as cut, a poultice should be applied, and changed two or three times a day; but on no account use gunpowder, which is a favourite remedy for broken knees with ignorant people, as it only irritates the wound.

On no account keep a vicious horse. Do not believe what horse-jockeys or grooms may tell you of it being only play, or

being easily cured. It is true that horses often become vicious through the teasing of grooms; but vice, when once shown, is never thoroughly eradicated. Sir George Stephens has some excellent observations on this subject. "A horse does not understand a jest: tickling him or pinching him; worrying him in the stall; sometimes coaxing and then scolding him; dressing him when feeding; pushing him with the fork; all play of this sort leads to retort, which, when it becomes habitual, is incurable vice." Other faults in horses arise from the follies of riders. "A horse should be mounted steadily, but promptly; and when mounted, should be allowed to walk away quietly for the first hundred yards: instead of this, nothing is more common than to see a man, as soon as his foot is in the stirrup, apply the spur and check the curb, to show off his horse's spirit. Thus he becomes irritable and impatient the instant he is led out of the stable, and sometimes acquires a habit of rearing and plunging before the rider is well settled in his seat. Some thoughtless blockheads can never pass a carriage (particularly if there are ladies in it) without the same ambition of display; and hence the animal views the approaching carriage as a forerunner of punishment, and resists every attempt to pass it." In harness horses frequently acquire a habit of gibbing or swerving to one ride from inattention to the collar; as if it galls the shoulder, or presses on the windpipe, which it often does when not made expressly for the horse that wears it, "he resists the draught; and, when punished for resistance, he rears or kicks; and, if he thus vanquishes a timid driver, he will repeat the trick till it becomes habitual." Many young men take pride in urging a horse forward, and applying the curb at the same time to make the horse collect himself, and *pioff* or make the *coubrette*; or, in other words, prance and rear. If, when the horse is in this state, the right rein be pressed, the horse will *passage*, that is, cross his legs, and go sideways to the right, with his head bending towards the right; but if the left rein be pressed also, though not quite so strongly as the right, the horse will perform the manœuvre called the *épaule en dedans*, and will go sideways to the left, bending and looking towards the right. But without going through all the terms of the *manège*, I may observe that most riding-masters advise their pupils to make the horse feel the rein; and this, which is called the bearing or

appui, is of the utmost consequence in good horsemanship. There should indeed be a proper understanding, if I may use the term, between the horse's mouth and the rider's hand, so as to make the horse obey the slightest indication from the rein. All the movements of guidance in a good rider should indeed be so slight and gentle as to be almost imperceptible, there should be nothing approaching to jerking or pulling; but the horse should seem instinctively to obey the rider's will. It is a very good plan to accustom your horse to your voice, and to pat or caress him and give him occasionally an apple, a piece of bread or a carrot, speaking kindly to him at the same time. Horses may indeed be taught as many tricks as dogs, and sometimes more. I have known several instances of shooting ponies learning to open gates; and I have heard of others who have been taught to pick up a handkerchief, a glove, or even a whip, in their mouths, and to turn their heads round with it, so as to give it to their rider.

Whenever you ride out, take care that your hair is combed smoothly off your face, and firmly twisted up behind; your hat should also fit properly, and be tied firmly under your chin, not merely for the comfort it will give you, but because, if either your hair or your hat should feel loose, and you should put up your hand to arrange them, you might touch the horse with your whip, or slacken your hold of the reins in such a manner as to expose yourself to the greatest danger.

It is hardly possible to give directions for holding the reins properly by words; as you would learn better in five minutes by being shown, than from a volume of descriptions. I may, however, advise you to take care to sit in the centre of your saddle, and not to hang by the left crutel of your pommel. You should also take care to keep your body erect, or slightly leaning backwards; as, if you allow yourself to lean forwards, you will not only have an awkward air, but be in danger of making your horse stumble, by your weight being thrown too much upon its shoulders. The reins look best when held only in the left hand, while the whip is held in the right, care being taken to carry it in such a manner as not to irritate the flank of the horse.

In modern side-saddles, the right-hand crutel of the pommel is made very small; but there is a third crutel added behind, nominally for assistance in leaping, but which is very useful in enabling a lady to keep her proper position in the saddle. The stirrup is now considered of little use, except to support the left foot, and many of the best riding-masters make their pupils ride without one, and to put their arms behind them, while the master holds the longe and urges the horse to his speed. When a lady can do this she has learned the art of riding, and will be able to rise and fall with her horse without any apparent exertion, and as if the fable of the Centaur were realised, and the horse and his rider had become one body.

The preserving of a proper balance is the most difficult part of horsemanship, and it must be attended to in every movement that is given to the horse, in accordance with the laws of motion in mechanics. Thus, when the horse is urged forward, the body should lean forwards likewise; and when the horse is checked, the body should be bent backwards. A lady is said to have a good seat when she can see the right shoe of her horse in all his paces, by only bending slightly forwards; and when she has a good seat, particularly if she be courageous and have presence of mind, she will not easily be thrown. It is, however, proper to know what to do in cases of emergency. When a horse rears, the rider should loosen the rein, and press the weight of her body forward; and when a horse kicks, she should hold her body back and keep a tight rein. When a horse will keep turning round several times, he may generally be checked by pulling his head in the opposite direction to that in which he wants to turn; and, when a horse runs away, the best way is not to attempt to pull him in, but for the rider to direct all her energies to keeping her horse in the right course, and retaining her seat. When a horse shies it is from fear, and he should be patted and encouraged; and, when a horse stumbles, his rider should raise and support him by pulling in his head, and at the same time throwing her body back.

I do not know whether you have a *pony-carriage*; but, if you have not, I would advise you to get one, as you would find it very useful in summer to drive round your park, and to pay visits to your neighbours. In a close carriage you see very little

of the scenery, and enjoy but little benefit from the air; whereas, in an open carriage, you have more enjoyment of the beauty of the country than even in walking; and you have every advantage from the air without running so much risk of taking cold, as you would do if you were to open the windows of a close carriage. *Àpropos* to this, I have often wondered that no better means have yet been contrived of ventilating a close carriage than opening the windows, the draught from which is sure to give cold to some one. Surely a ventilator might be fixed in the roof, and a little shutter contrived to slide below it, when it was not wanted, which might be moved by a string inside the carriage. I have lately seen, in the *coupé* of a French diligence in the South of France, a little opening just above the windows, which was filled in with double *toile métallique*, or wire cloth, so very fine as to admit but little light, and no perceptible air, and which was yet sufficient to prevent the glass from becoming covered with steam when all the windows were closed; and something of the kind might, I think, be generally adopted.

But to return to your pony-carriage. If you buy one, take especial care that it "runs light;" as it is not only a relief to the feelings to know that your horses have as light a weight to draw as possible, but you will find the motion of such a carriage infinitely more agreeable than that of one which is dragged along with difficulty. Besides, a pony-carriage that is intended only to carry a light weight, and to run over smooth turf or a good road, need not be built so strongly as a travelling carriage, which is to convey luggage as well as passengers, and which will be exposed to all the rough treatment it is likely to meet with at inns, as well as the shaking it will probably undergo from the different kinds of roads to be driven over. It is curious enough, however, that a carriage is rarely so much hurt by passing over pavement, however much it appears to shake, as it is by passing over bad roads, the surface of which is uneven, and by which the springs and braces are strained unequally. The French postilions are so well aware of this, that they always prefer rattling their carriages over the *pavé*, to driving on the side roads, however smooth and inviting they may look. In ancient times we are told the ladies had rods,

called *pomelles*, fixed in the roofs of their carriages, with a knob at the end to hold by, in order to steady themselves when the carriage was jerked about by the deep ruts in the roads. This was, I believe, about the time of Chaucer; and though we retain remnants of the custom in the lace-holders of carriages in modern days, our carriages are now too well hung to render anything of the kind really necessary.

You are perhaps not aware that a carriage is hung exactly on the same principle as a hammock is suspended in a ship at sea, viz. to substitute a gentle and regular swinging motion for an irregular jerking one. The principle of suspending carriages is as old as the time of the Saxons; but it has been reserved for modern days to break the force of inevitable jolts, by such a variety of pieces of elastic steel or springs, as to render travelling in a carriage as easy as gliding in a boat down a smooth river. Carriages, such as those we have now in use, are, as no doubt you know, quite a recent invention. You remember the celebrated letter of Henry IV., in which he says, "I cannot come to you to-day, because my wife is using my coach;" and even in the time of Charles II. there were but fifty coaches in London and Westminster. Now it would be rather difficult to count them, and it would even be a more tedious task than I should like to undertake, to enumerate their kinds. I shall, therefore, content myself with mentioning the points that are of most importance in selecting a carriage.

The first thing to be examined is, whether it possesses proper elasticity; and this is generally tried by having the carriage shaken on its springs, and observing whether it appears rigid or yielding to the vibrations of the motion. All carriages ought to be built of ash, which is at once the most elastic and the toughest of our English woods; but, as it is rather expensive, cheaper woods are sometimes substituted. It is also known that the narrower the tread of a carriage is, that is, the shorter the axle-trees are, the easier will be the draught. The springs should then be examined, as the carriage runs lighter and is easier when the plates of the springs are of equal thickness, though the largest plate is frequently made much thicker than the rest. The stuffing of the carriage ought also to be examined, as, if the material with which it is stuffed be not left

sufficiently loose to be elastic, a stuffed carriage will be nearly as hard and as uncomfortable to ride in as a carriage which was formed only of bare boards; and care should be taken that the seats are made sufficiently wide and low, and far enough apart not to cramp the legs.

It is a great point, as regards the appearance of a carriage, that the horses should be suited to it. The most elegant little carriage in the world would look ridiculous if drawn by a pair of heavy cart-horses; and when a very heavy-looking carriage is drawn by ponies, or very light blood-horses, the unpleasant impression produced by the incongruity is increased by a feeling of pain at seeing such noble creatures as horses subjected to labour unsuited for them.

Some persons use *mules* for drawing carriages, and they have the advantage of being sure-footed, besides which they are, I believe, much stronger, in proportion to their size, than horses. They, however, partake largely of the bad qualities derived from their asinine parentage, and are sometimes extremely obstinate and difficult to manage.

The *quagga* and the *zebra* are other animals of the ass kind, which are sometimes kept in parks for their beauty, and occasionally driven in carriages. However, as those who know them best say that they are generally wicked, treacherous, obstinate, and fickle in their disposition, I think the less a lady has to do with them the better.

After saying so much with regard to animals used for riding and drawing, I must not omit to mention *asses*. Most persons residing in the country keep one or two of these useful animals, in order that they may be ready to do any kind of work that their proud rival, the horse, is unfit for. It is scarcely possible to imagine two animals bearing considerable resemblance to each other in form, more unlike in character and constitution. The horse, as an able writer on the subject says, "is proud, fiery, and impetuous; nice in his taste; and delicate in his constitution. The ass, on the contrary, is humble, patient, and contented with scanty and coarse food, which other cattle reject. He bears, with patience and fortitude, the most cruel treatment: yet he is more susceptible of strong

attachment than the horse; has, apparently, more prudence and reflection; and is capable of a degree of education which would not be anticipated from the forlorn and dejected appearance which coarse food and harsh treatment have rendered habitual to him."

I think you told me in your first letter that you were very much struck with the kindness of your husband, who, having recollected that you had been accustomed to take asses' milk, had provided a she-ass for you. Now, if that she-ass has a foal, let me recommend you to try what can be done to improve it by good food and kind treatment. I do not mean that it should have three or four regular feeds of corn every day, like a horse; but if it is fed twice or thrice a day on cut hay and straw, mixed with a very few bruised oats, it will soon grow large and strong, and will display a degree of liveliness and spirit that those who only know asses in their degraded state would scarcely believe possible.

Though asses are proverbially hardy, warmth seems congenial to them, and it is a well-known fact, that in Persia and Arabia asses are noble and high-spirited creatures, fetching a higher price than horses, and generally preferred to them for the saddle. Even in Spain, they are frequently fifteen hands high, that is, as large as a good-sized horse; while in the north they are small, and by no means common. Till lately they were very seldom seen in either Scotland or Sweden, and they are unknown in Norway.

If you bring up your little donkey as I have advised, I think you will find it advantageous to have it regularly cleaned like a horse, and you need not be afraid of your groom hurting it with the curry-comb, as the skin of the ass is remarkably thick. It must, however, be broken in and regularly trained before you venture to ride it, as you will find it full of spirit. The usual age for breaking donkeys in is about three years, but, as yours will be rather precocious, I think you may begin when it is about two years old. Asses and mules are admirably adapted for mountainous countries, as their hoofs are long, and furnished with very sharp rims, leaving a hollow in the centre like the ring of a patten. The hoof of the horse, on the contrary, is round and nearly flat underneath.

It is the peculiar formation of the foot that renders mules so valuable in Spain, where there are so many mountain ridges to be climbed over; and I have been told that in Spain sixty guineas English is by no means an uncommon price to be given for a good mule. You must not form any idea of what your donkey will be from the specimens you have seen at watering places; for no doubt you remember what the Irishman said of a Ramsgate donkey—"that it was the hardest-worked creature in the universe; for it was carrying angels all the day, and spirits all the night." Your donkey, on the contrary, will spurn the ground beneath him; and I expect, when I come to see you, to find you cantering over the downs upon it with your little dog Fair Star running by your side.

Haying mentioned your pretty little spaniel reminds me that I promised to give you some hints on *dog management*, and I think I cannot make a more useful conclusion to my letter.

In the first place, it is generally allowed by the learned in such matters, that whenever a dog becomes very fat, which lap-dogs are very apt to do, it is sure to have that distressing disease called the *canine asthma*. How many poor dogs have I heard wheezing and panting with this complaint, and how earnestly have I longed to become their doctor! When the disease is of moderate standing, very frequently a little abstinence, and feeding regularly, but only at stated times, will give relief; but, if this is not enough, one grain of tartar emetic with two, three, or four grains of calomel, according to the size of the dog, will effect a cure.

Sore eyes are for the most part produced by some derangement of the stomach; and, for their cure, putting a stick of sulphur in some water within reach of the dog will generally be sufficient. The water should be changed every day, but the same piece of sulphur will do for months.

Almost all young dogs are liable to the *distemper*, and it kills many. When seized with it before they are eighteen months old they generally die, but after that age it is much less likely to prove fatal. Most dog-doctors give a dose of tartar emetic and calomel, like that I have mentioned above, if they are called in while the disease is in its first stage; but, when it is attended

with a kind of dysentery, they give balls made of prepared chalk, gum arabic, and conserve of roses, and the dog is fed on rice-milk. The best cure however is, I believe, a powder sold in the chemists' shops compounded especially for this disease; and you must observe, whatever means of cure may be adopted, it is essential during the whole progress of the complaint that the dog should be kept warm and well fed.

When dogs have *fits* they may generally be cured by throwing cold water over them, and *inflammation of the lungs* requires bleeding.

Inflammation of the bowels is generally incurable, as is likewise *canine madness*; and in the latter case, of course, the dog should be killed as soon as possible. Should, however, any human being or any animal be bitten, the following remedy has been recommended to me by a highly valued friend, who had it from an eminent French surgeon. It is simply to mix two table-spoonfuls of fresh chloride of lime, in powder, with half a pint of water, and with this keep continually washing the wound. The chlorine evolved by this process is said to possess the power of decomposing the virus; but I hope and trust you may never have occasion to try its efficacy. Chloride of lime is, you know, wonderfully efficacious in preventing infection, and in dispelling noxious gases.

As I am partial to *cats*, I cannot resist saying a few words respecting them. Though originally the natives of warm climates, they are generally much more hardy than dogs. They like warmth, however, and are very powerfully affected by changes in the weather. You are, perhaps, not aware that there are four distinct races of cats; viz., the tabby, which includes the black cats, and which is nearest allied to the wild kinds; the tortoise-shell cat, which came originally from Spain, and the males of which are buff, with stripes of a darker hue; the white and light-coloured cats, which have reddish eyes and a greyish tint in their fur, and are descended from the Chartreuse breed; and the Angora cats, which are quite distinct from all the others, and are known by their long fur. The tailless cats of Cornwall and the Isle of Man belong to the Chartreuse breed, and they are the ugliest of their kind, as the Angora cats are the handsomest. Cats are seldom ill, except from cold, which

generally gets well without any particular care being taken of it; but when they have any serious disease it generally proves fatal.

LETTER XIV.

QUADRUPEDS KEPT FOR SUPPLYING FOOD.—COWS, CALVES, GOATS, PIGS, RABBITS, AND DEER.

I am very glad, my dear Annie, to hear such favourable accounts of your garden, and to find, by the inquiries you are beginning to make, that you really are taking a lively interest in country affairs. You say you are getting quite fond of your dairy; but that you cannot understand how it is that your cows produce so much less milk in the morning than they do at night, when there are exactly twelve hours between the milkings in both cases; as they are milked first at five in the morning, and again at five in the afternoon. I have no doubt from what you say, that your cows are kept in the cow-house during the night, and only turned out during the day, as this would account for the difference in the quantity of milk. But such a mode of management, though it saves trouble to the dairy-maid, who finds it much easier to milk the cows in the cow-house than in the open field, is bad for both the cows and the dairy; as the cows, after feeding on grass all day, cannot of course relish dry food at night, and whenever they fast unnaturally very little milk is secreted.

Your dairy-maid will probably tell you that cows are very delicate, and that they will catch cold if they sleep in the open air; but from May till September, unless the weather be particularly cold and rainy, they are less liable to take cold if they sleep in the open air than if they are kept in a warm cow-house all night, and turned out about sunrise. Cows are peculiarly sensible of all sudden changes of temperature, especially from heat to cold; and, after they have been kept in a cow-house all the winter, great care should be taken to accustom them gradually to the change when they are first

turned out to grass, by letting them out only for a few hours in the middle of the day; but when they are become accustomed to the open air, and the nights are warm, they are much better kept in the open air altogether, especially if there is a shed in the field, under which they can find a dry place to lie upon if it should rain.

The following observations on this subject are from an excellent work, entitled *The Book of the Farm*, published in 1844:—"This mode of allowing them to lie out always in a sheltered field, no doubt, imposes a good deal of labour on the dairy-maid and her assistant, in carrying the milk to the dairy after the calves have been weaned, but I am persuaded it is an excellent system for the health of the cows. Under it, cows rise from their lair at daybreak, and feed while the dew is on the grass; and by the time when the hour of milking arrives, say six o'clock, they are already partially filled with food, and stand contented, chewing the cud, while the milking proceeds. They then rove about, and fill themselves, and by nine o'clock they lie down in a shady part of the field, and chew their cud until milking-time arrives at mid-day; after which they again roam about for food, and, when the afternoon is hot, will stand in the coolest part of the field, whisking away the flies with their tails and ears. The evening milking takes place about seven, after which they feed industriously, and take up their lair about sunset, from which they rouse themselves in the morning before being milked. Some people are apprehensive that cows must injure themselves by eating grass which is wet with dew in the morning; but it is a fact, which I believe is not so sufficiently known as it should be, that bedewed grass before sunrise, and grass after it is dried by the sun, are alike wholesome for animals; and it is only when the dew is in the act of being evaporated, immediately after sunrise, that grass proves injurious to them. Why it should be injurious at that particular state I do not precisely know, but I imagine it to be so, because the grass then becomes suddenly cold by the evaporation of the dew. When cows lie out, they have nearly filled themselves by the time the dew is evaporated, and therefore feel less inclined to eat the grass while in the dangerous state; whereas cows that are housed all night are

usually milked about sunrise, and put out to grass just at the very time the dew on it is being evaporated, and is, of course, in the most dangerous state, just when the cows feel the greatest hunger, and eat most grass."

When cows eat a quantity of grass in this state, they very often have the disease which is called *hoven* or *blown*. To make you understand this fearful complaint, I must remind you that cows, in common with all ruminating animals, have four stomachs; and that, when a cow is turned into a field, she twists her tongue round mouthful after mouthful of the long grass, and after biting each off, conveys it without chewing to her first stomach or paunch, till this is about half full, when the animal seems stimulated by nature to seek rest and quiet, for she leaves off eating, and either stands perfectly still in some shady place, or lies down. The paunch now begins to exert its extraordinary power of separating a small portion of the food it contains, and returning it to the mouth, when the animal begins slowly to masticate it, moistening it as she does so with small quantities of water which she draws up from time to time from her second stomach, or honeycomb, in which water is retained for that purpose; and this operation is called chewing the cud. The food, when thoroughly masticated, is conveyed by another channel to the third stomach or many-plies, where it is subjected to muscular action; and, finally, it is conveyed into the fourth stomach, or red bag, which contains the gastric juice, and which in calves is the part used for rennet; and here the process of digestion is completed. Sheep, goats, deer, and camels are all ruminating animals, and are, of course, all furnished with the same apparatus for digestion; but in sheep the paunch is smaller, as they bite close to the ground, and take smaller mouthfuls than cattle; and in camels the second stomach, or receptacle for water, is much larger.

Whenever ruminating animals are particularly hungry, or are excited by any other cause to eat too much food, they fill the paunch so full that it is unable to exert its power of separating the food it contains into small portions for mastication, and, the whole mass beginning to ferment in the paunch, gases are generated, which distend the paunch till it bursts, and the unfortunate animal is suffocated, unless it is relieved by

puncturing the paunch through the hide, or by forcing an instrument called a probang down the throat into the paunch, and thus opening a passage for the gases to escape. A probang is a piece of whalebone with a bit of sponge firmly fixed to one end; but, if one is not at hand, a cane with a knot at the end, or even a riding-whip, with a thick end, would probably suffice. The best instrument is a kind of stomach pump; but that, of course, can only be had from a cattle doctor. When the paunch is to be punctured, the animal must be stabbed with a knife (a penknife will do) midway between the haunch-bone and the last rib of the left side; and the opening should be prevented from closing, by the introduction of a tin tube or something of that kind, till the gases are dispelled. In the South of France a proper instrument is kept for this purpose, made something like an oyster-knife, with a guard to prevent it from going too deeply into the animal. As soon as the animal is relieved a strong stimulant should be administered, such as half a pint of gin, or an ounce of hartshorn in a pint of ale; but the animal for some days should be fed sparingly, and a tonic composed of gentian, aloes, ginger, and blue vitriol, in powder, each one drachm, and oak bark in powder six drachms, made into a ball with honey, may be given every morning.

As I have begun to speak of the diseases of cows, I may add that in cases of *cold* and slight feverish symptoms, they are generally relieved by giving them half an ounce of nitre in a mash every night. Where there are any symptoms of inflammation, as, for example, if the nose is very red and hot and dry, and the cow appears very thirsty, and has her body so hard that she seems to suffer pain when it is touched, she may be bled, and a saline draught, composed of eight ounces of Epsom salts and four ounces of castor oil may be administered; or, if a stronger dose seems requisite, to these may be added half an ounce of powdered aloes, beaten up with the yolk of an egg, and mixed gradually with eight ounces of water.

In *diarrhœa*, or *dysentery*, give four ounces of suet boiled in eight ounces of skim-milk, with six ounces of starch dissolved in boiling water, and one drachm of powdered alum; and keep the animal in a warm dry place, giving it mashes of barley

meal or buck-wheat, but not of malt, and only a little water, which should be warm.

If the cow be affected with the *yellows*, which is known by the nostrils and eyelids looking yellow, ten grains of calomel should be given every other night, and a saline dose once a week, the animal being kept warm, and only turned out in the middle of the day, in a fresh pasture, if practicable.

Loss of appetite may be relieved by tonics.

All other diseases of cattle (and they are numerous) are too serious to be tampered with, and should be referred to a good cattle doctor at once.

Many persons say a great deal of the *kinds* of cows that are to be preferred; but this I think of very little consequence, as there are good and bad milkers of every breed. Generally speakings small, neat, compact-looking cows, are best suited for a gentleman's demesne, as they look better in the landscape, and do not tread up the ground so much as large heavy cattle. Alderney cows are much admired for the elegance of their forms and the richness of their milk; but they are delicate, and are subject to colds and loss of appetite. The Ayrshire cows are quite as handsome, and both better milkers and much hardier; but they are not often to be met with in England.

Whatever kind you select, a great deal depends upon their management. They are delicate in their appetites, and do not like grass that they have trodden down and breathed upon for many days; and they require rather long grass, because they always wrap the grass round with the tongue before they bite it, instead of nibbling the grass with their lips, and biting close to the ground, as is done by sheep and horses. For these reasons cows require to have their pasture changed every fortnight if practicable; and, when they are removed from a field, a man should be employed to toss their manure about so as to prevent it from lying in patches, as, unless this is done, coarse strong grass, which no cow will eat, will spring up from every place where a patch of cow-dung has lain. If, however, the field be properly treated, the cow may be brought back to it in about a fortnight, or at most in three or four weeks.

Cows are very particular in having clean water, though they do not drink often, as the second stomach serves as a reservoir; and where there is a pond they generally go into it till they come to deep water before they drink; and this habit is good for their feet. There should also be either an open shed, or at least one large tree, in the field, to afford shade for the cows while they are chewing the cud; and they should never be changed suddenly from a very poor pasture to a very rich one, or the reverse.

When cows are first taken up from grass in autumn, they should be fed on cut grass, mixed occasionally with a few carrots; and they should be turned out in the daytime, but not till after nine or ten o'clock in the morning, and taken up before the dew falls at night. By degrees hay should be mingled with their food, and the quantity of this should be gradually increased while that of the grass is diminished; some carrots cut in tolerably thick slices and a few grains being given occasionally, till the cows have become accustomed to their dry food. There are few points in the management of cows of greater difficulty than that of enabling them to bear the transition from grass to dry food without losing their flesh, or the quantity of their milk being diminished. The one is, indeed, generally dependent on the other, as no cow will yield a proper quantity of milk unless she is in good condition; and many cows refuse their food altogether when they are first taken up for the winter, as they none of them like dry food so well as grass. It is on this account that many farmers give their cows turnips when they are first taken up from grass; but all succulent roots and vegetables, except carrots and boiled potatoes, give an unpleasant flavour to the milk; so that they ought never to be used in private families, where, of course, it is of more importance to have the butter good than to have a large quantity of it.

Many persons milk their cows in summer three times a day, and I believe this to be a very good plan, where it is an object to get as much milk as possible, as there is no doubt that frequent milking increases the quantity of milk secreted by the animal. As, however, I have frequently heard that the milk is poorer under this management, in most cases I should think it

hardly worth the trouble. It is, however, a very good plan to make the dairy-maid take a little can of warm water with her when she goes to the field, and to make her wash the udders and teats of the cows well with a sponge before she begins to milk. This is not only a cleanly practice, but it is agreeable to the cow, and makes her part with her milk more readily. After the dairy-maid has milked all the cows, she should begin with the first, and milk them all over again, as the milk produced by this second milking, which is called the drippings, is always richer than the rest; and besides, if it is left in the udder, the cow will gradually become dry.

There are many opinions about the length of time that a cow should be suffered to be dry before calving; some farmers advising the cows to be let dry two months, and others milking them till within a fortnight of the time of calving. As far as my own experience goes, the latter plan is the best, as I have observed that, when cows have been dry a long time, they are very subject to inflammation in the udder when they are again milked, instead of the contrary being the case, as is commonly supposed. When a cow is to be let dry, a little milk is left in the udder every time of milking, and in about a week or ten days the secretion of milk will cease.

The first milk after calving is called biestings, and is so very different in quality from the other milk, that it should not be mixed with it. It is of a yellow colour and a glutinous nature, and, though it is used in some places for making puddings and custards without eggs, it ought always to be reserved for the calf, to whose use nature has especially assigned it. When calves are allowed to suck their mothers' milk for the first four or five days after they are calved, they have seldom any thing the matter with them; but, when they are fed with the milk of other cows, they generally require castor oil and other medicines.

Calves, when they are to be reared, are generally fed principally on milk for the first thirteen weeks, after which they are fed partly with hay tea, which the dairy-maids make them suck through their fingers, till they are old enough to eat grass; but the rearing of calves is rather too difficult a task for you to undertake from any directions that I could give you;

and, as for the management of those poor calves which are to be fattened and then sold to the butcher, I am sure you would not wish to know any thing about it.

Some people are very partial to goat's milk, as it is remarkably rich and sweet; but *goats* are rather troublesome creatures. In the first place, the female goats are very capricious, and will not only seldom permit a stranger to milk them, but will often refuse to give down their milk even to those to whom they are accustomed. They are also very troublesome from their being much more partial to branches of trees than grass; and if they can ever contrive to get into a shrubbery, which they will do if possible, they will destroy nearly all the shrubs in an incredibly short space of time. Besides this, some goats are very fond of butting at children or any persons who may appear weak and delicate; and, even though they may not be able to do any serious mischief, they may cause considerable alarm. Many persons are very fond of the flesh of kids, but it is more eaten abroad than in England. When goats are kept, they do best in flocks, and they should have access to shelter, both in winter and summer, extremes of heat and cold being alike prejudicial to them; and the house in which they are kept should have a paved floor, and no litter.

Wherever there are cows and a garden, *pigs* should be kept; as skim-milk and buttermilk, with the refuse of a garden, are almost sufficient to maintain a pig. Pigs are unlike most other animals, as they fatten soonest on sour food; they should, however, be kept clean, and in many places, I am told, the cottagers rub them with a broom. Sows are very apt to destroy their young when they are littered with long straw, as the pigs sometimes hide themselves in it for warmth, and are trodden upon accidentally or smothered by their mother. A sow ought, therefore, to be littered with short straw when she is expected to produce young. Pigs are greedy creatures, and, when there are several together, the master pig generally puts his foot in the trough while feeding, so as to prevent any other pig coming near him till he has done.

Young pigs are generally weaned when they are six or seven weeks old; and, when they are killed at this age or sooner, they are termed sucking-pigs, and are generally roasted whole.

After they are taken from their mother they are generally fed three times a day on a food composed of the washing of dishes, skim-milk, buttermilk, whey, potatoes, grains, cabbage leaves, pea-shells, and any refuse from the garden. While pigs are growing they should be allowed as much liberty as they can have without doing injury; but pigs are very troublesome creatures to turn into a field, as they will dig up the roots of the grass wherever they can with their noses, and on this account young pigs are frequently ringed; that is, a slender iron ring is passed through the cartilage of the nose, or the cartilage itself is slit open with a knife. When they are about five or six months old they will have attained their full growth; and, if they are intended to be killed and eaten for pork, they are put up in a sty, and fed with boiled potatoes, milk, and a little barley meal.

When a pig is intended for bacon, he is called a store-pig till he is about eight months old, when he is put up to be fed, and is fattened on peas, meal, potatoes, and milk, always adding a sack or two of ground oats, or crushed barley, a short time before he is killed, to make the fat firm. Opinions differ very much as to what kind of pig should be preferred, but those are generally considered the best which have large deep bodies, short legs, and small heads.

Rabbits are kept either in hutches or in warrens, where they make burrows in the ground, and live almost in a state of nature. Rabbit warrens are of very great extent, varying from a hundred to three thousand acres, and they can only be formed in dry sandy soils. When rabbits are kept in hutches, the rabbit-house should be particularly dry and well ventilated, as rabbits are very subject to a disease called the rot, which is a species of liver complaint, brought on by impure air and improper food. Each hutch is generally eighteen inches high, and about three feet wide. It is divided into two chambers, in one of which the rabbit feeds, sleeping in the other. These chambers have a sliding-door between them, so that when the rabbit is in one chamber, the door can be let down, and the other chamber cleared out.

Rabbits should be fed in a great measure on corn, peas, and bran; and their food may be diversified by carrots, cooked

potatoes, tares, and a few cabbage leaves; but these last should be fresh, and never in the slightest degree decayed. Lettuces and other green food may also be occasionally given, provided they are quite fresh, and that what the rabbit does not eat is removed as soon as it has done feeding. Rabbits should be fed twice or three times a day, and, if to be fattened for the table, they are considered best when about three or four months old. They are liable to many diseases, most of which are incurable. Some, however, may be stopped in time, if, whenever the rabbits appear too large in the body, their food is changed, and instead of being fed on green meat, they are given nothing but cut hay and corn, and ground peas, or some similar food.

I shall say nothing of the management of *sheep*, as they certainly do not come within a lady's province. Their constitutions are very much like those of rabbits, and they are subject to nearly the same diseases.

The kind of deer most common in parks is the *fallow deer*. These creatures are generally beautifully spotted, and the horns of the buck are broad and flat. They are changed every year, being at first shaped like a finger, and not much larger, but they afterwards become branched, and continue increasing rapidly in size, and in the number of their branches, till the buck is five years old; they afterwards increase more slowly, but they continue changing in form for several years. The does are exceedingly tame, and may be easily taught to come and feed out of the hand, while the fawns are the prettiest little creatures imaginable.

The word fallow is said to be derived from an ancient Saxon word signifying to become pale, in allusion to the manner in which the colour of the fallow deer is shaded down from the deep streak of dark brown on the back, to the pale fawn of the sides and the white under the body. There are several varieties, but the differences consist chiefly in the shades of colour. The buck of the fallow deer may be killed from the middle of June to the middle of September; and its venison, which is considered much finer than that of the doe, is in perfection when the buck is from six to eight years old. Does may be killed younger; and if they have had no fawns, or have been

soon deprived of them, they are in season from the middle of November to the middle of February.

Deers are ruminating animals, and, after they have filled the first stomach, they go under the shade of trees to chew the cud. When snow is on the ground fallow deer are generally fed; as, if they are not, they are apt to do a great deal of mischief to the trees in the park, by tearing down the branches. When they are fed it is with cut hay and straw, mixed with young shoots of underwood.

When fallow deer are to be shot, the keeper generally gets into a kind of hut, so contrived as to have a loophole in the back for the rifle, and to watch through, so that, when the herd passes by, the keeper may remain unseen by the deer, and close enough to the herd to select and shoot the one most suited to his purpose. These huts have seats inside, and are convenient spots for observing the habits of birds and other creatures in a wild state, which would not, under other circumstances, suffer human beings to approach them. It is, however, only in parks that have been long used for keeping deer, that these huts are to be found, as modern gamekeepers generally consider themselves sufficiently expert to select and shoot their deer without any protection. In old parks, likewise, strips of boards are frequently found nailed to the trunks of trees to enable the keepers to ascend them for the purpose of shooting the deer; and advantage is taken of rocky scenery to make caves for the same purpose. The keepers were also attended by a bloodhound to chase any unfortunate deer that might be wounded without being killed; but this is now also found unnecessary, as the herd drive a wounded deer from them the moment it has been struck, and the only use of the keeper's dog is to follow the deer in case it should take to thick underwood and lie down there to die.

There are two other distinct species of deer, viz. the red deer and the roe; but they are now seldom kept in parks in England. The *red deer* is abundant in Scotland, and hunting it and shooting it with a rifle, which last is called deer-stalking, are two favourite sports with the Scotch landed proprietors. The male of the red deer is called a stag, the female a hind, and the young a calf. The stag, when young, is sometimes called a

brocket, and when it is more than six years old it is called a hart, and, if it belongs to a royal chase, a hart-royal. It stands about four feet high from the shoulder, and one has been known to weigh upwards of thirty stone when killed. The *roe* is the smallest of the deer kind, seldom standing more than two feet high, measuring from the shoulder. It is very common in a wild state in Scotland, particularly on the banks of Loch Lomond, but it is very seldom met with in parks. The male of the roe is called a roebuck; the female, a roe; and the young, a fawn; and these creatures do not live in herds like the other deer, but in families of from ten to twenty each.

The natural process by which the horns of deer are renewed every year is extremely curious, The time when the change takes place varies in the different kinds of deer: those of the stag, and of the buck of the fallow deer, fall off in spring, and are renewed in summer; but those of the roebuck fall off in autumn, and are renewed in winter. Very soon after the old horns fall off, a soft tumour appears which is covered with a velvet-like down, and this downy skin remains on the horns as they shoot upwards, and divide into antlers. The horns have at this time a very singular appearance, as the soft downy skin with which they are covered is completely intersected with blood-vessels which are designed by nature to supply nourishment to the horns, and the furrows formed by the largest of which may always be afterwards traced in the horn itself. When the horns have attained their full growth, the velvet skin with its blood-vessels begins to dry up; and the stags at this season become very injurious to trees, as they are continually rubbing their horns against the bark, in order to get rid of the skin, which has become troublesome to them. It is a singular thing, that, though stags shed their horns every year, the old horns are scarcely ever found; and it is generally supposed that the animals bury them as soon as they fall off. The horns grow with very great rapidity, and a pair weighing twenty-five pounds have been known to be formed in ten weeks.

Deer are included in the beasts subject to the forest laws of England, the others being the fox and the marten, and according to some the wild boar; and there are certain laws

still extant respecting these beasts which are very curious, and which make it penal to kill them at any but the proper seasons. Formerly, indeed, killing a deer unlawfully was considered a more heinous offence than killing a man.

LETTER XV.

INHABITANTS OF THE POULTRY-YARD.—FOWLS, TURKEYS, GUINEA FOWLS, GEESE, DUCKS, AND PIGEONS.—PEACOCKS AND HENS.—DISEASES OF POULTRY, AND THEIR CURE.

My hints for teaching you how to enjoy a country life would be sadly deficient if I were to omit poultry, as the duties of attending on them are so completely feminine, that even in farm-houses they are entirely under the care of females; and, indeed, few artists or authors would think a picture of rural life complete, if they did not introduce into it the image of a fair young girl feeding poultry. I have just been reading a description of this kind in Miss Bremer's beautiful story of *Strife and Peace*, and it has pleased me so much, and seems so appropriate, that I cannot resist the temptation of quoting it.

"The morning was fresh and clear. The September sun shone brightly into the valley; smoke rose from the cottages. The lady-mantles in whose channelled cups clear pearls trembled, the silver weed with its yellow flowers and silver-bright leaves, grew along a little footpath which wound round the base of a moss-grown hill. It conducted to a spring of the clearest water, which, after forming a little pond, led its silver stream, dancing and murmuring, to the river. On this beautiful morning Susanna approached the spring; and in her train came 'cock and hen, and chicken small.' Before her waddled a troop of geese, gabbling noisily, and all white but one—a grey one. The grey goose walked with a timid, hesitating air, a little behind the others, compelled to retain this position by a tyrant in the white flock, who drove him back with outstretched neck and loud cry whenever he attempted to approach the rest. None of the other geese concerned themselves about their ill-used

companion, but Susanna took it under her especial protection, and did all in her power to console it for the injustice of its kind. After the geese came the demure but clumsy ducks; the petulant turkey-cock, with his awkward dames, one white and one black; and last, the turbulent race of chickens, with their stately pugnacious cocks. The prettiest of all the party were a flock of pigeons, who timidly, but confidently at the same time, now alighted on Susanna's shoulder and outstretched hand, and now rose in the air and flew in shining circles round her head; then dropping to the earth, tripped on their little fringed feet, to drink at the spring; while the geese, with loud noise, plunged splashing into the river, and threw the water over the grass in a pearly shower."

I must now, however, return from the region of poetry to plain matter of fact.

Fowls should always be kept in a *poultry-yard*, or enclosed place set apart for them, as, if allowed to be at liberty in gardens or pleasure-grounds, they do a great deal of mischief by half-burying themselves in newly-raked soil, to clean their feathers and get rid of vermin; and by scratching up seeds, and even the roots of plants, in their search after worms and insects. When circumstances allow, the poultry-yard should be at least half an acre in extent, as fowls are never well unless they are allowed abundance of room for exercise. The usual form for a poultry-yard is a parallelogram, of which the hen-houses form one end and a pond the other. The whole should be surrounded by a strong fence of paling, and there should be a large tree, or post with branches fixed in it, in the centre, with a heap of calcareous earth near it.

The surface of the poultry-yard (fig. 14.) should be level; and about one half of it should be laid down with gravel, but the lower part, near the pond, should be grass, as, unless there is some kind of herbage, there will be neither insects nor snails, and poultry require some animal food to keep them in health. The tree in the centre should have its branches deprived of their smaller spray, so that they may afford good roosting-places for the pea fowl and guinea fowls, both of which prefer roosting in the open air. The upper part of the yard which is near the hen-house, and which is covered with gravel, ought to

be thoroughly well drained, so as to be as dry as possible; and the drains ought to be so contrived as to carry off all the water used in washing the hen-house, without suffering it to approach the pond. Where aquatic fowls are kept, it is, indeed, a good plan for the other fowls to have drinking-troughs near the hen-house, which should be filled with pure water every day, and frequently and carefully cleaned out.

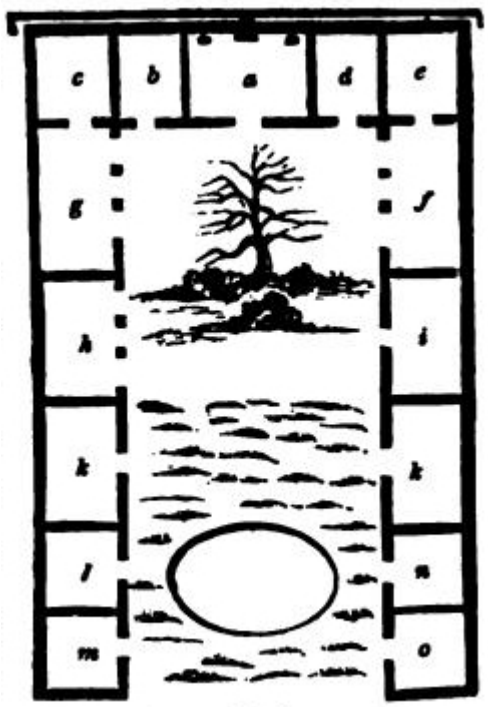


Fig. 14. ***Poultry-yard.***

***a*, Feeding-house, fitted up with boilers for cooking the food, from which pipes extend on each side for heating the laying and roosting-places.**

***b*, Sitting-place for turkeys.**

***c*, Roosting-place for turkeys.**

***d*, Sitting-place for hens.**

***e*, Roosting-place for hens.**

***f*, Feeding-shed, laid with stone.**

***g*, Open shed, laid with sand.**

***h*, Open shed with roosts, for pea-fowls.**

***i*, Pheasantry, or place for choice land fowls.**

***k k*, Places for choice aquatic fowls.**

***l* and *m*, Sleeping and laying places for ducks.**

***n* and *o*, Sleeping and laying places for geese.**

A pigeon-house may be erected at the lower part of the yard beyond the pond, or one of the compartments marked *k* may be fitted up for pigeons.

Besides the hen-house, there should be an open shed on each side of the poultry-yard, extending as far as the part laid with gravel. The ground under one of these sheds should be laid with the large flag-stones called landing-stones, in order to

have as few joints as possible; and under the other shed the earth should be dug out to the depth of a foot or more, and filled up with dry sand, to enable the fowls to take what may be called a sand bath, which is the principal means they have of getting rid of the body vermin with which they are generally infested, and which are very troublesome to them. The shed which has sand at the bottom may have bars under the roof, to serve as an occasional roosting-place for pea-fowl and guinea-fowl; but the one which has the flag-stones should have no bars across it, as the stone floor is intended to serve as a place for feeding the fowls on, and it should be kept as clean as possible. It is a good plan to lay a few handfuls of unthreshed straw on this stone floor, in order that the fowls may amuse themselves with scratching out the grains; and they should always have a small heap of mortar, rubbish, or lime in one corner for them to peck, as unless fowls can have access to lime, or to some kind of calcareous earth, they will produce eggs without shells.

It is necessary to observe that land fowls are, generally speaking, much more tender in constitution than aquatic ones. The common hens, in particular, will never lay well unless they are kept warm; and, as a proof of this, it is well known by every housekeeper that eggs are much scarcer and dearer in winter than in summer. As the different kinds of fowls require different treatment, it is necessary to keep them separate, and it is also necessary to keep those hens that are sitting separate from the rest. On this account the hen-house should be divided into five compartments, the centre one of which (*a*) may be much larger than the others, and furnished with a fireplace and boiler, for boiling potatoes and other food, from which should run hot-water pipes or flues, so contrived as to heat the whole of the compartments.

On one side of the central room may be a place for hen turkeys (*b*), as it is necessary always to keep them by themselves when they are inclined to sit; as, if the male turkeys see the eggs, they generally contrive to break them. Beyond this should be the roosting-house for the turkeys (*c*), provided with strong beams across, at a sufficient distance from each other, to suit large and heavy birds.

Fig. 15. ***Sitting-box.***

On the other side of the central room should be the compartment devoted to laying and sitting hens (*d*) and this should be fitted up with boxes (fig. 15.) which are made moveable, and placed not quite close to each other, as it disturbs sitting hens to hear other hens close to them. The front part of each box should be made to slide up and down, so that it may be taken out, and the box thoroughly cleansed with a brush and soap and water, when not in use. This sliding front, when closed, has an arched opening in front for the hens to go in and out; and this opening is made so as not to reach quite to the ground, in order not only to keep the nest warm and in its proper place, but to prevent any danger of the eggs being sucked by rats, or other similar depredators. The hen-room should be frequently whitewashed, say twice a year, care being taken to do it with as little disturbance to the fowls as practicable; and the floor, which should be either of stone, or laid with bricks, should be swept out every day, and washed occasionally when the weather is warm and dry. It is a very good plan to have the boxes raised with two pieces of wood below each, so as to leave a hollow space in the middle below the box, as this plan allows the house to be cleaned with greater facility.

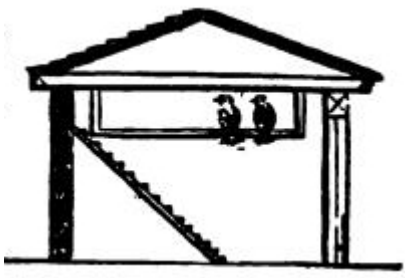


Fig. 16. ***Hen-roost.***

The other room (*e* in fig. 14.) should be supplied with rails and perches to serve as roosting-places (fig. 16.), and these rails

are best of rough wood, as they afford a more secure resting-place for the fowls than if they were round and smooth. Fowls are very apt to crowd together in their roosting-places; and, when the rails are smooth so that the claws of the fowls cannot take a firm hold of them, the youngest and weakest of the fowls are very often pushed off. The roosting-places should be furnished with a sloping board with sticks nailed across, to enable the fowls to ascend to them. All the rooms of the hen-house should have windows filled in with wire lattice; and they should have shutters to close in cold weather. In some cases they have ceilings like those of a house, and in others they are left open to the beams of the roof. The principal thing to attend to is to keep them scrupulously clean, and the walls frequently whitewashed. The roosting-place should have the dung removed every morning, and in warm weather it should be washed out every day; even in winter, unless the weather is frosty, the floor should be washed once a week. Sometimes, instead of fixed rails for the fowls to rest upon, hanging bars are suspended from the roof; and sometimes the nests for laying in and for sitting are fixed, and in two rows one above the other. Where danger is apprehended from thieves, the door of the roosting-house is kept locked, it being provided with an opening for the fowls to pass through.

Poultry should never be fed where they roost, if it can possibly be avoided, and their food should generally be given to them in the open shed act apart for that purpose. In wet weather, however, they may be fed in the feeding-house (*a* in fig. 14.), which has that name because it is the place where those fowls which are to be fattened are kept under coops (fig. 17.). For my own part I am no friend to fattening fowls artificially, as I think they are never half so good to eat as when they are indulged with moderate exercise, and kept in good condition by feeding them with barley, oats, or other grain, two or three times a day. When the poultry-yard adjoins a farm-yard, so that the fowls can be let out occasionally to pick up the grains that are scattered by the thresher, they become so plump and so well fitted for the table, that it is considered the highest praise that can be bestowed on poultry, to say that it eats as well as a barn-door fowl. When it is not practicable to admit poultry to

the farm-yard, the fowls that are to be fattened should be kept in the feeding-house, and plenty of unthreshed straw should be given to them to peck at, so as to let them have constantly quite as much as they can eat, and yet be obliged to take exercise to get it; or, if more rapid feeding be required, they may be put under coops and fed with various kinds of food, either raw or cooked.

Fig. 17. ***Coop.***

A fowl, when supplied with abundance of food, eats rapidly till it has filled its crop, in which the food is merely stored as grass or hay is in the paunch of a cow, and from which it passes through the second stomach into the gizzard, which digests it, by grinding it into a mass, partly by its own muscular action, and partly by the help of numerous little bits of gravel and small stones which the fowl swallows. This is necessarily a slow process, when the food consists of hard dry barley; but of course it is performed much quicker when the food is softened by boiling, and equally, of course, the time in which the fowl gets fat is shortened by the facility with which it can digest its food. This is the reason why cooked grain is now preferred for feeding poultry, and boiled rice, barley, oats, and wheat are given in preference to the old mixture of barley meal and milk and water. Boiled or steamed potatoes are also recommended, and they should always be given warm. All the fowls may be fed with advantage on this prepared food, as it makes the hens lay better and the chickens grow faster, care being taken that the earthen pans or wooden troughs in which it is contained are always kept perfectly clean, and that they are daily scoured with boiling water to prevent them from acquiring a sour taste. The boiled food is always given in the feeding-house, but after eating it the fowls are turned into the yard to cater for themselves if they feel inclined, and many persons advise a piece of bullock's liver or something of the kind to be thrown

in the yard, as far from the hen-house as possible, to breed maggots, as they are particularly nourishing to young chickens, who will devour them greedily. You will observe that I have not given any directions for cramming fowls, as I am quite sure you would not suffer any creatures under your control to be subjected to such treatment.

Poultry are particularly liable to be attacked by body vermin, and, while they are annoyed by these torments, they will never feed properly. It is, therefore, of the greatest importance that the places in which they are kept should be perfectly clean, and that they should have abundance of sand, in which they can wallow whenever they feel inclined.

Domestic fowls are very pugnacious, and if there are too many cocks they will be fighting incessantly. The usual proportion is one cock to seven hens; and those hens should be kept for laying which are dark-coloured, as they are not only better layers, but are said to produce richer eggs. When a hen is about to begin laying she makes a cackling noise for several days, when a nest of hay should be prepared for her, and a nest egg put into it, to induce her to lay there. Some hens lay every day, and others only once in two days, or once in three days. The eggs should be removed as soon as laid, as the hen is apt to spoil or break them, by sitting in the nest to lay others. Eggs may be kept for several months sufficiently fresh either for setting or for the table, by dipping them either in oil, or in a mixture of beef suet and mutton fat melted together and used warm. Hens are considered in their prime at three years old, but they will produce eggs for several years; and some hens will continue laying all the year, except during the season for moulting, which happens with young fowls in spring, and with older ones generally in autumn. At this season all birds are ill, particularly at the time when the new feathers have just forced out the old ones, and have their quills full of blood to furnish nutriment for their growth.

When a hen is set, care should be taken that she has only as many eggs as she can cover easily. The usual number is from nine to thirteen; and, when they have been put into the nest, the hen should be placed gently upon them, and covered with a cloth till she seems quiet. When a hen is sitting, she should be

plentifully supplied with water near at hand, as she is generally thirsty, but it is reckoned best not to put her food too close to her, as a little exercise does her good. A hen sits twenty-one days, but some of the chickens are generally hatched a day sooner or later. Each is taken from the hen as soon as it has left the egg, and is put in a basket on some wool or flannel, and set by the fire; but no food is given till all the brood is hatched, and returned to the hen. The chickens are then fed with eggs boiled hard and chopped small, and boiled rice and grits; and, when they are a little bigger, they may be given barley meal mixed with milk and water, or, what is better, boiled barley and rice, with a few boiled potatoes crumbled small. They will soon, however, be strong enough to feed with the hen in shallow vessels; as otherwise they are apt to get into the water to drink, and wetting their feet and feathers brings on many diseases. As soon as the chickens are hatched, a little bit of wood, with a strip nailed across it, to serve as a step, should be put from the opening of the box where the nest is to the ground, to enable the chickens to get in and out of the nest as easily as possible; and when they are permitted to go out of doors, which is generally in three or four days, the hen should be put under a coop, to prevent her from wandering, till the chickens are strong enough to accompany her, which will probably be in about ten or fifteen days.

There are many opinions as to what *kinds of fowls* are the best; but it is very difficult to decide this question, as almost all the kinds have advantages and disadvantages peculiar to themselves; though those are usually preferred which have rather short and slender legs, and round, compact, fleshy bodies. White or very light-coloured fowls are considered best for the table; but they are said to be tender in constitution and not good layers. The common barn-door fowl is the original stock from which most of the varieties are derived. The Game fowl are perhaps the best for the table; but the eggs are small, and the chickens are difficult to rear, unless they can be supplied with maggots or some other kind of animal food. The Dorking fowls are preferred for the table by the caterers for the London market, on account of their large size. They have generally two hind toes instead of one. The Jago, or Cochin-

China, fowls are so very large that it is said they can pick crumbs from a table as they stand on the ground, and they often weigh from eight to ten pounds. They have double combs and tufts of feathers on the head: the feathers on the body are mottled, but those of the tail are a dark glossy green. The eggs are very large and good. The Crested, or Polish, fowl is black, with a white tuft on the head. The hens are excellent layers, and the chickens are good for the table; but the hens are not good sitters, and are apt to lay away. The Spanish fowls are also black, and very large and handsome. The Malay fowls are very large, and the colour of the feathers is black, streaked with brown and yellow. They are excellent layers; and their eggs, which are very large, have so much yolk, that two of their eggs will go as far as three of those of ordinary fowls. The flesh is exceedingly juicy and fine-flavoured; but the legs of the fowls are rather too large and strong to look well on the table. I speak confidently of these fowls being good, both for the table and as layers, because our very kind friend Charles Waterton, Esq., keeps no others at Walton Hall.

Bantam fowls are very small, with short legs, which are generally feathered down to the toes. They are much admired as ornamental fowls, but are of little use, either for the table or as layers, from their very small size.

There are several kinds of what may be called fancy fowls; but I shall only mention one of them, and this is the Frizzled fowl, or, as it is sometimes called, the Friesland fowl, though the name appears to have no meaning, and to have been only adopted from its resemblance to frizzled. This fowl is a native of Japan, and it certainly has a very singular appearance, from its feathers being curled up and apparently all turned the wrong way. It is, however, not worth keeping, except as an object of curiosity; as the fowls are small and bad layers, and the chickens are difficult to rear, being extremely sensitive to cold and wet.

Turkeys are very wild in their habits, and apt to stray, and their young are considered difficult to rear. Turkey-hens begin to lay in March, laying either every day or every other day; and, during their laying season, many persons will not let them out of their roosting-place in a morning till they have laid, on

account of their propensity to lay away. One turkey-cock is sufficient for several hens; and if there are two they generally fight till the strongest has killed the weakest.

When a turkey-hen is about to sit, her nest is made by twisting a pad of straw like those worn by basket-women on their heads, and soft hay is laid in the middle; this is done on account of the projecting breast-bone of the turkey, which makes it difficult for her to cover her eggs, unless she has some support. Hen turkeys begin to sit in April; the number of eggs is generally eleven or thirteen, and they sit from twenty-five to thirty days. It was formerly customary, as the young were hatched, to take them away from the hen, and, opening the beak with the fingers, to force one or two peppercorns down the poor little creatures' throats; but now this mode of proceeding is thought unnecessary, and the young are left with their mother till they are all hatched. They may be then fed with crumbled curds mixed with chives or nettles chopped small. Eggs boiled hard and cut into little bits; and mutton or beef without salt, boiled so much as to tear easily into shreds, are also given. The old bird should then be put with her young ones under a coop in the hatching-house, and water should be placed within her reach and that of her young. In a few days the young ones, with their mother still under the coop, may be taken into the open air; but they should not be allowed to remain there longer than two or three hours at a time till they are about ten days old; and the mother should be kept in her coop under the open shed till they are about six weeks old, so that till they have attained that age they may always have a warm dry place to fly to. Great numbers of turkey chickens die young for want of these precautions being attended to.

When turkey chickens are about two months old, they are called turkey poults, and about this time the fleshy membranes on the head and neck begin to appear. This is called shooting the red; and a great many young turkeys die at this time, unless they are well fed and kept warm. Those turkey poults which survive this period are generally reared, and when about six months old some of them may be fattened for the table. At twelve months old they lose the name of poults, and are considered full-grown turkeys.

Guinea fowls can very seldom be persuaded to enter a hen-house; they like to roost in the open air, and to lay in a bush or some similar situation; and, where they are kept, a few bushes should be planted in the poultry-yard for their accommodation. The hen seldom sits on more than seven eggs; and when her young are hatched they should be treated like young turkeys, and the hen should be put under a coop in the turkey-house. When the young fowls get old enough to be taken into the open air, the hen should be kept under a coop in the open shed till the young are about two months old, as she is a most restless creature, and would soon kill the young ones with fatigue, if her activity were not checked.

Peacocks should never be kept in a poultry-yard, as they have a propensity for killing all the young fowls they can reach, by giving them a violent blow with the beak on the crown of the head. They will even kill their own young in a similar way, if they see them before the tuft of feathers on the head has grown. Pea-hens are very fond of laying in bushes or hedges, like guinea fowl, and when they are kept in pleasure-grounds with peacocks they should be narrowly watched. If they are observed to steal secretly into a bush or hedge, the place should be marked and examined when the pea-hen has left it; and, if a nest is found, all the eggs should be carefully removed but one. In doing this the eggs should be handled as little as possible, as pea-hens are very particular, and will not sit upon their eggs if they have been touched by persons with moist hands. When I lived in the country, I never could rear pea-fowls till the idea struck me of making the little country girl whom I used to employ to hunt for the eggs wear gloves, and after that time I never found any difficulty in getting the pea-hens to sit.

When the pea-hen has laid from five to seven eggs she generally shows a disposition to sit, or rather she begins to sit on the nest she has made for herself. When this is the case she should be left on her nest till night, and when it is dark a cloth should be put over her, and she should be conveyed, nest and all, if practicable, to either the turkey's hatching-house or the feeding-house, where she should be placed on a nest prepared for her, containing all her own eggs, and then covered with a

coop, and a cloth thrown over that. When she has settled comfortably the cloth may be removed; but she should be kept under the coop the whole time she is sitting. When the young ones are hatched they are treated in the same manner as young turkeys, and, when their head-feathers begin to grow, they suffer nearly as much as the turkey poults do when shooting the red.

The houses for the aquatic fowls should be at the bottom of the poultry-yard, near the pool, and they should consist of separate divisions for the sleeping and laying places of both geese and ducks. A feeding-house is often added, and this is especially necessary when either ducks or geese are to be put up to feed. Though aquatic fowls, and particularly ducks, are proverbially fond of dirt, the house in which they are kept should be as clean as possible; and it should not only be frequently washed out, but thoroughly ventilated by the door being left open all day. The smell of goose dung is very offensive; and if the house in which the geese sleep be not kept very clean, it will materially deteriorate the pleasure you will have in visiting your poultry-yard.

Many people object to *geese* in a poultry-yard on account of the pugnacious habits of the gander; but when a gander is brought up with other fowls he becomes familiar with them, and is not likely to do them any injury. One gander is sufficient for several geese; and four or five geese will bring up a brood of forty or fifty goslings. Geese generally lay every other day; or, if they lay two days together, they miss the third day. They generally begin to lay in March, and lay from eight to twelve eggs before they show any signs of wishing to sit. Sometimes, if they are well fed, and the eggs taken away, they will continue laying as many as twenty or even more.

When a goose is inclined to sit, she begins to carry straws about in her mouth as if to prepare for making a nest; and, when this is the case, a nest should be prepared for her containing eleven or thirteen eggs. The nest should be made in a box in one of the houses for aquatic fowls, and food should be placed near her, as geese sit very closely, and sometimes suffer themselves to be half-starved rather than leave the nest. A goose should, however, be frequently examined while

sitting, as from her nest being close to the ground it is very liable to be attacked by rats, who will frequently contrive to get the eggs from under the goose without her being able to prevent it.

Geese are voracious feeders, and eat a great deal of grass as well as of more substantial food. When they are to be fattened for the table they are put under coops, and fed principally on oats moistened with water; but at other times they may be fed on any kind of refuse vegetable mixed with any sort of corn, and with boiled potatoes, carrots, and turnips. When geese are fattened before they are six weeks or two months old they are termed green geese; and those which are kept a little longer, so as to be ready for Michaelmas, are called stubble-geese, because, if turned into the corn-fields after the crop has been carried, they will generally find amongst the stubble enough grain, which has been dropped from the sheaves, to fatten them.

Ducks require more water than geese, and they eat less grass, though they are always better when grass is within their reach, on account of the great number of slugs and other similar creatures that they find among it. Ducks are celebrated for the voracity and coarseness of their appetites. They begin to lay in February, and will sometimes lay as many as fifty eggs before they show any inclination to sit. They are, indeed, generally bad sitters, and will forsake their eggs if they have not plenty of food and water placed within their reach. From nine to eleven eggs are as much as a duck can cover, and, if she has more than that number, or any she does not like, she will turn them out of the nest without the least ceremony.

A duck generally sits thirty days; but a short time before the expiration of that period a coop should be put over her, or else, very probably, as soon as two or three ducklings are hatched she will take them to the water, and desert the remaining eggs. Young ducklings are very hardy under ordinary circumstances; but this treatment frequently kills them, as if the water be at all cold they are generally seized with cramp, and die a few hours after they are hatched. It is on account of ducks being so careless of their young that ducks' eggs are frequently set under hens.

Ducklings, when first hatched, are generally fed upon oatmeal mixed with chopped nettles; and, when they are a little stronger, they are given bran soaked in water, and boiled potatoes. It is also a good plan to throw a handful of oats or barley into the water given to them to drink, for them to dabble for, that they may get accustomed to the water by degrees. The mother should, however, be kept under a coop till the young ducklings are ten days old, to prevent her from taking them into the water till they are strong enough to bear it.

When ducks are to be fattened they must be kept under a coop, and fed with boiled potatoes mixed with oatmeal and bruised oats. Acorns ground or bruised are a favourite food with them, and very fattening. Malt-dust is likewise recommended; but barley is said to give them a bad flavour. The Muscovy ducks should not be kept in the poultry-yard, as they are so much larger and stronger than the common kind that they are apt to fight with them and deprive them of their food; and they are more suitable to the park and pleasure-ground.

There may be a dove-cot for *pigeons* in the poultry-yard with the other fowls. When the pigeon-house is large, it is generally built round like a tower from the ground upwards; but where this is inconvenient, a small wooden dove-cot may be fixed against the walk. In your case I would decidedly advise you to have a pigeon-house in your poultry-yard; and, if it is built like a tower, there should be holes in the upper part for the birds to enter by, with a shelf under each row of holes, and a little penthouse projecting from the roof to keep out the wet. The interior of the pigeon-house must have cells for nests, which are made by putting up shelves twenty inches wide and one foot apart, and dividing the spaces between them by upright partitions, three feet from each other. Across the back of each nest there should be a board three inches wide, sliding up and down in a groove, to prevent the young ones from falling out, and yet to allow of the nest being cleaned. When the house has been stocked with pigeons, a little hay or soft straw is put into each cell for the pigeon to form its nest. Some persons divide each cell into two nests, as, when the young are about a fortnight old, the female, without waiting till they are fledged, often begins to lay again; and, when there is only one nest, it is

not an uncommon thing to see a female pigeon sitting on a fresh set of eggs, while the young of the former hatching are still under her care. When a pigeon-house is to be stocked, a number of young birds are obtained either in May or August, when they are in the state called squeakers, that is to say, not fully grown, but able to feed themselves.

When the female pigeon begins to lay, she produces only one egg, and then waits a day or two, after which she lays another, and immediately proceeds to sit. She continues sitting from fifteen to twenty days, or rather the male and female sit alternately during that time; but, as soon as the young pigeons are hatched, the mother never leaves them, for the space of three days, though after that time she commits them, very frequently, almost entirely to the care of a male, who feeds them in the same manner as she does herself, by swallowing peas or other large seeds, and, after keeping them in the crop till they are partly macerated, forcing them up again, and ejecting them into the open mouths of the young ones. While the young are thus fed, they are called squabs, and in that state they are reckoned best for pies; but, when they get old enough to feed themselves, they are called squeakers. They breed very often, but only continue prolific for a few years, and are, in general, short-lived.

A pigeon-house soon becomes very dirty, and has a most intolerable smell; it should, therefore, be cleaned out as often as practicable, taking care that the cleaning is always done in the morning before mid-day, as pigeons go to roost very early, and, if disturbed in the afternoon, they will very often take a sulky fit, and sit outside of the pigeon-house all night.

Pigeons should always be fed in the open air, with peas, small horse-beans, buck-wheat, and old tares, as new tares are said to be unwholesome. They should be supplied with abundance of water, some in a shallow vessel for them to wash in, and some in a wooden trough for them to drink; as they are very cleanly, and will not drink the same water that they have washed in, though they require more water to drink than any of the other inhabitants of the poultry-yard. They require to have access to gravel or sand, and it is customary to supply them with a heap of lime rubbish, over which salt and water has been poured;

and in some cases this is put into an earthenware vessel with holes in it, called a salt cat; in other cases a little salt is thrown over a heap of sifted gravel. When pigeons are put in a new house, it is customary to give them cummin seed or asafœtida, as they are so fond of these strong-smelling substances, that they soon take a liking to any place where they are to be found.

Pigeons are very hardy, and are subject to very few diseases. The two eggs laid by the female pigeon generally produce a male and female bird; and, when this is the case, if by any chance one of them is killed, it is very difficult to provide the other with a mate. Pigeons are proverbial for their constancy, and the same pair will produce broods for several years in succession.

The *diseases of poultry* are very numerous and often fatal. The *pip* comes in the shape of a little blister on the tip of the tongue, which afterwards becomes a thickened membrane. If seen in its first state it should be pricked, and the fowl kept a day or two without food, but plenty of water should be given to it. If the membrane has formed, the fowl is thrown on its back, and, the beak being opened, the membrane is removed by passing the finger nail or a fine needle under it. The tongue is then moistened with a little oil, and the fowl for a few days is given very little to eat, but plenty of water to drink: some persons give fowls affected with this disease rue chopped fine and mixed with butter. It is a very common disease with young fowls, and generally attacks them, if the weather should be hot, in August and September. When fowls appear to suffer from immoderate thirst, it is a sign of *fever*, and they should be supplied with abundance of clear water, and only fed with a little soaked bread; and a similar mode of treatment is generally efficacious when the fowl appears to suffer from constipation. When a fowl is *crop-sick*, that is, suffers from indigestion, it is usual to put a piece of iron in some of the water given to it, but it should also have plenty of pure water. Pepper is often given, and no other food is allowed than mashed potatoes or boiled cabbage cut small, and both given warm. When fowls have a voracious appetite, and yet look out of condition, it probably arises from the fowl having too much

acid on its stomach, and it should be fed with mashed potatoes mixed with chalk and given warm. In *diarrhœa* boiled rice is given, occasionally mixed with milk, taking care, however, that the milk is perfectly sweet; or chalk may be given, and the fowl fed on wheat, oats, or buck-wheat. The *roup*, or influenza, is, however, the most fatal of all the diseases which attack poultry. It begins with what is called the gapes; that is, the fowl, being unable to breathe through its nostrils, keeps its beak open, with a kind of convulsive yawn; the eyelids then become swelled and close, and there is an offensive discharge from the nostrils. As soon as any fowl is observed to be affected with this disease, it should be separated from the rest, as the disease is very infectious. The mouth and nostrils should be first washed with warm water and soap (which will make the creature sneeze and discharge a great quantity of the offensive matter), and then gently rubbed with a dry cloth. A grain of calomel made into a pill with bread may be given, and the fowl put into a rabbit-hutch near the fire, on a bed of soft warm hay. Some hours afterwards the head should be again washed in warm water and rubbed dry, and the fowl should be crammed with a few balls made of barley meal, flour, mustard, and grated ginger; and warm water with treacle in it should be given to drink. The hay should be changed twice a day, and warmed before it is given. The washing and feeding should be repeated several times a day, and in about a week a little more calomel should be given, and afterwards flowers of sulphur. This treatment will soon effect a cure.

LETTER XVI.

THE INHABITANTS OF THE PONDS: FISH; AND AQUATIC FOWLS, INCLUDING SWANS, EXOTIC GEESE AND DUCKS.—INHABITANTS OF THE WOODS: INCLUDING PHEASANTS AND PARTRIDGES, HERONS AND BITTERNS.—AVIARY.—APIARY, AND THE MANAGEMENT OF BEES.—SILK-WORMS.

When a fish-pond is to be made, a situation should be chosen where there is a natural hollow, so that the ground which is to

form the bottom of the pond may be as little disturbed as possible. If this situation be near a river so that a feeder may be led into it, nothing else is wanted to form a fish-pond but an embankment and a sluice, and these you must have made by persons used to such employments. It is necessary, however, to take care that the pond is fed from a river, as spring water is not only too cold for the fish, but is seldom quite free from mineral substances. The pond should be made at least six feet deep, and if twelve feet or more it will be better for the fish: as in frosty weather they will remain near the bottom, and will find enough air in the great body of water above them to enable them to live a long time after the surface is frozen over; while, on the contrary, if the pond be shallow, the fish will soon exhaust all the air it contains, and will perish unless the ice be frequently broken, to admit air from the atmosphere. In shallow ponds, also, the rushes and other weeds grow so fast as to occasion considerable expense and trouble in having them cleared away.

The extent of a pond must depend upon circumstances, but it should never be less than five or six acres, and as much more as is convenient; in shape it should be rather long, as regards the front of the mansion, than broad, and its outline should either be varied, or broken by planting trees and shrubs in small groups on its banks. Where ponds are intended solely for fish, without regard to their appearance in the landscape, their banks should be quite straight, and their shape square or oblong. The pond, whether ornamental or not, may be divided into two parts by an embankment in the centre, which is kept about two feet below the general surface of the water when the pond is full. The use of this is, that, when the pond is to be run dry, either for clearing it of its mud or catching the larger fish, only one half need be emptied at a time; and the other half may serve as a place to put the store fish in while the first division is being cleared out; and, when that is quite clean and the water let into it again, the fish may be transferred to it while the second half is being cleared. Of course, according to this arrangement, there must be a wooden sluice for letting off the water in each division. The beauty of a pond depends principally upon its being well supplied with water, and this

constant supply can only be insured during the summer months, by having a brook or rivulet running through the pond. Where the pond is of sufficient size, there should be an island or two for the swans and other aquatic birds to make their nests on.

Where several kinds of fish are desired, different soils may be laid at the bottom of the pond, to suit the fish which breed in it. Thus, trout will never thrive unless the pond in which they are kept has a gravelly bottom. Carp (of which there are two kinds, the common, and the Prussian which is much smaller than the other,) and tench require loam, with abundance of aquatic weeds; and eels will only thrive in mud. It is very seldom practicable to keep all kinds of fish in the same pond, as some kinds destroy other kinds; but providing them with different bottoms is the most effectual way of keeping them, as they will remain in separate communities in the part of the pond that suits them best.

Of the kinds of fishes with which a pond should be stocked, carp are, perhaps, generally speaking, the best. They breed rapidly, are very hardy, and grow very fast. Tench resemble carp in all these qualities, and both are quiet fish, which would live together without fighting or destroying each other. Perch, on the contrary, are said to be so ravenous that they will devour their own spawn, and that of other fishes. They breed freely and are quite hardy, but do not grow rapidly. Trout, when kept in ponds, are rather ravenous; but pike far exceed all other fish in this respect. A large pike will destroy nearly all the small weak fishes in a pond; and, indeed, he has been known to seize young ducks, and devour them. These and similar acts have obtained for the pike the name of the fresh-water shark. Amongst the other enemies to young fish are counted the little creatures called sticklebacks, which are so small, and apparently so insignificant, that no one would suppose it possible that they could prevent the stocking of a pond. They do so, however, by devouring the spawn, and thus preventing the number of fishes from increasing. When a pond is once stocked very little care is necessary; the principal thing which needs to be attended to being to break the ice in severe frosts to supply the fish with air, if the pond should not be deep

enough to render this unnecessary. When fish appear to want feeding, earthworms, steeped grain, and ground malt, should be thrown into the water.

Besides the regular fish-ponds, it is very convenient in the country to have small ponds or stews adjoining the kitchen-garden, or somewhere contiguous to the house, where fish can be kept and fed, and yet caught at any moment when they may be required. Carp and tench are the best fish for keeping in stews, as they are the quietest; but, as stews are so contrived that the different kinds of fish may be kept in them separate from each other, perch may be kept in one of the divisions, and fed with garbage or any refuse animal food from the kitchen, till they have attained a large size. Pike might be kept in another stew in the same manner, but a pike should never be put into a stew with any other fish.

Every pond in a pleasure-ground should have some ornamental aquatic fowls upon it to make it look complete; as without some kind of living creature, the finest piece of water in the world would have a look of coldness and desolation.

Of all the ornamental aquatic fowls known in England, the *swan*, though perhaps the commonest, is the noblest; and it has the advantage of being useful in clearing ponds of weeds as well as being ornamental. A swan should generally have a pond at least three acres in extent, and they seldom thrive unless there is an island in the centre overgrown with long grass or underwood, in which they can make their nests. Swans are tolerably hardy, and only require to be taken up in time of frost. They are very fond of rambling over grass when they feel themselves in perfect security; and they eat a great quantity of slugs and snails when thus employed.

In the month of May the female swan generally prepares to make her nest, which she does secretly, as, if the cobb or male bird perceives her, he will prevent her if possible. The cygnets, or young swans, are generally hatched about July, and when they first appear their feathers are of a dingy brown instead of being white. When they first go into the water the female, or pen bird, as she is called, only lets them swim a little way, and then, if they appear tired, she takes them on her back. When

the cygnets grow bigger, the mother swims round the pond with them following after her like a company of soldiers. As soon as they get about three parts grown, the cobb drives them away from their mother, and forces them to provide for themselves. At this period, if they happen to have been hatched late, they may be fed with boiled barley and bread. They do not become perfectly white till the second year.

When two full-grown cobb swans quarrel they fight tremendously; and, though the common species is called the mute swan, they make a loud hissing noise something like that of the goose, but louder and hoarser. A cobb swan will also, when enraged, attack a dog, or even a man, striking tremendous blows with its wings. It is said that a full-grown swan could break a man's arm with a blow of its wing. Swans were formerly considered royal birds; and those upon the river Thames are still the property of the crown, and the young ones are marked every year under the superintendence of the Lord Mayor, the ceremony being called swan-hopping, which is said to be derived from swan-upping, a part of the ceremony being to decide how far up the river the swans have a right to go.

In hard frosts the swans, and all the other ornamental aquatic fowls, must be sheltered, and fed in the same way as the common ducks and geese in the poultry-yard; and there is generally some place contrived near the water for this purpose; as, for example, under the fishing-house, or adjoining the boat-house. It is also necessary to take some means of preventing aquatic fowls from flying away, and the barbarous operation of cutting off one joint of the wing with a penknife, or a very fine saw made from the spring of a watch, is frequently resorted to; it being the second joint of the wing that is taken off. For my own part, I should prefer losing my birds to resorting to such measures for their preservation; and I think I have understood, that, by depriving them of the alternate feathers of their wings, they may be rendered incapable of flying while they are strangers to the place, and I would trust to kind treatment to make them wish to stay with me when we became better acquainted.

The *black swan* is a native of Australia, and it is so common in that country, that it gives its name to the Swan River. In a wild

state, it is generally seen floating on lakes or rivers, in long lines formed by eight or ten or more swans swimming in a single file; and when alarmed they rise all together and fly off, uttering wild but not unmusical screams, retaining in the air the same position as that they occupied in the water. You must, however, take care, if you put a black swan on the some water with the white ones, that they do not injure it. Some years ago, two white swans on the water in the Regent's Park pursued a black one with the greatest ferocity; and, according to Mr. Yarrell, from whom I have taken this account, one of them having succeeded in grasping the black swan's neck between the mandibles of its beak, shook it violently. The black swan with difficulty extricated itself from this murderous grasp, hurried on shore, tottered from the water's edge a few paces, and then fell to die. The white swans did not attempt to pursue it, but continued sailing up and down the water with every feather on end, and seeming proud of their conquest.

Of *geese* there are many ornamental kinds.

The *Chinese goose* is a beautiful creature, which breeds readily in this country.

The *bean goose* is frequently kept on ornamental pieces of water; and a pair belonging to the Ornithological Society of London have produced young in St. James's Park, and are remarkably tame. This goose has received its name from its fondness for beans and other pulse; and it is one of the three species of wild geese which pay passing visits to the ponds and lakes in the North of England and Scotland. It is found in great abundance in the Hebrides and other western islands of Scotland; and large flocks fly together, either in a diagonal line or in two such lines forming an acute angle, making a loud cackling noise as they fly, and going, as has been supposed, at the rate of more than twenty miles an hour.

The *Canada geese* are very remarkable in their appearance, from their glossy black necks and white cheeks, and their very remarkable trumpet-like notes. These birds appear in such quantities in Canada, that it is calculated that two or three thousand are killed every year by the English at Hudson's Bay. This bird is sometimes called the cravat goose; its beautiful

black and glossy neck and white breast bearing considerable resemblance to a black silk cravat upon a white shirt.

The *bernicle*, or brent goose, is interesting from the curious superstition which formerly prevailed respecting it, as it was supposed to have sprung from the shell called the barnacle or lepas, which adheres to the bottoms of ships, and which has a fringe of cirri projecting from between its valves bearing some faint resemblance to the feathers of a bird. These geese are very small, and not above half the size of the Canada geese; and yet Mr. Waterton found a large old Canada goose on his noble sheet of water at Walton Hall pair with a bernicle gander.

The *Egyptian goose* is interesting from the strong resemblance it bears to the figures of a goose found in Egyptian hieroglyphics, in which it was the emblem of caution.

Amongst the other ornamental kinds of geese found on ponds in pleasure-grounds, I may mention the *snow*, or *red, goose* from North America, which is of large size, and has its bill armed with twenty-three strong indentations like teeth; and the *laughing goose*, which has a white front, and makes a strange laughing-like noise. There is also an African goose called the *gambo*, which is furnished with a curious spur on the upper part of the wing.

Of the ornamental *ducks* the best known species is that with red wattles on its head and neck, which is generally called the *Muscovy duck*, but which is not, as its name imports, a native of Muscovy; for the name is a corruption of moschata or musk duck, in allusion to the peculiar smell of the creature. These ducks are found wild in Guiana, where they nestle on the trunks of trees close to the water's edge. They are easily managed in this country, but require protection in cold weather. They breed freely, and are not difficult to rear, except about the time when the red wattles appear round the head, when many of them die. In other respects they considerably resemble the common duck.

The *shieldrake*, or burrow duck, is remarkable for its constancy, as a male and female when they once pair continue to breed together every year as long as they live. This duck is also one of the most beautiful of the ornamental water-fowl. In

its native state it is generally found on the sea-coast, or within a few miles of the sea, where it breeds in rabbit burrows and other holes in sandy soils. It will, however, live in an inland situation, provided it is fed with periwinkles and other shell-fish, and hence it was originally called the shelldrake. In some parts of Scotland it is called the skeeling goose.

There is another species of shieldrake which is sometimes called the *ruddy goose*, and which has a glossy black ring round its neck and a reddish breast. This bird has the same burrowing habits as the common species, but it prefers the neighbourhood of a river to that of the sea. The voice of this bird when flying is said to resemble the tone of a clarinet; but in a state of confinement it bears more resemblance to the cry of a peacock.

The *shoveller*, or broad-bill, is a fowl occasionally kept on ponds in pleasure-grounds. In a wild state it inhabits marshes and the muddy shores of lakes and rivers, and is generally considered only a winter visitor to this country, though some remain every year to breed. They feed principally on insects, and are so fond of flies, that one of the common names of this species in France is *canard gobe-mouche*. The English name of shoveller alludes to the broad beak, each mandible of which is bordered with close set rows of teeth resembling those of a weaver's reed, and which fitting into each other form a kind of sieve. With this beak the shoveller digs up the soft mud, and letting its watery particles escape, retains the very small worms and other insects which constitute the principal food of the bird. These ducks being very ornamental and curious, many attempts have been made to keep them on the ornamental pieces of water in the London parks and gardens, but hitherto without success; for I am told, on the authority of our excellent friend Captain Mangles, that, though they may appear healthy for a time, they are very apt to die off suddenly without any apparent cause.

The *gadwall*, or grey duck, is an ornamental bird; but it is of little use to have it in pleasure-grounds, as it is so shy, and so fond of hiding itself among thick weeds and long grass, that the pair in the Zoological Society's gardens are scarcely ever seen.

The *pintail duck*, or sea pheasant, though also shy in its native habitats, is more easily tamed, and is well deserving of being kept on ornamental pieces of water, not only from the beauty of its plumage, but from the singular appearance produced by its long tail when it is swimming on the water. This bird has a singular patch of green on its wings, and yellow feet. It is very difficult to get it to breed.

The *teal* is the smallest of the British ducks, and one of the prettiest. Its breast is spotted with black tinged with purple, and it has a rich dark-brown mark on its head, encircling the eye and spreading down the back of the neck. The teal bears confinement well, and it breeds regularly every year in the gardens of the Zoological Society. The eggs are white tinged with buff, and generally about an inch and a half in length. The nest is formed of decayed vegetable matter, lined with down and feathers, and it contains eight or ten eggs. The teal feeds on grass and water plants, and also on various kinds of insects; but, when kept in this country all the year, during the winter it requires grain.

The *widgeon*, Mr. Waterton tells us, "is a much more familiar bird than either the pochard or the teal. While these congregate on the water, beyond the reach of man, the widgeon appears to have divested itself of the timidity observable in all other species of wild-fowl, and approaches very near to our habitations." The widgeon has such a shrill cry, that it is sometimes called the whistling duck.

The American widgeon is the constant attendant on the *canvass-back duck*, so celebrated in the United States for its excellence as an article of food. These ducks have been introduced into England, but they do not thrive in this country probably for want of a species of Vallisnèria on which they feed in their native land. The best way of managing them would be, to give them plenty of grain, particularly wheat, of which they are remarkably fond; though, probably, buck-wheat would answer the purpose, and would be much more economical. The Vallisnèria, also, on which they feed, might be introduced into England, though it would require to be grown in running water.

The *eider duck* is very scarce on ornamental pieces of water, though it is abundant in the North, particularly on the Fern Islands off the coast of Northumberland, and especially on St. Cuthbert's rock; and hence it is sometimes called St Cuthbert's duck. It was long supposed that the eider duck would not live in confinement; but the Earl of Derby has several in his splendid collection at Knowsley, which were reared by feeding them on slugs and other mollusca.

The king duck, the beautiful little western duck, the magnificent surf scoter, and the red-crested duck (a beautiful stuffed specimen of which is in the possession of Mr. Waterton), are all highly ornamental, and well deserve to be kept in pleasure-grounds for their beauty.

The *pochard*, or dun bird, is remarkable for the excellence of its flesh, which closely resembles that of the celebrated canvass-back duck of America. Like that duck it feeds greedily on a species of Vallisnèria and on grass-wrack and sea grass (*Rúpia marítima*); which last, Mr. Yarrell tells us, is "called also in America eel-grass, from the form and length of the stem. The ducks dive and pull up these aquatic plants to obtain the tender roots, the only part they seem to eat. The two plants last named are common near the coast in England."

I think you will now be pretty well tired of aquatic fowls; and therefore I will only mention one more, viz. the *coot*, respecting which there is a great diversity of opinions. "If a gentleman wishes to have plenty of wild-fowl on his pool," says Col. Hawker, in his *Instructions to Young Sportsmen*, "let him preserve the coots and keep no tame swans. The reason that all wild-fowls seek the company of the coots is, because these birds are such good sentries to give the alarm by day when the fowl generally sleep." "If you wish to have your water-fowl breed," says Captain Mangles, "have no coots, for if you have they will destroy all the eggs." Where there are coots, and it is wished to destroy them, it is extremely difficult to do so by shooting at them, as the moment they see the gun, they dive into the water, and when they come up again, are frequently a hundred yards from the place where they sank. They also make a great commotion in the water by flapping their wings along its surface, and making a tremendous

rushing noise, so that it is not very easy to approach them even with a boat.

Almost every park where there are trees contains *pheasants*; and in many places especial contrivances have been resorted to for feeding and keeping these birds. The places which they like to frequent are woods and plantations where there is plenty of undergrowth, and they are particularly fond of places where fern and brake grow abundantly. When it is wished to stock a park with pheasants, it is usual to set the eggs under a common hen, and when they are hatched, which will be in from twenty-three to twenty-seven days, the young ones should be put into a basket with a bit of flannel till the whole are hatched and the shells have been removed from the nest. They are then put back to the hen, and fed with eggs boiled hard and then cut small, and curd made by mixing new milk with the water in which a lump of alum has been dissolved. They should also have a few ants' eggs if they can be procured, and, if they cannot, a raw egg should be beaten up and mixed with as much flour as will make it into a paste, and then rubbed through a coarse sieve so as to leave it in little grains. Young pheasants should be fed often, and have but a very little at a time. When they are able to run about, they are first put out with the hen under a coop like chickens; but, when they get older and stronger, the hen is put on one of the lower branches of the tree in the poultry-yard, and tied to it by the leg, so that she can move about on the branch, but not descend to the ground; the young pheasants seeing her on the tree will fly up to her, and thus learn to perch. In a few days the hen is put upon one of the higher branches of the tree, and the young pheasants soon learn to follow her. In a week or ten days after this, they are generally old enough to leave the hen, and they may be turned into the woods; though they will require feeding every morning and evening for some weeks. Pheasants are naturally very shy, and even when reared in this manner they become so timid in the course of a few weeks that they will not suffer any one to come near them. Many persons suppose that, as they are natives of Asia Minor, they are tender, and easily affected by the cold; but this is not the case, as they will bear cold better than most others of the feathered race.

Some persons try to fatten pheasants by putting them in a small enclosure covered with a net; but pheasants treated in this manner are never so good as those shot wild in the woods.

Many plans have been devised for feeding pheasants in the woods, but none are better than those of Mr. Waterton at Walton Hall. At that most interesting place, which may be called the paradise of birds, Mr. Waterton has formed clumps of hollies, by planting twenty or more in a circle, and then making an inner circle, containing ten or fifteen trees, and scattering the food for the birds between the two circles, or in the centre of the inner one. In other places a yew tree surrounded by a holly hedge forms a place of shelter for the birds; but the first kind is preferred for a feeding-place. The pheasant requires a great deal of food; and Mr. Waterton, whose knowledge of the subject is proverbial, tells us that "it is fond of acorns, beech mast, the berries of the hawthorn, the seeds of the wild rose, and the tubers of the Jerusalem artichoke. Boiled potatoes (which the pheasant prefers much to those in the raw state) are," he adds, "perhaps the most nourishing things that can be offered in the depth of winter." The plantations of hollies afford the pheasant a retreat to feed in admirably suited to its timid nature, and they serve at the same time to keep the smaller birds at a distance.

Pheasants are generally considered worth encouraging in a park, for their ornamental effect when sitting on the trees, or rising with a loud whirr from their covers. It is also agreeable to hear their call in the woods at roosting-time and early in the morning. A wood without any living creatures in it presents only a dreary scene, or at best only gloomy pictures to the imagination; but, as soon as it is instinct with life, its whole aspect seems changed, and cheerful feelings are excited. I like, therefore, to encourage birds and other half wild animals in extensive parks, and I would only banish those whose natural propensities make their presence more likely to give pain than pleasure.

Partridges require very little aid from man, provided only the common kind is desired. All that is necessary is, to prevent the hen from being disturbed while sitting, or while brooding over her young. May is the month in which the partridge generally

lays her eggs, and, from that time till the end of June, care should be taken not to disturb her. "Partridges pair early in spring, and once united it is rare that any thing but death separates them." The female lays from fourteen to twenty eggs, and makes her nest upon the ground. The young one runs as soon as it is hatched, and frequently while it has still part of the shell upon its head. The hen partridge rears her young as a hen does her chickens, scratching the ground to get insects for them, and sheltering them under her wings while they are at rest. Partridges succeed best in temperate climates; for extremes of heat and cold are alike unfavourable to them. Partridges make a peculiar noise called jucking when they settle down for the night; when this noise is heard, it is a certain indication that there is a covey or brood of young birds close at hand.

The *red-legged*, or *Guernsey, partridge* is very abundant in France, and in many parts of the Continent; but it is rare in England, except in Suffolk, where it is not liked for the table. Its habits differ materially from those of the common partridge. It will only thrive in mountainous situations covered with wood; and, instead of roosting on the ground, it passes the night on trees. It is also generally found perched on trees in the daytime; and it lives in large flocks, and not in coveys consisting only of a single family. If you wish to try the experiment of rearing some of these birds, you have only to get fifteen or twenty of the eggs through some poulterer from France or Guernsey, or from Suffolk, and to set them under a common hen. They will be hatched in about the same time as pheasants, and the young birds require exactly the same treatment.

I do not think I need say any thing of the other kinds of game birds common in England, as you are not very likely to go out shooting; and they are too wild to suffer themselves to be approached.

Hares may be occasionally seen lying in their forms, or scudding across a field; but they are too fond of pinks and carnations for me to be very partial to them; and, indeed, it is hardly possible to have a good flower-garden where there are a great many hares and rabbits.

Herons are very interesting birds, but, as they only frequent marshy land, it is not every situation that is suitable for them. They have certainly a striking appearance in a landscape, when they are seen standing for hours together on the banks of a piece of water watching the fish; and, when they fly, the flapping of their long wings, and the cries they utter, have something in them extremely wild and romantic.

The booming of the *bittern*, too, which is often heard on the borders of marshy land, has a very striking effect, and harmonises well with the cry of the heron.

If you have any gold and silver pheasants, or other curious birds that you do not like to trust wild in the park, you will perhaps find it advantageous to have an *aviary*; of which there are two kinds. Small aviaries are, in fact, but birdcages on a large scale, divided into compartments to suit the nature of the birds that are to be confined in them; while a large aviary is only a superior kind of poultry-yard covered in with wire network to prevent the birds from escaping. The aviary of the Earl of Derby at Knowsley Park, which is generally considered the best in England, is of this latter description.

The *apiary*, or stand of beehives, should be placed in a sheltered situation with a southerly aspect, and care should be taken that there are no bad smells near it; such, for instance, as those proceeding from a pigsty or a dog-kennel. There should, on the contrary, be a garden full of pleasant flowers as near as possible to the bees, as, though they will occasionally go even miles in quest of food, it is much better for them on every account to have it close at hand. Bees are particularly fond of the flowers of buck-wheat, and, though other plants may be more abundant in honey, none are more useful in affording what is called bee-bread, or the substance on which the bees live while they are laying up their winter store. The working bees, indeed, manufacture three distinct substances from the juices they obtain from the flowers. These substances are, the wax of which they make their combs; the honey which they store in them, for consumption during winter; and the bee-bread on which they feed, and a portion of which they lay up in the cells in which eggs are deposited, in order that the young bee may feed upon it while in its larva state.

When you want to form an apiary, it is necessary at first to decide upon what design you will prefer, and then to adapt your bee-house to it; the bee-house itself being a wooden closet with shelves in it, each large enough to hold two or more hives. The holes for the entrance of the bees must be in front of the apiary; and they are generally made three inches long, and a quarter of an inch high, with a little shelf before each for the bees to alight upon before they enter the hive. Many kinds of hives have been recommended, and Nutt's hive is a very good one, where the bees are kept merely for an amusement, and it is wished to see them at work; but, where honey is an object, I believe the common straw hives are found to answer best. I may observe, however, that where Nutt's hives are used, no ornamental front is required to the apiary, as the hives are quite sufficiently ornamental in themselves.

When a hive of bees is to be bought, the person who selects it generally taps it to see if it is full of bees, and, if he is satisfied in this respect, a thin board is slipped under it, and it is left quiet till night. When it is dark, the board is gently raised by having a person on each side of it, so as to keep it as level as possible. A cloth is then slipped under the board, and drawn up and tied closely over the hive. When thus secured the hive may be easily carried to any distance that may be necessary; and, when it is placed on the board where it is finally to stand, the cloth must be taken away from the lower part of the hive before it is placed; as, when it is once fixed, it should not be moved again if it can possibly be avoided.

In May or June bees generally swarm, that is, the bees having become too numerous for the hive, a portion of them go forth to seek a new abode. A short time before swarming the bees come out of their hive, and hang together so as to form a chain. After hanging in this manner for some time, and frequently for several hours, they leave the old hive and settle on a tree in the neighbourhood; and, as soon as this is the case, a table is set under the tree covered with a white cloth, and a man experienced in such matters ascends the tree with an empty hive in his hand, and sweeps the bees into it. He then brings the hive down, and places it on the table which was previously covered with a cloth. A very great bustle immediately takes

place among the bees, and the cloth is completely covered with them. Gradually, however, they become settled in the hive, and at night the cloth may be drawn round them, and the hive removed to wherever it may be wished to place it. There must be one queen bee in every swarm, and, if by any accident the queen bee is killed, the remaining bees are in the greatest trouble and confusion, as if seeking for her, and if they do not find her they separate, and disperse themselves among the other hives. If, on the contrary, the queen is only held in confinement, they fly to her as soon as they find out where she is, and forming themselves into a chain, wait till she comes forth to lead them away.

There are many curious facts relating to the domestic economy of bees well worthy of your notice, but this is not exactly the place to relate them. I shall, therefore, only say a few words on the mode of taking the honey, and on the management of the bees during winter. Many plans have been devised for taking the honey without killing the bees; but this appears to be a mistaken kind of humanity, as it is more merciful to kill the bees at once than to condemn them to die of starvation by depriving them of their winter food. The ordinary mode is, to put linen rags dipped in melted sulphur into a hole in the ground, and, after having lighted them, to set a hive full of bees over the hole. Another plan is to set the full hive on an empty one inverted, and then to introduce a sulphureous smoke into the full hive by means of a pair of fumigating bellows. The bees will all fall from the full hive into the empty one, and the combs in the full hive, when cleared of the bees, may be cut out. When the lives of the bees are to be preserved, the full hive is inverted, and the empty hive being put over it, and both of them enclosed in a cloth, the lower hive is tapped several times on the outside with a stick, and gently shaken, so as to drive the bees from it into the upper hive. A board is then slipped between the two, and, the hive containing the honeycombs being removed, the other hive is left with the bees in it. This operation should be performed in August, as, if it is later in the season, the bees will not have time to provide themselves with a fresh stock of honey before winter. If the

bees are to be destroyed when the honey is taken, it is generally done in October.

When winter sets in many cover their hives with a thatching of straw; and, if a few warm days occur which tempt the bees out, they are fed with sugar and water boiled into a syrup, and not with merely sugar dissolved in water, as is frequently the case. Some persons recommend the syrup given to bees to be put on a plate and crossed with straws, to enable the bees to take it without drowning themselves; while others recommend paper pierced with holes, or perforated zinc, for the same purpose. It may be useful to mention that the sting of a bee, being a powerful acid, may be cured by the application of an alkali; and thus chalk, or any similar substance, will very soon allay the pain.

I shall now add a few words on keeping *silk-worms*, and then I think I shall have said quite enough on the animals usually kept in the country. Silk-worms succeed best when fed on the leaves of the white mulberry, but those of the black mulberry are unwholesome for them. When the leaves of the white mulberry cannot be procured, lettuce leaves or those of the maclura are the best substitute. Where the mulberry is grown purposely for silk-worms, the trees are cut down to the ground every year to make them send up strong vigorous shoots. The leaves of these shoots are gathered in the morning after the dew has gone off, so that they may be perfectly dry, and, when stripped off, they are deposited in a bag kept open with a hoop round the top, in order that they may be preserved in as fresh a state as possible; and every leaf is taken off one tree before another is begun upon, as it is found that this plan of stripping the trees entirely injures them less than taking a few leaves from each at a time; as, after the tree has been for some time entirely denuded, it forms a fresh set of leaf buds, and produces a second crop of leaves. None of the leaves of this second crop, however, must be taken off. Where labour is sufficiently cheap, the leaves are best cut off with a pair of scissors.

If you should feel inclined to try your skill in feeding silk-worms, you can purchase the eggs in Covent Garden market for ten shillings an ounce, and, if kept in a cool place, they will

remain good for nearly a year. When they are to be hatched, they must be exposed to a temperature of 86° Fahr., and they are best kept in a room appropriated for the purpose, and heated by a stove. If you have any small room adjoining your laundry, or any other place where there is a constant fire, you will have no difficulty in managing your silk-worms. Supposing you to have a room of this nature, it will be well to have tables and shelves provided for keeping the insects on; the shelves should not be let into the wall, but should be so contrived, by being suspended on holdfasts or in some other way, as to have the air on every side; and they should be furnished with ledges round them to prevent the insects from falling off.

As soon as the mulberry begins to unfold its leaves, the eggs of the silk-worms should be laid on the shelves, and when they begin to turn white, which will be in about ten days if the room has been kept at a proper temperature, they should be covered over with little trays made of writing-paper turned upside down, and pierced full of holes with a large knitting-needle. On each tray should be laid some young twigs of the mulberry, which the insects will smell as soon as they are hatched, and, crawling through the holes in the paper, will begin to eat. As soon as a twig is covered all over with silk-worms, it should be carefully removed to another shelf, and the insects placed on blotting-paper. Each insect should be allowed about a square inch of paper. It should then be fed with chopped leaves, and it will appear to pass the greater part of its time in sleep till it changes its skin. In its second state it will also appear to pass a great portion of its time in sleep; but it may be fed with young leaves without chopping, till it changes its skin a second time. In its third state the silk-worm becomes more lively and vigorous, and it will devour full-grown leaves without chopping. Up to this period of its life it will be sufficient to feed it three times a day. After changing its skin a third time, the silk-worm becomes of a flesh colour, and eats so greedily that it should be kept supplied with a succession of leaves all day long. After the next change the silk-worm eats abundantly night and day, and should be kept warm. It now begins to get restless, and instead of eating is continually stretching out its

head as though it were in search of something; its body will have become transparent, of a clear pearly hue, with bands of gold colour. Little bits of wood should now be fixed on the shelves in such a way as to give the insects a feeling of security; and they will immediately begin to make their cocoons, which they will complete in from four to seven days.

When the insects have done working, the cocoons are taken from the sticks, and a few being selected to breed from, the rest are prepared for unwinding. The insects enclosed are first killed, either by putting them in bags and enclosing them for half an hour in an oven heated to 88°; or by putting them in sieves, and, after covering them closely with a woollen cloth, placing the sieves over boiling water or boiling spirits of any kind. The insects being killed, the loose or floss silk is removed from the cocoons, and they are put by handfuls into basins of hot water, which has been heated almost to the boiling point; and the cocoons are stirred round in it for a few minutes with a whisk of broom. In a very short time the gum with which the insect had covered the cocoon is dissolved, and the loose threads beginning to float on the water, five or six of them are collected, and the reeling of the silk begins. If well fed and kept in a proper temperature, the caterpillars will finish their labours twenty-four days after they are hatched. An ounce of eggs will produce about forty thousand caterpillars, which will consume nearly eleven hundred pounds of leaves, and will produce about eighty pounds of cocoons, or eight pounds of raw silk.

BOOK IV. RURAL WALKS.

LETTER XVII.

SHOES AND APPARATUS FOR WALKING.—RURAL SEATS.—NATURAL OBJECTS NOTED IN A COUNTRY WALK: THE MOLE; THE SHRIKE; THE BLACK SNAIL; THE SILLER CUPS; THE WOUNDWORT.—PLEASURES OF STUDYING BOTANY.—GRANITE.—APPEARANCE OF THE CLOUDS.

It gives me the greatest pleasure, my dear Annie, to find that you are entering so warmly into country pursuits, and I have read over repeatedly the passage in which you thank me for having taught you to love the country, and in which you say that when you look at your beautiful garden (now so brilliant with bright scarlet verbenas and golden-yellow calceolarias, that you can scarcely gaze at it in the sunshine), and that when you sit in your light cheerful room, or wander near the house, and see in one direction the village church peeping through the trees, and in another a river winding like a silver riband through the valley, you can scarcely believe it is the same place as that which struck you as the very palace of gloominess only a few months ago. "The very rooms themselves seem changed," you add, "and even the situation of the house; for, instead of being buried in a deep valley, and surrounded by a thick forest which rose on every side as if to entomb it, and which appeared to forbid the possibility of walking out, it is now every thing I could desire, and I would not alter it even if I had Aladdin's lamp."

I am not, however, quite so well pleased to find that it is several weeks since you have been beyond the precincts of what you call your own domain; that is, the garden, poultry-yard, &c., immediately adjoining the house. It is well to love home, and to take a deep interest in all relating to it; but it is not well to live entirely in so confined a sphere. The mind indeed becomes contracted by dwelling only on a limited number of objects, and those all in what may be called an artificial state; while, on the contrary, it is expanded, and noble feelings are elicited, by communion with nature. "I have been talking to the vines," said the great Goethe after paying a visit to the country, "and you cannot think what beautiful things they have said to me." Seek nature then, my dear Annie; leave your trim flower-garden, and your tame poultry, and wander in the woods, admiring the poetry of forest scenery, and watching the habits of the various creatures which people what seems to the careless observer only one vast solitude.

You must not suppose, however, that I want you to set forth like a female knight-errant in quest of adventures; but I do think that attended by your maid, who I was glad to hear is a

highly respectable and well-educated young woman, you may wander through the woods of your own park without incurring any very serious dangers.

In the first place, however, I would advise you to provide yourself with a pair of strong and yet comfortable boots. I prefer German boots made to tie round the ankles, so that they can be easily taken off when you come home with them dirty; as it is not very agreeable, when you are tired, to wait till your boots are unlaced before you can enjoy the comfort of clean dry shoes after a fatiguing walk. If you can walk in clogs comfortably they will keep you very dry, as two pairs of even thin soles admit less damp to the feet than one pair of thick ones. I do not, however, think you will find clogs advisable, unless you walk to church, or to make calls, as they fatigue the feet exceedingly by their irregular pressure; and, while Indian rubber clogs make the feet cold by preventing the evaporation of the insensible perspiration, the jointed clogs may very probably break at a considerable distance from the house, and reduce you to the disagreeable necessity of walking home in thin shoes through the mud. When you lived in town I remember you were not capable of bearing much fatigue, and though I have no doubt but the country air has greatly invigorated you, yet I think you will find it advisable to let your maid carry a camp stool with you in your excursions, as nothing can be more injurious to a person of delicate constitution than over-fatigue.

In the course of your walks, you will doubtless find many situations where a rustic seat might be introduced advantageously. I do not mean one of those distorted chairs or garden-seats made of crooked pieces of wood nailed together in the strangest possible shapes and then painted and varnished, but a real rustic seat formed by the stump of an old tree or the trunk of a fallen one, only made sufficiently smooth to prevent it from tearing your clothes; or, at most, only a few plain pieces of wood nailed together by some village workman, and placed under the spreading branches of a tree, so as to be not at all obtrusive.

When you first begin to walk out you will probably find the beauty of the scenery quite sufficient to interest you; but after

a time, as your walks must all necessarily partake of the same character, you will want a little variety, and you must make sources of interest to yourself by observing the various natural objects you meet with, and when you come home endeavouring to make yourself acquainted with some particulars respecting them. To illustrate what I mean by an example, I will just enumerate the objects you may very probably meet with in a morning's walk, and show you how much entertainment you may derive from them.

I will suppose first, that you see a mole-hill with a mole caught and hanging in a trap near it. Struck with the curious form of the mole, its long snout, its hands, and its velvet fur, and your curiosity being excited to know something of its habits, you write the word "mole" in your notebook. A little farther on, you see a rather small bird, with a dead mouse in its beak almost as large as itself, dash the mouse violently against the branch of a tree, and leave it there sticking in the fork of the branch. This appears so strange that you approach the branch to examine it, and find on another branch an insect completely impaled on a twig, which apparently some boy has forced through its body. Shuddering at the cruelty of human nature you walk on; but shortly afterwards perceiving a curious excrescence on the trunk of a tree, which is almost above your reach, you stand to look at it, and see to your astonishment some other insects impaled in the same manner as the first, at a height no boy could reach; and, quite puzzled, you enter a note in your journal. A little farther on, you meet with a black snail that crawls across your path, and leaves a long line of shining slime behind; and you then find some curious little fungi (fig. 18.) which look like fairy birds' nests full of eggs. Your attention is next attracted by a plant with a square stem, and soft hairy leaves, heart-shaped at the base, and tapering to the point; and very pretty spotted pink flowers, something like those of the snapdragon, but much smaller. You afterwards pick up a bit of stone that appears composed of various particles; and, lastly, as you go home you observe the singular appearance of the clouds, which look like long plumes of feathers streaming in the wind. You make notes of all that you have seen, and when you get home amuse yourself by

searching in books for an explanation of those subjects which have excited your curiosity.

Fig. 18. ***Nidulària campanulàta.***

First, if you will look for the article Mole in Bell's *British Quadrupeds*, you will find an engraving of the curious little hands, or rather paws, by which the mole makes its passages through the earth, with a plan of its castle under ground; and you will read a description of the little animal itself, and of its fur which is set horizontally from its skin, so as not to offer any obstruction in the narrow passages through which it moves, sometimes forward and sometimes backward. You will also read an account of the ingenious experiment of M. Henri Le Court, who, to discover how fast a mole could go, fixed straws in the track of the mole's burrow; and then, blowing a horn at the entrance, counted with what rapidity the different straws were thrown down, and calculated that a mole can run as fast as a horse can trot. The whole account is extremely curious; and I am quite sure, when you have read it, you will feel an interest in moles that you have never had before; and that you will look with quite different feelings at every mole-hill that you may see.

The next thing you saw was a bird hanging a field-mouse upon the fork of a branch, and near it you saw several insects impaled upon twigs, too high for it to have been the work of a mischievous boy. The bird you saw was the Greater Shrike, or butcher bird, whose habit it is to hang up the insects or small animals it kills as a butcher does the meat in his stall, and afterwards to return to feed upon them. You will find accounts of this curious bird in Yarrell's *British Birds*; Montagu's *Ornithological Dictionary*; and the *Penny Cyclopædia*, under the article Shrike.

You will next find entered in your journal the creature called a black snail, but which is in fact a slug, as it has no visible shell. On looking for the word Slug in the *Penny Cyclopædia* you will find yourself referred to Limax, and under that head you will find a figure very nearly resembling the creature you are seeking for, though it differs in colour; as it is called Arìon rùfa, or the red slug, while the creature you saw was the black slug, called Arìon àter; and if you have the courage to examine the living animal you will find it very curiously formed. Its back is covered with a black ribbed skin, and on the upper part it bears a shield, which consists of a piece of bone, the only one in the slug's body, covered with skin; the shield being designed to protect the air-hole through which the creature breathes. What we are accustomed to call its horns are, in fact, tentacula or feelers, which the creature has the power of drawing into its body or pushing out at pleasure, and which are gifted with an exquisitely fine sense of touch. The long shining line with which the creature marked its path is the slime which proceeds from its body, and with which it is enabled to glide smoothly over sand or gravel that would otherwise injure it. I have said more on this subject than I should otherwise have done, because I wish to point out to you that even a creature so humble and so despicable as a slug, is as curiously and wonderfully made, and displays the power and wisdom of its Creator, as decidedly, as the noblest and most beautiful animal. The study of natural history is, indeed, I think, more fitted than any other to open our minds to a proper knowledge of the wisdom and goodness of God; and the more we study it the more firmly we shall be convinced that nothing has been made in vain, and that everything has been most admirably suited to the station which it is destined to fill.

The curious fungus you will find, by comparing it with the *Encyclopædia of Plants*, is Nidulària campanulàta, which the Scotch call "Siller Cups." There is a popular superstition in Scotland respecting these pretty little cups, which says that if you find them alone you will have as much money as they contain little balls. These balls are, however, cases containing the sporules, or seeds, of the fungus.

I now come to the flower which I have supposed to have attracted your attention, and you will find, upon a minute examination, that it has a corolla divided into two distinct parts, the upper one standing up like a hood or helmet, and the lower one hanging down like a pouting under lip. It is this last which gives you a clue to find out what the plant is, as you perceive immediately that it belongs to the Labiàtæ, or lipped plants. You may then turn to any work you may possess on the British wild flowers, when, if the text is arranged according to the natural system, you will find your plant under the head of Labiàtæ, and, if the work has coloured plates, you will recognise it without any further trouble; but, if the work has no plates, you must endeavour to identify it by the description, and finding your plant has a square solid stem, soft, hairy, heart-shaped leaves, which taper gradually to a point, and that the lower lip of the flower, which is much larger than the helmet, is spotted, you discover that the plant agrees in description with the common woundwort (*Stàchys sylvática*.) If you want to find it in Sowerby's *English Botany*, you had better take the second edition of that work, where you will find the plant in question in the Linnæan class and order Didynàmia Gymnospérmia, from two of the stamens being longer than the others, and the seeds being what is called naked, that is, not enclosed in any visible pod or other seed-vessel. This will appear difficult to you at first; but, as I think you have told me that your husband understands botany, it will be an amusement to him to explain to you at his convenience the principles both of the Linnæan and the natural systems, and to leave you to make a practical application of them in your morning walks.

Nothing can be more delightful than to study a science in this manner. It is pleasing to be schooled by the lips of those we love, and the wish to prove yourself deserving of the pains your master takes with you, will make you exert yourself to conquer any little difficulty you may meet with; while, on the other hand, your husband will be proud of the proficiency of his pupil, and a new occupation will be given to you, which will prevent your conversations becoming so monotonous as those of two persons who live together, and who see few

strangers, would otherwise inevitably become. One of the great secrets for enabling a woman to render her husband happy, and, of course, to be happy herself, is partaking with him as much as possible in both his amusements and his studies. A woman should have as many subjects of interest as possible in common with her husband; and, in fact, she should have no objects of interest in the cares for which he cannot participate. It is true that in her domestic occupations she must be employed differently from him, as a man cannot interfere in the details of household arrangements; but a good wife will always have her husband's comfort in view, even when she is attending to her store-room or her kitchen; and she will be proud to show him the result of her labours in their due season. Men also have duties to attend to in which a woman cannot participate, such as those of a justice of the peace; and some manly sports, such as shooting and hunting. But these will often supply subjects for conversation, and afford that variety which gives life its greatest charm. It is, indeed, better that married people should have separate occupations during a part of the day; but they should never have separate interests, and they should always study to have as many subjects in common as possible.

But I am forgetting that you have still two objects of natural history to be explained, which excited your attention during your walk. The first is the piece of stone that was picked up, and which, from the numerous particles it contains, was probably a piece of Granite, that is to say, if shining particles were mixed with others of a different nature; and it will be an amusement to you if you have any mineralogical specimens, to endeavour to find out what it is by comparing it with them; or, if you have not, to take it with you the first time you go to a town where there is a museum. The curious appearance you noticed in the clouds you will find, by consulting a book on meteorology, was of the kind called Cirrus, or, popularly, mare's tail, and that it is said to indicate the approach of windy weather.

It would be useless to multiply instances of the mode in which an interest may be created in country walks; but what I have said will be sufficient to show that, though we may complain

of the monotony of a country life, there are a thousand sources of interest in it within our reach, if we will only give ourselves the trouble to observe them.

BOOK V. COUNTRY AMUSEMENTS.

LETTER XVIII.

ARCHERY: TARGETS; SELF BOWS AND BACKED BOWS; BOWSTRINGS; ARROWS; ARM BRACER AND SHOOTING-GLOVE; BELT AND TASSEL; AND QUIVER.—SKETCHING IN THE OPEN AIR: BLOCK-BOOK AND PENCILS; ARTIST'S COLOURS; TOUCH OF THE DIFFERENT TREES.—SWINGING.—PLEASURE-BOATS.—SKATING.—THROWING OFF OF THE HOUNDS.—SPORTING TERMS.

Now that the autumn is rapidly advancing, you should begin to think of those amusements which more properly belong to the season; especially as you are expecting soon to receive a visit from your sisters, and as you will, of course, be anxious to afford them as many amusements while they stay with you as possible.

Archery is a favourite amusement with ladies in the country, as few exercises display an elegant form to more advantage. The first thing that is to be done is to choose a suitable piece of ground; and, as most old houses have a piece of ground which was used as a bowling-green, I have no doubt yours has one which will be quite suitable for the purpose. The ground having been chosen, the next thing is to set up a target, and the next to provide proper bows and arrows, bracers, and shooting-gloves.

The *target* is generally made of wisps of straw tied together at intervals, and then wound round and round, like an old-fashioned door-mat, only round instead of oval, till of the proper size. This straw framework is covered with canvass or leather, painted with rings of different colours, first green, then white, then black, then white, and then a very broad ring of dark red, in the centre of which is a gilt spot called the bull's

eye. Other targets are made of a hoop or circular frame of wood, with a piece of leather stretched over it, painted in rings and with a bull's eye in the centre, like the common kinds; and others are square, and made of iron for firing against with bullets. In all cases the target stands on three legs, in a slanting direction, and the merit of the shooter is estimated by the nearness with which the arrow, or ball, approaches the centre.

Modern *bows* are of two kinds, viz. self bows and backed bows. The self bow is composed of only one kind of wood; but the backed bow is composed of two kinds of wood, both the full length of the bow, carefully joined together. Bows used formerly to be made of the yew, and foreign yew was preferred to British, as being more elastic. Now the yew is seldom used, and bows are made, either wholly or in part, of ornamental woods, such as fustick, lance-wood, or partridge-wood, backed by ash or elm. Bows are of different lengths, but those for ladies are generally about five feet long; while men, on the contrary, generally choose a bow of their own height. The strength of a bow is calculated by the weight that it requires to be suspended to the bowstring, when the bow is strung, to draw the string to the length of an arrow from the bow, and this is called the bow's weight. Fifty pounds is the standard weight of a man's bow, and it requires a very strong man to draw a bow of sixty pounds' weight; but bows for ladies and children are from two to thirty pounds' weight. The bow handle, that is, the part which is nearly in the centre of the bow, is usually covered with velvet, in order to give a firm hold without hurting the hands; and this handle is placed, not exactly in the centre, but below it, so as to shorten the lower branch, as the strain upon that part is generally considered greater than on the other, and on this account, also, the lower part of the bow is generally the thickest and the strongest. The two ends of the bow are tipped with horn, and notches are made in these tippings to receive the bowstring.

The best *bowstrings* are made of Italian hemp, dressed with gum or Indian glue to preserve them from the wet; and the distance of the string from the centre of the bow, when strung, should not be more than five inches for a bow five feet long, and in the largest bows not more than six.

An *arrow*, in the language of the bow-maker, consists of three parts; the shaft or stele, the head or pile, and the feather. The best wood for the shaft of an arrow is the ash, and the next best the birch or hornbeam. The aspen and the lime are also used; but deal or willow-wood is too light, and the arrows made of these woods have an uncertain wavering flight. The length of the arrow should be regulated by that of the bow, and for bows of five feet in length arrows of two feet are generally used, their length increasing in proportion to that of the bow. When arrows are intended for a long flight, they are generally thickest directly under the feathers, and taper gradually to the pile. The nock of the arrow was formerly made of solid horn; but it is now merely inlaid. It should be as nearly as possible the size of the string, so that it may fit closely, and yet not require force to fix it. The feather is a most important part of the arrow, as without that the arrow will not fly steadily. Every arrow has three feathers, and the colour of one of them, which is sometimes termed the cock-feather, is generally different from that of the other two; and this feather must always be uppermost, when the arrow is placed on the string. Should, however, the feathers be all of the same colour, that one is considered the cock-feather which is on the horn of the nock. After the feathers are fixed on the arrow they are generally covered with gum water, not made too strong, to give them firmness and to make their flight more steady.

The *bracer* is a piece of stout polished leather, which is buckled round the arm which holds the bow, to prevent the string from hurting it when it is let go. Even with that precaution, the string very often bruises the arm, and ladies sometimes have the bracer wadded, or lined with India rubber to make it more elastic, and thus to diminish the force of the rebound.

The *shooting-glove* consists of three finger-stalls made of very strong, but yet pliable leather. It is worn over an ordinary glove, and is fastened round the wrist by a button or string.

The *belt* and *tassel* complete the equipments. The first buckles round the waist, and has a pouch for holding the arrows fixed to it on the right side, while on the left is the tassel, which is used for wiping the heads of the arrows when they have

entered the ground. Ladies very often omit the belt, as they have generally some person in attendance on them to supply them with arrows, and to pick up and wipe those they have the misfortune to let enter the ground. I say misfortune, for all arrows that do not reach the target are considered of no avail.

The distance at which the archer stands from his mark depends upon circumstances; but the ordinary distance for ladies is a hundred yards. A flat stone is often let into the ground to show where the archer is to stand, and then the target is moved to the distance that may be agreed upon. The bow is held in the left hand, and the string is pulled by the right. Arrows were formerly reckoned by the sheaf, which consisted of twenty-four arrows, which were carried in a quiver or arrow-case on the back; but arrows for immediate use were always worn in the girdle. When a portion of the English soldiers were archers, every full-grown man was forbidden by statute to shoot at a butt which was nearer to him than two hundred and twenty yards; and the archers drew their bowstrings to the ear instead of to the breast, as is the custom at the present time. Newington Butts, and several other places round London, bear witness by their names to their having been formerly places for the citizens to exercise their skill in archery; but even as late as the reign of Elizabeth no person was allowed to shoot with a yew bow, under the age of seventeen, unless he was the son of a gentleman.

Sketching in the open air is a very delightful country amusement, particularly when it can be so managed as to be done with very little apparatus. To go out with a table and chair and every thing prepared is, however, enough to damp the courage of an amateur artist; and nearly all the pleasure of sketching from nature depends upon being able to gratify the inspiration of the moment, at the very moment when the desire to make a sketch is felt. There are happy moments in which the talents appear to have more brilliancy than at other times, and, as these do not depend upon the will of the poet or the artist, they must be taken advantage of when they arise, or they are lost.

As I know you have an admirable talent for sketching from nature, and as I have no doubt there are some noble specimens

of trees in a park so old as yours is, I would advise you by all means to provide yourself with what is called a block-book, that is, a drawing-book in which the sheets of paper are fixed together by a little gum, or some other glutinous substance, being washed over the edges, so that they are as perfectly firm and solid as though the whole book were a block of wood with a piece of paper pasted on it. It is obvious that a book of this kind may be held in one hand, and a drawing made upon it with the other, without requiring any table; and, when the drawing is finished, it may be detached by putting the thumb-nail in the little hollow left on one side for that purpose, and separating that one sheet of paper from the rest. After which, the drawing may be put into a flap or pocket provided for that purpose in the cover of the book; while the next sheet is left ready for another drawing to be made upon it. A book of this kind is not larger than a thin octavo, and it may be easily carried by your maid in her reticule without any parade, as, if it should not be wanted, it will be of very little incumbrance; whereas, if you have a table and the apparatus for drawing carried out, and should not happen to be visited by the pictorial muse, you will find it very disagreeable to be joked on so formidable a preparation having produced no result. Even under the most favourable circumstances, it is much more agreeable to draw from nature in a block-book than in any other way, as ordinary sheets of paper are always being curled up and moved about by the wind. You will also find it advantageous to supply yourself with one of those pencils with a broad lead which are sold for sketching foliage, and you will find it save both time and trouble to take a case of pencils out with you, with pencils of different degrees of fineness cut for use.

Should you wish to give the effect of colour to your landscapes, you will do well to provide yourself with an artist's colour-box made of tin, with a place for the colours to be rubbed on inside of the lid; and provided with a small bottle for containing water. When you sketch, be particular in marking strongly the effects of light and shade, and the distances; also pay particular attention to giving the proper touch to the different trees. The foliage of the pine and fir tribe

is characterised by a few small upright strokes introduced occasionally; the oak requires angular touches, and has a certain degree of squareness in the outline of its twigs; the elm has a roundness in the touch; the touch of the willow is thin and wiry; and that of alder somewhat heart-shaped. It is difficult to explain what I mean without the aid of drawings; but your best way will be to get some good sketches of trees, and then to take them out with you, and compare them with the effects you observe in nature.

A *swing* is a very useful adjunct to the amusements of the country, as many grown-up people are as fond of swinging as children. The most simple kind of swing is formed by tying the two ends of a strong rope to the branches of two trees which may chance to be conveniently placed for the purpose, the rope having been previously passed through two holes in a piece of flat board, which serves for the seat. A swing of this kind requires no attention but turning the seat the wrong way upwards in wet weather, and taking the rope down in autumn, as it will become rotten from exposure to the wet during winter. The seat should also have two strips of wood nailed on its under side, across the grain of the wood, in order to prevent it from splitting open, which it would otherwise be very likely to do, from being exposed to the alternations of wet and dry weather. Where there are no trees conveniently situated for a swing, two upright pieces of wood may be driven into the ground, with hooks or rings affixed to the upper part, to which other hooks are attached that have been previously fastened to the ends of a strong piece of rope. A swing of this kind is generally furnished with a chair or boat, and it is more fitted for a court or some piece of enclosed ground than for the open pleasure-ground. At the Duke of Devonshire's, at Chiswick, a hammock is hung between two trees for the purpose of a swing.

If you have a *boat* on your water, take care, when it is chained up in the boat-house, that it floats in water, and does not lie in mud. Pleasure-boats should be painted every year, and always be kept perfectly clean and dry in the inside. They should never be exposed for any length of time to the heat of the sun, and if the smallest opening is perceived it should be mended

immediately. Great care should be taken, in a small pleasure-boat, to stand up as seldom as possible; and never to be tempted by the wish of seeing any particular object, to rush suddenly from one side of the boat to the other.

Skating is a winter amusement, but it is a very healthy one, and one in which a lady can, without any impropriety, indulge. The principal thing to be attended to, after having provided yourself with a pair of good skates, is to learn to balance yourself properly first on one foot, and then on the other. When you first begin to move, you will find it very difficult to avoid falling the moment you attempt to move one foot without the other; and it will probably be all you can do to keep yourself erect, even if you slide awkwardly along with both heels close together. When you do venture to separate your feet, you must contrive to balance your body so as to keep your ankles directly over your skates, and not to suffer the skates to bend under them in a slanting direction. When you see experienced skaters with the steel part of their skates cutting the ice in a slanting direction, you will observe that their skates only follow the same inclination as their bodies, and that the steel of the skate is still exactly under the ankle of the foot. When you begin to skate properly, the leg that is upon the ice should be kept quite straight and the weight of the body thrown upon it, while the other leg should be kept straight also, but in a slanting direction, and with the toe pointing downwards. It is well not to look at either the ice or the feet, but to keep the face erect and looking forwards. When persons first begin to skate they balance themselves with their arms almost involuntarily, and, when one foot is off the ice, they raise up the arm on the opposite side to prevent themselves from falling. This is excusable in a beginner; but, as it has an inelegant appearance, the habit of doing so should be shaken off as soon as possible. The best way is to fold the arms across the breast, or to carry the hands in a muff. The greatest care ought to be paid to carrying the body gracefully and elegantly, and avoiding all sudden jerks. Skilful skaters make the figure of eight or the cross-roll, as it is called, with the greatest facility; but figure-skating is rather the accomplishment of a

gentleman than a lady, who should be contented to glide gracefully and easily along.

I believe I have now mentioned most of the ordinary kinds of country amusements in which a lady can properly indulge; as I must confess I should not like to see you hunting or coursing, though I have heard of some ladies doing so. It is quite natural that a lady should like to see the hounds throw off, as nothing can be more animating than such a scene; but that is, I think, all that can be allowed. As, however, your husband is most probably fond of sporting, it may be as well to mention a few of the terms used by sportsmen when speaking of the chase, that you may understand what is meant, if your husband should give you any account of the day's sport, without troubling him by asking continual explanations. When sportsmen are speaking of dogs, they say a brace of greyhounds if they mean two, or a leash if they mean three; but they say a couple of hounds, or a couple and a half if they mean three. In speaking of a fox-chase, they say they have unkenneled a fox when they have merely found a wild one. A sharp burst is when the hounds go off very fast at first; but a check is when they lose the scent. If the fox is by any accident turned back, he is said to be headed. The place where the fox is likely to be found is called the cover, and when the hounds are taken into it to try if they can find the fox, they are said to be drawing the cover. The scent left by the fox is called the drag. When the hounds find the scent they generally utter a cry, which is called giving tongue; and when the whole pack go off after the fox, uttering this sound, they are said to be in full cry. The foot of the fox is called the pad, and his tail the brush. Some sportsmen, instead of saying a pack of fox-hounds, say a kennel, and only say a pack of harriers, or a pack of beagles; the latter being a very small kind of harrier. In hare-hunting, sportsmen say they have started the hare from her form, when they have found one. When a hare returns to the place from which she started, it is said she doubles. The tail of the hare is called the scut, and that of the dog is sometimes called the stern; but this last term, I believe, only relates to dogs used in hunting.

You will observe, my dear Annie, that though I have mentioned a few sporting terms, with the meanings that are, I believe, generally assigned to them, I would advise you never to make use of them in conversation; as nothing can be more unfeminine than for a woman to use terms only adapted to manly amusements. I am sure your husband would dislike to hear you ape the sportsman; as men, with very few exceptions, always feel disgust at a masculine woman.

BOOK VI. COUNTRY DUTIES.

LETTER XIX.

RELATION BETWEEN A LANDED PROPRIETOR AND THE COTTAGERS ON HIS ESTATE.—HOW TO RELIEVE THE POOR.—ESTABLISHING SCHOOLS.—TEACHING THE DAUGHTERS OF THE POOR TO MAKE CLOTHES, AND TEACHING THEM COOKING.—EMPLOYING THE POOR.—ASSISTING THE POOR IN ILLNESS.—MAKING CLOTHES FOR THE POOR.

I have now, my dear Annie, a few words to say on a more important subject than those I have yet touched upon; I mean the duties which are imposed upon you by your residence in the country. As your husband is the last descendant of an ancient family, it is particularly incumbent upon him, and, of course, also upon you, to keep up as much as possible the kindly feeling which existed in the olden time between the lords of the soil and its cultivators, but which has, of late years, been too much neglected. The proprietor of a large estate ought to be regarded by the labouring cottagers in the light of a protector, to whom they can look up for advice and assistance in their troubles; and as a friend upon whose kindness they may confidently rely, and who they know will be interested in their welfare. When this is the case, the tenantry of a country gentleman will form his best body-guard; and, instead of ever attempting to injure his property, they will do all in their power to protect it.

I think it highly desirable that you should be personally acquainted with the poor people in the vicinity of your husband's mansion, that you may know how to afford them the most acceptable assistance, and who are most deserving of it. For this reason, I think you should occasionally walk through the village, instead of confining your rambles exclusively to the park, and call frequently on your poorer neighbours; not with the apparent wish of dictating to them how they should live, and how they should manage their families, but with the ostensible purpose of employing them in some little work, and in reality to see how you can best be serviceable to them, and how you can do them the most positive good. It is the blessed privilege of wealth and rank that they give us the power of making our fellow-creatures happy, with very trifling inconvenience to ourselves. A word or a kind look from the rich to the poor speaks volumes, and carries with it encouragement and pleasure, which no efforts of persons in their own rank in life can give. It is, however, difficult for the rich to know how to be of real service to the poor, as giving alms seldom does good except in cases of sudden and unforeseen distress. The best charity is first to teach the poor how to maintain themselves, and next to give them employment; and when they have this, they have a better chance of happiness than any riches could bestow combined with idleness. Perhaps, indeed, there is no state of existence more happy than that of a person who is usefully and profitably employed, and whose employment is of such a nature as to exercise moderately the faculties both of the body and the mind.

Establishing schools is an important duty which the rich owe to the poor. Every girl ought to be able to sew neatly and well, and to read, write, and keep accounts. I think also it would be a great advantage if all the girls who have attained the age of fourteen were to receive a few lessons in dress-making, and making waistcoats and boys' clothes, from the regular mantua-maker and tailor of the village; or you might pay for this out of your own pocket, and make it a reward for good conduct. It is particularly useful to the wife of a labouring man to know how to cut out and make or alter clothes, as work of this kind can

be taken up and laid down while the mother is nursing her children, or watching the boiling of a pot, or some similar kind of simple cookery.

Many poor women waste a great deal of food by not knowing how to use it to the best advantage; for instance, they often throw away the water in which meat has been boiled, and of which an excellent soup might be made by the addition of a few vegetables, and thickening it with oatmeal, flour, or pearl barley; and they sometimes spoil meat, when they have it, by letting it boil so fast as to become hard and indigestible. I do not mean, by making these observations, that I think you should make inquiries into what your poor neighbours have for dinner, or how they cook their food, as there are no points on which the poor generally dislike to be interfered in more than these; but I only mean that you should, if possible, get the daughters taught the best way of cooking food suitable to their rank in life, by some experienced person, and that then it should be left for the mothers to adopt these new plans or not, as they liked.

Generally speaking, I would not have you too fond of offering to have the daughters of the cottagers taught any thing by your own servants. The modes of living of the rich and the poor are necessarily so different, that a cottager's daughter would reap very little advantage from seeing how the dishes were prepared for your table, while she might be rendered discontented by observing the very great difference between the mode of living in your kitchen and in her own cottage. There are, however, exceptions to this rule, in the case of girls who wish to become servants; and, whenever that happens, I would advise you always to have the girls sent to the mansion-house, to be placed under the direction of the servant in whose department she might wish to be employed.

Before commencing your visits to the poor, I would advise you to inquire in what way you can best afford them employment; for instance, in your neighbourhood, I believe, the country people employ themselves generally in making lace; knowing this, you could not do better, when calling upon some of the cottagers, than to give an order for lace, and in doing so you might enter into conversation with them about their patterns,

the length of time they have been employed in the business, and a variety of other topics which will suggest themselves naturally. This will deprive your visit of the painful feeling which would have attended it if you had called without any direct object in view, and it will give you an opportunity of becoming acquainted with the different members of the family, and seeing whether there are any too young or too old to work in the same manner as the others, and for whom you may possibly be able to find fitting employment.

Plaiting coarse straw or bulrushes is an employment that can be followed both by old people and young children; and you will find covers made of straw plaited into bands, and then sown together, of great service in protecting your half-hardy plants during frosty weather. Garden mats, baskets for flowers, and various other things, may be made in the same manner, and you will easily find out what will be most suitable to your *protégées*, and what they can do with least difficulty to themselves.

In cases of illness, I am sure you will be happy to assist your poor neighbours in every way in your power. When poor people are ill their means of support are stopped, and they have not only to labour through the pains of illness, but they are also exposed to the greatest privations for the want of food, at the very moment when food of a more nourishing nature than usual is required for them. Then it is that the helping hand of the rich is of the greatest value to the poor, and that charity takes its most graceful form.

Many ladies in the country employ a portion of their time in making clothes for the poor; but with the exception of permitting young people to make baby-linen, I question whether it is advisable that much should be done in this way. The feelings of the poor are often hurt by having it dictated to them what they are to wear, and they are apt to look upon the clothes thus given to them, and which are probably quite different from what they would have purchased for themselves, almost as a badge of slavery which they are compelled to wear to please their patrons, but of which they hate the very sight.

And now, my dear Annie, I shall bid you adieu with my pen, as next week I hope to be able to accept your often repeated invitation to come and see myself the result of my admonitions. I shall certainly be delighted to visit your gardens, your poultry-yard, your dairy, and all your favourite haunts; but what will give me most pleasure will be to see you happy, and to be assured from your experience that it is possible for a young and beautiful woman, though brought up amidst all the gaieties of a town life, to abandon them without a sigh, and to enjoy rationally a Country Life.

INDEX.

A. B. C. D. E. F. G. H. I. J. K. L. M. N. O. P. Q. R. S. T.
U. V. W. X. Y. Z.

A.

Abernethy biscuits, 67.

Air, essential both to health and happiness, 15.

Ale, to brew, 46.

Almonds, keeping of, 40.
——, mode of growing, 262.

American ground, 224.
—— refrigerator, 148.

Amusements for the country, 403.

Ancient houses, situation of, 212.

Annuals, 172.

Apiary, 380.

Apparatus for walking, 392.

Apple trees, management of, 261.

Apricot trees, management of, 247.

Aquarium, 191.

Aquatic fowls, 363.

——, mode of preventing them from flying away, 365.
——, situation of houses for, 348.

Arboretum, planting an, 223.

Archery, 403.

Architectural garden, 221.
——, mode of planting, 223.
——, use of, 220.

Arm bracer, 407.

Arrow root, substitute for, 111.

Arrows, 406.

Artichokes, 231.

Artist's colour-box, 411.

Asparagus beds, mode of preparing, 230.
—— plants, mode of planting, 230.
—— stalks, time for cutting, 230.

Asses, management of, 302.

Assisting the poor in cases of illness, 422.

Australian house, culture of plants in the, 196.

Aviary, 380.

B.

Backed bows, 404.

Banbury cakes, 63.

Barch, 99.

Bark stove, 189.
——, culture of hothouse plants in the, 191.

Barley-broth, Scotch, 103.

Barszes, 99.

Basil, 240.

Bath buns, 64.
—— cream cheese, 145.

Bean goose, 367.

Beans, mode of growing, 234, 235.

Beasts subject to the forest laws of England, 328.

Bee-hives, 380.

Bees, management of, 380.

Beet, mode of cultivating and cooking, 237.

Beet-root soup, 99.

Belt used in archery, 407.

Berberry, mode of growing, 263.

Bernicle goose, 367.

Biennials, 179.

Biscuits, 66.

Bittern, 380.

Black fly on camellias and orange trees, mode of destroying, 209.

Black slug, 397.

Black snail, description of, 397.

Black swan, 366.

Blancmange, 110.

Blanquette, to make a, 188.

Block-book, 409.

Boat, 412.

Book-cases, 22.

Borecole, mode of growing, 232.

Botany, pleasures of studying, 400.

Boulettes of cold meat, 84.

Bows, 404.

Bowstrings, 406.

Box edgings, 229.

Bracer used in archery, 407.

Bread for toast and butter, 61.
——, making of, 57.
——, oven for baking, 55.

Brent goose, 367.

Brewing, 46.

Brioche, 65.

Broad-bill, 370.

Broccoli, 234.

Broiled fowl, 79.

Broth, Scotch barley, 103.

Browsing line, 218.

Brussels sprouts, 234.

Budding, 273.

Budding-knife, 270.

Bulbs, cultivation of, 168.

Burrow duck, 369.

Butcher-bird, 396.

Butter biscuits, 66.

Butter, modes of making in Scotland, and in England, 129.

C.

Cabbages, mode of growing, 233.

Cabbage tribe, cultivation of the, 232.

Californian annuals, 170.

Calves, management of, 320.

Camellia house, 199.

Camellias, cultivation of, 208.

Canada geese, 367.

Canard gobe-mouche, 370.

Canary birds, treatment of, 23.

Candles, mode of keeping, 40.

Canvass-back duck, 372.

Capilotade, a, 88.

Car-cake, 65.

Carp, 361.

Carriages, 297.
——, close, mode of ventilating, 298.

Carriage, choice of a, 300.

Carriage horses, points to be attended to in selecting, 301.

Carrot, 237.

Carrots, modes of dressing, 85.

Cats, kinds of, 307.
——, management of, 307.

Catsup, walnut, 113.

Cattle, destructive in parks, 218.

Cauliflowers, 234.

Celery, cultivation of, 239.

Cellar for keeping ice, 146.

Charcoal, as fuel, 13.

Charcoal pans, range of, for French cooking, 44.

Charlotte de pommes, 107.

Cheddar cheese, 140.

Cheesecakes, common, 93.
——, impromptu, 92.

Cheese, how to make, 131.

Cherry trees, management of, 247, 262.

Cheshire cheese, 137.

Chestnuts, mode of cooking, 282.
——, mode of keeping, 282.

Chestnut trees, mode of growing, 263.

Chickens, Dunelm of, 80.
——, mode of treating, as soon as hatched, 341.

Chimneys, reasons why they smoke, 12.
——, remedy for those which smoke, 12.

Chinese goose, 367.

Churns, kinds of, 129.

Cider, mode of making, 55.

Cleaning horses, 288.

Cleanliness, importance of, in stables, 287.

Climates, nature of, 187.

Clipping horses, 290.

Clouds, curious appearance noted in the, during a country walk, 401.

Cobb, 364.

Cockatoos, treatment of, 24.

Coffee-mill, fixing of, 39.

Coffee, mode of keeping, 39.

Coke, 13.

Cold-frame, description of, 184.

Coleworts, 233.

Colour-box used by artists, 411.

Colours, arrangement of, in flower-beds, 163.

Common greenhouse, 197.

Common marjoram, 240.

Conservatory, 199.
——, cultivation of plants in the, 204.

Cookery, 70.
——, the use of, to the poor, 420.

Coop for fowls, 338.

Coot, 373.

Coppers for boiling and brewing, 46.

Country amusements, 403.
—— duties, 417.
——, first impressions of the, 5.
—— houses, why they should be larger than those in town, 8.
—— walk, natural objects noted in, 394.

Cows, diseases of, 312.
——, feeding, 317.
——, kinds to be preferred, 316.
——, management of, 309.
——, milking, 318.
——, time they should be dry before calving, 319.

Cowslip wine, 54.

Cranberry, mode of growing the, 265.

Cravat goose, 367.

Cream, 128.
—— cheeses, making of, 144.

Crops, permanent and temporary, 230, 231.

Croustades, 88.

Crumpets, 65.

Cucumbers, mode of growing, 240.

Cucumber vinegar, 13.

Culinary vegetables, crops of, 230.

Curing meat, 122.

Currant bushes, management of, 264.

Currants, dried, keeping of, 40.

Currant wine, 54.

Cut flowers, preservation of, 30.

Cuttings, propagating by, 272.

Cygnets, 364.

D.

Dairy, 126.

Damp stove, 190.
——, culture of plants in the, 195.

Deer, kinds of, 324, 329.

Devonshire syllabub, 92.

Digging, 268.

Dining-room, 32.

Disbudding, 279.

Division, propagating by, 271.

Dogs, diseases of, 305.
——, management of, 305.

Domestic animals, 284.

Donkeys, management of, 302.

Double Gloucester cheese, 133, 136.

Dove-cot for pigeons, 352.

Draughts in country houses, mode of curing, 9.

Draw-hoe, 269.

Drawing-room, 30.

Dry stove, 188.
——, culture of plants in the, 194.

Ducklings, mode of treating, 351.

Ducks, how to cook, 82.
——, management of, 350.
——, ornamental kinds of, 368.

Dun bird, 373.

Dunelm of chickens, 80.

Dutch flummery, 109.
—— sour sauce, 86.

E.

Edgings of box, 229.

Eggs, a liaison, 87.

Egyptian goose, 368.

Eider duck, 372.

Elderberry wine, 54.

Elder, mode of growing, 263.

Employment for the poor, 421.

Endive, how blanched, 239.

English national dishes, 105.

F.

Fallow deer, 324.

Fancy fowls, 344.

Farriery, 291.

Fattening ducks, 352.
—— pheasants, 376.
—— poultry, 338.

Feeding horses, 290.
—— pheasants in the woods, 376.
—— pigeons, 354.

Fences against cattle in parks, 219.

Fennel, 240.

Fig trees, management of, 248.

Filbert, mode of growing, 263.

Fire-places, faults in, 12.
——, improvement of, 10.

Fires, management of, 10.

Fish, gold and silver, treatment necessary when kept in glass globes, 27.
——, management of, 361.

Fish-pond, formation of, 359.

Flies, remedies for, 36.

Flower-garden, a regular geometric, laying out and planting of, 155.

Flower-gardens, how to lay out and plant, of different patterns, 161.

Flowers which are cut, mode of preserving, 30.

Flummery, 109.

Forcing grape vines, 254.

Forcing houses for grapes and early stone fruits, 190.

Forest scenery, beauty of, 213.

Forking, 269.

Fowl, a broiled, 79.

Fowls, kinds of, to be preferred, 342.
——, management of, 332.

Fragrant flowers, suitable for planting near windows, 167.

Frame, description of a cold, 184.

France, popular soup of, 95.

Frangipane, 91.

Freezing mixture, 149.

French rolls, 62.

Fresh air, importance of, 15.

Fromage à la creme, 91.

Fruit, mode of keeping, in a fruit-room, 282.

Fruit-room, mode of fitting up, 281.

Fruit shrubs, management of, 263.

Fruit trees, management of, 244.
——, planting of, 245.
——, protecting the blossoms of, 245.

Furnishing rooms, 16.

Furniture, light colours in, to be preferred for a morning room, 21.

G.

Gadwall, 371.

Gambo goose, 368.

Game, to cook, 83.

Gardening, operations of, 268.
——, styles in, 220.

Gâteau d'Avranches, 68.

Geese, how to cook, 82.
——, management of, 349.
——, ornamental kinds of, 367.

Gentlemen's business room, 18.

Germany, national dish of, 97.

Gingerbread, 69.

Gloucester cheeses, single and double, 133, 136.

Goats, management of, 320.

Gold fish, management of, 27.

Gold pheasants, 380.

Goose, sauce for, 83.

Gooseberry bushes, management of, 264.
—— wine, 52.

Gourds, mode of growing, 241.

Grafting, 275.

Granite, 401.

Grapes, modes of growing, 248.
——, time to force, 254.

Grass seeds, mixture of, for lawns, 225.

Gravel walks, how to renovate, 229.
——, mode of forming, 228.

Greater shrike, 396.

Green gooseberry wine, 52.

Greenhouse plants for planting in the flower-garden, 183.
——, winter management of, 200.

Greenhouses, different kinds of, 196.

Green peas soup, 76.

Greffe etouffée, 277.

Grey duck, 371.

Guano, mode of using, 280.

Guernsey partridge, 378.

Guinea fowls, management of, 346.

H.

Haggis, a Scotch, 102.

Half-hardy annuals, 174.

Hall, 16.

Hams, modes of curing, 183.

Hardy annuals, 172.

Hares, how to cook, 83.
——, objections to, 379.

Hare soup, 76.

Haricots blancs, 236.

Heath house, 198.

Heaths, cultivation of, 204.

Heating an oven for baking bread, 55.

Hen-house, 335.

Hen-roost, 336.

Herbaceous grafting, 276.

Herbs, mode of drying and keeping, 41.

Herons, 379.

Hoeing, 269.

Hoes, sorts of, 269.

Home-baked bread, 57.

Home-made wines, 52.

Horns of deer, natural process by which they are renewed, 327.

Horsemanship, 293.

Horseradish, 231.

Horses, diseases of, and cure for, 285, 291.
——, management of, 288.
—— for carriages, points to be attended to in selecting, 301.

Hotbed, how to make, 179.

Hotch-potch, 104.

Hothouses, different kinds of, 191.

Hounds, throwing off of, 414.

House, improvement of the back front of the, 220.

Housekeeper's room, 37.

Houses for aquatic fowls, 348.

Houses in the country, why they are more difficult to warm than those in town, 9.

I.

Ice-cellar, 146.

Ice-chest, 147.

Ice-creams, mixture for freezing, 149.
——, mode of making, 151.
——, utensils required for making, 150.

Ice-house, 146.

Ice, to cool wine and other liquids by, 148.

Impromptu cookery, 70.
—— soups, 74.

Inarching, 277.

Indian ale, to brew, 51.
—— pickle, mixture for, 112.

Instruments used in gardening, 269.

Introduction, 1.

Ireland, national dish of, 104.

Irish stew, 104.

Italy, national dish of, 96.

J.

Jerusalem artichoke, 237.

Junket, 92.

K.

Kale, mode of growing, 232.

Kernel fruits, management of, 261.

Kidney beans, mode of growing, 236.

King duck, 373.

Kitchen, 41.

Kitchen garden, laying out of a, 226.
——, situation for a, 227.
——, soil suited for a, 227.

Kitchen range, 43.

Knotted marjoram, 240.

L.

Landed proprietor, conduct towards his tenants, 417.

Landscape gardening, 210.

Larder, 119.

Laughing goose, 368.

Lawns, mixture of grass seeds for, 225.

Layers, how to make, 272.

Leaven, to make, 58.

Lemonade, 109.

Lemon cream, 109.

Lemons, how to pickle, 112.

Lettuces, kinds of and mode of growing, 238.

Liaison of eggs, 87.

Library, 18.

Loaf cheese, 142.

M.

Macaroni, mode of preparing, 96.

Macaroons, 68.

Macaws, treatment of, 24.

Magnonnaise, to make a, 84.

Making bread, 57.

Manures, different kinds and use of, 279.

Marinade, to make a, 88.

Marjoram, 240.

Marmozets, treatment of, 26.

Meat, curing of 122.
——, pickling of, 121.

Medlar, best situation for, 262.

Melons, mode of growing, 240.

Milk, management of, 127.

Milk cakes, 62.

Milking cows, 318.

Milking, times for, 127.

Mill for pepper, 39.
——, mode of cleaning, 40.

Mint, 240.

Mixture for cooling wine and freezing ice-creams, 149.

Mole, 395.

Monkeys, treatment of, 26.

Morning sitting-room, 18.

Muffins, 65.

Mulberry trees, best situation for, 262.

Mules, for drawing carriages, 301.
——, their value, 304.

Muscovy duck, 368.

Mushrooms, how to gather, 242.
——, mode of growing, 241.

Mutton hams, 125.

N.

Naples biscuits, 67.

National cookery, 95.

Nectarine trees, forcing of, 259.
——, management of, 246.

Nidulària campanulàta, 395, 398.

O.

Oat cakes, 64.

Offsets, 272.

Olla podrida, 101.

Omelettes, 88.

Omelettes aux fines herbes, 89.

Omelette soufflée, 90.

Onion sauce, 86.

Onions, mode of growing, 238.

Operations of gardening, 268.

Orangery, 199, 207.

Orchidaceous plants, culture of, 195.

Orchideous house, 190.

Ornamental aquatic fowls, 363.

Oven for baking bread, 55.
——, to heat with coal, 57.

P.

Park, 210.
——, scenes in, 217.

Parliament, to make, 69.

Parmesan cheese, 142.

Parrots, treatment of, 24.

Parsley, 240.

Parsnep, 237.

Partridges, 377.
——, how to cook, 83.

Patte d'oie, 222.

Peach trees, forcing of, 259.
——, management of, 246.

Peacocks, management of, 347.

Pea-hens, 347.

Pear trees, management of, 201.

Peas, mode of growing, 231.

Peat, as fuel, 13.

Pencils for sketching, 410.

Perch, 362.

Perdrix aux choux, 83.

Perennials, 177.

Permanent crops, 230.

Perry, how to make, 55.

Pheasants, how to cook, 83.
—— in parks, 374.

Pickle, mode of making the mixture for, 120.

Pickling meat, 121.

Pigeon-house, 352.

Pigeons à la crapaudine, 82.
—— aux petits pois, 82.
——, management of, 353.
——, modes of cooking, 81.

Pigs, management of, 321.

Pike, 362.

Pine-apple cheese, 142.

Pine-apples, mode of growing, 258.

Pine cones, good for lighting fires, 12.

Pinetum, 224.

Pintail duck, 371.

Pipings, 273.

Plaiting coarse straw, or bulrushes, 422.

Plans, how to transfer, from the paper to the ground, 160.

Plantations near the house, use of, 211.

Plant houses, use of, 187.

Planting a shrubbery, 215.

Plants in windows, treatment of, 19.
——, lists of, for a regular geometric flower-garden, 157.
——, mode of keeping them in a growing state, 281.
——, modes of propagating, by seeds, 270.
——, modes of propagating, by division, 271.

Plant stoves, 188.

Pleasure-boats, 412.

Pleasure-grounds, 211.

Plum pudding, 105.

Plum-trees, management of, 247, 262.

Pochard, 373.

Poland, national dish of, 99.

Pomegranate, management of, 248.

Ponds, inhabitants of, 359.

Pony-carriage, 297.

Pork pies, 115.

Potatoes, mode of growing, 236.

Potato flour, 111.
—— omelette, 89.
—— starch, 111.

Pot-au-feu, 95.

Potherbs, 240.

Pot-marjoram, 240.

Poultry, diseases of, and their cure, 355.
——, how to cook, 78.
——, management of, 332.

Poultry-houses, 333.

Poultry-yard, inhabitants of the, 330.
——, management of the, 332.

Pound cake, 68.

Propagation, different modes of, 270.

Pruning, 278.

Pruning-shears, 270.

Pruning the vine, 253.

Puchero, to make a, 101.

Pudding, an excellent Yorkshire, 105.
——, cabinet, 108.
——, French apple, 107.
——, Mr. Sopwith's almond, 108.
——, Mr. Sopwith's Victoria, 106.
——, parsnep, 108.
——, plum, 105.
——, Sir Joseph Brookes's, 106.

Puff paste, to make, 93.

Q.

Quadrupeds kept for amusement, 284.
—— supplying food, 309.

Quagga, 302.

Quince, best situation for, 262.

Quiver for carrying arrows in, 408.

R.

Rabbits, diseases of, 324.
——, management of, 323.

Radishes, times for sowing, 237.

Raisins, mode of keeping, 40.

Raking, 269.

Raspberries, mode of growing, 265.

Ratafia drops, 68.

Red beet, mode of cultivating and cooking, 237.

Red-crested duck, 373.

Red deer, 327.

Red goose, 368.

Red-legged partridge, 378.

Red spider, description of, and remedy for the, 193.

Refrigerator, 147.
——, the American, 148.

Reins, directions for holding, 295.

Relieving the poor, 418.

Renovating gravel walks, 229.
—— turf, 225.

Repotting, mode of performing, 202.

Reserve-garden, situation for, and use of, 170.

Rhubarb, 231.
——, mode of growing, 267.

Rice cream, 111.
—— flummery, 109.

Riding, 284.

Ripe gooseberry wine, 53.

Roe, 327.

Rolls, 61.

Roosting-houses for poultry, 336.

Rose-garden, 224, 225.

Rotation of crops, 231.

Ruddy goose, 369.

Runners, 272.

Rural seats, 393.
—— walks, 390, 393.

Rusks, 63.

S.

Saddles, 296.

Safes, for uncooked and cooked meat, 126.

Sage, 240.
—— cheese, 136.

St. Cuthbert's duck, 373.

Salad, of cold game, 84.

Sally Luns, 62.

Sand-bath for fowls, 334.

Sauce à la Bechamel, 87.
—— à la Tartare, 87.
—— blanche, 85.
——, kinds of, 86.
——, velouté, 87.

Sauer kraut, mode of making, 97.

Savory, 240.

Savoys, mode of growing, 233.

Scarlet runners, 236.

Schools, establishment of, 419.

Scotch barley broth, 103.
—— greens, mode of growing, 232.
—— haggis, 102.
—— hotch-potch, 104.
—— national dishes, 102.

Scullery, 45, 127.

Sea-kale, cultivation of, 231.

Sea pheasant, 371.

Seats of rustic work, 393.

Seeds, propagating by, 270.

Self bows, 404.

Servants' offices, 37, 119.

Sheds for poultry, 333.

Sheep, 324.

Shelter for aquatic fowls in winter, 365.

Shieldrake, 369.

Shoes for walking, 392.

Shooting-glove, 407.

Short paste, to make, 94.

Shoveller, 370.

Shrike, 396.

Shrubberies, mode of planting, 166.
——, effect of, in harmonising a flower-garden with a park, 215.
——, openings in, to admit distant prospects, 216.

Shrubbery, 215.

Silk of a piano, mode of saving from flies, 21.

Silk-worms, management of, 385.

Siller cups, 398.

Silver fish, treatment of, in glass globes, 27.
—— pheasants, 380.

Single Gloucester cheese, 133.

Sirop de Cerises, 115.

Sitting-box for hens, 335.

Sitting hens, 341.

Situation of ancient houses, 212.

Skating, 413.

Skeeling goose, 369.

Sketching in the open air, 408.

Slate, use of a, in the housekeeper's room, 41.

Snow goose, 368.

Soap, keeping of, 40.

Soup made in a minute, 75.
—— made in an hour, 74.
—— of France, 95.
——, stock for, 72.
——, white, 75.

Soups, various kinds of, 74.

Spain, national dish of, 101.

Spinach, mode of growing, 237.

Sponge-cake, 67.

Sporting terms, 415.

Squirrel, food for, 23.

Stable, management of, 285.

Stamped biscuits, 66.

Standard fruit trees, management of, 260.

Stew, an Irish, 104.

Stews for fish, 363.

Sticklebacks, how they prevent the stocking of a pond, 362.

Stilton cheese, 132.

Stock for soup, 72.

Stone fruits, 246, 262.

Store closet, 37.

Stoves, objections to, 13.

Strawberries, management of, 265.

Style of gardens, 221.

Succory, how blanched, 239.

Suckers, propagating by, 271.

Sugar, moist and lump, mode of keeping, 39.

Sugar paste, to make, 94.

Summer savory, 240.

Surf scoter, 373.

Swan, 363.

Sweet chestnuts, mode of cooking, 282.
——, mode of growing, 263.

Sweet-marjoram, 240.

Swinging, 411.

Syllabubs, 92.

T.

Table ale, to brew, 46.

Target, 404.

Tart-rhubarb, 231.
——, management of, 267.

Tassel, used in archery, 407.

Teaching the poor, 420.

Teal, 371.

Tea, mode of keeping, 39.

Temporary crops, 231.

Tench, 361.

Tender annuals, 175.

Terms used by sportsmen, 415.

Terrace, use of, 221.

Terrine, a, 88.

Thinning-out trees in a shrubbery, 215.

Throwing off of the hounds, 414.

Thrust-hoe, 269.

Thyme, 240.

Tomatoes, mode of growing, 241.

Tomatoes, Spanish mode of keeping, 114.

Tomato sauce, 113.
——, the Spanish way, 114.

Tops and bottoms, 63.

Training, 278.
—— standard fruit-trees, 260.
—— the vine, 254.

Transplanter, use of, 270.

Trees, difference in the foliage of, 213.
——, reasons for cutting down, 14.
——, the probable reason why they are planted in front of a dwelling, 8.
——, touch of the different kinds of, to be attended to in sketching, 411.
——, why clipped into formal shapes, 220.

Trout, 362.

Trowel, use of, 270.

Turf, how to renovate, 225.

Turkeys, management of, 344.

Turnip, 237.

Turnips, to remove the unpleasant taste they give to milk, 130.

V.

Vegetables, crops of culinary, 230.

Ventilating close carriages, mode of, 298.

Ventilation, importance of, 15.

Vine, principal points to be attended to in its culture, 258.
——, pruning the, 253.
——, training the, 254.

Vinery, construction, preparation, and management of, 249.

Vines, management of, 249.
——, time to force, 254.

W.

Walking, apparatus for, 392.

Walks, mode of forming, 228.

Walnut catsup, excellent, 113.

Walnut, mode of growing the, 263.

Walnuts, mode of keeping, 282.

Warming rooms, 10.

Water-fowl, 363.

Water-ices, mode of making, 151.

Water near a house, 211.

Water plants, 191.

Weeds on gravel-walks, mode of destroying, 229.

Western duck, 373.

Whistling duck, 372.

White soup, 75.

Wicker-work, coverings of, for preserving plants, 185.

Widgeon, 372.

Wiltshire cheeses, 141.

Wine cakes, 67.

Wine, freezing mixture for cooling, 149.
——, mode of cooling, by ice, 148.

Winter marjoram, 240.

Winter savory, 240.

Wood fires, 11.

Wood, kinds of, best suited for fuel, 11.

Woods, inhabitants of, 374.

Woundwort, 399.

Y.

Yeast, artificial, how to make, 58.
——, best way of keeping, 60.
——, mode of recovering, when sour or putrid, 59.

York cream cheese, 144.

Yorkshire cakes, 62.
—— pudding, to make an excellent, 105.

Z.

Zebra, 302.

THE END.

*** END OF THE PROJECT GUTENBERG EBOOK THE LADY'S COUNTRY COMPANION; OR, HOW TO ENJOY A COUNTRY LIFE RATIONALLY ***

THE FULL PROJECT GUTENBERG™ LICENSE

Section 1. General Terms of Use and Redistributing Project Gutenberg electronic works

1.C. The Project Gutenberg Literary Archive Foundation (“the Foundation” or PGLAF), owns a compilation copyright in the collection of Project Gutenberg electronic works. Nearly all the individual works in the collection are in the public domain in the United States. If an individual work is unprotected by copyright law in the United States and you are located in the United States, we do not claim a right to prevent you from copying, distributing, performing, displaying or creating derivative works based on the work as long as all references to Project Gutenberg are removed. Of course, we hope that you will support the Project Gutenberg mission of promoting free access to electronic works by freely sharing Project Gutenberg works in compliance with the terms of this agreement for keeping the Project Gutenberg name associated with the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg License when you share it without charge with others.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg work. The Foundation makes no representations concerning the copyright status of any work in any country other than the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg License must appear prominently whenever any copy of a Project Gutenberg work (any work on which the phrase “Project Gutenberg” appears, or with which the phrase

“Project Gutenberg” is associated) is accessed, displayed, performed, viewed, copied or distributed:

> This eBook is for the use of anyone anywhere in the United States and most other parts of the world at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg™ License included with this eBook or online at www.gutenberg.org. If you are not located in the United States, you will have to check the laws of the country where you are located before using this eBook.

1.E.2. If an individual Project Gutenberg electronic work is derived from texts not protected by U.S. copyright law (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase “Project Gutenberg” associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg.

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg work in a format other than “Plain Vanilla ASCII” or other format used in the official version posted on the official Project Gutenberg website (www.gutenberg.org), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon request, of the work in its original “Plain Vanilla ASCII” or other form. Any alternate format must include the full Project Gutenberg License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg electronic works provided that:

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic

tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, “Information about donations to the Project Gutenberg Literary Archive Foundation.”

- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg™ License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg™ works.

- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of receipt of the work.

- You comply with all other terms of this agreement for free distribution of Project Gutenberg™ works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg™ electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from the Project Gutenberg Literary Archive Foundation, the manager of the Project Gutenberg™ trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread works not protected by U.S. copyright law in creating the Project Gutenberg™ collection. Despite these efforts, Project Gutenberg™ electronic works, and the medium on which they may be stored, may contain “Defects,” such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property

infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the “Right of Replacement or Refund” described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project Gutenberg™ trademark, and any other party distributing a Project Gutenberg™ electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH 1.F.3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you ‘AS-IS’, WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg™ electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg™ electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause to occur: (a) distribution of this or any Project Gutenberg work, (b) alteration, modification, or additions or deletions to any Project Gutenberg work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg

Project Gutenberg is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the

efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need are critical to reaching Project Gutenberg's goals and ensuring that the Project Gutenberg collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg and future generations. To learn more about the Project Gutenberg Literary Archive Foundation and how your efforts and donations can help, see Sections 3 and 4 and the Foundation information page at www.gutenberg.org.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non-profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's business office is located at 41 Watchung Plaza #516, Montclair NJ 07042, USA, +1 (862) 621-9288. Email contact links and up to date contact information can be found at the Foundation's website and official page at www.gutenberg.org/contact

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg™ depends upon and cannot survive without widespread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine-readable form accessible by the widest array of equipment including outdated equipment. Many small donations ($1 to $5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To SEND DONATIONS or determine the status of compliance for any particular state visit www.gutenberg.org/donate.

While we cannot and do not solicit contributions from states where we have not met the solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg web pages for current donation methods and addresses. Donations are accepted in a number of other ways including checks, online payments and credit card donations. To donate, please visit: www.gutenberg.org/donate.

Section 5. General Information About Project Gutenberg electronic works

Professor Michael S. Hart was the originator of the Project Gutenberg concept of a library of electronic works that could be freely shared with anyone. For forty years, he produced and distributed Project Gutenberg eBooks with only a loose network of volunteer support.

Project Gutenberg eBooks are often created from several printed editions, all of which are confirmed as not protected by copyright in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our website which has the main PG search facility: www.gutenberg.org.

This website includes information about Project Gutenberg, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.