

606032

PRIMER
OF
DOMESTIC ' ECONOMY

PRIMER
OF
DOMESTIC ECONOMY

BY
EDITH A. BARNETT & H. C. O'NEILL.

AUTHORS OF
'OUR NURSES, AND THE WORK THEY HAVE TO DO'
'NEW LIFE: ITS GENESIS AND CULTURE'

London
MACMILLAN AND CO.
AND NEW YORK
1892

P R E F A C E

IN teaching Domestic Economy one is led to observe that the interest of the class depends on their perception of the direct connection between this lesson and life. Practices familiar from babyhood step out of the corners of their minds and link themselves on to troublesome theories. Each illuminates the other. Everyday life was dull ; scientific theory was difficult ; on a sudden they have both become easy and interesting. And as very often happens in after-life, the “dunce” and the “scholar” change places in class.

But this combination of science and practice is precisely what makes Domestic Economy difficult to teach, and still more difficult to write about. Every science is laid under contribution by turns. The housewife must care for human beings, and therefore she should know something of the structure and functions of the human body—that is, of anatomy and physiology ; she wishes to keep her family in health, and to do that she must be acquainted with

the laws of health or hygiene. She intends to vide for their intellectual as well as for their bodily growth, and at once she finds herself surrounded by problems of educational and mental science. In her daily work she is brought face to face with the laws of trade, buying and selling, supply and demand. She must reckon with the laws of mechanics and physics, which govern the movements of wind and water; and she needs mechanical skill sufficient to manage the machinery, which every year plays a larger part in household work. The chemistry of everyday life, a phrase familiar to us all, interferes in the choice of our food, and mixes itself up with our cookery; while what we know about the storage of food and about putrefaction is due to the recent researches of biologists. Not content with science, our housewife is expected to be a good practical cook, arithmetician, and needlewoman. And yet Domestic Economy is a subject which many women think beneath their capacity!

One thing must be remembered. Life is not long enough to study all these sciences for oneself. The average housewife must be content to accept the results of scientific discoveries without following out the steps by which they were reached. Domestic Economy is not a thing of words, in or out of a book, but of deeds in the home. It is nothing if not practical. To study the subject is waste of time,

unless by means of the knowledge obtained one gets better health, or more comfort for one's housemates or oneself. It is all very well to read up the subject ; but reading can never stand in the place of seeing and observing. Household management comprises many branches of the science of everyday life, and the material of it, the illustration of it—nay, the thing itself—lies, not in books, but around us as we walk through the world with open eyes. What is the good of hearing about the water supply unless we intend to find out where the water we drank this morning came from, or was stored? If we trouble ourselves to read of drains or dust-bins it cannot merely be on account of the attractiveness of the subject, and so we lay down the book and walk into the backyard, where we shall enlarge our competence more than by months of reading without seeing.

Dealing with so large a subject in a book of this size, one is necessarily cramped for space. Not in a single chapter is all said that could be said. One must select, and selection implies omission. We offer no apology for omitting all recipes. There are cookery books and household books filled with them from cover to cover. We have endeavoured to explain principles only. Details of management are only part of our scheme when needed for illustration.

Sometimes when we perceive that an everyday old world' custom is based on a scientific truth, we seize

hold for the first time in our lives of a notion of the reality of things, of the way in which true principles universally apply to things all the world over; and herein lies, as we think, the chief value of Domestic Economy as a subject to be taught in schools.

September 1892.

CONTENTS

	PAGE
PREFACE	v
INTRODUCTION	i

PART I

THE HOUSE

CHAP.	
1. SHELTER	5
2. AIR AND VENTILATION	12
3. THE WATER SUPPLY	20
4. DISPOSAL OF WASTE	26
5. RENT	34

PART II

THE HOME

1. PLANNING THE ROOMS	39
2. FURNISHING THE ROOMS	43
3. CLOTHING	47

X DOMESTIC ECONOMY

CHAP.	PAGE
4. FOOD: QUANTITY REQUIRED.	56
5. FOOD: ITS NUTRITIVE VALUE	62
6. MARKETING	67
7. THE STORAGE OF FOOD.	73
8. COOKING.	77
9. FUEL	81
10. CLEANING THE HOUSE	87
11. LAUNDRY WORK	90
12. HEALTH AND SICKNESS	95

PART III

THE PURSE

1. MONEY	103
2. INCOME	105
3. EXPENDITURE.	109
4. BUYING	113
5. SAVING AND INVESTING.	117

PART IV

THE ORDERING OF THE HOUSE	122
INDEX	127

INTRODUCTION

1. **Domestic Economy** is not a single subject, but a collection of many subjects. Domestic comes from the Latin word **domus** = a house, and means literally of or belonging to a house. But we use words from this root **domus** in a slightly different sense: thus "domicile" is where a person lives, not an empty house where one might live; a "domiciliary" visit is paid (generally by the police) to a private dwelling; a "domesticated" person is one who finds his or her chief happiness or employment at home. And so "domestic" has come to mean belonging to the home, rather than merely belonging to a house.

2. **Economy** comes from two Greek words, **oikos** = house or household affairs, and **nomos** = law or custom, and it means literally laws or customs governing the concerns of house or household. But this word economy has come also to have a meaning different to its literal one, and we often use it when we are not thinking of any house. By **political economy** we mean the laws governing the concerns of nations or states; **social economy** tells of the progress of men living together; we talk of **economies** when we wish to study these two branches in relation to one another; and we often (though we should not) talk of **economy** when we mean merely

the management of money, or even the saving of it.

3. By **Domestic Economy** we mean the laws that govern the affairs of the home. When we study Domestic Economy we set out to learn all that can be learned about the management of a house and its contents, both people and things, and everything that tends to make home healthier or happier comes within our scope.

4. When we set out to make our home we must first of all decide where we shall make it. We must **choose our house**; and in order to do that wisely we must know something of the soil houses stand upon, of the way houses are built, of the apparatus usually provided in houses for obtaining air and water, and for getting rid of waste of all kinds. The first part of this book deals with the **structure** of a house.

5. To **choose a house** is one thing; to **make a home** is another. We cannot make a healthy or a comfortable home in a house that is badly built or badly situated; but in the best house in England the inmates will be unhealthy and unhappy unless year in and year out the mistress of the house not only knows but pursues her business. Having chosen our house we proceed to take up our abode in it, and we find that first it needs to be planned out. Which room shall be devoted to what purpose? Next the rooms must be furnished, and the furniture must be bought and set in order. Each member of the family needs to be fed, and the food must be bought, stored, and cooked; each must be clothed, and the clothing must be bought, made, stored, and mended. The house and everything in it must be kept clean, and so we come to consider the washing of cloth; or laundry work, the washing or cleaning

of house and furniture, and personal cleanliness. We must be kept warm and be lighted in darkness, and therefore we must have and store fuel. Then we remember that though health often depends on attention to household details, yet "because of the infirmity of our nature" we cannot always keep our health, and we provide against the sicknesses that most easily beset us. So the second part of the subject comes to an end.

6. The third part deals with **Money**. None of the things which a household needs can be had without paying money for them, little or much, directly or indirectly. Probably women as housekeepers spend the greater part of the money that is spent in the world. They must be continually buying; they should be continually saving against the rainy day and against old age; never forgetting to look forward to the future because the present is so full of interest and of business.

7. And this future—is it only more food, better clothes, and larger houses in endless succession? Is it but leisure after toil and comfort in old age? Or is it to be also the evolution of **character** out of material things?

We should like to think that in teaching Domestic Economy we have made our pupils grasp the truth that this science does but open a door which leads out into the possibility of nobler life.

PART I.—THE HOUSE

CHAPTER I

SHELTER

8. No two **houses** are exactly alike. No two women setting out to seek a new home have precisely the same income and the same claims upon it, nor the same tastes, nor the same range of choice. But in this climate even the poorest must live in a house of some kind, and every man and woman whom one meets in the street is at home somewhere.

It is as well to explain at the outset that I intend to write for the class of **householders** who have "neither poverty nor riches." The poorest live not in a house but in one or two rooms of another man's house; the richest live not in houses but in mansions. At the same time what is true of a little house is true also of a big one, and I have never observed that to increase the size or to multiply the contents of the domestic machine is the way to make it work itself without intelligent supervision.

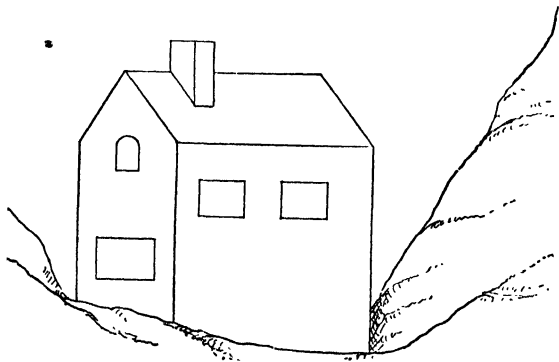
Whether our house is to be large or small, we cannot practise "domestic" economy until we have it. And whether it is large or small, we must see that it is (1) **healthy to live in**; (2) **within our**

means to pay for. Of Rent I speak in Chapter V. Here we will think only of choosing the house itself.

9. **Shelter** is one of the necessaries of life ; without it we should die. If a man cannot or does not provide shelter for his family they are taken in charge by the authorities, and shelter is provided at the public cost in the workhouse. The first duty of a house is to keep us from cold, heat, and wet ; or, as we say in a word, to shelter us from the weather. That being so, it seems as if it would be wise to build always, as our forefathers did when glazing was unknown, in the most sheltered spots. One often sees old houses standing among thick woods or under the lee of a hill, but seldom or never on the open spaces and high ground that attract builders to-day.

10. **The Site of a house** is the first thing to be thought of. A fault in the house itself might be remedied, but if it is built in the wrong place what can be done? We agreed that we were to be sheltered from heat, cold, and wet. In this country we do not fear heat—there is so little of it. And as for cold, we all know that we do not feel dry cold much. It is damp and cold together that harms. Damp in a house comes out of the ground. Rain beating on the walls does not soak in if the house is fairly well built ; it is water collected about the foundations that we fear (see 43). A sheltered site on flat ground under the lee of the hill is bad, because it is sure to be damp. Whenever it rains water pours down the slope and collects round about the house, and it never runs away because there is nowhere to run to. Whether in town or country, a house should always stand on sloping rather than on flat ground and should never stand in a hollow.

11. There is another objection to these very sheltered sites. **Wind** dries and purifies, and it is distinctly bad to be sheltered from the prevailing winds of a district. A house built close under a hill



BAD SITE

or cliff or among trees is damp, because wind can never blow through it.

12. The **nature of the soil** has much to do with the healthiness of a house. For practical purposes we may speak of two sorts of soil—pervious, through which water runs; and impervious, upon which water stands. **Clay** is the best example of impervious soil; if one goes out walking after rain in a clay district the roads are thick with mire. **Gravel and sand** are pervious, and over these the roads dry quickly. Apart from the convenience of having good roads to walk upon, a pervious soil has many advantages. Houses built upon it are more apt to be dry, and therefore warm; and because of the dryness, complaints such as consumption, rheumatism, and

"colds," are less common. One drawback of gravel or sand is connected with the water-supply; it is easier to keep drains and wells apart when a solid bank of clay is between them, than when they are only separated by a few feet of pervious soil. And another trouble is connected with the garden, which, on sandy soil costs more, and flourishes less. "In a **chalky** district the water is likely to be very hard, and insects to be very troublesome.

13. One warning must be laid to heart in gravelly districts. **Gravel** is saleable, and it happens often that it is carted away, and the pit filled in with rubbish, or even with town refuse. So it may come to pass that the district is marked gravel on the map, though you are living over "**made soil**" of the worst and most unwholesome kind. A swamp or pond is sometimes levelled in the same way, and presently built over. Never consent to live over such soil, unless it is at least three years since the last rubbish was shot, nor unless the surrounding soil is dry. Such a soil can never be really wholesome to live over. A clay soil may be wholesome if it is thoroughly drained (see 57).

Summing up all that can be said on both sides, we come to the conclusion that we prefer to live on pervious soil, on sloping ground, and near the top of a hill rather than at the foot.

14. The **aspect** of any house can easily be ascertained. At noon on any day in the year the sun is due south; and facing it, north is at one's back, east on the left hand, and west at the right. Sunshine comes for a short time into every room, except those which face due north. And because **sunshine is the great purifier** we should take care so to build our house that the sun comes into every room. This may be done by setting the corners of a square

house to the points of the compass. If the same house were built with its sides towards the points of the compass, all the rooms on one side would be without sunshine from the day they were built till the house was pulled down.

Speaking of site I might have pointed out how the worst sites are shaded from sun as well as sheltered from wind. No site can be worse than that on the north side of a hill, or in a narrow valley running north and south, where the sun peeps over the heights only for a few months in the year, and for a few hours in the day.

15. In order that the house may afford proper shelter it must not only be well situated but **well built**, and of **good materials**. The walls should be thick, the best walls being those that are built double with space for air between. Brick is the commonest, and is most districts the cheapest, material. But there are bricks *and* bricks, some so ill baked and soft that one can break them across in one's hand, some hard and proportionately costly. The dryness of a house depends also on the depth and solidity of the foundations. There is an old saying that a good builder spends as much below ground as above. Tile roofs keep the cold and heat out better than slate, but they cost more to put up because they are heavier, and require stronger timbers for support. Boards and all **wood-work** must be kept some time and seasoned if they are neither to warp nor to split. Mortar of good materials is costly, but an imitation which looks fair while it is new is made of road-scraping and all sorts of rubbish. And so on through the long list of materials required to build a house. Each one costs more if it is good, and the better the house the more material is used.

16. It follows that a house of any given size must

cost more to build well, than to build ill. We must pay extra **rent** for foundations and thick walls, just as we do for another story above ground, or for more elaborate ornamentation. It is because householders are seldom willing to do this that modern houses are more often than not very badly built.

17. **Brick and stone** are porous. If you take a lump of sugar and dip the corner into your tea, or tear off a scrap of blotting paper and set the edge into a spot of ink, what happens? The ink or the tea is sucked up. Just so a brick, or a wall of bricks, set on the ground, sucks water out of it, which water rises into our houses. The supply is never-failing, and the faster we dry the walls at the top, the faster they draw up water from the bottom.

18. It is to cut off this supply that we put into our houses a **damp-proof course**, a layer of some impervious material in the wall near the ground. A damp-proof course can easily be seen in any house if it is there, as it ought to be. It is made of hard brick, earthenware, slates laid in cement, etc.

19. **Ventilating bricks** can also be seen outside the house at the ground level. They let air in beneath the level of the floor boards, and dry the foundations.

20. The lowest floor of the house, whether kitchen or cellar, should be **laid in cement** throughout. Where there is only stamped earth or boards, foul air and damp out of the soil are constantly being drawn into the house, especially at night, when the doors and windows are shut (see 58). On any soil this cement is needed; it is above all necessary over made soil (see 13).

21. So far I have purposely said nothing about the relative advantages of this or that district; of town, country, and suburbs; and for many house-

wives the question is not, Where shall we live? but rather, How shall we live here?

22. When a baby is born, or when any person dies, we are obliged to send to the nearest Registrar, and to tell him not only who is born or dead, but also (in case of death) what he or she died of, and how 'old he or she was. * All over England and Wales these facts and figures have been collected and published since 1837. Every year they are compared together, and from them the **death-rates** are calculated. The death-rate means the number of persons dying in one year out of each thousand persons living. When I say that the death-rate in England and Wales in the year 1890 was 19·5 per 1000, I mean that 562,248 persons actually died, and that 562,248 bears the same relation to 28,762,287 (the total population) as 19·5 bears to 1000.

Looking again at the details of the published figures, I see that some counties contributed more to the death-rate than others. In 1890 the Sussex death-rate was under 16 per 1000; the Lancashire death-rate 23·4 per 1000. The death-rate of all the principal towns and cities is published every week in the newspapers, and by comparing one with another we can soon see which towns are healthy and which are not. It is by studying and comparing these published death-rates that we have found out most of what we know about domestic sanitation and the healthiness of different districts. We know in which districts people live longest, and in which children have the best chance of growing up; what particular diseases prevail here or there; what soil or drinking water produces any ailment; which trade or industry tends to sickness and which to health. All these things may be considered when we choose our home.

Nothing is so costly and wasteful as illness, and a great number of illnesses come or stay away according as we choose our houses wisely or unwisely.

23. One thing comes out clearly in these death-rates. We live longer, and are **healthier in country than in town**. To live crowded together in streets, and to do our day's work indoors, is the surest way to shorten our life. For infants and children any home in the country is better than a more luxurious home in town. But if we must live in town it is all the more necessary for the housewife to see that space, good drainage, and careful cleanliness in the home undo, as far as may be, the evils of a town life.

CHAPTER II

AIR AND VENTILATION

24. **Air** is the first necessary of life. We may live for some days without food, and for some hours without water, but without air we are dead in a few minutes; and that being so, it stands to reason that we must carefully inquire into the **quality of the air**, and the **amount of air** that we have to breathe all day and every day.

25. Air, as most people know, is a mixture of three gases, **oxygen**, **nitrogen**, and **carbonic acid gas**, in about these proportions, O 20·96, N 79·0; CO₂·04. They vary, however, constantly, inasmuch as carbonic acid gas is produced by the breathing of animals and plants, by burning, and by decay or fermentation: oxygen is produced by plants; and carbonic acid gas (see 42) is washed out of the air by

every shower, which accounts for the feeling of freshness after rain.

26. **Solids, liquids, and gases** differ from each other in this: a solid has a definite shape and size; a liquid takes the shape of the vessel that contains it; a gas has no definite shape nor size, and can be pressed into any space however small, or will occupy any space however large. We often have to notice how a very small escape of gas is noticeable at once at the further end of a large room.

27. That being so, we **breathe** in, not a given weight, but a given bulk of air at each inspiration: the average should be about 30 cubic inches; if the air is lightly packed together there is much less of it than when the pressure is great and the air is closely packed.

28. **Atmospheric pressure** is chiefly due to the weight of the air itself. If we could weigh a column of air, one square inch in diameter, reaching from the sea level to the farthest limits of the earth's atmosphere, it would weigh about 15 lbs.; or, as we commonly say, the atmospheric pressure at the sea level is 15 lbs. to the square inch. If we ascend a mountain and weigh another column, it will be shorter and therefore lighter; if we go down into a mine, it will be longer and heavier.

29. It is to this difference of atmospheric pressure that the difference between **sea air and mountain air** is due. We breathe more quickly on a mountain; we must do so in order to get the same amount of air; and all the processes of life are quickened in proportion; by the sea-side we take in at each breath a great deal of air, and consequently a great deal of oxygen. And because nothing stands alone in the economy of nature, we have to remember here that on atmospheric pressure depends, amongst other

things, the temperature at which water boils. At the sea level it boils at 212° Fahrenheit (see 174), but on a high mountain it sooner overcomes the downward pressure of the air, and it bubbles up at perhaps 211° ; down in a mine it may not boil until 213° .

30. Besides these three gases air holds **moisture**, more or less being absorbed according to the temperature. **Moisture absorbed** is invisible, and there is most of it in the air during the hottest months. **Moisture suspended** is what we call fog or mist, and every one knows that it is commonest in cold weather. The sun comes out, the air is heated, and fogs disperse. But however hot the air, there is a precise limit to the amount of water it can absorb, and when it has absorbed all it can we say it is **saturated**. If we heat air, saturate it with moisture, and then cool it again, part of the moisture is at once deposited. These facts have a direct interest for the housewife. Most persons have stayed in a damp house, and have observed that when in the evening fires and gas are lighted, and the rooms get warm, the damp chilly feeling quite disappears, and the owners of such a house often say, "With plenty of fires I don't think damp matters." But come down with the housemaid in the early morning, when the fires are out, and all over the walls and furniture is a dew, which she wipes off with a cloth may be, but which reappears daily. Or again, we must often have observed people who set about **drying**—whether a house or a day's **yashing**—by lighting a fire and shutting doors and windows. What they should do is to light a fire and make a draught so that the incoming air is quickly heated, saturated, and passed out again to make room or more dry air from outside.

31. **Air in towns** contains sulphurous vapour, dust,

and soot ; by the seaside salt. Ozone, which people talk of so much, is a more active form of oxygen.

32. **Currents of air**—which we sometimes fear under the name of **draughts**—not only dry a house, but they purify it. **Draughts** must on occasion blow through a house if it is to be lived in healthily ; and even a single room so planned that the door, window, and fireplace are all on one side (though it is the sort of room preferred by a certain class of the poorest tenants), is always difficult to keep sweet and wholesome, and should never be occupied by an invalid or young children. A draught is only dangerous if, and because, it chills us, and even then it does not lower the vitality, nor predispose us to illness, like the breathing of foul air.

33. No matter how good the site or the plan of our house may be, there will not be a proper amount of air to breathe inside it, unless some provision is made for constantly letting the foul air out (**exit ventilation**) and getting fresh air in (**inlet ventilation**). Occasional through draughts are most useful for purification, but are not enough for ventilation, which must be continuous. We need food and water at regular intervals, eating a meal and then waiting till the next falls due some hours after ; and some people seem to think that we can breathe after the same fashion, opening a window, or going out of doors once or twice a day, and so taking in a supply of fresh air to last for hours to come.

In choosing a house, then, one thing to be observed is the number and size of permanent **ventilators** besides the door and window, which will, we hope, be often open, but which must be occasionally shut. It is said that each person living in a room requires a permanent opening measuring 4 in. by 6 in.

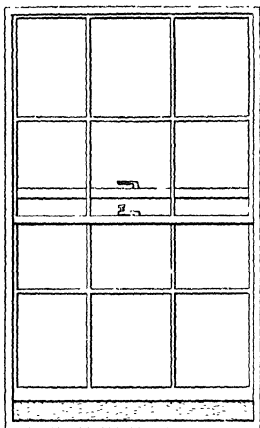
34. The first and most obvious opening is the

chimney, serving almost always, whether the fire is lighted or not, as an **exit**. The updraught is stronger and quicker if a fire is lighted, or even if a lamp is placed in the grate; and that is why the lighting of a fire improves the ventilation of any room; and why, if a lamp is burned through the night, it should stand in the grate where it does good, rather than in the room where it can only do harm (see 186). No room should be built without a fireplace, and the chimney should at all times remain open. Before we look for any other exit ventilators, let us clearly understand that air does not always go out at the place called an "exit" on a plan or by the builder. Air, whether out of doors or in, moves to and fro in the direction of the least resistance; it goes where it is easiest to go; and nine times out of ten when a fire is burning, air exits by the chimney only, and comes in by every other opening, unless there is an opening with heat beneath to make a draught, or unless some kind of trap-door is fixed, which opens *from* the room but not towards it. Both these plans work in the ventilators fixed in chimneys over the mantelpiece. The updraught caused by the fire sucks air out of the room, and the valve opens at once when the air presses on the room side, but the harder the pressure on the chimney side the faster it is shut—or should be. Sooty marks round a chimney ventilator show that the valve does not act properly.

Ventilators above gas-burners are often, and should always be, fixed (see 180). Exit ventilators are also to be seen near the ceiling in other parts of the room, and sometimes these also communicate with a chimney shaft.

35. **Inlet ventilation** is more important to householders, because if enough air is let in while the fire burns, there is always the chimney for exit. We

naturally think first of **the window**, which should be such that it can be kept open for the greatest number of hours. It should open both at bottom and top; or if a casement window, it should open at both sides against the wind from either quarter. Windows on two sides of a room can be opened, one or the other, even during very gusty weather. There are several devices for keeping a window always open. One is to nail a strip of perforated zinc, 4 or 5 inches deep, over the top of a window sash, and to open the window behind it; another to bore perpendicular holes with a large gimlet through the bottom of the top sash; a third to shut down the lower sash on a piece of wood the width of the sash and a few inches deep.

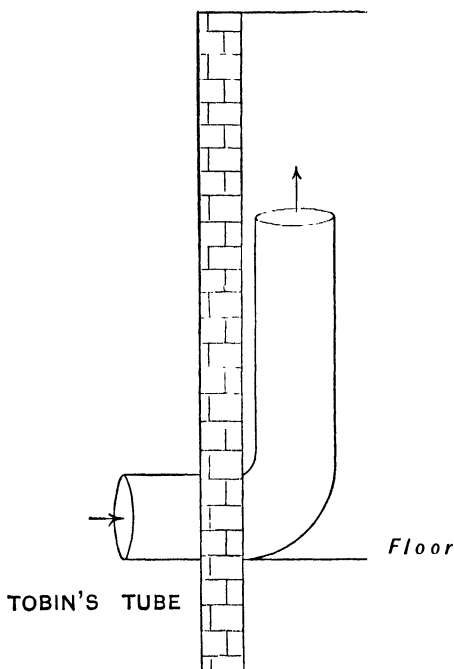


MODE OF VENTILATION.

(Seen from outside.)

A considerable amount of air comes in by either of these devices, and indeed people who have not thought about the matter are surprised to find how much more air is admitted in the long run by any permanent opening that acts night and day, than by a door or window which, though much larger, is only open for a time and then shut tight. Compare the waste of water which takes place when the tap dribbles unobserved, with that which takes place when you draw water purposely for a given time!

Of other inlet ventilators the best is what is still known (though the patent has expired) as Tobin's ventilator—a tube shaped like the letter I, the short arm running through the wall and ending out of



•doors, and the long arm being visible in the room. These are very well fit for ventilating a private house, and do not cause a draught if the long arm of the I. is not too near either the floor or the ceiling. Inlet **ventilators fixed in a door** are bad, because, instead of admitting fresh air, they draw it from passage or

staircase, which, especially in tenement houses, is often worse than that in the rooms.

36. Of rooms requiring permanent ventilation the **bedrooms** certainly come first. We spend all of us more unbroken time in sleep than in any other occupation. If the air of a bedroom in the morning is noticeably stuffy, some further opening for air is required, and without it the sleepers will not be able to do the best work for which they were made. Or turning it the other way, and looking at an empty bedroom not yet occupied, we may be sure that the people who will sleep in it in the future will suffer unless they have at least an open chimney for exit, and some provision—a window open at the top is perhaps the best—for the inlet of fresh air. The smaller the room the more imperative ventilation becomes; but no room—not if it were as large as a church—would be large enough for even one person to dwell in were it air-tight.

37. Fortunately our **rooms are never air-tight**. Air comes in through cracks in floor and walls, and even through the bricks of which the walls are built. But we are always trying to build better, and to make our houses more air-tight than houses in the old time were. We have come to see that to let in fresh air when and as we choose is far better than to let it come casually and by accident from out of the ground or any chance chink left open. Still we must not forget that our new and more air-tight houses, our improved and beautiful cottages, have their dangers as well as their advantages, and that if we deviate from the ways of our forefathers on the one side, we must also (if we would escape the prevailing anæmic tendency) alter on the other side, and sleep and live with something open through which fresh air can come.

CHAPTER III

THE WATER SUPPLY

38. In most English towns 20-30 gallons of **water** is supplied daily for each person. Of this $1-1\frac{1}{2}$ gallon is drunk or used for cooking; 3-4 gallons for household purposes; 5-8 gallons for baths; 3 gallons for laundry; 6 gallons for flushing the drains; and the rest goes for manufactories, cleansing the streets, and so on. In towns it is generally found easier to supply the same water for all purposes; but if there is **washing water** enough, it does not matter whether it is as pure as **drinking water** must necessarily be, and in the country many persons use for washing rain-water out of a tank, or water from a well too near the house to be fit to drink.

39. In towns water is generally laid on, and householders have only to pay a **fixed water-rate**, in return for which they may draw and use as much water as they please. In the country all water has to be pumped, or sometimes to be drawn from a well, and occasionally it must be carried from a distance. All this adds to household work and expense, and must be taken into consideration when a house is hired.

The **water supply in town** is regulated by public authority. We may be sure, in return for our rates, of getting enough to use all the year round. In the **country the water supply** is each house-owner's private affair, and if it dries up in summer, or if the autumn rains are not enough to fill the wells, he has to suffer, and there is no one to whom he can apply for help.

There is nothing that in the long run makes more

difference to the health of a household (see 44) than the quality of the water they must drink, or the quantity that they can easily obtain.

40. First let us understand that **pure water** is a combination of hydrogen and oxygen, both gases (H_2O), and that pure water does not exist on the earth in a state of nature. If we want it we must buy **distilled water** of a chemist: it is often wise to buy it if our own supply does not suit our constitution, or is suspected of being foul. Distilled water is used on ship-board.

41. **Rain-water**, falling through the air, dissolves some air and more carbonic acid gas (see 25), getting thereby the bright sparkling look and fresh taste that distilled water lacks. And if rain-water can be caught on a clean surface, having fallen through pure air, it is the best water we can have. But where people live there is always soot and dust in the air and generally sulphur (see 31); rain takes up these also, and when collected on the roof of a house and stored in a tank it is seldom fit to drink. The plan has been suggested of letting the first few gallons wash the roof and run to waste, so that what is stored may be clean rain-water. In districts where water is scarce, or very hard, or has to be drawn up from a great depth, this is well worth doing; in most places, however, rain is not used for drinking, and in towns, however collected, it is not potable. Since rain-water should be used for the laundry and the garden, and perhaps for toilet purposes also, the means of collection and storage should be inquired into when choosing a country house.

42. Rain falls on the earth, and dissolves a part of whatever it falls upon. In a chalk district it takes up lime and becomes hard; in a granite district it takes up little of anything and remains soft. By

hard water we mean water containing a large amount of mineral matter; **soft water** contains little or none. 'Rain-water is always soft. Pure water takes up but little carbonate of lime; water containing carbonic acid gas (which, as we have seen, rain washes out of the air) takes up and holds much. Upon this fact depends the very familiar plan of softening water by boiling. Gas and air are driven out by boiling, and the carbonate of lime is at once deposited on the sides of the kettle or boiler, where we call it "fur." Water should, in a hard-water district, always be boiled for washing, for cooking, and for drinking when hard water does not agree with any one. But to boil any quantity of water there must be something to boil it in, and the boiling means expenditure of fuel and of trouble. Hard water wastes soap (see 210), much more being needed to make a lather. And in hard-water districts constant expense is incurred for renewal and cleaning of taps and boilers. Some water is **permanently hard**, containing sulphate of lime, or iron, and upon this boiling has no effect. Water can be softened by the addition of milk-of-lime.

43. **Well water** is drunk by a great many persons. Wherever we stand, if we were to dig straight down, we should come in time to water. We might find water soon, at a depth of a foot or two, in which case we should say that the **subsoil water** was high; or we might dig first to a great depth, in other words, the subsoil water might be low. Generally speaking, a district where this subsoil water is low is likely to be dry and healthy; where it is high, the neighbourhood is likely to be damp. (

44. **Shallow or surface wells** draw upon the subsoil water. The purity of the water depends on the nature of the soil and the nearness of inhabited

houses. It is often said that a well may be depended on to drain a circular area equal to its own depth. Dust-heaps, pigstyes, houses, privies, should all be at a distance from the well mouth, and any possibility of leakage from a drain or cesspool (greater in a pervious soil, see 12) should be removed by putting them as far away as the nature of the case allows. Shallow wells collect water from any higher ground near; therefore a well dug below the churchyard or at the bottom of the village is not likely to furnish wholesome water. **Pumps** are usually found over surface wells; only occasionally must a bucket and chain be used, and many people, getting water from the pump, do not realise that there is a well beneath. The danger in this source of supply is of animal organic matter, the worst of all impurities. Cholera, typhoid, and such complaints are commonly spread by shallow-well water, and these wells, useful once, have to be shut up as districts become more thickly populated. Rain-water cannot, in the nature of things, contain poison from the drains, and when any epidemic prevails, it may be wise to collect and drink rain rather than shallow-well water.

45. **Deep-well** water drawn, not from the surface soil, but from the natural reservoirs in the depths of the earth, often is very hard, but never contains animal matter. Some of the London water supply comes from artesian wells in Kent, and some few large establishments in London have a private artesian well of their own.

46. Most of the water that we drink comes from **rivers or streams**, and if we can tap the stream near its source or prevent its being fouled by the way, nothing could be better. But, unfortunately, most towns and many private individuals dispose of their refuse by pouring it into the nearest stream, and the conse-

quence is that many rivers are now no longer used as sources of town water supply, that the London water companies are continually going farther up stream, and that river water must be carefully filtered and purified before it is sent out.

47. **Pond, ditch, and marsh** water, containing, as it must, decaying vegetable matter, with perhaps animal matter from farmyards or cultivated fields near by, is always unwholesome, and in districts where it is drunk ague and malarious complaints prevail.

48. **Spring water** is often very hard—as, for instance, the petrifying springs in Derbyshire, where the amount of lime is so great that when the water jets out into the air, and parts with some of its carbonic acid gas, a complete crust is deposited on everything that it flows over.

49. Householders in town are less concerned about the source of water supply than with its storage on their own premises. The supply may be **constant or intermittent**. Having a constant supply, whenever the taps are turned water comes out of the mains: an intermittent supply means that water is turned on twice in the twenty-four hours; that while it is turned on water can be drawn as fast as it will run, but that as soon as it is turned off, the cistern being filled once, no more flows. Except in case of fire, when precious time may be lost fetching the turncock, the practical difference for ordinary householders is that an intermittent supply necessitates a large cistern, which must be kept clean; but to lodgers of the poorer class it makes all the difference in the world, because cisterns intended for one family are far too small to serve for six or eight families, and the result is that water must be drawn while it is turned on, and stored in crowded rooms,

and that there is seldom enough water used for any purpose. Moreover, to store water in a room is always undesirable because water so readily takes up any odour from the air. If it has to be stored it should be in a closed vessel of some insoluble and non-absorbent material such as crockery or galvanised iron, not in wood, nor in anything jointed with lead.

50. This brings us to **water cisterns**, where, in the ordinary course of things, water is constantly stored. The **position** of the cistern should be within reach of the housewife or housemaid, so that it should be emptied and cleaned at least three times a year. Yet it should not be within too easy reach—not, for instance, in a cupboard, where the housemaid's necessaries are kept, nor in a back-yard within a few feet of the ground. It should not be near any drains, water-closet, or dust-heap; and it is of great importance that the overflow pipe (there must be one somewhere) should discharge into the open air and not into a drain. The landlord is bound to provide a **lid** for each cistern, and it should fit tight. And there should in every house be at least **two cisterns**, one supplying drinking water, and the other water for the water-closet.

51. **Good water** is without taste, smell, or colour. Seen in bulk it has a blue rather than a yellow tinge, yet it may be both wholesome and yellowish when it comes off a peaty soil or when it has iron in it. Very sparkling water, though pleasant to taste, is often unwholesome, as the sparkle may be due to gases of decomposition. Among tastes, salt often, though not always, means house drainage.

52. If only **bad** or **doubtful water** can be obtained it should always be boiled. To some extent the flatness of **boiled water** can be overcome by pouring it out of one jug into another, as if to get a "good

head" on beer; or it can be flavoured with lemon, toast, or tea, which, like many astringent vegetable substances, seems to have some effect in purifying marsh water (Exodus xv. 25).

53. After boiling, water may be passed through **a filter**, which acts mechanically as a sort of strainer, separating solid impurities; and chemically, oxygenising organic impurities or otherwise purifying the water in a manner which varies according to the filter employed. Charcoal solid or in powder, spongy iron, silicated carbon, are common materials. Those filters that are of simple construction, easily taken to pieces and cleaned, are the best for the household, for any filter, after a few months' use, gets foul. Charcoal filters should be left empty, so that they may fill with air, once in every twenty-four hours.

CHAPTER IV

DISPOSAL OF WASTE

54. Like all words that are used in several quite opposite meanings, the word **waste** serves often to confuse our ideas. We speak of money being wasted when it is frittered away; of food being wasted when it is thrown into the pig-tub; of wasted time when we sit with our hands before us; and we mean that having got rid of our money, our food, or our time, we have either gained nothing in exchange or nothing of any value. These things were **wasted** because they were not used to the best advantage.

55. When we speak of "**the waste from the human body**," or as here above of "**the disposal of waste**,"

we have in our minds a quite different idea. We are thinking now of products not only useless but harmful to us in the place where they now are, things which must be got rid of, even though to get rid of them costs us toil or money. Oxygen, food, and water is constantly going into the human body, is used there, and in using breaks up into its component parts, recombines in other forms, and presently is useful no more, and must be cast out of the body. Except when a person grows taller or fatter, what comes out must be equal in weight to what goes in. We are all provided with **excretory organs**—kidneys, skin, lungs, bowels, which provide for the carrying off of these waste or used-up materials, and it is most important to the human economy that these should be kept in good working order.

Just so a dwelling-house is provided with **channels for getting rid of used-up materials**, and it is an important part of domestic economy to see that these are, one and all, in good working order. It is not enough to get in all that we want; we must also get rid of all that we have done with. Exit ventilators let out foul air, chimneys are built (primarily) to get rid of smoke; drains are intended to convey away liquid refuse; dustbins are receptacles for solid refuse: besides these, there are persons who will relieve us of bottles, waste-paper, rags, and so on. What goes out of our houses must equal in weight that which comes in.

56. Choosing a home it is necessary to see that suitable apparatus is provided for getting rid of waste. I have spoken already of ventilation, and propose to speak now of **the drains and the dustbin**.

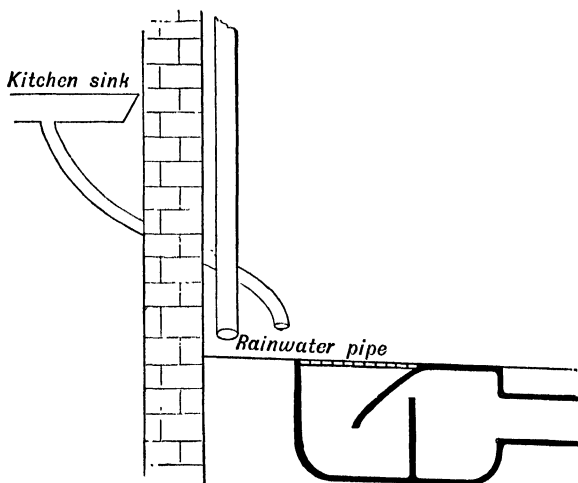
57. Let us first clearly understand what we mean by **drains**, because there are two meanings to the word, and two quite distinct ends to be served.

Speaking of a clay soil I said it ought to be well drained (see 13), meaning that it should be drained dry, that the water should be drained out of it and conveyed away. The farmer digs trenches in his field, and lays down porous earthenware pipes through which water out of the soil can percolate. This draining of marshy land is going on all over England, and one consequence is that ague and similar complaints are very much less common than they were.

58. **House drains** are not meant to collect water, but to carry away refuse, and their contents should not percolate through their walls, but are poured in at one end and should be poured out at the other without any leakage. House-drains should not be made of porous material. Brick-drains, often laid under old houses, were "contrived a double debt to pay," and actually paid neither. For percolation took place out of, instead of into the drain, and the basement of the house, so far from being dry, was often soaked with sewage. Earthenware pipes must be glazed, and all pipes serving for a house-drain must be well jointed.

All **drains** should, as far as possible, be **out of doors**, not under the house, nor built into the walls. In every house, whether in town or country, there must be a soil-pipe, rain-water pipes, scullery-pipe and sink-pipes; if there is a fixed bath, there must be a waste-pipe and an overflow-pipe from it. Every one of these ought to be visible outside the house, probably at the back. If they, and especially the soil-pipe, cannot be seen, they are built into the walls, which is a serious fault. Every water-closet ought to have three outside walls; it must have one. A water-closet in the middle of the house and a soil-pipe that cannot be found are enough to make any house unhealthy.

59. As for the rain-water pipes, sink and scullery-pipes, and bath-pipes—every pipe in fact, except the soil-pipe—the ends of all of them should be “**cut off**”; they should not run down into the ground, as the soil-pipe must; their **open ends should be seen** sticking out from the wall, or, in the case of rain-water pipes, about half a foot from the ground, over a

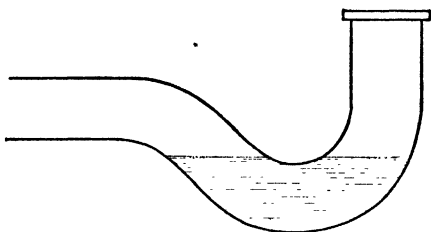


gully. The reason of this is plain; house-drains are meant to carry things away, not to convey anything back, and if the pipes run straight into the drains, whenever they are not actually in use for their lawful purpose, they are full of sewer air, which so comes into the house.

60. There is always danger lest sewer air should come up through the soil-pipe, and in order to prevent this a **ventilating shaft** is fixed. It is easy to see

where any soil-pipe comes out of the wall. Just there, from the bend, another pipe begins, and it runs up and up until it ends near the chimney-pots on the roof. Wind blowing over its open end makes a continual up-draught, and so draws foul air upwards, away from the house. Ventilating shafts should be the same size as the soil-pipe; they are often too small.

61. **Traps** are bends or boxes in a pipe which hold water (or rather some of what was last thrown

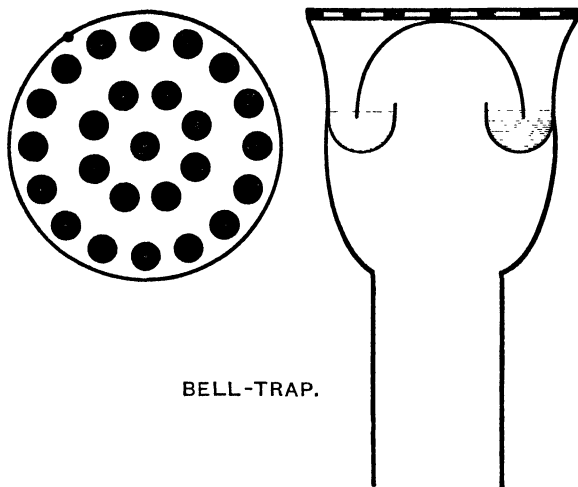


SYPHON, SIMPLEST FORM OF TRAP

down). As air does not pass through water unless a great deal of pressure is put upon it, the foul air in the drain is "caught" or kept back by this barrier of water. A drain-trap is no trap unless there is water in it.

If traps are ineffectual it is generally because—
 (1) The box or bend is too shallow and holds too little water. "Bell-traps," often put in sculleries, though they never should be, are bad for this reason.
 (2) They are empty. Either the water has evaporated (*e.g.* in an unoccupied house, or a pipe seldom used); or the rush of water has sucked the pipe dry. Plenty of water should be poured down all sinks and pipes on first taking possession of a house. (3) The

trap is a bad shape or of bad material. Foul matter may accumulate in corners or on sides ; it may also be too large, so that the rush of water is not enough to wash it clean. Any simple arrangement is likely



BELL-TRAP.

to be better for household use than a complicated one.

62. **Dustbins** are intended to hold **dry** dust only ; they are not intended for vegetable refuse, or anything that can putrefy, all which things should in town be burned on a good fire with all the flues pulled out ; in the country they go to the pigs. The best kind of dustbin is a galvanised tub with a tight-fitting cover, small enough to be lifted and carried away by a man. The worst is an uncovered space enclosed by brick walls, one being the wall of the house, the contents of which must be dug out with a spade (see 165).

63. The most perfect arrangements may fail through **mismanagement**. Any channel for the disposal of waste gets **out of order** when it is used for what should go elsewhere. (1) Solid refuse—coffee grounds, tea-leaves, shreds of flannel, hair, etc., should not be put into drains, which serve for liquid only. It is often better to have the grating over sink or gully fixed, so that it cannot be lifted. (2) Vegetable and animal refuse should never be put into the dust-bin, nor should remains of broth, sour milk, etc., which belong to the drains. (3) Water, whether mixed or not with trimmings of vegetables, tea-leaves, and such like, should not be poured into the fire, but poured off down the sink and the vegetables left dry.

Drains become clogged with fat.—To prevent this, a bucketful of boiling water with a handful of soda should be poured down the sinks regularly twice a week. A long cane is useful to loosen any obstruction.

64. **Disinfectants** are seldom needed in a house where the drains are rightly constructed and carefully attended to. **Sulphate of Iron**, also called green copperas, can be bought at any oil and colourman's for about 2d. a pound ; and at a much lower rate from the manufacturer's. It is the best disinfectant and deodoriser for drains, ditches, and gulleys. It should be dissolved in water and poured in. It has no smell. It is used as a mordant by dyers, and fixes any colour, notably that of **Permanganate of Potash**, also known as Condy's fluid. This should be bought dry, kept in a bottle, and mixed with water as wanted. It removes bad smells, and has also the great advantage of being inodorous. It is useful to wash over the insides of wooden cupboards. Stains on linen, etc., can be removed with a solution of alum. **Carbolic acid and powder, Jeyes' fluid and powder**, are also useful.

65. Before we leave the subject of waste, let us not forget that **to waste**, in the sense of **to destroy**, is what we never do—because we cannot. We make nothing, we destroy nothing. We can only move things, placing them now together, now apart, here or there, so that the forces of nature may work upon them and produce certain results. The farmer brings manure to his field; he carries seed and sows it there; he moves the soil, making ridges and furrows; he sprinkles poison for grubs and insects; always he is fetching and carrying while the plants grow and take up the food that has been laid ready for their acceptance. Presently he cuts the crop and carries it, he grinds it, separates it into parts, mixes it with other things, finally puts it into his mouth, and it becomes himself. And now, serving for the purposes of the man's life, his food is broken up into inorganic substances, into carbonic acid gas, water, and ammonia; he drives it away from him, calling it waste; and sooner or later this waste finds its way to the fields, and is taken up by plants once more. Every drop of water that we use, every atom of our bodies, has gone this round many times since the world began. What we use now, was used yesterday, and will be used to-morrow for some purpose that we do not even dream of. We hold no fixed possession. Each one of us stands where the streams meet, the one flowing from us, while the other sets into our lives.

Looked at from this side, the work of the housewife seems to divide itself into three parts: First, to get all we need; second, to see that it is used as long as possible in the best possible way; third, to pass it on without delay where it can be used to good purpose once more. Nothing that we have is neutral; either it does us good or it brings us harm. And everything we do not want is actually wanted elsewhere.

CHAPTER V

RENT

66. Some men **build** a house for themselves ; some **buy** a house that another man has built ; some pay so much a year **rent** for the privilege of living in a particular house as long as it suits their purpose.

When we calculate the **cost of building** a house, we allow so much for the house itself (see 16), and so much for the ground that it stands upon. The cost of building varies comparatively little all over England, but the cost of land varies enormously. No one can afford to live (for instance) in the City of London, because land is worth so large a price. And there is land to be had, as we say, "for an old song."

67. **House-rent** is the interest of the money spent on building (materials, wages, etc.) calculated at about six or seven per cent. **Ground-rent** is paid to the owner of the land the house stands upon, and sometimes it is paid separately, or by the owner of the house.

68. The **value of building-land** varies. You want to live near your work, or near a certain set of friends, near the sea, a river, or fine scenery. If a great many other tenants want these same things, rent will go up, and you will, for the same money, get a smaller house than you would get in a neighbourhood less sought after. The tendency of the present day is for **town rents** continually to go up, and for **country rents**, in retired spots, or at a distance from a railway station, to go down.

The questions to be asked are : (1) Whether any or all of these things are worth paying for ? (2) Whether we have the wherewithal to pay ? It is

always worth paying for a house of a certain size, well built and placed, because without it we have not health, either to earn an income or to enjoy life. It might, for the same reason, be worth our while, even out of a small income, to pay a high rent near the sea, or for the neighbourhood of an open space. A low-rented house in which some one is always ill, is the dearest house we can choose. But to live in a fashionable or wealthy district adds neither to our health nor our comfort ; and if we live in too small a house we shall suffer all the evils of overcrowding, be our neighbours who they may. When the tide of fashion leaves a neighbourhood, rents go down, and large well-built houses may often be bought or hired for less than they would cost to build.

69. This scarcely seems to agree with the well-known fact that the poorest people in the lowest districts often pay enormous rents for very poor accommodation. But they are considered, and rightly, **bad tenants** ; they take a home for a short time and quit at short notice ; their habits are destructive to house property, and they are able to give no security for compensation for damage, or even for payment of rent. All other things being equal, one always has to pay more for a house hired for a short tenancy, or with option to quit at short notice. Houses are often let for three years, at a year's notice ; or under a lease for seven, fourteen, or twenty-one years. As no landlord grants a lease unless the would-be tenant produces evidence of his willingness and ability to pay, he (the landlord) is sure of his rent for a long time to come, and can sue the tenant for wilful damage always, and for repairs according to the terms of his agreement. It is true that every tenant, rich or poor, can be sued for wilful damage ; but if a man has no money it is lost

labour to pursue him ; and the landlord, knowing this, makes a bad tenant pay for damage beforehand, and calls it higher rent. Tenants likely to cause destruction always have to pay more rent. Landlords often object to children and dogs, and no landlord would let at his lowest rent for a school or an asylum.

70. **Wear and tear** of living must cause some damage. Rain and wind destroy the fabric of a house. There are therefore always **repairs** both outside and inside. The tenant may pay a higher rent in order to have the house kept in repair by the landlord, or he may pay a less rent and agree to keep the property in repair himself. Very often the landlord undertakes outside, and the tenant inside, repairs, but it is all a matter for agreement. Women, who seldom are accustomed to the management of house property, should never agree to repair until they clearly understand what they have to do, and to what expense they may possibly or probably be put.

71. Houses are commonly let on **long leases**, which may be passed on from hand to hand. The holder of the lease at the expiration of the term is bound to put the premises in thorough repair before handing them back to the landlord. Inexperienced tenants often are induced to hire what appears to be a very cheap house for the end of a lease, and presently find that what they have to pay in **dilapidations** transforms their cheap house into a very dear one indeed. And the loss of money is often attended with a great deal of personal annoyance, and followed up by a long lawyer's bill.

72. We have then to allow a certain sum for **house-rent and ground-rent** and for **repairs**. The smaller the income the larger the **proportion spent on these**

items. Weekly wage-earners commonly spend one-fifth, and often one-quarter, of their income on rent, which, however, in this case practically always includes rates and taxes. One-fifth to one-sixth is perhaps a fair average for persons spending a few hundreds a year in town.

73. Everywhere **Rates and Taxes** must be paid. These include "Queen's Taxes," *i.e.* a tax levied for public service ; and "local rates" to pay for schools, lighting and keeping the streets, public baths and libraries, sewers, and the maintenance of the poor of the parish. Besides these, we pay a fixed rate for water. All these together amount to something between a quarter and a third of the rent, to take a rough estimate for London and other large towns. In country places, rates are very much lower.

74. Rent, repairs, rates, and taxes being paid for, only a small sum more is wanted for **Insurance against Fire**. The percentage charged varies according to the risk involved. Detached houses pay less than houses in a row ; living over an oil warehouse or in a timber-yard, we pay more than if we keep a crockery-shop or sell fish. What we insure is our own property : a tenant insures not the house but his furniture and fittings ; a man living in his own house insures, if he is wise, house and furniture ; a trader his stock ; a farmer, his garnered crops. We may not insure for more than our property is worth, but it is wise to insure to the full value.

We can insure not only against fire, but also against **accident** to life or limb, damage by **hail**, breakage of **plate-glass**, **burglary**, and many other contingencies, all more or less likely to affect the householder. Loss by fire may come any day to any one of us, and all persons should insure against it.

75. It will be seen that all these are **fixed ex-**

penses. Housekeeping expenses may vary from year to year, even from month to month, but once having hired our house we must, whatever else we stint ourselves in, pay certain definite sums of money on certain days.

PART II.—THE HOME

CHAPTER I

PLANNING THE ROOMS

76. Having decided upon our house, which room shall be devoted to which purpose? We must have bedrooms to sleep in, and some room where we may dress ourselves and keep our clothes; kitchens to cook our food in; a place where food can be stored, and another where it can be eaten; and parlours to live in, where we can work, write, or receive friends. Some of us, who do our day's work at home, need also a room set apart for it—a study for the student, a schoolroom for the children, a laboratory for the man of science, a sick-room for a chronic invalid, and so on.

77. A house in England, where all building land is valuable, usually has two or more stories; and in town, where every yard of the site must be made the most of, kitchens and offices are often beneath the level of the ground, and the bedrooms built close under the roof. This is done for the sake of economy, not for the sake of health or convenience. **Underground rooms** are so unhealthy that they may not be let as dwellings (according to the London bye-laws) unless certain conditions are complied with as to position and

size of window, height above the level of the street, and so on. **Attics** must have a certain average height from floor to ceiling. Laws of this kind do not touch those who occupy a whole house. They may live as they choose, and no one interferes. But we do not wish to use our liberty in order to sin against health. We willingly apply to ourselves the rules made for the dwellers in tenement houses. We take care that no underground room shall be lived in unless it is dry and well-lighted. An underground room with a window opening into a passage is one that no person should consent to sleep in.

78. A **basement kitchen** adds much to servants' work in fetching and carrying and cleaning of steps; it adds also to the difficulty of preventing kitchen smells from travelling through the house. Hot air ascends, and it has been suggested that kitchens should be on the top story where there is light in plenty, and from whence smells would never reach the rest of the house. The difficulty of carrying food up and waste downstairs can easily be overcome by a lift, a shoot for rubbish, a speaking-tube for tradesmen, and water laid on or pumped up. But the plan, excellent in theory, is seldom put in practice, and we must reckon with smells from below. Extreme care and cleanliness on the part of the cook will do much; efficient ventilation more (see 33).

79. **Attics** are generally used as bedrooms, and are bad because though there are many square feet of floor, there are not many cubic feet of air, and if only the floor space is considered, the inmates are overcrowded.

80. The **size of our sleeping-rooms** has much to do with our energy and health. It has been found, by a series of calculations too long to repeat here, that each adult needs, every hour in his life, 3000

cubic feet of air. It is known by experience that the air of a room cannot be changed more than three or four times an hour without causing a draught. And so we see at once that each person needs a space of $\frac{3000}{8}$ cubic feet = 1000 cubic feet, or at least of $\frac{3000}{4}$ cubic feet = 750 cubic feet. It is very easy with a foot-rule, or even with a yard measure, to ascertain how much space all the members of a household will have in the new house, to sleep in or to work in. If they have less than 750 cubic feet (10 feet long, 10 feet high, and $7\frac{1}{2}$ feet broad), they must either put up with a draught, which will certainly not hurt them while they are warmly covered in bed, or they must breathe foul air from the end of the first hour, which as certainly will hurt them by day or by night (see 36). This must be clear space, not blocked with furniture, and it allows nothing for a gas-burner or a lamp (see 186). A child under ten is generally reckoned as half a person; children over ten as adults.

81. With regard to **space in living-rooms**, it is interesting to see what the law says about children in Board and Voluntary Schools, who work only five and a half hours a day, and have in that time a short and a long break. The least floor space is 8 square feet for schools already erected, and 10 square feet for schools to be erected in future. This is exclusive of passage-room round the forms, and schools are, besides, much more lofty than dwelling-rooms.

Probably the result of measuring will be to show that many persons live—perhaps some are compelled to live—in too narrow a space. The practical advice that can be given to them is this:—(1) To live in all the rooms that they have, and not to keep one—especially, not a best one—whether parlour or bedroom, for chance visitors. (2)

To take up the least possible space with furniture or hangings. (3) To make the bedrooms the first consideration, particularly for those whose day's work is not done at home, and who therefore spend very little time in their parlours as against the time necessarily spent in their bedrooms. (4) To ventilate continuously.

82. As for **aspect**, so that it be not north, that is largely a matter of taste. Whatever our employment is, we do better if our mind is cheerful and our body strong, and to this end light, sunshine, and air are necessary. The only room in the house that should face due north is the larder. If any one is to have a north room, let it be a strong and vigorous person, who lives much out-of-doors, never an invalid, or a child, or one who works at home.

Larders (see 166) must be near the kitchen, and are often in the basement. Town larders are sometimes built next to the coal-cellar, under the street, where they can only be ventilated from one side. Because a bad larder adds certainly and permanently to household expense, it is good economy to have it well arranged at the beginning of a tenancy.

83. The housewife must balance one against the other the needs, often conflicting, of each member of the family. Some are old and feeble; some young and growing fast; some strong, others delicate; some sit indoors from morning to night. Children ask for three things in their rooms—air, sunshine, and the never-failing delight of looking out of the window. Old people ask for warmth from fires and sun, for quiet, and for few stairs to climb. Speaking generally, at the top of a house there will be most light and air, least dust, and damp, and noise, least chance of bad smells; but there will also be, immediately under the

roof, the greatest alternations of temperature, not only during the year, but in each twenty-four hours.

CHAPTER II

FURNISHING THE HOUSE

84. Wherever human beings take up their abode they require **furniture and utensils**. The principle that underlies the getting of furniture is always the same ; it is a means to an end. Furniture supplies us with means for sleep and rest ; washing and dressing ; storage of clothes ; preparation and enjoyment of food ; and warmth. What we buy to these ends should be the best that we can afford, inasmuch as we want it, not for a short time only, but for life.

85. Our domicile is the place where we sleep, and good housewives look first to the furnishing of **the bedchambers**. The bedstead should stand out in the room, should be strong, preferably of iron or brass, should be easily taken to pieces and moved, without any hangings. A chain mattress is cooler and cleaner than a paillasse, and over it only one stuffed mattress is required. Any material which does not hold damp and perspiration is suitable for stuffing. Horse or even cow hair is dearer than wool. Long wool is sometimes replaced by waste from carpet factories, which is harder and sooner gets lumpy. Unreliable makers often put in a layer of the better material near the seams, and fill up the middle, where few buyers would look, with cheaper stuff. Cotton waste, known as flock or mill puff, costs very little, and may be used in default of

anything better. For the bed-clothing lightness and warmth are needed—woollen blankets, or feather or down quilts, with some coverlet to keep the dust off by day. Pillows should be stuffed with feathers, goose feathers being softer and dearer than chickens' feathers. It is more economical in the long run to sew all mattresses and pillows in a stout linen ticking, not in cotton.

86. As for **washing** apparatus, there is now in most new houses a bath-room, whereby much labour is saved. In addition to a bath-room, there should be in every bedroom means of washing from head to foot daily.

87. A **wardrobe or chest of drawers** is necessary to all persons who dress neatly and economically. It is an unthrifty plan to hang clothing on walls and doors. A cupboard fixed to the wall costs less and holds less dust, but it cannot be removed by the tenant.

88. Most household furniture is made of **wood**. Various woods are used. Ash, beech, birch, deal, ebony, mahogany, maple, oak, pine, rosewood, have each their merits; some are cheap, some durable, some beautiful. All woods need to be kept some time and seasoned; made up green, they warp and split. It is therefore seldom wise to buy wooden furniture at a very low price, or of a man who has little capital.

Second-hand furniture is necessarily seasoned (see 252). Newly **painted woodwork** is open to suspicion because the fresh paint may have been intended to cover the shrinking of the wood. Painted furniture is seldom economical, because it soon gets shabby, whereas good polished furniture improves in appearance if it is well kept.

89. **Upholstered furniture** is only fit for wealthy

homes where many servants are kept, and where the expense of renewal and recovering is of no importance (see 194).

90. **Blinds** must be hung in the windows to secure privacy. **Curtains** are generally hung at parlour windows, partly for warmth, partly for adornment. Bedroom windows are better uncurtained. The more sun, light, and air we get into our rooms, the greater measure of health we shall enjoy (see 14). And the housewife, remembering this, should see that curtains are hung at the side of, not over, the panes; she should never buy expensive furniture which she must guard from light and air, nor smart upholstery which will spoil in the sun; and she should have the fewest possible contrivances for blocking out light, or catching dust.

91. **Carpets** are among the things which it is cheaper to buy good of their kind. Kidderminster or good Brussels are probably the cheapest in the end. A square that can be turned round to equalise the wear lasts longer than a fitted carpet, costs less both to buy and to make, and can easily be taken up. Small patterns cut to more advantage, and in double-warp fabrics, the threads crossing more often, they also wear better.

92. To **stain boards** round the carpet saves much trouble in scrubbing. Soot and linseed oil, or water stain (oak or mahogany), or permanganate of potash, can be put on with a brush, and if turpentine and beeswax is rubbed in afterwards, no varnishing is required, and the look of the floor improves with time.

93. **Walls** can be whitewashed, distempered, painted, or papered. Paper is usually preferred. Old paper should be removed before the new is hung. Smooth papers collect less dust, and some can be

washed. Small patterns cut less to waste, and often cost less to hang.

94. **Utensils** for cooking food are commonly made of iron, tin, earthenware, or copper. Iron pots are durable and cheap, but take some time to clean, and if dirty inside, spoil the food; if dirty outside, waste the fuel, because more heat is required to boil a soot-encrusted pot than a bright one. Enamelled pans are liable to burn and chip, and need great care in using. Copper is dear to buy, but durable, and the best metal to cook in. Earthenware is cheap to buy, excellent for cooking, and easy to clean, but liable to crack when suddenly set cold on a fierce fire, or hot on a cold sink. Tin saucepans and kettles are easy to clean, but liable to rust if left wet. They are thin, and heat soon penetrates them, an advantage in boiling water quickly, a disadvantage in cooking generally.

95. Besides stove (see 188) and cooking-pots, we shall require in the kitchen other utensils and appliances according to the elaborateness of the dinners to be cooked; and, however simple our dinners are, we must have a table of unpolished wood (generally deal or maple) that can be scrubbed, a dresser (often fixed by the landlord), cupboards for stores and for cleaning materials (see 193), with crockery to serve our food on, knives to cut it with, electro or silver forks and spoons, trays to carry it on and save steps, with other things too numerous to catalogue here.

96. **Crockery** for kitchen use should be strong earthenware or stoneware. **China** is kept for parlour use, and is a luxury of life. It is better to buy earthenware or china either white or of a stock pattern, so that it can be replaced without difficulty.

97. Once embarked on the purchase of luxuries,

what limit can we set? At least we can remember that furniture not only has to be bought but kept. We may afford a few pounds to purchase this or that fine piece of furniture, plate, or hanging. But can we afford to pay a servant to keep it clean? Or do we propose to spend our own time in cleaning? Furthermore, furniture and utensils take up space, and to live on a small income generally means to live in a space which, with the best management, is inconveniently restricted.

Furniture may be obtained by paying **cash** for it; by paying a larger price in **instalments**; and by **hire**. The two last-named are unsatisfactory: until the last instalment is paid the furniture belongs to the vendor, who may remove it if a payment fails or is overdue; and in **hiring** the furniture is never your own, while the hire price is much more than fair interest on the purchasing price.

CHAPTER III

CLOTHING

98. All that has to be said about clothing may be divided into five parts: (1) material; (2) shape; (3) purchase; (4) storage; (5) making and mending.

99. The **materials** of which clothing is made are wool, silk, fur, feathers, leather, cotton, linen, india-rubber. Of these six are animal and three vegetable products. Each has its special advantages and drawbacks.

100. Clothes economise the body-heat made by the oxidisation of our food (see 138). By warm clothing we do not mean that any clothing has

warmth in itself, but that it is made of a substance that does not allow heat to pass quickly through it—made of some **non-conducting** material. Clothed in a **non-conductor** the heat that we make we keep ; it does not pass away from us to warm the surrounding air and objects. We cover ourselves with blankets in bed, not to warm us, but to prevent our heat from escaping. Put a piece of iron or wood in bed instead of a living person, and it will be as cold next morning as it was overnight. Take a lump of ice and wrap it in a blanket ; that is the surest way of preventing it from getting warm and melting.

Most vegetable substances are better conductors of heat, and therefore colder to wear than animal substances.

101. **Wool** and woollen industries play a large part in the economic history of every nation, and they do this because woollen clothing is the best that we have. Wool is a non-conductor of heat, and there is not a person in Great Britain who does not use woollen goods to clothe himself, or for household purposes. Wool has also the power of holding a good deal of moisture without becoming perceptibly wet, and for this reason it should be worn next the skin by all persons who perspire freely. Another great advantage of woollen clothing is its lightness. The weight of bed or body clothing should be carefully noted, and diminished wherever possible, because to carry weights—call them by what name we may—uses up the strength that we want for our life's work. The drawbacks of woollen clothing are that it shrinks with washing, and is therefore apt to be worn dirty ; and though it is dearer than cotton underclothing, it is less durable.

102. **Feathers** are worn as ornaments, and used for bed-coverings, but chiefly in Continental countries.

They are light and very warm. **Fur** is the warmest of all clothing, used too often only for ornament.

103. **Silk** is light, a bad conductor of heat, and exceedingly comfortable as underclothing. But its price puts it beyond the reach of moderate incomes.

104. **Cotton** is cheap, durable, and easily washed, so that its general use among all classes of people has tended greatly in the direction of health. But cotton is a much more rapid conductor of heat than wool or silk, and delicate persons and those who live a sedentary life require something warmer.

105. **Linen** is a still more rapid conductor of heat. It is now seldom used in this country except for bed-linen. It is expensive but very durable.

106. **India-rubber** clothing does not allow moisture to pass through from inside nor rain from outside, and the result is that, though it is worn to keep us dry, the clothing under it is very often wet. If worn it should be perforated, or so shaped that air can escape.

107. **Leather** occupies a different place in clothing. Dressed sheep-skins are worn in very cold countries, and we clothe ourselves in the skin of animals with the fur on. But leather means to us shoe-leather, a very large item in the expenses of a growing family.

108. About the **shape** of clothing there is only one thing to say that fits all cases. Clothing should be so shaped that it causes no inconvenience to carry, and no deformity of the body. It should be adapted to the doing of our work, whatever that work may happen to be.

109. Whatever our circumstances, we all need a certain amount of clothing. This **clothing must be bought**. Nowhere is it more necessary to remember the rule; necessities first, luxuries when and as we can afford them. Many housewives, having furnished

are far apart. But it is more useful to children to teach them the difference between good calico and bad, than to teach them to set stitches by the thread in garments that will wear out as soon as they are put on.

114. All civilised persons possess at least two or three changes of clothing, and those not in use must be **stored**. Winter clothing must be stored through summer, and summer clothing through winter. When the **space for storage** is limited, it is wise to have as little clothing as possible; for all clothing gathers organic matter from the bodies of the wearers, and organic matter, wherever you find it, is liable to decay, and fouls the air. A cupboard full of half-worn clothes is always apt to be close and stuffy, and the clothes should frequently be taken out and brushed, sunned, and aired, in order to purify them, while the cupboard itself is thoroughly ventilated. But the drawbacks arising from a cupboard full of clothes are as nothing compared with those of boxes of clothes under a bed, or suits of clothes hanging on wall and door-pegs, where they collect dust, hinder ventilation, and soon get shabby. Any garment, stored for a short or a long time, should first be mended and cleaned. All garments cannot be washed, but all can be brushed, beaten, and aired, either before a fire or in the sunshine.

115. Greasy spots should be taken out, for **moths** lay their eggs in any part of woollen clothing tainted with grease or perspiration, and the worms, hatching out, eat their first meal on the spot. All substances of animal origin—wool, fur, feathers, and to some degree silk—are liable to the attacks of moths: they should therefore be sewn securely in paper or linen; they should be taken out, brushed, and beaten, every month or two; and they should be kept in a dry

place. Various strong-smelling substances—camphor, cloves, carbolic, Jeyes' powder—are put with clothing to keep moths away.

116. Stored clothing must be **folded** in the right way; for there is a right way and a wrong to fold each garment. Perhaps the best way of learning is to observe and imitate the folding of a coat or trousers sent home new by a good tailor, or of a dress by an experienced dressmaker. It is often wise to fill the sleeves of a dress with soft paper, and with a needle and cotton to tack any folds into place. No article of clothing improves by being stored, except (perhaps) boots and shoes, which may advantageously be kept for a month or two before being taken into regular wear. The things which spoil with storing, or become of less value, are made-up garments, materials of any peculiar or marked fashion, and all children's clothes, which may be grown out of. It is therefore never wise to buy these before one needs them, or to keep any large stock in wear.

117. Most housewives will either mend or see to the mending of all the family clothing and household linen. A few housewives, having done that, will still find time to make clothes for some members of the household. **Mending** is the needlework that the mistress of a household most needs to understand. She will probably not do it all herself, but she must know how it all should be done, in order to direct children or servants; she must be able to fix work sensibly and accurately, and to see at once how any half-worn garment or house-linen can be turned and re-made to the best advantage.

118. As for manual **dexterity in setting stitches**, that is of less importance; machines can do a great deal of that sort of work, and life is by no means

long enough to stitch half-worn garments by the thread. The women who practically need to do the finest needlework are not mistresses of households, but those who earn a livelihood by making undergarments for the wealthy; and with needlework as a profession I have nothing to do. Stitches must be **set straight**, or the stuff "drags"; they must be **set strong**, or they will come asunder; and they must be **set with common sense**, because the sort of stitch suited for one material, or one patch, is quite unsuitable for another.

119. **Mending** never gets done at all unless it is done **at a stated time**. All household linen should be looked over each week before it is washed. When the washing is done at home, all things should be mended rough-dry. Personal linen cannot always be mended before it is washed. The value of each thing as it is mended seems very little, and housewives are apt to think that it is better economy to leave the holes and to buy new when the time comes, while they occupy their time with making new and saving dressmaker's and tailor's bills. In the long-run, however, mending is always found to pay the best. Where the mistress is careful, servants are careful too; and even the children soon learn to take care of their possessions when they know mother has the trouble of mending if they are careless. And then again dressmaking can be put out, but mending is done at home or left undone.

120. Every housewife should know how **to cut out** the garments in ordinary use. There are always people in the world who can sew a thing after it is cut and fixed. Cutting and planning is skilled work, at which one can always earn or save a good day's wage.

121. Suppose we determine to make some of our

clothing, which will it be wiser to make, and which shall be put out? Boys' and men's clothing is, under existing conditions, made in great numbers of stock sizes in factories, and can be bought as cheaply as it can be made. Women's underclothing can also be bought at a low price—too low indeed; but the calico used is so inferior to the needlework and the trimming, that it is never cheap to buy; it takes as much time to mend as would have sufficed to make, in the first instance, a strong garment needing no mending. It is said that a set of underlinen should last as many years as there are pieces; thus four nightdresses last four years; so that the making of underlinen does not often come round, and can be undertaken at leisure hours.

122. **Dressmaking** is much more highly paid than plain sewing, and if a woman can make her own or her children's dresses well, she can scarcely employ to better advantage the time that she devotes to needlework. The saving is not only in the dressmaker's wages, but on the quantity of material. A dress made at home seldom has as much stuff in it as a dress made out is said to have. A short length, just too little to satisfy a dressmaker, may often be bought at a low price. Girls should learn to make their own dresses—they never know what their circumstances may be, and so long as they are unmarried, they cannot do better than make some of the clothes they wear.

But when a woman has a family to care for, it always becomes a question whether she has not duties more important than the making of clothes. Every one must be dressed warmly and sufficiently, and if there is no margin of income to put sewing out, the housewife must make as well as mend, and she will spend all the odd corners of her time at her work-

basket. The necessities of clothing once provided, there are things that children need more than extra clothes or smarter clothes. Children are none the worse for going plainly clad, or for seeing their mother plainly clad too ; but they are greatly the worse if they miss a mother's sympathy and companionship in their games and their walks and their lessons. *

CHAPTER IV

FOOD : QUANTITY REQUIRED

123. What must the housewife know about food ? She must provide for the family food in **quantity** sufficient and in **quality** suitable to keep each member in good working order. She must know how to **exchange the money and time** that she has to spend on the best food to be had for that price. She must know how to **store** and what to store. She must be able either to **cook** simple food, or to direct another person in cooking it, which means considerably more knowledge.

124. If we have not enough food our strength dwindles, and we cannot work with body or mind as we would. If we eat too much food our bodies are overloaded, and again we work badly. If we buy more than we eat, we waste our money and many people's time. And if we buy and eat more than we can afford, we are always striving, and yet poor. So it is important to have **enough, and not more than enough**.

125. Different persons have very different ideas as to the quantity of food needful for a household, but

that is not because, taking one person with another, there is any great margin for difference in the average weight of food eaten by any considerable number of people. The difference is rather in the quantity wasted.

126. What do we understand by "**quantity sufficient to keep a man in good working order**"? He must have enough to make up to him for the daily wasting of his body in the work of living and in doing the work of his life. A man who does not eat enough loses weight. The **maintenance of weight** may fairly be our first test. We do not weigh ourselves frequently, and perhaps should not know if we lost, and do not know when we gain weight. But the **inmates of public institutions** are weighed periodically, and their dietary is carefully calculated to maintain their size while doing the work that is allotted to them; if their work is increased so is their food in proportion. We learn much from these dietaries, because we see how much food is necessary to keep the average man or woman in health.

127. **Bread** is the staple food in Great Britain. The less people spend on food the larger the proportion that bread bears to other things. If bread is good it is probably the cheapest food, and if we buy it of the baker we are saved all expense of fuel and trouble of cooking. A drop in the price of bread means much to poor folk, very little to the well-to-do; as for the wealthy, the baker's bill is so small an item in their general expenses that they may not even know what bread costs a pound.

In institutions, where there is little variety of other food, it is usual to allow 10 to 15 ozs. a day for adults, and half that for children between 5 and 10. Roughly reckoned, that would be a half-quartern

(2 lbs.) loaf between two persons, if bread formed the bulk of the diet, a half-quartern loaf between three or four persons if flour or other farinaceous foods and vegetables are given. In any household this will be enough, for if a great deal of bread is used for crumbs or fancy cooking, there is sure to be much more than the institution allowance of other foods, and so less plain bread is eaten. Count the number of people in the house, and divide it by 3 or by 4: that should represent the number of half-quartern loaves delivered daily; if more are paid for, the chances are that bread is thrown either into the fire or into the pig-tub. This calculation assumes that at every meal only so much bread is cut as is wanted, and all is eaten.

128. **Home-made bread** is generally more nourishing, and always more economical, if one can afford the time to make it. A bushel of flour weighs 56 lbs., a sack 280 lbs. The drier the flour the more water it absorbs, and the more loaves are made from a given weight, but the average for a sack of flour is 90 to 96 quartern loaves, if nothing but water, yeast, and salt is added. Rice or potatoes mixed with the flour produce a greater weight of damper bread. It does not keep so well, and when the baker adds rice or potatoes it is clearly to the disadvantage of his customers. If the consumer adds it himself he gets the benefit, such as it is, of the extra loaves. Alum is put into bread to please those customers who foolishly demand very white bread (see 153).

Household bread is sold by weight at a certain price per pound. The purchaser may demand an extra slice to turn the scale at 4 lbs. to the quartern. **Fancy bread** (all brown bread generally included) is not weighed, and the baker charges what price he pleases, it being at the customer's option to take or

to leave it. Bread loses weight as it cools by escape of steam. “

129. **Potatoes** are among our cheapest foods. If we lived on potatoes alone, or on potatoes and buttermilk, as some Irish labourers are said to do, we should eat 6 to 8 lbs. a day. But we never do that. * Well-to-do people eat potatoes with, not for, a meal, and each adult eats on an average $\frac{1}{3}$ of a pound, weighed raw in the skins, if he has no other vegetable. According to that calculation, 2 lbs. should serve six persons for dinner. In institutions the quantity varies from $\frac{1}{2}$ to $\frac{3}{4}$ lb., but there is no second course to follow, and if another vegetable is served it is generally reckoned into the weight. Small potatoes weighed in their skins lose much in peeling and boiling; large ones are more advantageous to buy by weight and small ones by measure; they lie closer together.

130. **Butter** or some other fat is a necessary part of food, and no wise housewife will grudge a plentiful supply, provided it be all eaten. One ounce a day is a common allowance in institutions and hospitals, and it is enough to keep men and women in health. Children often eat as much as adults, and they can scarcely eat anything more wholesome than good butter. If we reckon $\frac{1}{2}$ lb. a head a week we shall have from each person a contribution of 1 oz. for cooking, and in modest households this may be made to serve. Butter used for frying, rich pastry, and such things does not materially help to feed us; it may go a long way towards causing indigestion. The weekly allowance may easily be doubled if butter is used lavishly in the kitchen. Jam, golden syrup, or treacle, though good enough in themselves, are not a substitute for butter, of which they do not take the place, especially not for children. If

children eat jam or syrup on their bread, fat or butter must be given to them in another form. Dripping, suet,¹ fat bacon, if they are digested, do stand in the place of butter, and are much cheaper.

131. **Meat** is, no doubt, the food that gives the greatest opportunity for waste. It is costly, the butcher's bill being an important item in the expenses of most households; and as it is perishable, if more is brought into the house than is eaten, the surplus must be wasted. In the long run people eat neither more nor less because a great quantity of food is set before them; they may eat more for a few days or weeks, but presently they return to the average. There are very wasteful ways of preparing meat: as, for instance, when a leg of beef is boiled down to make a quart of gravy, which means that only the juice of the leg was used and the bulk of the leg wasted; or when a joint is so ill-cooked or so fat that no one can swallow it, or so tough that no one can chew it. There are also many persons who waste meat by eating far more than is good for them. What I have to do here is, not to deal with these ways of wasting, but to tell what weight of meat is found sufficient to keep people in health and able for work, if cooked reasonably well and all eaten. In households where elaborate cooking makes less of the meat available for the table, there is always more than enough fish, game, poultry, bacon, and eggs to compensate.

The weight of **meat in institutions** is reckoned for men at 4 to 8 ozs., for women at 4 to 6 ozs., weighed cooked and without bone. This is not given on all days of the week, and it is instead of, not as well as, 8 to 10 ozs. of cooked fish, 12 ozs. of suet pudding, or pea-soup. Meat may be expected to lose $\frac{1}{3}$ to $\frac{1}{4}$ of its weight in cooking, and the average of bone will

be 2-3 ozs. in 1 lb. If we reckon $\frac{3}{4}$ lb. for each man, $\frac{1}{2}$ lb. for each woman, and 2 ozs. for each child, all weighed as it comes from the butcher's, we shall certainly have enough. Count the members of the household, order meat accordingly for every day or two days, and remember that if you, having eight mouths to fill, habitually pay for meat enough to fill ten, the portion of two must be put away, wasted somehow.

It must be a matter of opinion how much we can or ought to afford for the luxury of "a handsome-looking joint." The economical way of housekeeping is the continental way of ordering meat just enough for each meal and nothing to spare ; but this is not the custom in England, where we are apt to think that as much as we want is not enough. It is never economical to buy a **very large joint**, either to serve it cold again and again, or to cook it a second time. To eat warm food economises the body heat. I have written as though to eat meat were necessary, it is well known that we can live healthily and well without it.

132. **Milk** is the one food we reckon backwards ; the less the age, the greater the milk-bill. For an infant of a year old 2 to $2\frac{1}{2}$ pints ; for a child, $1\frac{1}{2}$ pint ; for each adult, $\frac{1}{2}$ to $\frac{3}{4}$ pint. When milk is wasted it is by bad keeping, so that it turns sour and has to be thrown away.

133. **Sugar** is oftener eaten to waste than wasted by being thrown away. Three-quarters of a pound a head a week is a usual allowance, more for jam boiling and perhaps in the fruit season.

134. **Tea** will be used at the rate of 2 to 3 ozs. if drunk once a day ; of 3 to 4 ozs. if drunk twice, and no coffee or cocoa given.

135. Of **groceries**, including soap (exclusive of

laundry), candles, tea, and coffee, a liberal supply can be paid for with 1s. 4d. to 1s. 6d. a week for each person. It is impossible to divide up these items because of want of space, also because tastes differ and some folks like more of one thing, some of another. Of plain food, eat what they may, the sum total strikes the average.

CHAPTER V

FOOD : ITS NUTRITIVE VALUE

136. If we know how much food, we still do not know **which food to buy**. It is not readily apparent why, when we prefer A to B, we are counselled to spend our money on B rather than A. "Is not instinct or appetite the best guide?" we say. "So long as hunger is stilled, what can it matter what we have eaten?"

137. In a natural state of life, **instinct** probably would guide us aright. But we must not forget that we live (or many persons do) amid conditions so artificial that we no longer possess within us a guide for our appetites. Life in a confined space, town life, factory life, work in an office, is never without its effect on digestion and on the nervous system, and it is precisely in towns that we see around us so vast a variety of foods that we need a perfect digestion and a nervous system without flaw to discriminate between the wholesome and the poisonous, the serviceable and the wasteful, the strength-giving and the indifferent. **Science** has come to our help. We are not asked to follow her investigations step by step—that we have neither time nor power for; we only avail

ourselves of her conclusions, and thereby do our daily work better.

138. Food is generally divided into two great classes: **flesh-formers** and **heat-givers**. **Heat-givers** are so called because, being oxidised (or burned) in the body, they serve to keep our body temperature at the same level (98.4 Fahr.) in all climates and seasons. We should expect to find that we need more of this fuel food in cold weather and in cold countries; and, as a matter of daily experience, so we find it to be. Fat or oil is the best of all fuel foods, and every one has a greater relish for fat when the snow is on the ground. The housewife will find that suet, fat bacon, fat meat, dripping, and fried foods are consumed eagerly in the winter, perhaps by persons who refuse them altogether in the dog-days. This is quite natural and right. We know also that in very cold climates fats are eaten which could not possibly be eaten in England. The Esquimaux are said to enjoy blubber, tallow, and even lamp-oil. And here at home we find that in the summer time, and at all times to those who work in close rooms or heated factories, butter and cream, the most digestible of fats, are alone acceptable: sometimes nothing but cod-liver oil will serve.

Other heat-giving foods are **starch**, **sugar**, and **treacle**. They none of them produce the same amount of heat as any kind of fat, and although they may be substituted for fat in part, they cannot stand in the place of it altogether. By **starch** we mean the greater part of all floury foods, and some prepared foods—corn-flour, arrowroot, sago, tapioca, which are pure starches. Housewives must surely have noticed that flour, arrowroot, potato-flour, etc., all behave like laundry starch when they are cooked; they thicken in boiling water, do not mix in cold or warm. All

these starchy foods are cheap, and wholesome in proper proportion to the whole diet. **Sugar** is consumed in enormous quantities. One of the commonest faults in diet is that too much sugar and too little fat is eaten, excess of one taking away appetite for the other.

139. **Flesh-formers** are the foods that supply material for the substance of our bodies. In childhood we grow; throughout life we waste by working and must be repaired by food. All persons need flesh-formers, but those who need them most are the children and the hard-workers. Those who often eat them most are adults who work but little. We find flesh-formers in lean meat, fish, game, poultry, eggs, and cheese; in milk, either skim or new; in pulse; and a little in household bread. Any of these may take the place of another; the housewife's duty being to find flesh-formers that come within the compass of our income on the one hand, and of our digestion on the other. If we make a meal of pea-soup we may like, but we cannot be said to want, a plateful of beef afterwards; the child who has eaten an egg or drunk a pint of milk will not starve though he refuse to touch fish, flesh, or fowl; if our butcher's bill is inconveniently high we shall take no harm through dining now and again on bread and cheese. Flesh-formers are of all foods the most costly, and the poor often suffer from want of them. But the disorders of the well-to-do come more often from excess than from deficiency of flesh-forming food, which is, for the most part, small of bulk and pleasant to taste, so that we have often swallowed too much long before we know it.

140. If we took our food in its natural state as it grows we should not be able to draw so sharp a dividing line between flesh-formers and heat-givers.

Flesh-formers are sometimes called **nitrogenous foods**, because they all contain nitrogen. But all living things contain nitrogen more or less, and when we have a food containing none—such as lard, sugar, corn-flour—we may be sure that it has been artificially prepared. Of every pound of meat part is fat ; in every fish is some, and in a few much, oil ; in wheat there is gluten and fibrin which is flesh-forming, as well as starch ; and even the pulses, richest in nitrogen of all foods, contain a little fat and some starch.

141. And here we have come, as I think, on one of the **prime causes of defective feeding** nowadays. Years ago men and women took things as they grew, and, without knowing why, they thrived. But nowadays it is so easy, and often so pleasant, to fill our stomachs with all sorts of artificially-prepared foods, which still our hunger but do not repair our bodies.

142. As we shall see when we come to speak of storage, the foods containing nitrogen are all perishable ; the foods that keep and are always ready to our hand do not contain flesh-formers enough for health.

143. After middle life we wish to keep our weight but not to increase it. **Fat** seems to come from the storing up of surplus material not used for heat ; and it is convenient to remember that plenty of starch, sugar, and fat, with warmth to economise these foods, will seldom fail to fatten a person. The converse also holds true, and if a person wishes to be less fat, he should avoid sugar and floury foods, especially the two together in cakes and pastry, and he should not live in too warm a house, nor spend many hours in bed.

144. Other necessary foods are **mineral salts**. **Common salt** in small quantities is a necessary food.

in large quantities it is an unwholesome addition to our food. Most children are encouraged or even forced, to eat more than is good for them, and so get into the bad habit of feeding upon salt meat and fish instead of fresh.

145. **Phosphate and carbonate of lime** are often put into a class by themselves as **bone-forming foods**. They are needed, above all, by children and young persons. They are in milk, in whole grains, in whole-meal or good household bread, and in hard water (see 42), though whether they serve as food in drinking water seems open to much question.

146. **Potash salts** must be supplied in fresh vegetables and fresh fruit, raw or cooked. Oranges and apples in winter; currants, gooseberries, plums, rhubarb, etc., at other seasons; with such salads and vegetables as are to be had all the year round, should come into the daily dietary, not only of every household, but of every member of the household. It is a mistake to suppose that if bread, butter, meat, and potatoes are provided, all the rest is luxury. Taking strong exercise all day long in the open air, bread and meat might suffice to keep a man or woman in health. Living indoors, fruit and vegetables are necessities, because without them we cannot do our best work. We had better eat less meat if we cannot afford to pay both butcher and greengrocer. Vinegar is said to be a fair substitute for fruit. To swallow potash from the chemist's means taking physic, not food.

CHAPTER VI

MARKETING

147. The knowledge and skill necessary to make a **good marketer** cannot be learned from books. All that a book can do is to make clearer the principles which govern the sale or purchase of perishable commodities, and to lay down some general rules for the choice of the commoner foods. The buying of food differs from the buying of things in general only because (1) food is more perishable than other household goods; (2) we want food daily, other things are bought at intervals, once in a way.

Food is not necessarily bad because it costs little money; on the contrary, of prices paid on different days for the same thing, the higher may often have been paid for the worse article.

Some kinds of food are always low-priced; if they are nourishing and digestible, they are cheap. Good examples of **cheap foods** of this class are fresh herrings, or dried peas and beans. They are digestible to most people in average health; they are nourishing if they are digested. If a person in weak health can make no use of them, they are not cheap to buy for him, and one of the expenses attendant upon poor health is the cost of food suitable for weak digestions. To have a strong digestion, or to work at an employment which keeps us in vigorous health, means, throughout life, money into pocket. If I can be happy and well eating bread and cheese or pease-pudding, and my neighbour can be neither happy nor well unless she has roast chicken, it is very clear that, given the same wages, I shall be better off than she. Many persons are handicapped in the

race of life, because they have expensive tastes in food. It is of great advantage to young people to be so brought up that they eat any wholesome food that is set before them, and thrive upon it.

Many foods are never so cheap that the poorest people can afford to eat them. Grouse or hothouse grapes, for instance, are at one time much cheaper than at another; yet on no day in the year could a hungry man short of money satisfy his hunger on such food as that. These are among the luxuries that needy housewives must make up their minds, once and for all, to go without.

148. The **dearest of all foods** are those forced out of season, or brought from a great distance before the English season begins. Things out of season are seldom if ever as good as they will be when the proper season begins. To take examples: it is easy to pay a guinea for a dish of green peas or of strawberries, but they will not be so good, nor so fine flavoured, as those grown a few weeks later in the open air and sold at eightpence a pound or a peck.

149. Food is always cheaper and generally better when it is plentiful. (1) The **plenty** may depend on chance, as when there happens to be a large take of some particular kind of fish. No economical housekeeper determines to have this or that fish beforehand: she buys or orders any that happens to be cheap or plentiful. (2) **Plenty** often depends on the weather, here or in other parts of the world. A good harvest cheapens and also improves corn, which is dear and bad after a wet summer. Fine weather favours the fisherman and makes fish cheap. A spell of sunshine ripens fruit. An absence of spring frosts makes fruit cheap in summer. We do not feel these things so much as our forefathers did, because we draw our supplies from all parts of the world, and

a bad harvest at home does not mean spoiled crops everywhere. But the more perishable foods come from near home, and they are always subject to the greatest fluctuations in price.

150. **Food** is also **cheap** when for any reason it must be sold at once. (1) Heavy rain or promise of rain sends abundance of fruit to market; and gales of wind in autumn fill the markets with wind-fall apples and plums. For immediate consumption such things are cheap; they are not cheap to store even for a few days: if the sellers could store them the price would go up at once. (2) **Perishable foods** are apt to be cheap on Saturday, especially on Saturday nights, when it is often wise to sell for any price rather than to run the risk of storage over Sunday, with only Monday (often a bad selling day) to look forward to. Energetic housekeepers, who have time to spare and skill to use, often make a practice of shopping on Saturday nights, in order to buy for Sunday's dinner anything that happens to be cheap and good. The chances at such a time are very much against an inexperienced buyer, who may easily be beguiled by lamp-light into paying a high price for a bad article; and she will do better to deal with a respectable shopkeeper until she has gained experience.

151. This brings us back to what I said at the beginning of Chapter IV.: "The housewife must exchange **money and time** for the best food possible." Some people think that money is their only exchangeable possession. They have, maybe, but little money, and as for their time they dawdle or fritter it away, and then they complain that they get fewer good things than their neighbours do. Let us see how time can be used to save money in marketing.

Suppose a woman is at business all day earning

money to keep the home together. She must either pay for having her food brought to the door or set upon the table, or she must buy it at the nearest shop, possibly a bad one. She pays the tradesman and the cook for their time as well as for their professional skill and knowledge. Suppose another woman with a family of little children who can never be left alone. If she takes her own time for marketing she must pay a nursemaid, and unless by marketing she saves more than the nursemaid's wages, she would clearly be better off if she minded the children herself and ordered her food from the shop.

Suppose a third woman with an income earned by some one else, and nothing to do but to keep house. She has all her time to dispose of. She can go to half-a-dozen shops and buy at the best. She can visit the large markets, and so escape paying her share of the middleman's profits and of the rent of a suburban shop. She can buy at the Stores, and by making out her bill, carrying her parcels home, and contenting herself with less assiduous service, she saves wages of bookkeeper, carrier, and shopman, which she must have paid for, but would also have enjoyed, at any retail shop. Again, a housewife with plenty of time to spare and a knowledge of cooking, can often serve a dainty meal of materials which, had no time been bestowed upon them, would at best have been unappetising, at worst wasted.

To make the best of everything in a house, a great deal of head-work and handiwork has to be done; and that work we must either do ourselves—which means time, or pay some one to do it for us—which means money.

152. We pay shopkeepers to visit the large markets and warehouses, and to fetch from these the things that we want; we pay them for their skill as buyers,

skill which it has taken years of work to acquire ; we pay them to bring to our doors what we want at the moment that we want it ; we pay them interest on the money locked up in the goods that we are presently to buy ; we pay rent for the storehouses and shops, which they keep for our service and not for their own pleasure ; we pay for the advertisements by which they find it necessary to attract our attention ; and we pay for their honesty. If we do not care, or cannot afford, to pay for these things, we can spend our own time and skill instead of theirs, and save our money.

153. As for particular rules in choosing food, these are useful :—**Bread** is least nourishing when it is most white. It should not turn sour even when it is stale. **Flour** can best be judged by making a sample into yeast bread. **Household Flour** should be used for ordinary purposes. Vienna or Hungarian flour may be kept for fine cakes or pastry, or for setting the sponge in breadmaking, household flour to be kneaded in afterwards.

154. Of **Meat**, the smallest is generally the best. Southdown and Welsh sheep are small, and have black feet and faces. Leicester or Lincoln sheep have white faces and feet, are larger, generally fatter, coarser flavoured, smell more when cooked, are more advantageous to buy for a large party, and cost less per pound. This may be taken as true of all meat. Is **cheapness** the first desideratum ? If so, a piece of coarse meat may be perfectly wholesome and nourishing, and not only costs less but goes further. Is **quality** to be first thought of ? Then the plan is to pay a good price for a first-rate article—say Southdown mutton or Scotch beef—and to see that you get it, because it is to the seller's profit to charge a first-rate price even though he may not have a first-rate article for sale. Many butchers never keep

first-rate meat ; there is not much in the market, and customers seldom know the difference. Coarse, cheap meat may come from a sound animal and be wholesome ; it is better to eat no meat than to eat meat from a diseased animal.

155. These are the **signs of wholesome meat** :—

1. Fairly fat. Sick animals, like sick men, waste. Choose the lean part of a fat beast, rather than a joint that should be fat and is not. Or cut the fat off and use for suet.
2. Fat and lean mixed together, looking streaky, especially in beef.
3. Not lying in a pool of wet. Wet meat may have been frozen, when it is wholesome enough, but not worth the price of fresh ; or it may have been out of condition, when it is unwholesome, and not worth buying at any price.
4. Firm and elastic. A finger pressed into it should leave no mark.
5. Small bones and fine grain.
6. No unpleasant smell, especially not of drugs, sometimes first noticed in cooking.
7. All bad complaints, in men or in animals, generally attack the internal organs. If these are congested or in any way unusual-looking do not buy the meat.
8. Beef and mutton should be bright red, not pale pink, nor a purple colour.

• 156. **Fish**, with the exception of turbot, which is generally hung by the tail for a day or two, should be eaten as soon as it is out of the sea. White fish, such as skate, plaice, haddock, or cod, keep better than the oily fish, mackerel, salmon, sprats, fresh herrings, pilchard, eels.

Red gills, bright eyes, all the scales on, an adherent, not a blistered skin, and no smell, are the signs of a fresh fish. It should be thick in proportion to its size, and is no better for being very large. Shellfish should be taken in one's hand, to test the weight; the heaviest are the best. Salt and dried white fish are not particularly nourishing, and are to be looked upon as relish rather than as food.

157. **Birds** should be plump and young. Their age can be guessed from the toughness of the beak and feet, the hardness of the bones, the appearance of the thighs, or the development of the plumage, particularly on the wings. Poulterers break the breast bone or cut away part of it, and truss fowls to make them look fatter than they are. A young bird will not keep so well as an old one, and requires less time for cooking. Birds in the country may be a cheap food; they are seldom or never so in town. Any bird "large for the money" is probably old: it may be very good eating nevertheless, but should be boiled or stewed, not roasted.

CHAPTER VII

THE STORAGE OF FOOD

158. Everything that we use for food is perishable. Very few foods improve by keeping, and many deteriorate in a few hours, spoil in a few days. Those that spoil quickest always contain nitrogen. Compounds of nitrogen are apt to be unstable, changing into other forms sometimes so quickly as to result in an explosion, sometimes only with the

constancy and complexity that belongs to all life. Every housekeeper knows this in practice, and if she will read over once again the list of flesh-forming or nitrogenous food (see 139) she will find there the names of all the foods that cost her most trouble to store. Every housekeeper cuts the bits of lean out of suet that she wishes to keep for a few days; we could multiply examples to no profit.

159. For, as I observed above, all living things contain nitrogen, and what we call "going bad" is the growth of a new and low form of life. **Germs** or seeds, present in the air, fasten on our food, and, if they find there conditions suitable, **grow and multiply**. When we set about keeping food we always try (with or without understanding) to do away with these favourable conditions.

160. What are they? The first is **warmth**. Things keep better if the weather or the larder is cool. Germs cannot thrive with too much heat any more than with too little: what they prefer is a gentle lukewarmth. Boiling heat kills germs. Soup or broth kept warm on the hob begins to ferment in a few hours. Food frozen or nearly frozen, whether imbedded in an iceberg, or in a cold winter, or on board a meat-carrying steamer, remains unchanged for any length of time. We build our larders and dairies towards the north, and with thick roof or under trees; we put blocks of ice in them; we hang wet cloths in the windows or wrap them round the vessels in which food is stored. By each of these plans we lower the temperature of the air: by the first we keep out the sun's rays, by the second and third we absorb heat from the air to change water from solid to liquid, or from liquid to vapour.

Examples—Fish, vegetables, etc., laid on stone or marble, rapid conductors of heat. Fish, meat, etc.,

hung up in a draught, in a leafy tree, in a cellar. Refrigerators. Dairies cooled by running water. Milk, butter, etc., stood in a pail of ice water or salt and water. Water stored in porous earthenware in hot countries.

161. The second condition is **moisture**. What is perfectly dry will keep. A windy, dry day, even if it is hot, does not work so much havoc in the larder as a still, close day, the air laden with moisture. Many foods artificially dried, such as oatmeal, flour, pastry, need to be kept dry rather than cool. A dry kitchen cupboard is better for such things than any larder. Foods containing much water, such as meat (44 per cent), fruit (80-90 per cent), fish (65 per cent), always keep badly.

Examples—Meat, fowls, fish, apples, etc., wiped dry with a cloth. Meat, suet, etc., floured. Fruit laid separate on wood. Bread becomes musty and sour if made too damp. Jam boiled dry and kept in a dry cupboard. Fruit dried in sun or oven. Dried fish, tongues, meat, etc. Food generally kept in a current of air.

162. The third condition is **air**. It is true that we prefer to have our larders as airy as may be, but that is because air dries and cools, and we cannot keep it away altogether. When we do—as for instance in tinning meat—we can put up with heat (it does not matter in what temperature you place the tin) or with moisture (every one knows that tinned meat is moist).

Examples—Wine, pickles, etc., corked and sealed. Tinned and canned fruit and meat. Many foods are kept in closed tins, e.g. biscuits.

163. These are the conditions for growth of germs, but **the germs themselves** must be there or they cannot grow. And some methods of keeping food

depend upon exclusion of germs, or upon killing those that are there, which scientific men call **sterilising**. When milk or broth is "on the turn," we boil it before putting it into a cool place. If game or meat cannot be eaten at once, we cook or half-cook it; if a fowl or fish, we plunge it into boiling water. And this we do in order to kill by heat the germs already there. More may come to-morrow, but meanwhile there is time gained, and as heat "sets" the surface of flesh or fish, the food is drier.

164. Another plan is to use some **antiseptic**. It must, of course, be without unpleasant flavour and not a poison. Permanganate of potash mixed in water is very serviceable for washing meat, so is charcoal, so is vinegar. And every one uses salt in various ways, and sugar.

165. Before I leave the subject I must again insist on the fact that **decay, mould, fermentation**, means the presence of live, growing things. If you allow a weed to grow and seed in your garden you will see fresh crops of that weed when you least desire them. So with these seeds. Mould is a plant, seeding much as other plants do. If this year's jam is mouldy, you must scrub and purify and air the cupboard, or next year's jam will go in the same way. One mouldy thing set by and forgotten in the larder will spoil all the food. A few drops of sour milk will turn a whole pan sour. Game, venison, and cheese, which are eaten in a state of decomposition, should not be stored with goods that are eaten fresh. Not only food, but any other organic matter, decomposing it may be among refuse on a neighbouring dust-heap, or in a drain under the floor, can supply germs of decay to food; and that is why the larder should be far away from any receptacles for rubbish.

166. To keep **flies** away from meat we cover it

with cotton or wire gauze; or we flour, salt, or pepper it.

167. As her only sure detective, the housewife should cultivate her **sense of smell**, so that she may perceive the beginnings of disorder in larder or cupboard.

CHAPTER VIII

THE COOKING OF FOOD

168. **Cooking** literally means the subjecting of our food to the action of heat. We generally mean not only that, but also the mixing of several foods together, as when the cook mixes suet and flour in a pudding, eggs and milk in a custard, yeast and flour in a loaf. And to be a good cook implies, further, the possession of some manual skill, the excellence of many dishes (*e.g.* soufflés) depending less on their ingredients, or the heat of the fire, than on the peculiar way in which they are manipulated.

169. We may subject our food to the action of heat alone, as in roasting, broiling, and baking; or of heat + water, as in stewing, boiling, and steaming; and in frying we use heat + fat. There are but these seven ways of cooking; if we want further variety we must begin our food one way and finish it another, as in braising, a combination of stewing and roasting, or in the very common practice of frying first what presently to be stewed.

170. **Roasting and broiling** were no doubt the first methods of cooking practised. To roast or toast in a primitive fashion we need only the food, a stick, and the fire. Roasting is adapted for the best joints

of meat only, inferior meat becoming tough and even uneatable. It calls for a good fire and a plentiful supply of fuel, as well as for constant attention if it is to be well done. The time required for meat is from fifteen to twenty minutes to each pound, and twenty minutes over. Thus a joint weighing ten pounds takes three hours to roast, and as it cannot be hurried, and will not be good if it is left to roast itself, that is not a dinner to order when coals are scarce, or when the cook is busy in the dairy or laundry.

171. **Broiling** is never a cheap way of cooking. It is saving in nothing but time. It demands a very good piece of meat, a very hot fire, a clean gridiron, and undivided attention for a few minutes. Both with roasting and broiling the fire must be hot to begin with ; it may be slower afterwards. By both these methods of cooking much weight is lost, very often as much as one-third in broiling meat.

172. **Baking** requires less attention and less fuel, and much so-called "roast" meat is baked. The oven must be ventilated and kept clean, especially if bread, meat, pastry, and fruit, are all baked in it by turns. Any kind of cooking can be done in the oven. We stew meat in the oven in a closed jar with water and vegetables. We stew fruit in a pie-dish. We "roast" meat. We bake our bread, and also our pastry. This can all be done, but not all together. Steam arising from meat gives a flavour to pudding, and the steam from bread makes pastry heavy. Bread requires a long "soaking" heat ; pastry a sharp quick baking. Meat must be constantly looked at and basted. Cakes and soufflés should be put in at the right heat, and looked at as little as possible, or not at all. Unless the mistress of a house understands baking, she is apt to ask

impossibilities of the cook, who perhaps knows no better, and wonders why her things do not turn out well.

The smaller an oven the hotter it must be made, partly because the hot air escapes when the door is opened, partly because the cold food put into it lowers the temperature of a small volume of air. To test the heat of an oven an experienced cook puts in her hand, and judges with fair accuracy. An inexperienced cook will do better to sprinkle a little flour, or lay a piece of white paper on the shelf, where in an oven hot enough for pastry it will brown in a couple of minutes.

Brick or clome ovens are used in country places.

173. **Stewing** is the most economical way of cooking most foods, especially meat. The better the meat, the more delicate the stew. Every one prefers stewed rumpsteak to stewed shin of beef, and if both were the same price every one would choose the steak. But they are nothing like the same price; one is as nourishing as the other, and stewed shin—or any tough meat stewed—is not only wholesome but palatable. Stewing requires a small fire, a closed vessel, plenty of time, and no attention. By stewing, meat does not waste; what comes out of the meat goes into the gravy. So we have a clear saving in prime cost, fuel, labour, and loss by cooking. The secret of making a good stew is to put a variety of ingredients and little water, never to let the pot boil, and never to be in a hurry.

174. **Boiling** wastes as little as stewing if we use the liquor as well as the food boiled in it. Sometimes we cannot, as when very salt meat is boiled; oftener we do not, as when we make a practice of wasting the liquor from fish, chicken, bacon, asparagus, or other vegetables.

The housewife must provide for the purchase and storage of fuel for all these purposes, and she must know something of the mechanism and management of the apparatus—whether stoves, grates, or lamps—in which fuel is burnt.

178. **Coal** is the commonest, and generally the cheapest fuel in England. Its price varies much in different parts of the country, and at different seasons of the year, and as it is none the worse for keeping, careful housewives buy, during the summer months when the price is low, enough to fill the coal cellar. In some houses and in most flats there is no place for storage of coal, which consequently has to be bought at short intervals in small quantities, adding considerably to household expense and trouble. Coal burns better if it is damp, but it is not advantageous to buy it in wet weather, because one gets then a less weight of coal for one's money. The commonest mode of adulteration is to add water to goods sold by weight, and it is practised by unscrupulous coal-merchants. If it can be kept from thieves, coal is best stored out of doors, and no gas can then be given off into the basement of the house. A coal cellar must be ventilated.

179. **Coke** is an economical fuel when there is draught enough to burn it. Mixed with coal, it is suitable for kitchen use, making a clear fire for cooking, and with coal or wood it burns well in open grates. **Culm** or **anthracite** are varieties of hard coal, used in some parts.

180. The **gas** we burn is coal-gas. Oil-gas and water-gas are made, but are not common in England. The great advantage of gas as fuel is that it can be turned on or off at a moment's notice. If it costs in money more than coal for warming, more than mineral oil for lighting, it saves an equivalent in domestic work.

No fuel need be ordered, fetched and carried, or stored ; no stoves need be polished and saucepans cleaned ; no lamps must be carefully trimmed. Its great drawback is the want of ventilation commonly, though not necessarily, belonging to gas stoves and burners (see 34). No gas stove should ever be fixed without a large pipe or ventilator immediately above the flame. Often the pipe is far too small ; not seldom it is absent, and the consequence is that the products of gas combustion—carbonic acid gas, soot, sulphurous vapour—together with some unburnt gas escape into the room, and produce headache in human beings and a great deal of dirt and discoloration in furniture. A common fault of gas cooking-stoves is the want of ventilation in the oven, where the food is shut up with the flame.

181. No one now pretends that the **products of gas combustion** in a room are as harmful as the products of any other kind of fuel sufficient to give the same amount of heat or light. But the products of burning coal (for example) are visible, and so unpleasant that we never attempt to burn it without a chimney ; the gas products are invisible, and as we can live in the room with them, we do. Nor do we ever obtain the same amount of light from another fuel. We should never think of lighting two dozen candles in a small room, but it is a common thing to have two gas-lights, each of twelve-candle power.

182. The advantages of **wood** as fuel are that it ignites quickly, and when well dried burns with very little smoke. It is therefore cleaner. But in town it is so dear to buy and so bulky to store that it is practically never used for cooking, and seldom for warming. In country places it is often cheap, and in foreign countries where coal is scarce, it is used extensively.

183. **Turf or peat**—the roots of heather and boggy plants cut out of waste wet land and dried in the sun—makes a noiseless and wholesome fire, and deserves to be more known and used. It is clean to use and to store, light to carry, and never going quite out so long as a bit of it remains unburnt, it can be left to itself for hours, and then quickly blown into flame.

184. **Mineral oil** is the cheapest fuel for lighting, and is universally used by the poor. It is very cheap and convenient for cooking, and oil cooking-stoves become every year more common. As a supplement to the ordinary kitchener for use in hot weather or on an emergency, they are very much to be recommended. Crude petroleum is quite unfit for use, and when it was first distilled, about forty years ago, much was sold that was not properly purified; it ignited at ordinary temperatures, and so many accidents followed that about twenty years ago orders were issued forbidding the sale of any that could not pass a certain test of purity and safety, since when accidents have been generally owing to the faulty construction of a lamp—the flame heating the contents of the receiver. The great danger is of smell arising from bits of charred wick, grease, or soot, which ought to have been washed off with hot soda-water or wiped off with a cloth. Petroleum should be kept free from dust and dirt: it is one of the things more likely to be good if it is bought of a merchant in a large way of business, having a quick sale. The better it is the more inodorous we may expect it to be. It is very penetrating, as we find to our cost when we spill it, to our advantage when we use it to loosen dirt on metal-work, machinery, or in the laundry. The odour and flavour clings to our fingers and our food, and we should not allow any one to clean lamps

or oil stoves in the kitchen while food is being prepared.

185. The making of **dip candles** ~~was a~~ flourishing household industry not so many years ago. The wick was of plaited cotton or rush pith, and the fat was household fat or tallow. Candles now are not dipped, but moulded, and in the place of tallow or wax we burn mineral fats such as paraffin or mixed fats under the name of composites. Candles are now never used because they are cheap, but rather because they give a soft and pleasant light. All candles burn more slowly if they are kept and hardened before use.

186. **Electric light** is probably the light of the near future, but we write for housewives in the present, and as yet few can afford this luxury. As it shines from within an air-tight glass, and goes out if the glass is broken, it has no influence, either for good or for ill, upon the air of the room. It cannot help us in ventilation. But neither does it consume oxygen, and we see how great a gain this is, when we remember that an ordinary gas-burner consumes as much air as four adults, and a candle half as much as an adult. This must be reckoned in calculating space (see 80) and ventilation (see 34).

187. **Light**, like every other household convenience, is only useful if we have it exactly when and where we need it. In each room light should be thrown where the work in that room is done. On a staircase every one wishes to see the way up and downstairs; in bed or dressing rooms one wants to see to dress; in kitchens the cook must see to cook at the stove as well as to dish up at the table; in a dining-room light should be thrown on the food; in a sitting-room over the work, and not in the eyes of the worker. Much light is wasted, and many eyes are strained from neglect of this simple rule.

188. **Stoves and grates** are used for ventilating as well as for warming our rooms. Open grates with wide chimneys waste much heat; if we were to burn in a stove the fuel that we heap on our grates, we could not live in the room. Only in countries where fuel is cheap can open grates be used. Yet we cannot say that heat is altogether wasted, if by its means we keep our rooms aired. The problems of ventilation, difficult enough always, would be greatly increased if we used close stoves.

Close stoves heat the air of a room; **open grates** heat by radiation, that is, not the air but things, which accounts for the feeling of oppression in a stove-heated room, even though we may be chilly at the time. Stoves seem best for halls and passages, where there is plenty of air moving; but grates hold their own in living-rooms.

Close stoves or kitcheners are now always used for cooking, because the heat has to be directed in a limited space on the food. **Kitcheners** are built into a wall with bricks; **stoves** stand away from a wall, cost little or nothing to fix, can easily be removed by a tenant, and are generally more economical in fuel.

189. It is useful to remember that the burning of fuel for any purpose depends on **the supply of air**. In an ill-ventilated room, lamps and stoves all "burn dead." One can burn anything if only one has draught enough, and the greater the draught, the cheaper the fuel can be. To narrow the "throat," or to increase the length, of a chimney increases the draught, and many a stove has been stopped from smoking or made to burn slack or coke, which it would not burn before, by adding a foot or two of flue-pipe.

190. As for quantities of fuel required we may reckon roughly that $2\frac{1}{2}$ cwts. of coals should serve five or six persons for a week's cooking and heat a bath. There is a great saving in cooking for larger numbers; the larger the household the less coal need cost a head. A small open grate is often reckoned at 1-2 cwts. a week.

CHAPTER X

THE CLEANING OF THE HOUSE

191. An important item in household economy is the keeping of everything clean. Everything that we use gathers dirt. If we allow a ray of light to shine into a dark room through a hole in the shutter, we see that the air is filled with particles of floating dust. If we pass our finger along a ledge or piece of furniture, we find on our finger dust that had settled. Under a microscope we should see that this dust is composed of all manner of substances, some inorganic—soot, crystals, etc.; but more organic, such as cotton fibres, wood, mould spores (vegetable), skin cells, hair, woollen fibres (animal). All organic matter decays, and in decaying absorbs oxygen and gives forth a bad odour. The stuffy odour of many living-rooms, clothes, and beds is caused by decaying organic matter from the bodies of persons who have lived in the rooms, worn the clothes, slept in the beds. Besides this, to breathe dusty air is unwholesome, and predisposes us to lung complaints.

Metal tarnishes by the action of the air, or rusts in damp; we clean metal to keep it bright.

192. In order to clean anything there must be a

person who knows how to do it ; a time for doing it ; and materials and utensils for doing it with.

193. **Materials for cleaning** are (besides water and air), soap, soda, black-lead for stoves, blacking for boots, brick-dust or knife powder for metal, whitening for plate, polish for brass, turpentine and beeswax for polished wood ; house flannels, slop cloth, toilet cloth, tea cloth, glass cloth, dusters, dish cloths, kitchen cloths, wash leathers, lamp cloths, candlestick rags.

Utensils for cleaning can be multiplied indefinitely, but we cannot keep a house well with less than these :—Brooms for carpets and for yard ; brushes for boots, stoves, saucepans, and dust, for furniture, for clothes, for polishing, dusting and scrubbing ; dusting sheets to cover furniture, pails to hold water, a housemaid's box to carry ashes.

The housewife's duty is to know the use of each of these things, to provide enough, to renew them when worn out, and to see that each is kept to its own use. A house cannot be well cleaned unless the right materials and utensils are provided and used.

194. As for **time**, there should be a fixed day and hour for doing each room and each separate set of things, and a fixed time should be allowed to get it done. No one is the better for being allowed to dawdle. It is easy to waste two or three hours over a room, and then to leave it dirty and untidy ; but a moderate-sized room, not too full of furniture, can be cleaned in an hour and a half if one goes on working and does not go over the same work twice. A **plan of work** should be made by the housewife, lasting over a week or a fortnight, whereby a room is cleaned daily and every room cleaned in turn. Bed-rooms and sitting-rooms constantly occupied must be thoroughly cleaned every week, those occasionally

occupied once a fortnight or once in three weeks. Silver and brass must be cleaned every week, other things must be cleaned every day, such as lamps and candlesticks. The weekly cleaning is made much lighter if we get into the habit of "cleaning as we go," of never putting away dirty anything that we use. Beds should be left open daily to air, not made up warm; silver should be washed in clean water and rubbed dry before it is put in the basket; saucepans should never be left to dry with the dirt on them; bedroom crockery should be wiped dry and clean every morning, and so forth.

If there is any difficulty in getting through the work, the amount of furniture and number of nick-nacks should be lessened. The emptier a room is the less time it takes to clean, and the less dirt it holds if it is not cleaned.

195. **The proper way of cleaning** each thing needs to be learned, and cannot be set out here. **To clean a room**, the door should be shut, and the window opened. Everything that would hold, or be injured by, dust, must be removed or covered with dusting sheets; curtains must be fastened up. Next the floor must be swept and the dirt collected in a dustpan, to be presently burnt. Then the grate has to be blacklead and the hearth washed or stoned, and the fire-irons polished. Polished wooden furniture should be cleaned with turpentine and well rubbed; a stained floor should have a little beeswax and turpentine rubbed in with a stiff brush; to do either well, a very little of the polish should be used with a great deal of elbow-grease. Upholstered furniture should be brushed with a stiff brush (not one that has been used for polish); looking-glasses polished with a leather or silk, and the ornaments dusted and replaced.

196. Other things need cleaning only occasionally, such as windows, carpets, chimneys, and for these outside help is hired and paid for.

The housewife will do well to remember that an unswept chimney is a source of danger, and that if her house catches fire through neglect in chimney-sweeping, she is liable to a heavy fine. • •

The cleaning of windows is a dangerous occupation for a woman, and many fatal accidents have resulted therefrom.

197. Under the head of cleaning, a few words must be said about **vermin**—mice, beetles, ants, flies, fleas, etc. These creatures all come for food, and stay away when there is no food to be had. Crumbs, grease-spots, things spilt on the floor, greasy or sugary papers stored to light the fire, candle-ends, are all food for mice or beetles. So unaired beds, and unclean stuffed furniture harbour fleas; houses where there is no draught are the chosen haunts of flies. The most sensible way of getting rid of these pests is to starve them out.

CHAPTER XI

LAUNDRY WORK

198. In every household the **washing of clothes and of bed-linen** must be provided for. If we would keep ourselves clean some of our clothes must be of washable material, and young children often wear nothing else. Shall we wash at home, or shall we employ a laundress? That is a question to be settled according to the individual needs and powers of each

household ; but it may help the housewife to come to a wise decision if we set out, as fairly as possible, the case for and against washing at home—

199. First, the **money** part of the question. If we pay a laundress, we pay her a certain lump sum in cash every Monday morning ; if we wash at home we pay a small sum here and another there ; part goes in the grocery bill, part in the food bill, part is set down as furniture, and the end is that we never know what these small sums have mounted up to. Let us set them out in order : (1) First outlay on **plant**—that is, tub, copper, irons, lines, pegs, ironing-boards, washing-machines, etc. To put the case at all fairly we must reckon the interest of this money, say at 3 per cent per annum. (2) **Repairs** and renewal of same. (3) **Rent** of premises, for our house must be larger if we wash in it. (4) **Wages** of woman who washes, at so many shillings a day, or extra wages to servants. (5) **Food** of washerwoman. (6) **Fuel** for boiling water and heating irons. (7) **Soap**, soda, starch, etc. (8) **Mangling**, or rent of mangle.

200. Next, we may fairly consider the value of our **time**, and whether it could be employed to more advantage than in washing our clothes. If washing is to be done at home, all other work has to be set aside for the day—say one day a fortnight ; we must get up early in the morning, and, fine or wet, the washing must go on. It is an axiom that skilled labour is always better paid than unskilled : washing is unskilled labour ; the mistress of a household, or a well-trained servant, should be able to employ her time to better advantage than in doing hard manual labour, such as is done in laundries by a very rough class of workers, not trained to do anything else. It is always bad economy to chain Pegasus to a plough. To be sure, machines lighten labour, but to turn the

handle of a washing-machine requires even less skill than to rub the dirt out of clothes with one's hands. If a woman can do nothing of more value, it is fitting that she should stand at the wash-tub or the ironing-board; but if she be skilful with head or hands she can save far more by doing her own dress-making (see 122) or by cooking. It can seldom be worth while to wash a sheet at home when it could be washed out for twopence, but it may be advantageous to wash at home those garments which call for little manual labour in washing but considerable skill in getting up, such as lace goods, cambric dresses, etc.

201. Then comes the question of **health** or **comfort**. Washing and ironing is hard work, and it is work that we must stand at. The sudden changes of temperature, from the wash-tub to the drying-ground are dangerous. Damp is always unwholesome (see 12). Croup is more prevalent in poor houses on washing-days because of the damp or steam. If we put our washing out, we get rid of soiled clothing once a week; if we wash at home, either we must have a weekly wash, or we must store dirty clothing for a fortnight or three weeks. Where, in a small house, can we store, so as not to create a nuisance?

202. On the other side is the **danger of infection**, when clothes from a number of households are washed together, and probably a great number of public laundries are conducted in a very insanitary fashion.

203. Clothes washed at home probably last longer, because they are more carefully handled and mended. Chemicals which loosen the dirt and at the same time rot the fabric, are often used in public laundries. In spite of many specious advertisements promising less work and no destruction of clothes, one hopes that mistresses of households do not allow bleaching-

powders to be used at home. Another advantage is that wearers of clothes learn to be more careful because of the nuisance of a heavy wash.—

204. Suppose we decide on washing at home, what shall we need, and how are we to do it? On our **premises** there must be a large scullery or wash-house with a fitted copper, and a yard or garden where a line can be fixed. For **apparatus** we must have several large tubs of wood or galvanised iron, a bench, or boards and trestles, where two or three tubs can stand, and we shall do well to have a washing-machine, and also a machine which serves by turns as a wringer and as a small mangle. An ironing-board, a shirt-board, pegs, 2 clothes horses, at least four flat-irons and stand, and perhaps a couple of box-irons, a pair of goffering tongs, a bowl or two for starch, will be wanted later. We must also have a supply of soft water, or of boiled water (see 42), yellow soap, soap-powder, soda (to be used very sparingly), ammonia for woollen things, a bag of blue for white linen, and a handful of salt for rinsing coloured dresses, starch, borax or wax to put into the starch, and sand-paper to brighten the irons.

All must be in the house ready, not to be run to the shop or waited for, when the wash is half-way through.

The clothes must be carefully sorted into heaps, white from coloured, cotton from woollen, very dirty from scarcely soiled.

205. **White cottons and linens** should be soaked in cold water over-night, with soap rubbed on the dirtiest parts. They should be washed in hot water with soap, boiled without soap, and rinsed in cold water with a little blue. If they are washed in a machine they will probably need extra rubbing in some parts.

206. **Coloured cottons** should not be soaked or boiled, and should be washed quickly, the more delicate ~~colours~~ each alone in a fresh tub of water. Salt in the rinsing water sets the colour. The irons should not be too hot. They should be dried quickly, but not in the sun. Black things are best washed with ammonia and no soap.

207. **Flannels** and woollen clothes should be washed in warm water but not soaped, and not wrung. Soap-powder or ammonia is better than soap, but if soap is used it should be made into a lather. They should be dried quickly and never boiled. As woollens require great care in drying, it is wise to wait for fine weather before washing them, or sending them to the wash.

208. **Silk**, like flannel, should be washed without soap and in cool water. It should be ironed before it is dry.

209. **Starched clothes** keep clean longer, but sooner wear out. In households where money is short it is wiser to make up underclothing and washing-dresses as plainly as possible. Frills and furbelows, whether for children or adults, add neither to health nor to bodily comfort, and they are costly (whether in time or money) to get up.

210. **Soap** is a combination of fat, water, and an alkali. Oil and hot water, however much you shake them, will not mix, but if you add a little soda they mix at once, and cannot be separated again. Almost all our plans of cleaning depend upon this fact; grease off a dish or a drain (see 63) dissolves at once if we put soda and hot water to it; and the soda or ammonia that we use for washing clothes is an alkali, which we intend to mix with the grease on the clothes and some of the hot water in the tub. In hard water (see 42) much soap is wasted, because the lime or iron in the water combines with the soap

and forms an insoluble curdy matter instead of forming a lather; and a common way of measuring the hardness of water is to see how much soap is destroyed before the lather begins to come. Soft soap is made of fat + potash; hard soap of fat + soda. Bad soap often has too much alkali in it, and this has the same bad effect on our clothes and our skin as if we used too much soda. "Cheap" soap often has a great deal of water in it, and wastes quickly. Good yellow soap is the cheapest in the end for all purposes. Low-priced scented soaps are always dear and bad.

CHAPTER XII

HEALTH AND SICKNESS

211. A book on Domestic Economy would not be complete if it did not say something about **sickness**; for, take what care we may to live only in healthy houses and to eat and drink things nourishing and wholesome, we are but mortal after all, and we know that to all of us, sooner or later, sickness and death must come. Still, to see that her household are kept in health as far as possible is a housewife's duty; to her every one turns if there is anything amiss either in mind or body, and she is expected either to have a remedy at hand or to know where to seek for one.

212. Before we take up the question of sickness it will be useful to consider the meaning of the word **Health**. For the two states are entirely different, and to realise what Health is will enable us better to understand any deviation from it.

Health is a condition of **wholeness**, in which all the organs and members of this complex system of functions ~~and~~ powers which we call our bodies do their work with ease and regularity, and without causing us any painful or troublesome sensations.

213. If you have ever used a sewing machine, or watched a reaping or threshing machine at work, you will grasp better what is implied when I say that to be healthy our bodies must be kept in **good working order**; and when they are **out of gear**, as a machinist would say, everything goes wrong.

We often say, "Order is heaven's first law," and it is a universal law; it applies to everything in the world. No one fancies there is anything fine or noble in having **disorder** in his house or in his dress; a **disorderly** neighbourhood is avoided by all respectable people; those who have **disordered** minds are such a nuisance that often they have to be shut up in asylums; but not seldom, strange as it may seem, a person with a **disordered** stomach or liver is rather proud of it than otherwise, and pours all the unpleasant symptoms into unwilling ears. While, if an unwary doctor ever says to man or woman, "You are suffering from a complication of disorders to which I hardly know how to give a name," it is looked on as quite a compliment paid, and their friends are sure to hear of it, and expected to sympathise.

This is very unreasonable. We should be as much ashamed of disorder in our stomachs as in our homes, and certainly we ought to take even more pains to keep them in working gear than the best machine ever made by hands of man. For not only are our bodies very little use to us if they are the seat of "complicated disorder," but we suffer intolerable pain as well in most such cases; while

a sewing machine or a printing press, if it cannot work, at least does not groan with misery. To suffer when we are "out of order" is Nature's way of pointing out to us that we have done something wrong or foolish, and whatever ache or pain strikes us we should endeavour to find out the why or the wherefore of it.

214. There are a good many words in our English language which have all come from the same Saxon root **hal**, and which mean the same thing with slight variations. There are hale, whole, healthy, wholesome, holy; and each of these words ought to be applicable to our bodies. And it is to this end that in treating of Domestic Economy it is always necessary to say so much about the virtues of fresh air in the house, proper food, and the need of cleanliness, both in clothes and person; for these things are the conditions of health, and a housewife is responsible for the health of her family, without which it cannot be, as a family should, a centre of life and growth and work. **A few rules of health** may be helpful to all.

215. The 1st is, Plenty of fresh air.

2nd. Sufficient nourishing food.

3rd. Exercise of all our functions and members.

4th. Cleanliness in house and person.

In previous chapters you have learnt all that there is space to tell you about air and food. But air and food are not everything. Our members, that is, our arms and legs; and our organs, that is, our brains, heart, lungs, stomach, etc., must all be exercised if they are to perform their functions thoroughly well.

216. Most persons get a good deal of **exercise** and healthy motion in the course of their day's work,

and are glad to rest when they come home or leave off their active employment. If you are so unhappy as to have ~~no~~ work which you are obliged to do, you must, however, find some means of exercise if you wish to be well. Indeed, if your work only exercises one part of your body you will be wise to find some method of making up for enforced stillness or disuse of your other members or organs. For instance, if a woman has to sit still sewing or writing for many hours together, it is really of importance that she should **exercise her legs** every day by taking a walk, or romping with the children in the evening, or even by running up and downstairs. And those who are engaged all day in walking long distances or carrying loads will find the greatest benefit in sitting still and **exercising their brains** by reading or study. Further, if their work during the day brings their backs and chests into a stooping posture, and so they get into a manner of breathing which is feeble and slow, and does not expand the lungs to the full, no mode of exercise is so good for them as calisthenics in the open air; by which their **breathing apparatus** is not only **exercised** but the blood brought into circulation, and the air sent down into the lowest point of the contracted lungs. If nothing else is possible, at least they can stand by an open window three or four times for five minutes at once, and take slow and deep inspirations, thus getting their lungs fully expanded with fresh air; and dancing, playing with balls, or battledore and shuttlecock, are all excellent for children and young people who have to sit still for some hours every day at their studies. I am thinking particularly of girls here, for boys always get plenty of rough-and-tumble play, besides their own special pursuits of cricket and football. There is not a school in the land which does not—and

very rightly—encourage all sorts of out-door games for boys. They are a great means of health.

217. Finally, we must not neglect to keep our bodies **clean**. The skin with which our bodies are covered is composed of thousands—I might say millions—of tiny pores or outlets, through which waste matter is carried off from inside. If these pores get clogged up with dirt, the waste is not carried off properly, and our internal organs suffer and get **out of order**. Waste is also carried off by bowels, lungs, and kidneys, and if we do not keep the pores of our skin active then more work is thrown on them, and those organs suffer from overwork. If you were to paint your body all over with Aspinall's enamel, and thus close up all the pores, then so much work would be demanded of kidneys and lungs that they could not do it, and like everything else that is overworked, they would **strike** and do nothing, and you—would just die. We keep our skin clean and active by washing and rubbing. If you are extra dirty, soap is necessary to help in thoroughly cleansing the skin. People in ancient times used to anoint themselves with oils and unguents of various kinds to keep the skin clean and supple. Some skins secrete more oil than others, and then an extra supply is not needed. But a very dry or thin skin is often benefited by a little rubbed well over it in cold weather. Friction with rough towels is also very helpful to a sluggish skin. It excites the capillaries, or tiny blood-vessels, which bring the blood to feed the skin, and they do their work better for this stimulus.

218. So much for **cleanliness** of our persons. But as to our **houses**, what difference can it make to our health (people often say) whether they are dirty or clean?

It makes a very great difference. In a **dirty house** the air is full of dust, and the rooms smell close and stuffy, and this has a depressing effect on the nervous system. Children are generally the first to show the bad effects of a dirty house, because they are more sensitive to smells than grown people. If in any one house the children are often ailing, the first question that should be asked is: Are the drains kept clean? It does not follow that there will be an outbreak of typhoid fever or diphtheria if the sewers are not flushed as they should be, and if there is an evil odour hanging about the kitchen sink or in the passages; that may or may not come; but what does follow as a certainty is a low state of vitality which predisposes the children to anything that is going about. One will have sore throats, another ear-ache, a third pimples or breakings-out, and all of them are more or less fretful, especially in the evening when the fresh air from outside is excluded. All these ailments and many more come from the blood having got into a poor condition from imperfect **oxygenation**, when whatever tendency there is to mischief in that particular constitution will be sure to show itself sooner or later. Like the dropping of water, which wears a hole in the stone at last, it is the **continuous action** of evil conditions of living which is so fatal. That is why I have laid such stress on the four rules for healthy life; and if there is anything the matter with any member of the household the first thing to be done is to find out if any of those rules have been **habitually disobeyed**.

219. Of course **sickness** may come in many other ways; I only want you to understand that if you disobey the laws of health it is pretty certain to come somehow.

Our bodies are very complex, and their functions

may get disturbed without our own knowledge and experience being sufficient to detect the cause. In that case we must get medical advice, for it is useless and worse than useless to attempt to remedy anything of which we do not know the nature and the cause.

220. Still, in daily life there are two or three things which a housewife should be able to deal with herself. She need not, and she cannot send for a doctor every time any one is sick or has a stomach-ache or a headache. Such troubles very generally come from having eaten too much, or of an **indigestible kind of food**, or too hurriedly, or when the body was so over-tired that it had no energy left for proper digestion. To get rid of this unused and unusable food in the stomach is the only course. And the simplest method of doing this is to drink plenty of hot water at intervals, and eat no solid food at all till the stomach is all right again. The hot water helps to dissolve and carry off the undigested material which is causing pain and discomfort, and generally nothing more is necessary; though hot fomentations externally may also be used if the pain is severe.

221. Another very common ailment which all should know how to deal with is caused by what is called "**catching a chill**." If you get into a thorough draught or sit in a cold, damp room when the surface of your body is hot and perspiring, then the pores of the skin suddenly contract, and the tiny ducts which were so busy carrying off waste matter become clogged and congested, and you will feel ill all over, and your internal functions may become seriously **disordered**. In case this happens, the wisest plan is to go to bed at once, and to try by all means in your power to get into a perspiration again. Take a warm bath first if you have the means at hand to do so, but any way go to bed and wrap yourself up in plenty of blankets and

drink hot water, or hot tea very weak, or hot broth if you have not had any food lately. But do not eat anything ~~while~~ you are feeling so queer, for you could not digest it. Peppermint tea, or ginger tea, or anything else that will help to make you hot is also good, but not beer or spirits.

222. These two very simple bits of advice if followed out will save many a doctor's bill by stopping the **beginnings of disorder**; and it is all that can be, fitly said about illness in this little manual—except this one further warning: that in case you have any reason to suppose that you have caught an infectious disease, or if you have met with an accident at all serious, you should send for medical aid at once.

223. The only place sickness holds in Domestic Economy is the place of an **enemy**, and it must be fought with and turned out of the house as soon as may be. But the best way of fighting and the skill to fight must be learned from books specially written on the different forms this foe puts on, and the action of different medicines on diseased conditions, or from the directions of the doctor and the nurse.

PART III.—THE PURSE

CHAPTER I

MONEY

224. It is important to all, but especially to the housewife, to learn something about **money**. It is the basis of all our calculations. We do not, and could not, under the present system of social life, go about exchanging one article for another as people in old times did. **Exchange** or barter is still used in **commerce** when one country exchanges corn for something else it has more need of,—say manufactured iron goods. But even then the value of the goods is appraised in money before the exchange can be settled. And in our daily life it is a matter of fact that without ready money we are in a sad plight. What then is this money, how do we get it, and how should we use it? are questions which concern all housewives to answer. We may say of it, as has often been said of fire, that “it is a good servant but a bad master.” It goes our errands, it buys us food and clothes, it builds our houses, it provides means of education for our mental faculties when we are not able or willing to do these things for ourselves. And that is the part of a good servant. But let our lives once be devoted to it—to getting it, hoarding it,

waiting on it, and loving it, we shall find it a very bad master indeed. Its only virtue is in its usefulness. • —

225. There are two separate kinds of money in general use—**Coins**, which are made of gold, silver, and bronze or copper, and these have a definite value in exchange; **Paper money**, such as **bank notes, cheques**, etc., which are only promises to pay so many coins on demand; and whose value consequently depends on the **credit** of the persons who make the promise. Paper money is a matter of convenience. You want to send £20 to a person at a distance and a bank-note for that amount can go in a letter, while twenty sovereigns could not. The Bank of England stands first in being worthy of credit amongst all the banks in the world, and therefore its notes have practically the same value as so much coin: for on the faith of the rich English nation that promise **to pay on demand** is made. There are other banks which are allowed to issue notes on their own credit, that is the **credit** of the persons who own the bank. It may or may not be good, but it is never so good as that of the Bank of England. Banks sometimes fail or “break,” as it is called, and then their notes are worth little or nothing. But as long as England is a nation and unconquered, its credit is good, and its promises as safe as promises can be.

226. **Cheques** are another form of paper money which pass about from hand to hand as a matter of convenience instead of large amounts of coin or cash. A cheque is a piece of paper on which any person who has money in any bank may write an order for so much cash to be paid out to another person. You will see that the value of a cheque depends upon the **credit** of this one person

who writes it. If he has no money in that bank, though he tells you he has, that **order to pay** is worthless. If you get a cheque as payment for goods, it is best to take it to the bank and get money for it at once, so as to be sure. If left for a month or a year that person (even if he had the money there when he wrote the cheque) might have drawn it all out, or the bank might have failed. In both cases the cheque would be returned to you "dishonoured," and you would have lost your money.

227. The **making of all coins** in use in Great Britain is undertaken by its Government; and, as well as bank-notes and cheques, they are made under certain laws and regulations carefully laid down to protect against cheating. Coins, when they have been in circulation for a long time, lose in weight and the signs on them are defaced. They are therefore **called in** at intervals and re-made. Sometimes a fresh sort of coin is given out, sometimes an old one is made no longer. For instance **guineas** are no use; their value was 21 shillings. Now **sovereigns** value 20 shillings, which are convenient to calculate with; and **florins**, worth two shillings, are also new coins.

CHAPTER II

INCOME

228. Before we begin to spend our money it is quite clear that we must get it. The amount we get per week or per year is called our **income**. The amount we spend per week or per year is called our

expenditure. That will be dealt with in the next chapter. Now we will consider what ways there are of getting an income. It can be got by **earning**, by **inheritance**, by **gift**.

229. If a man or woman **earn** their own income they have a greater pleasure and profit in the using of it than can possibly be got out of money obtained in any other way. They know the value of each sovereign and what it means to earn another if they waste that ; therefore they generally learn how to take care of it.

Wages for labour performed, or **recompense** for skill acquired through years of learning and much outlay of time, is the most usual way of getting an income ; and fortunately for humanity this way brings in its train opportunities, as well as the necessity, for acquiring some of the great virtues or qualities without which the richest man can live neither wisely nor well. **Prudence**, for example, has always been numbered amongst the four cardinal virtues ; and self-denial is considered to be of such importance in the development of our moral nature that all religions recommend artificial restraints to be imposed on our desires, if opportunities to practise it are not an integral part of our daily life.

230. Those who get an income by **inheritance** often congratulate themselves that they have not to work for a living ; but unless they undertake some kind of work voluntarily, and continue to do it as a duty, their inheritance is no blessing to them. **Idleness and laziness** are on the contrary distinct curses. We say a man is idle if he does nothing, and we always say it in blame. We say he is lazy if he has no will to work, and we say it with scorn. Still, a man or woman who gets an income by inheritance need not be either idle or lazy. We often have to

say of such "they have leisure," and we always say it with a faint shade of envy in our hearts. They have **leisure** for doing many things which we ~~ain~~ would do and yet cannot find time for. Leisure to study, leisure to follow the fine arts ; leisure to improve the waste places of this earth, leisure to cultivate the tree of knowledge and to dispense its fruits to those who have none. Moreover, domestic economy is as need-ful for them to practise as it is for those who must earn an income, since money can be wasted however it is got, and leisure is of no value when not spent to some end.

231. Those who get an income **by gift** are usually the unfortunate or the criminal, dependent in both cases on the charity of others, and this book is not meant for them. They have to be managed for, since they are incapable of doing, or will only to do wrong.

232. It is chiefly to those who have to **earn** an income that I address myself now, and I will point out next in what way this can be done, on what conditions, and bound by what rules.

(1) It may be earned by **manual labour**, or doing things with our hands.

Of this kind of work there are two sorts, viz. skilled and unskilled, and naturally the first-named commands the highest wages. But any one who can work with his hands well at any sort of labour useful to the community is certain of earning money in the shape of weekly wages so long as he is in health, and has the strength of an adult man. It is the idlers and the inefficient who complain that they can earn nothing. Skilled manual labour runs up very closely into the professions, but it retains the characteristic of being paid for regularly in the shape of wages for work done, and is thus the least risky of all ways of

earning an income. Clerks, writers, artists as well as craftsmen, all fall under this head.*

233. (2) By **trading** or buying things to sell again in smaller quantities and more convenient forms.

Under this head we have all the vast range of buying and selling, beginning with the petty shop-keeper who brings a little of everything from the town and sells to the villager who stays at home, a ending with those large commercial companies who trade or deal with every nation under the sun, and whose ships crowd every port. There are varying grades of wholesale and retail merchants and shop-keepers; there are stockbrokers, commission agents, and what not,—men who, sitting at an office desk, pay away thousands of pounds for goods they have not seen, and pedlars who haggle over farthings as they tramp from door to door,—but under all these guises the principle of trading is the same; and the money gained is just the difference between the sum that the goods cost to buy, to carry, and to store, and the sum they can be sold at. Thus underlying everything there is always an element of **risk**, and the income gained must be uncertain and extremely fluctuating. It requires a certain amount of capital to begin with, and a knowledge of the laws of supply and demand; and it also calls for knowledge of a variety of kinds if the trader is not to be cheated over his transactions.

The manual labourer requires a **technical** education, the trader a **commercial** one. 3

234. (3) By following a **profession**—that is, acquiring knowledge and imparting it to the world for a consideration.

What are called the three learned professions are Law, Physic, and Divinity, but there is an end-

less number of callings which have **knowledge**, not labour or skill, or goods for their basis ; and in all this class we pay for opinions, thoughts, instruction, and it depends on the esteem these intangible things are held in whether the rate of pay is good or bad. There is also the profession of arms so called, which, as it is necessary to the State, is paid for out of the national pocket at fixed rates.

• We have been speaking of men all along, but there are some professions which are open to women, some trades which they can follow, some manual work in which they can engage. But on account of their lesser degree of muscular strength, and owing to their being handicapped in various ways, their rate of pay is always less than that of men. The great business of women in life, and one in which no man can compete with them, is that of guiding and serving the house and home. If a girl is brought up to know and practise all the arts which serve this end she is certain of being able to earn an income in either the lower or higher branches of housekeeping. So long as the world lasts a woman who can sew well, cook well, bring up children well, need never fear lack of employment or want of money, whether she is married or single.

CHAPTER III

EXPENDITURE

£1 a week, that is all his income." We say of a rich man, "he has £2000 a year, he must be able to live very comfortably as well as to lay by some of his income." We say of a housewife, "she has to keep house for a family of eight upon £20 per month; it is not a large income, but she manages well, and it is enough."

The great thing is to learn how to **spend** our income profitably. Whether it be large or small, it is easy enough to waste it. And wasted money, like wasted time, never returns.

To spend to profit it is necessary to make some sort of a plan; to apportion our income to the needs and number of the family; to settle what things we must have, and what we can do without; to buy the **necessaries** first, to provide for **emergencies** next (that is, unexpected outlays which are not part of our regular expenditure, such as doctor's bills or breakages), and last of all to indulge ourselves in **luxuries**, if there is any money left over.

236. Let us take a case which is neither poverty nor riches, and imagine a good housewife dividing her yearly income to meet her needs. We will suppose a man earns £300 a year, and that he has a wife and four children to provide for. He will need a third of this to pay for his own personal expenses, to provide for house-rent, rates, and taxes, insurance, and there will be £200 left to be handed over to his wife for housekeeping.

his transport, food, fuel, and clothes are **necessaries**; in

The matter shall this sum be divided amongst the children, the trades

234. (3) By grown-up people (for they will certainly bring knowledge and four children may be reckoned in consideration.

What are called **luxuries** as food consumers. Any thing that is provided with everything that is Law, Physic, and Di

is necessary for health and comfort in the way of food, at the rate of 7s. per week, if there are five persons to share meals. Thus, speaking roughly, £90 will be spent in providing meat, bread, vegetables, fruit, groceries, and dairy produce, leaving £110 for everything else.

239. Fuel is the next item, in which lighting must be included. Coal may be reckoned at 18s. per ton, and six tons of coal and a chaldron of coke will keep a kitchen fire going all the year round, and do all the cooking and heating of bath water for a family of the size supposed. A parlour fire for six months will require about half this quantity. The whole cost, inclusive of wood for lighting, would be about £9. Gas may be reckoned roughly at £4 in addition, making a total of £13 per annum. And we have £97 left.

240. Clothes for herself and four young children ought not to cost the housewife more than £25, or, if we include the renewal of house linen, say £30.

Next comes servant's wages, say £12. Washing £13 if put out; if done at home, there will be the heavier wages and a heavier grocer's bill. We have now £42 still in hand, but there will probably be school bills for two children, and the small travelling expenses of bus or rail, which, if they live in town, must be reckoned for, and if they live in the country will come to much the same figure, though in the shape of carriage of goods. Say £12 for school fees, £10 for books and small journeys, and the housewife has still £20 to put by for emergencies. This is not too great a margin with a stationary income. Families grow, though incomes may not. Children growing fast demand greater outlay on education and clothes; and parents growing old need more comforts.

241.	Food	.	.	.	.	£90
	Fuel	.	.	.	.	13
	Clothes	.	.	.	.	30
	Laundry	.	.	.	.	13
	Service	.	.	.	.	12
	Schooling, etc.	.	.	.	.	22
<hr/>						
						£180

We have allowed for no luxuries in this scheme, but the family will be amply fed and clothed; and if there are no grave emergencies in any given year, there will always be some amount of money which can be spent on treats or holidays.

242. Let us consider what the master can do with his £100. The **rent** of a house to hold such a family would be about £40 in a town, and rates and taxes would be included if they lived in the country, while in town they might be as high as £12 extra. His own clothes and personal expenses could hardly be less than another £25, leaving the remainder to be put by for a rainy day, either in the form of insurances or investment. In the next chapter I shall say more about this.

243. Now I have one thing more to point out. **The smaller a man's income** is, the larger is the expenditure relatively on food. **The larger your family** the smaller in proportion is the outlay for food, because there is always a certain amount of waste in cooking and serving meals, and if this waste is divided amongst twenty instead of two or three, it is less in proportion. For instance, a family of ten could be fed quite as well on 6s. or 7s. per head per week, as two persons alone could on 10s. per head.

Of course a scheme is only a scheme; in actual

practice we find prices do not fit our plans with precision. Some things cost more and some less. Every housewife must make her own scheme according to circumstances. But to carry it out as near as possible involves foresight and thrift, and if she cultivate these she will find a hundred ways of managing and saving which cannot be put down on paper, and her purse will never be empty, and her heart never anxious over unpaid bills.

244. The matter of most moment to the housewife in the planning of her outlay is to know if the income she has to spend is **fixed** or **fluctuating**. If it is certain, and she gets it on certain days, she may spend much nearer to the sum total, than if it is received irregularly, and in unequal amount. Then the only safe way is to allow a large margin over.

Whether the income be small or large, certain or uncertain, the good housewife will keep an accurate account of her income and expenditure.

CHAPTER IV

BUYING

245. A plan of **expenditure** is an excellent thing. But if the housewife does not know how to **buy** wisely her plan will be of little avail. It is all very well to say or put down on paper "a family of five or more can be well fed for 1s. per head per day," but if when she goes out to shop she has no idea of the difference between what is cheap and what is dear, her purse will empty itself before her wants are supplied. There are also things that are cheap and

good (see 147), and things which are cheap and nasty. Then, again, there are things which can be bought in a quantity at a lower rate than in small parcels; but if they are things which spoil by keeping, like almost all nitrogenous foods, it is no saving but only waste to lay in a stock.

246. Thus **meat, fish, vegetables, and fruit** should be bought in small quantities for immediate consumption, and a housewife should acquire the art of judging at sight how long a given piece or measure will serve her family, and whether it will be good to the end. Then of the articles which will keep and perhaps improve by keeping, she can lay in a store at her convenience, such as soap, candles, tea, coffee, and dry groceries generally; of these she need never fear to have a month's stock. Flour will keep as long if it is in a perfectly dry place; but it is perhaps safer to get it in weekly.

247. **Materials for making clothes** can be bought at good opportunities, for they can be stored without damage—but ready-made clothes never look so fresh if folded away for any length of time. Besides, fashions change so rapidly, that to buy things which are cheap at one season, and then not to wear them till the next is not wise. For all persons wish to look well in their newest garments and wear them for best.

248. **Cheapness and dearness** are relative terms. A pound of coffee at 10d. may in the end be dearer than a pound at 2s. It all depends on the quality. If the cheap coffee is adulterated, that is mixed with some inferior stuff which is not coffee, and weighs heavy, you may find that half-a-pound of the good would last you longer and be more nutritious and pleasant in the using than double the quantity of the bad. Which is then the cheaper? Or, if you buy a

cheap dress which only lasts a few weeks, are you as well off as if you paid double the price for one which will wear a year?

249. Everything is dear if we are not in need of it. Some people love to get what are called **bargains**, by which they mean something sold under cost price. But all goods sold for less than their original value must have some **flaw**; or else they **will not keep**; or **some one has lost** instead of gained on producing them. For which of these reasons are they to be eagerly bought? It may be that you want the thing badly, and not being able to get a better specimen are willing to put up with the damage. But if you really need the article, a good, sound one is always cheaper in the end. It may be that you want the thing for immediate use, and therefore the fact that it will not keep is no prejudice. But such a fortuitous accident does not often occur, since a housekeeper who wants something in a hurry has to get it in a hurry, and has no time to go bargain-hunting. And for all good articles, well made, and in demand on account of their usefulness, the producer is sure of a recompense for his labour over and above the cost of the material. Therefore the bargain is generally a take-in.

250. This love for bargains which is so prevalent has wider issues than its effect on Domestic Economy. The **sweater** is called into existence by those whose chief desire in shopping is to pay as little as possible and to get as much. And the sweater and sweating system are evils which must be reckoned with in both Political and Social Economy. And the very woman who rejoices at a purchase in which she believes she has got an article for 20s. which is worth 25s., forgets that the poor producer, robbed of his rightful profit, must be kept from dying of

starvation by the poor-rates which have to be drawn out of her purse; or helped in sickness by the hospital she subscribes to. She virtually prefers to support him by paying double the amount instead of letting him support himself. Good pay for good work is the cheapest plan in the end, and certainly brings the least trouble.

251. The best counsel that can be given to buyers is: be willing to pay a fair price for the best article of the class you need, and take your money in your hand.

252. This applies in the main to all shopping. But there is sometimes a great saving to be effected in the buying of **second-hand furniture**, or even kitchen utensils of a superior sort. For some reason or other a home has been broken up, and its contents have to be sold on a fixed day. Now a forced sale of a miscellaneous lot of goods always means that the owners are willing to take a small price for their goods rather than have the expense of taking them away. Therefore they are sold for what they will fetch, not for what they are worth. If furniture was good to begin with, a few years' wear has not hurt it much, while the buyer has no chance of being taken in by unseasoned wood, since the shrinking must have shown itself by this time. And often a really good and valuable piece of furniture may be bought at half-price with no injustice to any one. It is thus wise to wait as long as possible for the opportunity of getting a second-hand chest of drawers, table, or sideboard. And sound, solid copper cooking vessels may often be bought thus for a fraction of their original cost, and, with re-tinning, last you for life. These are genuine bargains.

253. To buy on **credit** is never economical. Shopkeepers naturally ask more when they have to

wait for their money. To have a bill at every shop you deal with is extremely harassing, and makes a housekeeper always feel short of money, since every quarter-day she must settle up her debts and then run in debt again at once.

254. The secret of economical buying is never to buy anything that you do not really need, and not then unless you can spare the money to pay for it at once.

And it is well to remember that those things which will last for years should never be bought in a hurry; whilst those articles which are of everyday need can always be laid in beforehand, since it is a housewife's duty to foresee and provide for the wants of her family.

CHAPTER V

SAVING AND INVESTING

255. I spoke in the last Chapter of the **saving** of money in buying, *i.e.* not spending more than is necessary, and by the use of good judgment and suitable opportunity saving a penny here and a shilling there.

There is an old saying useful to remember, "a penny saved is a penny got"; but when you have got your penny, what you shall do with it is the next question.

These pennies saved every day by good management, soon become pounds, and what is wanted is to keep them safe against a rainy day, which is an expression used to signify a time when your income may be less than it is now, or some

emergency when you may require a little extra expenditure, such as a doctor's bill, or a country trip, or special teaching for a talented and industrious child. Then, again, there is always old age to look forward to, and if that is not already provided for in other ways, some saving should be specially ordained to meet it. But whatever you want to save your money for, the great thing is that it should be **kept safe** and yet that you should be able to **get it when you want it**.

256. There are several ways of putting by your spare cash. One is **hiding** it, so that no one else knows where it is. That is not a good way, because if it is so hidden it cannot grow, that is, get any interest, or be of any use; and it may even be stolen, or lost altogether, or destroyed if it is paper money.

257. Again, some people **lend** their money to a friend or neighbour, and get in return an "I.O.U.," as it is called, or a "promise to pay on demand"—say £10 or whatever sum it is. Neither is this a good way of keeping money against a rainy day, for those who borrow are the last people likely to be able or willing to pay back your cash just when you ask for it.

258. Next we must consider the various ways of **investing** money, which means lending money to people who want the use of it, and are willing to pay you **interest** for the use. People who are in trade, and want more capital than they have of their own to buy a stock of goods, will do this. But trade is always uncertain, and the only security that a tradesman can in general give is an **agreement to pay** a definite sum per annum; and if his trade or business fails, you may perhaps never get any of your money back, or only a small part.

259. This is therefore a **risky investment**, although

it may offer a high rate of interest, as indeed all risky investments must, or money would never come in for them. But for any one to whom small savings are of consequence it is never wise to run any risk of losing them. People who have plenty and to spare may run such risks if they choose, but it is not for such I am writing.

260. **Small savings** should always be invested in something that is certain to pay you back your capital on demand, and your interest, however small, regularly. A **high interest** is from 5 per cent upwards. A low interest 2 or $2\frac{1}{2}$ per cent, which means £2 or £2 : 10s. for each £100 that you lend each year.

261. The **safest investment** in all the world is to put your money into what are called "British Government Securities." You can do this by means of the Post-Office Savings Bank, in which you can deposit any sum not less than one shilling. In the Consols you cannot put less than £5. Any postmaster will give you full instructions how to do this. The rate of interest you will get for each £1 put in the Savings Bank is $\frac{1}{2}$ d. per month, or 6d. a year, which is $2\frac{1}{2}$ per cent. In the Consols you get a little more, about $2\frac{3}{4}$. It varies slightly from causes which I cannot explain here.

262. There is yet another way of investing money open to you, and that is to put it on a **Mortgage**. It is considered a safe investment, and the rate of interest is about 4 per cent. But there is always a good deal of trouble attending this sort of investment. I will explain what a mortgage is. A man wants, we will suppose, to buy a house which costs £1000, and he has not got the ready money to do it. He gives the title-deeds of the property as security to any persons willing to lend this sum, so that if he does not pay his promised interest for the use of it, they may

be able to sell the house over his head and get their money back. You may perhaps be able to lend part of this sum, say £500, and some one else lends £300, and a third makes up the required amount with £200. You cannot all have the title-deeds, so they must be put into a lawyer's hands, who will act for all three of the lenders, receive the interest from the owner of the property, and divide it among you. But then everything which passes through a lawyer's hands pays toll as it goes, so you do not get after all the 4 per cent, perhaps only 3 per cent. And if the borrower does not pay up regularly, there is the expense and bother of what is called **foreclosing**, that is, selling him up. Again the lawyer has to be called on to do it, and to be paid. Thus, though you are pretty safe to get your money back—unless more money has been lent on the property than it is worth, which you always have to find out—you are also pretty certain of trouble and worry about it, unless under very fortunate circumstances.

263. There are also **railway companies** and others to which it is tolerably safe to lend; but if you do not thoroughly understand the buying and selling of shares you will often make mistakes or get cheated.

264. Whereas, if you put into the Post-Office Savings Bank or other Government securities, you may be quite sure you will not be cheated, and that everything has been so carefully arranged for the benefit of small savers that it will not be easy to make a mistake.

265. The Government has also several schemes out of which you can choose if you wish to **insure your life** or buy an **annuity** against old age. To insure your life means to pay a small sum yearly, and in return, when you die, a large sum, amounting to much more than you have paid out, will be handed

over to any person or persons whom you name. The man who is the breadwinner of the family finds it wise to do this if he cannot settle anything else on his wife and children. To buy an **annuity** means to pay down a fixed sum, and get in return so much a year for your life. This is always a larger interest than you could get any other way, but it ceases when you die, and the sum you paid in is not yours to will to any one. A woman who has no one depending on her finds it wise to do this with her savings. The older you are before you buy the annuity the larger interest you get ; while, on the contrary, if you insure your life, the younger you are when you begin to pay in the more your family get when you die.

There are different sorts of insurance, and also of annuities—some called **deferred**, and some **returnable**. You have only to ask at any post-office and full information is given, so that all you have to do is to choose which sort suits your circumstances best.

266. To have an easy mind about the future, both for ourselves and those dear to us, is a great safeguard against worry ; and worry, as all doctors will tell you, causes more sickness and premature death than anything else except bad drainage. Persons who are fairly strong to begin with can stand hard work, and short food, and heat and cold, without doing themselves much harm or any at all. But it seems as if no one could bear up under worry. And so to buy an annuity may be looked at in one way as buying life. This is proved by statistics, which show us that people in receipt of a small regular income in middle age or later life, live much longer on an average than those whose income is insecure.

PART IV

THE ORDERING OF THE HOUSE

267. In speaking of the **ordering** of the house we assume two things: first, that there is some one to **rule** it; second, that the object of that rule is **order**.

The person who rules is clearly the housewife or mistress, and to rule well she must be possessed of certain qualities.

268. Human character stands four-square on the pillars of justice, prudence, temperance, and fortitude, as we all know; but of these qualities **justice** is perhaps the most prominent, either as excellence or defect, in one who has to govern, be it state or household. For if equal measure be not meted out to all members according to their merit and their need, jealousy is the certain result; and jealousy is of all foes the most fatal to peace and right development of character.

269. And it is to this due **development of character** that the mistress has to look for the object of her toil, and the reward of her skill. What boots it that her husband is well fed and clothed, her children healthy, and her house clean, if her home be no centre of life and growth? Shall material means lead only to sensual ends? Or may she hope to see the higher

dispositions of the mind spring out of the good habits of the body?

270. We talk a great deal about the effect of "**environment**," and in no case is circumstance more close and pressing than in the home. And these circumstances are to an almost infinite extent in the hands of wife and mother. It is she who must plan the scheme of life, and she who must see that it is carried out. She must appportion to all the daily duties they have to perform. A good organiser will get far more into a given time than a bad one; just as a good packer will get twice as much into a box as a bad one can. It all depends on skill and management. She must make a plan of all she wants or hopes to do in life, and then divide it into times and seasons, years and days, and even hours and minutes.

271. No one can make a good working scheme and afford to ignore the great divisions of **Time** laid down. They govern the whole world, and we must adapt ourselves to them; they will not alter for us or our wishes. "Time and tide wait for no man," as the old adage has it; and another bids us "take Time by the forelock." And we know from our own experience that if we let the morning hours slip by in idleness, our day's work cannot be fetched up in the afternoon.

272. Accordingly, in laying down the rule of life in her home, the mistress plans for beginning **work early**. But here again she is tied to no fixed hour, but must adapt herself to the seasons, which she cannot alter.

To begin work by six o'clock of a summer morning in full daylight and with soft airs blowing through the house, is one thing; to light gas or candle, and vainly try to sew or study with chilled fingers and

feet before either breakfast is ready or fires kindled, is quite another. It may have to be done, but its effects have to be taken into consideration.

273. Again, there are certain things to be done in the summer which cannot be done in winter, such as preserving fruit, washing blankets, whitewashing and cleaning generally, and in this way the family learns **the value of time**; for if the work is not done when the right time for it comes, it goes, and goes for ever. This rule is also applicable to the lesser divisions of time, the days, hours, and minutes.

274. One of the first lessons we teach children is to be able to read the clock and know what time of day it is; and we do this because **punctuality** or the keeping to set times is such a large element of success in all that we do. For instance, no one can cook a meal properly unless she knows what time each article requires for cooking, and at what time the meal must be served; and if the persons for whom it was prepared are not ready when the meal-time comes round, the whole may be spoiled. Consequently **punctuality** is a virtue to be acquired by every one, and the mistress should set the example by fixing the hours for all work and all meals in her house, and not only fulfilling her own part, but insisting on every one else fulfilling theirs.

275. Next to the keeping of Time and Season, comes the virtue of **Order and Method**. For everything brought into a house there should be fixed a certain **place**, as well as for every person. To see that every article of daily use is put back in that **place** when done with is a lesson that should be learnt by every one who has neither time nor money to throw away. And who is there that has? By insisting on habits of order the housewife not only makes a neat and comfortable home, but forms the

environment out of which the next generation emerges better equipped for the battle of life. For we may fairly say that if punctuality is the soul of business, order is the seat of the soul.

276. I said the **battle of life**, and for what is it we are fighting? Is it only for bread to eat, and clothes to wear, and a house to sleep in? Is it not for means of growth and intellectual advancement? The whole range of human enjoyment is bounded by our capacities for action. To be able to do anything, and to do it well, is reward enough for the trouble of learning how to do, but it is also the possibility of doing more. **Growth**, both of body and mind, proceeds on fixed lines, and only through regular stages is evolution possible. To him that hath shall be given.

277. The housewife must recognise this and act on it. For any member of her family with a special talent, or with a special aim in view, it is hers to provide suitable nurture, and convenient opportunities for the exercise of such talent, or for the furtherance of such aim. It is not for her to say, "The children are mine, they must look at life through my eyes, my will must be their law." Not so does **growth** come. They are not hers to do as she likes with; they are hers to do the best she can for.

278. What is the best that can be done for them? Is it not to train them in such habits as will fit them for any work? I have named Punctuality and Order, which are never learnt without constant practice at home, and without which no good work can ever be done. And there is another quality which must be striven after, and that is the **habit of self-denial**, of doing without what we like. To give young people all that they fancy, to wait on them hand and foot, to save them from all the responsibilities of life,

and shield them from every risk, is the surest way to turn out idlers and cowards. Not of such stuff are Fortune's favourites made. To them has been given the constant opportunities of self-denial out of which springs self-control. For them are fashioned the disciplines of Law and Justice, the trammels of decent custom.

279. And it is in the increase of righteous **action** and the **development** of knowledge and wisdom, that the whole justification of the Art of Domestic Economy lies.

INDEX

THE FIGURES REFER TO PARAGRAPHS

- ACCOUNTS, 244
- Action, 279
- Adulterations, 112, 128, 248
- Ague, 47, 57
- Air, 24, 31, 162; composition of, 25; saturation of, 30; sea, 29; in towns, 31
- Annuity, 266
- Annuities, 265
- Antiseptics, 64, 164
- Aspect, 14, 82
- Atmospheric pressure, 28
- Attics, 77, 79, 83

- BAKING, 172
- Bargains, 249
- Basement, 20, 78
- Battle of Life, 276
- Beds, 85
- Bedrooms, 36, 80
- Birds, 157
- Blinds, 90
- Body heat, 100; weight, 126
- Boiling, 29, 52, 174
- Braising, 169
- Bread, 127, 153
- Breathing, 27, 216
- Broiling, 171
- Brick, 15, 17; ventilating, 19
- Building, 15, 37, 66
- Butter, 130
- Buying, 245

- CALICO, 113
- Candles, 185
- Carpets, 91
- Chalk, 12
- Cheapness, 248
- Cheques, 226
- Character, 269
- Chills, 221
- Chimneys, 34, 196
- China, 96
- Cisterns, 50
- Clay, 12
- Cleaning, 191; time for, 194
- Cleanliness, 217
- Clothing, 98; cost of, 240; mending, 117; purchase, 109; shape of, 108
- Coal, 178, 190
- Coins, 225, 227
- Coke, 179
- Colds, 221
- Conductors of heat, 100
- Cooking, 168; utensils, 94
- Cotton, 104, 205, 206
- Country, 23, 39; rents, 68
- Credit, 225, 253
- Crockery, 96
- Curtains, 90
- Cutting out, 120

- DAMP, 10, 17
- Damp-proof course, 18
- Death-rates, 22

Decay, 165
 Dirt, 218
 Dilapidations, 71
 Disinfectants, 64
 Disorder, 213
 Domestic, 1; economy, 1-3
 Domus, 1
 Drains, 57, 58, 63
 Draughts, 32
 Dressmaking, 122
 Drying, 30
 Dust, 191; bins, 62

 EARLY rising, 272
 Economical buying, 254
 Economy, 2
 Electric light, 186
 Environment, 270
 Exercise, 216
 Expenditure, 235; scheme of, 241, 243

 FAT in drains, 63; as food, 130, 138; for frying, 176; increase of, 143
 Feathers, 102
 Fermentation, 165
 Filters, 53
 Fish, 156
 Flannel, 207
 Flesh-formers, 137-139
 Flies, 166
 Floors, 92
 Food, 123; cheap, 147, 150; cost of, 238; dear, 148; nitrogenous, 140, 141, 158; nutritive value, 136; plentiful, 149; quantity required, 123, 125, 238
 Foundations of house, 15
 Frying, 176
 Fuel, 177; cost of, 239
 Fur, 102; on kettles, 42
 Furniture, 84

 GAS, 25; carbonic acid, 25, 41; coal, 180; combustion of, 181

Germis, 159, 163
 Gift, 231
 Grates, 183
 Gravel, 12
 Groceries, 135
 Ground-rent, 67
 Growth, 138, 277

 HAIR, 85
 Health, 212-214; conditions for, 215
 Heat-givers, 138
 Home, making of, 5; ordering of, 267
 Home-made bread, 128
 House, building, 15, 66; choosing, 4, 8, 22; ordering of, 267; rent, 67, 242
 Householder, 8

 IDLE money, 256
 Income, 228; earning of, 229, 235; fixed, 244
 India-rubber, 106
 Indigestion, 220
 Infectious disorder, 222
 Inheritance, 230
 Instinct, 137
 Insurance, 242, 265; fire, 74
 Interest, 258
 Investments, 258; risky, 259; safe, 261

 JUSTICE, 268

 LEASES, 71
 Leather, 107, 110
 Lending, 257
 Life, length of, 23
 Light, 14, 90, 187
 Lime, 42; as food, 145
 Linen, 105
 Liquid, 26
 Luxuries, 97

 MADE soil, 13
 Manual labour, 232
 Marketing, 147, 151

- Marsh water, 47
 Materials for cleaning, 193; for
 clothing, 99, 247; mixed, 111
 Meat, 131, 154; to choose, 155
 Mending, 117, 119
 Milk, 132
 Moisture, 30, 161
 Money, 6, 224
 Mortgages, 262
 Moths, 115

 NECESSARIES, 237
 Needlework, 117, 118
 Nitrogenous food, 139, 142,
 158

 OIL lamps, 184
 Order, 213, 275
 Ovens, 172

 PEAT, 183
 Perishable food, 150, 158
 Permanganate of potash, 64,
 164
 Petroleum, 184
 Planning the income, 236; the
 rooms, 76
 Place, 275
 Plenty, 149
 Pond water, 47
 Potash, 146
 Potatoes, 129
 Professions, 234
 Pumps, 44
 Punctuality, 274

 RAILWAYS, 263
 Rain-water, 41; pipes, 59
 Rates, 73
 Ready money, 97, 251
 Rent, 16, 67, 72, 242
 Repairs, 70
 Rivers, 46
 Roasting, 170
 Rooms, 76; to clean, 195;
 underground, 77

 SAND, 12

 Salt, 144
 Saving, 255
 Savings, small, 260
 Savings banks, 264
 Schools, 81
 Seasons, 273
 Second-hand goods, 252
 Self-denial, 278
 Shelter, 9
 Shoddy, 112
 Shopkeepers, 152
 Sickness, 211, 219, 223
 Silk, 103, 208
 Site, 10
 Skin, 217
 Soap, 210
 Soil, 12
 Solids, 26
 Space, 23, 80, 81
 Spendings, 235
 Springs, 48
 Starch as food, 138
 Starched clothing, 209
 Steaming, 175
 Stewing, 173
 Storage of clothing, 114, 116;
 of food, 158, 246
 Stoves, 188
 Sugar, 133, 138
 Sunshine, 14, 90
 Supply, water, 49
 Sweating, 250

 TAXES, 73
 Tea, 134
 Tenants, 69
 Time, 271; value of, 151, 273
 Town life, 23, 39; rents, 68
 Trading, 233
 Traps, 61
 Treacle, 130, 138
 Trimming, 112
 Turf, 183

 UTENSILS, 84, 94

 VEGETABLES, 146
 Ventilating shaft, 60

- Ventilation, 32, 33; exit, 34;
 inlet, 35
 Vermin, 197
 WAGES, 229, 232
 Walls, 15, 93
 Wardrobes, 87
 Warmth, 160
 Washing, 198, 204
 Waste, 54, 65
 Water, 38, 51; boils, 29; cis-
 terns, 50; hard, 42; pure,
 40; rain, 41; rate, 39; river,
 46; soft, 42; subsoil, 43;
 supply, 49; well, 43
 Weight of body, 126
 Wells, 44, 45
 Wind, 11
 Windows to clean, 196
 Wood, 88, 182
 Woodwork, 15
 Wool, 101, 207

