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THE BAKER,

INCLUDING

BREAD AND FANCY BAKING

WITH

NUMEROUS RECEIPTS.

"Whatsoever thy hand findeth to do, do it with thy might."
ECCLESIASTES ix. 10.

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Man shall not live by bread alone, but by every word that proceedeth out of the mouth of God.

S. MATTHEW IV. 4.

The bread of God is he which cometh down from heaven and giveth light unto the world.

S. JOHN VI. 33.

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THE BAKER.

I.

INTRODUCTION.

Making of bread early adopted by mankind—Primitive method—Unleavened bread—Definition of bread—Unfermented bread or biscuits—Leavened bread—Etymology of the words bread, dough, loaf, and leaven—Bark bread—Pumpernickel—Art of baking among the Romans—Loaf-bread uncommon in north of Europe and Asia.

BAKING, or the art of making bread, is amongst the earliest modes resorted to by the more advanced portions of mankind for the preparation of food. In the early ages, however, loaf or leavened bread was unknown, as it is amongst uncivilized nations to this day. The North American Indians contrive, by pounding their maize, or Indian corn, to make a sort of cake, which they bake by means of hot cinders. This serves them, and, indeed, occasionally people in many parts of the United States and Australia, as a substitute for loaf or leavened bread, and may be called unleavened bread. But in some parts of the world bread is not known ; in others it may be known but is not used, as amongst the people inhabiting the vast *pampas* on the Rio de la Plata, in South America, where scarcely anything is eaten but beef.

Bread may be defined as being a nutritive substance made of corn, generally wheat, or other farinaceous or mealy vegetable, ground or reduced into flour or meal, that is, a powder more or less fine, which is kneaded or mixed with water, and baked in an oven, upon hot ashes or other embers. This process makes unleavened bread, or, in other words, unfermented bread, or what is now called biscuit. To leavened or fermented bread, that is, the bread generally used in our houses, there must be an addition, yeast, or some other substance which has the property of promoting fermentation.

The origin or etymology of the word bread is not without interest. Horne Tooke says bread is *brayed* grain, from the verb to bray or pound in a mortar, the ancient way in which flour was made. The meaning of bread, therefore, is something brayed—brayed wheat, or wheat bread—pease brayed, or bread—oats brayed, or bread, &c. The word bread was spelt differently in different ages; thus we have *brede*, breed, &c. Dough, Horne Tooke says, comes from the Anglo-Saxon word *deawian*, to wet, to moisten. *Dough*, or *dow*, means wetted. The bread, that is, brayed corn or grain, by being wetted becomes *dough*.

Loaf comes from the Anglo-Saxon word *hlifian*, to raise, to lift up. Thus, after the bread or brayed corn has been wetted, by which it becomes dough, then follows the *leaven*, by which it becomes *loaf*, that is, *raised*. Leaven is derived from the French word *lever*, which in its turn comes from the Latin word *levare*, to raise.

Bread, in some countries, is not made entirely of meal, much less of wheaten flour. In many parts of Sweden the bread is composed partly of the bark of trees, particularly during winter.

In Westphalia a kind of very coarse black bread is made, of which the peasants bake one large loaf for

the whole week; this is divided for use with a saw; it is called pumpernickel, and is sometimes exported. In many parts of Germany bread is made of grain nearly entire, or but just bruised, which is very coarse, and frequently forms part of the food of horses.

The Romans, before they had acquired the art of baking, were called, either by way of distinction or reproach, the pulse-eating people. According to some authorities, indeed, the earlier nations knew no other use of their meal than to make of it a kind of porridge. Such was the food of the Roman soldiers for several centuries, or at most their skill extended no farther than to knead unleavened dough into cakes or biscuits. Even at present, as has been before intimated, there are many countries where the luxury of bread is unknown.

Loaf bread is seldom used in the northern parts of Europe and Asia, except by the higher classes of inhabitants. You never see loaves in Sweden, though in the towns rolls are common enough. Gothenburg is a considerable town, containing at the present time (1877) nearly forty thousand inhabitants. In the year 1812 it was crowded with merchants from all parts of Europe, being at that time the great connecting link between Great Britain and the Continent. Towards the end of that year only, the captain of an English packet ordered a Gothenburg baker to bake for him a quantity of bread, amounting altogether to the value of one pound sterling. The baker was astonished, and in fact confounded, at so great an order, and refused to comply till the captain gave him security that he would carry off and pay for the loaves, declaring that he could never dispose of so great a quantity of bread in Gothenburg, if it were left on his hands. In the country parts of Sweden, nothing in the character of bread is to be met with, excepting rye cakes, which are represented as nearly as hard as flint, and which are only baked twice a year.

II.

SKETCH OF THE HISTORY OF BAKING.

Origin of baking—Baking among the Jews—Baking as a calling at Rome—Its introduction into Italy—Corporation of bakers at Rome—Constitution of Roman bakehouse—Respect shown to first bakers—Ancient hand-mills—Roman millers—Criminals set to grind corn—Public granaries at Rome—Legal enactments respecting baking in the United Kingdom—Bakers' Company—Roman bread—Roman household bread—Origin of biscuits—North-country bread—Bread in the middle ages.

IT is asserted that the method of making bread from wheat was taught to the Chinese by Ching-Noung, the successor of Fohi 1998 B.C.; but be this as it may, ovens were certainly invented in the East. The Jews, the Greeks, and the Asiatics were acquainted with their construction, and consequently with their use. Amongst the people of the East, baking was early practised as a distinct business or profession. It was not, however, known in Europe, as a trade, till many centuries had elapsed, and at this day it is confined to towns, not being practised as a business in the rural districts of the greater part of the Continent. In the early ages the Cappadocians, Syrians, and Phœnicians are considered to have excelled all other ancient people in this art.

The Jews practised the art of baking leavened bread in the time of Moses. We find in the Book of Exodus, chap. xii. v. 18, a prohibition to make use of leavened bread during the celebration of the Passover. It is thought that Abraham was unacquainted with loaf bread, from the circumstance of our reading in his history frequently about cakes, but finding no mention made of loaf or fermented bread. It is therefore presumed that the art of making fermented bread had its origin in the East, and that the Jews borrowed it from the Egyptians.

At what period baking was first introduced into

Europe as a profession is not exactly known. The Roman Republic had existed for the long period of five or six hundred years before a public bread baker was known in the city of Rome. Public bakers, according to some writers on the subject, were first introduced into Rome from the East, at the conclusion of the war with Perses, and about 167 B.C.

The learned, however, are in great doubt when professional bakers were first introduced into Europe, but it is generally allowed that they had their origin in the East, and passed from Greece into Italy about 148 B.C. Previous to that time, baking was a part of the household work, and was performed by the mistress or her maids, as it is to this day in most country places, both in England and in all other parts of the world. It is true we find the word *pistor* in Roman writers before the period alluded to, but this word, as will be shown presently, signified a person who ground the grain in a mill, or pounded it in a mortar, to render it fit for baking into bread.

The bakers, it would seem, were held in great respect by the citizens of Rome. To the foreign bakers brought to the city was added a number of freed-men, who were formed into a college, or, as we call it, a corporation. From this corporation the bakers were not allowed to withdraw, and their children were by law under the same obligation; and even those who married the daughters of bakers were obliged to become bakers, or members of the bakers' college. So that it appears the business of baking was hereditary in Rome. The effects of the college or corporation of Roman bakers were held in common, nor were they allowed to dispose of either the whole or any part of them.

Each Roman bakehouse had a chief or master, called by the Romans a *patronus*. This person had the superintendence of the bakehouse, and the ordering of all matters therein. These patrons elected every

year one of their number, who had the care of the college, and the superintendence of the general body. That bakers were held in very great respect by the Romans is proved from the fact, that although as individuals they could hold no property, yet "every now and then one of them was admitted among the senators."

In every nation, indeed, the first bakers were held in high respect. Whether this arose from the luxury of eating good fermented bread, instead of the hard unleavened cake, or whether from the skill required in the art of baking, it is difficult to say. By the statutes of England, bakers are considered superior to handicrafts. "No man," says 22 Henry VIII. cap. 13, "for using the mysteries or science of baking, brewing, surveying, or writing, shall be interpreted a handicraft." Thus it appears that bakers, like writers, now called attorneys, are gentlemen by act of Parliament. Bread baking, in England, however, cannot be considered a very lucrative business. Few bakers make large fortunes, and but two or three, that we ever heard of, considerable fortunes. It is a remarkable fact that no baker ever rose to the honour of the mayoralty of the City of London.

The ancient bakers had hand-mills near their ovens; and as these hand-mills were originally nothing more than pestles and mortars, with which they reduced the corn into flour, the bakers were called in the Roman language as the millers were designated previous to the introduction of baking as a profession, namely, *pistores*, or pounders. For the same reason the Roman bakehouses were called *pistoria*.

The Roman college or incorporation of bakers had granted to them all the mills, utensils, slaves, animals, and everything, in short, which belonged to the *pistores*, or, to use the English word, millers. In addition to these, the incorporation received considerable portions of land, and nothing was withheld which could assist

them in pursuing to the best advantage their trade or profession.

It appears that the more laborious part of the business, such as grinding the corn, &c., was not performed by the bakers themselves, as persons for petty offences were condemned for a certain period to work in the bakehouses; and even the judges of Africa were obliged, every five years, to send to Rome such criminals as had incurred that kind of chastisement. The bakehouses, of which in the time of Augustus there were no less than three hundred and twenty-nine, were distributed throughout the fourteen divisions of the city, and no baker could pass from one to another without special permission. Their morals were particularly attended to. They were not permitted to attend the exhibitions of the gladiators, much less to become gladiators themselves; and they were not allowed to be connected with the comedians.

To the care of the Roman bakers the public granaries were committed. They paid nothing for the corn employed in baking bread that was to be given away to the poor citizens; and the price of that intended to be sold was regulated by the magistrates. No corn was given out of these granaries, except for the use of the bakehouses, or of the emperor. It is recorded that if any baker was convicted of having converted any part of the grain belonging to the public granaries to his own or any other improper use, he was condemned in a fine of five hundred pounds' weight of gold—so enormous a sum of money, that we cannot help doubting the truth of the statement.

In London, and other large towns throughout the kingdom, bakers were formerly under the peculiar jurisdiction of the magistrates, who regulated the price of bread according to that of wheat, and had the power of fining those who did not conform to their rules. The two kinds of bread then made in London were

distinguished by the names of wheaten and household, the former being of a finer quality than the latter. Every baker was liable to a penalty if he did not mark his loaves, according to their different qualities, with the letters W or H. So strong were the laws in former times against fraudulent bakers, that if the bread were deficient only one ounce in thirty-six, the baker was liable to the pillory. Afterwards, the same offence was punished by a fine, imposed at the will of the magistrates, provided it be not more than 5*s.* nor less than one, for every ounce deficient. It was required that the bread should be weighed before a magistrate within twenty-four hours after being baked, as its weight diminishes by keeping.

The following account of the legal enactments at present in force with regard to baking in the United Kingdom is taken from the article on "bread" in *Chambers's Encyclopædia*—

"The *law* on the subject of bread, so far as relates to England and Scotland, is regulated by a local act for London, the 3 Geo. IV. c. 106, the provisions of which are extended to a general act for the country, the 6 and 7 Will. IV. c. 37. These provisions are as follow—Bread may be made of flour or meal of wheat, barley, rye, oats, buckwheat, Indian corn, pease, beans, rice, or potatoes, or any of them, or with any common salt, pure water, eggs, milk, barm, leaven, potato or other yeast, and mixed in such proportions as bakers may think fit, and with no other ingredient or matter whatsoever, and with the exception of French or fancy bread and rolls, the bread so made must be sold by weight, and in no other manner, under a penalty not exceeding 40*s.*; and bakers must use the avoirdupois weight, under a further penalty of not less than £2, or more than £5. For this purpose they must provide in their shops, on or near the counter, a beam and scales with proper weights, or other sufficient balance,

in order that the same may be weighed in the presence of purchasers—a regulation that also applies to the delivery of bread by cart or other conveyance, it being directed that the scales and weights shall be constantly carried in the cart or other conveyance under a penalty, in either case, not exceeding £5. From this regulation, however, fancy bread, French bread, and rolls, are also excepted. The act further provides that bread made of mixed meal or flour—that is, bread made wholly or partially of pease, or beans, or potatoes, or of any sort of corn or grain other than wheat—shall be marked with the large Roman letter M, under a penalty, in case this rule be neglected, of a sum not exceeding 10*s.* for every pound weight of such mixed bread sold, and so on in proportion for any less quantity. From this regulation, however, is excepted bread made of the meal or flour of wheat, in the making of which potato yeast shall be used.

"The following are the enactments against the adulteration of bread. 1. No baker shall, in the making of bread for sale, use any mixture or ingredient whatsoever other than those above mentioned, under a penalty for every offence not exceeding £10, nor less than £5, with the alternative of imprisonment, with or without hard labour, for any time not exceeding six calendar months, and the offender's name, place of abode, and offence may be published in the local newspapers. 2. Any person adulterating corn meal or flour, by the introduction of any ingredient not being the real produce of the corn or grain, or any person selling meal or flour of one sort of corn or grain as the meal or flour of another sort, whether separate or mixed, shall forfeit and pay, according to the discretion of the magistrate or justice, a sum not exceeding £20 nor less than £5. 3. Magistrates or justices of the peace, and also peace-officers authorized by warrant, may at seasonable times in the day time enter a baker's

premises and search for adulterated flour or bread, and if any be found, the same may be seized, and carried with all convenient speed to the nearest resident magistrate or justice of the peace, to be disposed of as he may think proper, the penalties varying from £2 to £10, with alternative imprisonment for six months; the offender's name may also be published. Parties obstructing such search of bakers' premises, or, upon the occasion of the search, carrying away the adulterated flour or bread, are liable to a penalty not exceeding £10. Should it, however, appear that any offence against the act shall have been occasioned by the wilful act or the neglect of the baker's journeyman or other servant, the magistrate may issue his warrant for bringing such servant before him, and, on conviction, may adjudge him to pay a reasonable sum to his master by way of recompense; and this payment must be immediate, otherwise the servant may be committed to prison for a week or ten days with or without hard labour.

"The act further provides that bakers shall not bake bread, rolls, or cakes on the Lord's day, or on any part of that day, after half past one o'clock in the afternoon, sell such bread, rolls, or cakes, or bake meat, pies, or other victuals; or in any other manner exercise the trade of a baker, save and except so far as may be necessary by way of preparation for the following day's baking. For a first offence against this regulation a penalty of 10*s.* shall be paid; for second offence 20*s.*; and for a third and every subsequent offence, respectively, the penalty of 40*s.* together with the costs of prosecution, a portion of the penalty to be paid to the prosecutor, and the residue to be applied towards the poor rate of the place. This regulation as to Sundays does not extend to Scotland.

"The law of Ireland on the subject of this article is contained in several acts of the Irish Parliament,

the leading provisions of which are similar to the above."

The bakers of London constitute the nineteenth company. They were incorporated in the year 1307, and consist of a master, four wardens, thirty assistants, and liverymen and commonalty. Bread Street was in olden times the city market for bread. Prior to the year 1302 the London bakers were not allowed to sell bread in their own shops.

To return from this digression to the manufacture of bread among the Romans, these people had many denominations of bread, namely *panis siligenus*, a very fine bread, taking its name from the kind of corn called *siligo*, which yielded a very fine flour; *panis mundus*, literally clean bread, but may be translated fine bread; *panis athleticus*, or wrestler's bread; and *panis coliphius*, a bread that took its name from a kind of dry dirt, which the wrestlers used, to make themselves strong and firmly fleshed. The foregoing were all made of fine flour. We may just observe here, that some of the names of the different kinds of white bread, such as the wrestler's bread, for instance clearly indicate that in the opinion of the Romans fine bread was the most wholesome, and most conducive to the strength of those who ate it. Our modern writers on health recommend brown or coarse bread, which may be very good for over-fed people, as it acts as an aperient; but the active, laborious man wants bread, to use a familiar phrase, that will stick by him.

The Romans had also a bread called *panis secundus*, which answers to our household or second bread, which is made of the flour denominated seconds. They had also many other sorts of bread, but it is unnecessary to enumerate them. We may observe, however, that their *bis coctus*, a bread used at sea, is evidently the origin of our word biscuit—it signifies twice-baked.

In Lancashire, and several other northern counties,

they have various sorts of oaten bread ; for instance, the bannock, clap bread, bitchiness bread, riddle cakes, and jannock.

In the religious houses of the olden times, bread was distinguished by a variety of names, but with a view to its quality : thus we read of squire's bread, monk's bread, boy's bread, and servant's or family bread.

III.

GENERAL REMARKS ON BAKING.

Baking as a business -- Ancients' spice bread, &c. — Rhodian sweet bread—Classification of British bread — Pure wheaten loaf bread—Home-baked bread — On what the goodness of bread depends—Marks of good flour—To judge flour—Time to keep flour—Component parts of flour—Gluten—Starch—Constituents of a pound of wheat — Artificial bread — Flour paste — Fermentation — Yeast — The oven — Stove ovens—Baking in tins—London ovens.

THE preceding historical sketch will, perhaps, suffice to give the reader a general idea of the history of the business or profession of the Baker, as regards both ancient and modern times ; we shall now proceed to go into some of the details of the art, for the purpose of showing the manner in which the different kinds of bread, and other articles connected with baking, are produced.

Baking, as a business or profession, was never confined to the baking of common bread alone, that is to say, bread in every day use. A baker we take to mean a person who bakes and prepares any farinaceous substance intended for human food. If this definition be correct, then it will follow that not only loaf-bread baking, biscuit baking, fancy-bread baking, belong to the business of the baker, but also pastry making and confectionery. We know, indeed, that all these branches are frequently to a certain extent practised by the same individual, and therefore, in a work of

this kind, they ought all to be treated of, which we intend to do under separate heads.

The ancients had a great variety of spice bread and sweetmeats, and these, there is every reason to believe, were produced by the persons called bakers; pastry-cooks and confectioners being unknown as separate professions. The Asiatics were exceedingly fond of sweetmeats, and there can be little or no doubt that a similar taste was introduced by them among the Romans, when they were carried to Rome to practise their calling there. The Rhodians, we are told, had a peculiar kind of bread sweetened with honey, so exquisitely pleasant, that it was eaten with other delicacies after dinner by way of dessert.

The French, who are excellent bakers, have a great variety of breads, and these for the most part have been long introduced into this country. The common bread of Great Britain, or bread for general use, may be divided into three classes:—wheaten bread, made of the finest flour, sometimes called firsts; second, or household bread, made of flour somewhat coarser, called seconds; and brown bread made of flour called thirds, and sometimes of flour of various degrees coarser than thirds. The coarseness or fineness of flour (supposing the wheat of the same quality) depends upon the dressing, or the separating of the flour from the husks of the wheat, after it has been reduced to a powder. The finest flour is entirely separated from the bran or husks — the other description not entirely so, but the broad bran is removed from the coarsest flour. The writers in many of our celebrated encyclopædias say that "our household bread is made of the whole substance of the grain, without the separation of either the finest flour or the coarsest bran." This is a mistake altogether.

In making pure wheaten loaf bread, no other ingredients should be employed but flour, water, yeast, or

some other innocent fermenting matter. Various other ingredients are used, principally by those engaged in making bread for sale. The London bakers employ alum, for the purpose of making the bread whiter, &c. Home-baked bread is never so white, even when made from the same flour, as that produced by the public baker; but of this we shall speak when we come to describe the methods of bread-making used by public bakers; at present we shall confine ourselves to bread as made in families for daily use.

The goodness of bread, whether baked at home or abroad, will depend firstly upon the quality of the flour employed; secondly, upon the quality of the yeast; and thirdly, upon the skill and care of the baker. The process of baking, though simple enough, requires some experience on the part of him or her who may undertake to perform it. We need scarcely say that experience is only to be acquired in one way, and that way is too obvious to need pointing out. To judge of flour experience is also necessary; but any one may form a pretty accurate idea whether it is good or bad, by attending to the following directions—If flour is of a fine white colour, it may be pronounced good, so far as colour is concerned; but if it be brown, it shows that either it was made from bad wheat, or that it has been coarsely dressed—that is, particles of bran, more or less fine, have been left in it. Brown flour, however, may be of a good sound quality, and fine white flour not so. To judge of flour, take a portion in your hand and press it firmly between your thumb and fore-finger, at the same time rubbing it gently, for the purpose of making a level surface upon the flour. By this means you will be able to ascertain the colour, by observing the pressed and smooth surface; and the act of pressing and smoothing it will enable you to ascertain these facts. If it feel loose and lively in the hand it is of good quality; if on the contrary it feels dead or damp, or in other words clammy, it is decidedly bad.

Flour ought to be a few weeks old before it is used, but it will keep good much longer if kept in a dry place, covered over. But it is, perhaps, better to trust to your miller or mealman, who, if you are a good and constant customer, will take care to serve you with good flour for his own sake; for if he employs any tricks, he is sure to be discovered when the bread comes out of the oven.

It has been found by analysis that wheat flour consists of three principal substances—namely, starch, gluten, and sugar, and a very small portion of albumen; of these, the starch is the most nourishing as food. The gluten resembles animal glue in its tenacious qualities, and its smell, when subjected to a strong heat, is fœtid, like burning horn or feathers. It will not ferment in warm water or yeast, but, like a piece of flesh, will become putrid. Mr. Edlin says that "this substance is totally different from vegetable matter, but rather resembling animal." The gluten in wheat-flour is the cause of its forming an adhesive paste with water, and of its rising in leaven.

Starch forms the most considerable part of wheat-flour, and there is reason to believe, from so many persons subsisting on potatoes, which contain much starch and no gluten, that it is the most nutritious; but starch cannot be made into bread, because it wants the mucilaginous gluten to give it tenacity, and the saccharine matter, or sugar, to induce fermentation.

From experiments made by Mr. Edlin it appears that a pound of wheat contains three ounces of bran, ten ounces of starch, six drams of gluten, and two drams of sugar; which, with the loss of two ounces in grinding and reducing the flour to starch, make one pound, or sixteen ounces. From this it appears that he did not discover the albumen, which M. Seguin considers the fermenting principle.

Mr. Edlin also ascertained by experiment that

starch, isinglass, and sugar, mixed in proper quantities, and fermented with yeast, will make a light and porous bread.

Flour-paste may be considered as merely a viscid and elastic tissue, the interstices of which are filled with starch, albumen, and sugar. We know that it is from the gluten that the dough derives its property of rising on the admixture of leaven; the leaven, acting on the sweet principle of the wheat, gives rise in succession to the vinous and acetous fermentation, and consequently to alcohol, acetic, and carbonic acids. The latter gas tends to fly off, but the gluten resists its disengagement, expands like a membrane — forms a multitude of little cavities, which give lightness and sponginess to the bread.

To judge of good yeast, no positive instruction can be given. It is best when fresh, without being frothy. That obtained from table ale is the best for fancy goods, and from middling or strong ale for bread. Yeast that is sour will cause sour bread, and not rise well. What is called leaven was originally employed, and is now sometimes used as a substitute for yeast. Those who use it keep a pound or more dough from baking to baking. It is kept in a wooden barrel, or bowl, covered with flour. Before it is fit to use, it must be both stale and sour. Bread made in this way is said to be more digestible, but it is not so pleasant to the taste. Leaven is now only used at sea.

A good oven is necessary for the production of good bread. If the oven be heated, as in country places, by dry wood, furze, or fern, burnt in the oven itself, it ought to be built round, not long, as there will be in the former case a greater equality of heat. The roof should be from twenty inches to two feet high in the centre; the mouth no larger than will be sufficient to admit the bread. But many people who make their own bread send it to be baked at the

baker's. We have seen good ovens attached to a stove, and heated by the kitchen fire. These are not sufficiently capacious to contain loaves enough for the consumption of a large family, but they answer the purpose of a small family very well. To save room, it will be necessary, in stove ovens, to bake in tins. Bread thus baked is much more smooth and neat than when baked in the ordinary way; but the pleasant crispness of the crust is wanting.

The ovens used in London and some other large towns are, for the most part, heated by a furnace placed on one side. The heat in these ovens is very equable, and the baker is enabled to keep it up at all times with very little trouble, and with less expense than by the old method.

IV.

FAMILY LOAF BREAD.

Family or home-baked bread—Large bakings—Laying the sponge—Dough—Fermentation of bread—Division into loaves—Placing in oven—Time of baking—Brown or diet bread—Bread not liable to become bitter.

UNDER this head we shall give directions for making bread of wheat-flour only. The manufacturing of barley-flour, rye-flour, and a mixture of different kinds of flours, with or without the addition of various other nutritive substances, &c. into bread, will be treated of hereafter.

An expeditious and simple method of making bread for a small family is as follows—Take half a bushel of flour; put all this flour, excepting about four pounds, into a tub or pan, and in winter place it before the fire to warm. Mix six ounces or half a pound of powdered salt with the flour—but it would be better to work the salt in with the dough. Then take a pint of good

fresh yeast, and well mix it with a sufficient quantity of blood-warm water. Make a deep hole in the middle of the flour, and pour the yeast and water gradually into the hole, mixing the ingredients with your hands till they become well incorporated. Cover this mixture up, and place it near the fire till it has well risen, that is to say, fermented. Then work the other flour into it with your fists, till it becomes a nice, smooth, tough dough. Make this dough into loaves, and bake in an oven heated to a temperature of about 400° Fahrenheit : if too hot, your bread will be burnt outside, and not done inside. It will take from an hour and a half to two hours in baking, but the bread should always remain in the oven half an hour after it has become brown ; or, as it is technically called, it will not be soaked through. This is a method we have known to be used with success in many families, though not aware that it ever has been published before.

For large bakings the following method is best—

The common way is to put the flour into a trough, tub, or pan, sufficiently large to permit its swelling to three times its ordinary bulk. For half a bushel of flour, take a pint of thick, fresh yeast—that is, yeast not frothy—mix it with two quarts, or rather more, of warm soft water, not hotter than 100° Fahrenheit, or it will spoil the yeast. In hot summer weather, cold water should be used, and about blood warm in winter. Mix the yeast and water well together, and make a deep hole in the middle of the flour, in the pan or tub ; pour in the yeast and water, and stir in as much of the flour as will make it into a stiff batter ; sprinkle flour over the top, and lay a flannel or cloth over the pan to keep it warm, and in cold weather stand it in a warm place, or near the fire, to rise. This is called laying the sponge ; when the sponge, or this mixture of water, yeast, and flour, has risen as high as it will rise, and then begins to fall or drop, add six ounces of salt (more or less, to suit the

taste), with three quarts more warm water; * mix it well with sponge, and then with the remaining flour make into a dough that is scarcely as moist as pie crust. The degree of moistness, however, which the mixture ought to possess can only be learnt by experience. When the dough is made of the proper consistency, work it well by pushing your fists into it —then rolling it out with your hands—folding it up again—kneading it again with your fists, till it is completely mixed, and formed into a stiff, tough, smooth substance, which is called dough—great care must be taken, that your dough be not too moist on the one hand, and on the other that every particle of flour be thoroughly incorporated. Form your dough into a lump like a large dumpling, again cover it up, and keep it warm to rise or ferment. After it has been rising about twenty minutes, or half an hour, make the dough into loaves, first having shaken a little flour over the board to prevent sticking. The loaves may be made up in tin moulds, or if it be desired to make it into loaves to be baked without the use of moulds, divide the dough into equal parts, according to the size you wish to have your loaves—make each part into the form of a dumpling, and lay one dumpling, if we may so speak, upon another—then, the oven being properly heated, by means of an instrument called a peel, a sort of wooden shovel, put in your loaves, and immediately shut the door as close as possible. A good deal of nicety is required in properly placing the loaves in the oven—they must be put pretty closely together. The bread will take from an hour and a half to two hours to bake properly, or more, according to the size of the loaves.

Brown or diet bread is made of flour from which the

* We have seen directions for adding the salt to the water and yeast. The effect of this would be to prevent fermentation, or, in other words, to prevent the sponge from rising well.

coarsest flake bran only is removed. This bread is made as in the preceding directions. By boiling a pound and a quarter of bran in a gallon of the water in which the bread is made, and then straining it, there will be an increase of one-sixth more than if mixed with plain water.

The process by which bread may be made that is not liable to become bitter is the invention of a Mr. Stone. He took a tea-spoonful of yeast and mixed it with three quarters of a pint of warm water. He then took fifty six pounds of flour, and having put it into the kneading trough, and made a hole in the middle of it large enough to contain two gallons of water, he poured in his yeast and water, and stirred it with a stick until it was as thick as batter. Having covered this sponge with a sprinkling of flour, he left it to ferment for an hour, at the expiration of which he took a quart of warm water and poured it into the hole, repeating the operation of stirring more flour into it, and sprinkling the sponge thus made with flour. This was again left for two hours, in which time it had risen and broken through the flour. He then added three or four quarts of warm water; and repeated the process of stirring in flour till it was of the consistence of batter, and sprinkling the sponge with dry flour. In about three or four hours more he mixed up his dough; which done, he covered it up warm and let it stand to prove four or five hours more, when he made up his loaves and baked them. The bread was as light and as porous as if one pint of yeast had been used.

Having, as we trust, explained the process of baking as it is practised by those who adhere to its simple principles, and who employ no other ingredients than those necessary to produce good bread, we shall presently proceed to describe the methods pursued by the public baker; and, at the same time, give a description of a public bakehouse, and the duties of the persons

employed therein. This will be followed by an account of a large biscuit bakehouse, or manufactory for making unleavened bread, or biscuits for the consumption of sailors.

V.

ARTIFICIAL YEASTS.

Brewer's yeast—To keep brewer's yeast—Potato yeast—Lettsom's yeast—Artificial yeast—First step in its preparation—Another artificial yeast—Patent yeast—German yeast.

PREVIOUS to entering upon the subject of public baking, by which so large a portion of the people are supplied with their daily bread, it will be necessary to lay before our readers some of the various methods by which yeast is compounded. Of brewers' yeast, or the yeast of ale and beer, we have already spoken, and therefore it will be unnecessary again to revert to it. Several of the following directions for the preparations of yeast have been long before the public, while others are not so well known, but there is no reason to doubt of their efficiency; of the patent yeast, however, now pretty generally used by the public bakers, we can speak with confidence, having witnessed the whole process of making it, and experienced its perfect applicability to the manufacturing of bread. We shall first, however treat of the mode of preserving brewers' yeast.

To keep brewers' yeast, take a quantity and work it well with a whisk, till it becomes thin; then procure a wooden dish or platter, clean and dry, and with a soft brush lay a thin layer of yeast on the dish, and turn the top downwards to keep out the dust, but not the air, which is to dry it. When the first coat is dry, lay on another, and let that dry, and so continue till the quantity is sufficient; by this means, it may soon be made two or three inches thick, when it may be

preserved perfectly good, in dry tin canisters, for a long time. When you use it for baking, cut a piece and lay it in warm water till it is dissolved ; it is then fit for use.

Potato yeast is made of mealy potatoes boiled thoroughly soft—then skinned and mashed as smooth as possible, and as much hot water put on them as will make a mash of the consistency of good beer yeast. Add to every pound of potatoes two ounces of treacle, and when just warm stir in for every pound of potatoes two large spoonfuls of yeast. Keep it warm till it has done fermenting, and in twenty-four hours it will be fit for use. A pound of potatoes will make nearly a quart of yeast, and it is said to be equally as efficacious as brewers' yeast.

The following are Dr. Lettsom's directions for making another kind of prepared yeast—Thicken two quarts of water with four ounces of flour, boil it for half an hour, then sweeten with three ounces of brown sugar; when almost cold, pour it with four spoonfuls of baker's yeast into an earthen jug, deep enough for the fermentation to go on without running over ; place it a day near the fire ; then pour off the thin liquor from the top, shake the remainder, and close it up for use, first straining it through a sieve. To preserve it sweet, set it in a cool cellar, or hang it some depth in a well. Always keep some of this yeast to make the next quantity that is wanted.

To make *artificial yeast*, take two ounces of flour, boil it in a quart of water, till it comes to the consistence of a thin jelly, pour it into a machine for impregnating water with fixed air ; then put into the lower vessel some coarse powdered marble, and pour on it some sulphuric acid diluted with water. The apparatus is now to be adjusted, and the upper vessel put in its place, and nearly stopped. The fixed air then passes through the valve, and ascends into the middle and upper part of the machine, where the gas is absorbed

by the flour-jelly in considerable quantity; and in the course of a few hours the matter will be found so strongly impregnated, as to be in a state of fermentation. This artificial yeast may now be put into a bottle for use. The great advantage of this yeast is, that it may be made in situations where it is impossible to procure brewers' yeast. The foregoing operation need not be performed but once by the same individual, as the process may be carried on by mixing this *artificial yeast*, which was invented by the late Mr. Henry, with the preceding preparation recommended by Dr. Lettsom, which it will cause to ferment the same as brewers' yeast.

Another artificial yeast is made as follows—Take half a pound of fine flour, the same quantity of coarse brown sugar, and a quarter of a peck of bruised malt. Boil these over the fire for a quarter of an hour, in half a gallon of water, then strain the liquor through a sieve into an upright jug, and when cooled to 80° Fahrenheit, add one pint of the artificial Seltzer water, or, if procurable, Seltzer water itself, or water impregnated with fixed air—the mixture will soon begin to ferment: it should then be set before the fire, and when ebullition ceases, the yeast will sink to the bottom. Pour off the clear liquor, and the yeast will be fit for use.

Patent yeast, which is extensively used by the London bakers, and which is, perhaps, preferable to all other yeasts, is made as follows—Take half a pound of hops and two pailfuls of water; mix and boil in the oven till the liquid is reduced to one pailful; strain the decoction into the seasoning tub, and when is it sufficiently cool put in half a peck of malt. In the mean time, put the hops, strained off, again into two pailfuls of water, and boil as before till they are reduced to one; strain the liquid while hot into the seasoning tub. The heat will not injuriously affect malt, previously mixed with tepid water. Boil the hops again as before, and strain off as before into the seasoning tub. When

the liquid has cooled down to about blood-heat, strain off the malt, and add to the liquor two quarts of patent yeast set apart from the previous making. It ought to be observed that brewers' yeast will not answer the purpose. * To the malt and hops some add a little flour, but the patent yeast is quite as good without the flour, which in summer is apt to make the yeast go sour. By the above process five gallons of very good yeast may be made, which will be ready for use the day after it is made. It occupies in manufacturing from about seven o'clock in the morning till two or three in the afternoon ; but it gives very little trouble to the baker.

German yeast, which is now used in considerable quantities by London bakers, is the product of the fermentation of grape wine. It is partially dried and then exported in bags. Large quantities are imported into England, and forwarded to the various agents residing in the chief towns. If a person is desirous of obtaining this yeast for home use, application should be made to the nearest baker or confectioner, who will either be able to furnish a supply, or to give information where it may be obtained. German yeast may be used for all the purposes for which ordinary yeast from malt liquor is employed. It will not, however, keep very long.

VI.

UTENSILS OF A PUBLIC BAKEHOUSE.

List of bakehouse utensils.

S the utensils of a bakehouse will be frequently mentioned in speaking of the process of baking for the public, we subjoin a short description of them, and of the uses to which they are applied.

* If this be the case, it may be fairly asked, by what means the first patent yeast was generated. The answer is, by a chemical process similar to that invented by Mr. Henry, and which we have given under the head of ARTIFICIAL YEAST.

The principal utensils used in a bakehouse are as follows—

1. The *seasoning tub.*

2. The *seasoning sieve*, which was formerly made of hair, now of tin, with holes drilled through.

3. The *wire sieve*, used for sifting the flour through.

4. The *pail.*

5. The *bowl.*

6. The *spade* or *shovel*, which is made like the common ones.

7. The *salt bin*, which should be kept near the oven.

8. The *yeast tub.*

9. The *dough knife*, about the size of a large carver, with a round point, blunt like a painter's pocket knife.

10. *Scales and weights.*

11. The *scraper*, like a hoe fixed in a short wooden handle, and used to scrape the dough off the trough and moulding board.

12. *Peels*, which are a sort of wooden shovel, with long handles, and used to set the bread in the oven and to take it out; there are four or five peels kept in bakehouses, made suitable for different sized loaves.

13. *Tins* or *iron plates* for baking buns, pies, puddings, &c., on.

14. *Coarse thick flannels* for covering up the dough and bread.

15. The *rasp*, a broad flat file with a wooden handle, used for rasping burnt crust, &c., off the bread.

16. The *scuttle* or *swabber*, which consists of a quantity of wet netting tied to the end of a pole, about eight feet long, is used for cleaning out the oven previous to setting the batch.

17. *Set-ups:* these are four-sided oblong pieces of beech of proper dimensions. They are placed on both sides, the back and in the front of the oven, to keep the loaves in their places.

18. The *rooker* is in shape resembling the letter L,

fixed in a wooden handle, and used to draw out the ashes from the oven to its mouth.

19. The *hoe* is used to scrape out such ashes as have escaped the rooker. The water is heated in a copper over the furnace; where there is no furnace, an iron kettle with water is put in the hot oven.

VII.

ALUM, POTATOES, &c.

Effect of alum on bread—Quantity used in a sack of flour—Why alum bleaches—Whiteness of London bread attributable to the mode of baking—Alum sold to bakers by chemists as "stuff"—Composition of "stuff"—Mode of manufacture and price—Gray's definition of "stuff"—Quantity of alum used by respectable bakers—High price of genuine powdered alum—Bread baked without alum turns out brownish in colour—Objection of Londoners to home-made bread—Every baker formerly his own miller—Bread with alum in it not refused by bakers—Dr. Ure on effect of alum in bread—How to detect presence of alum in bread—Jalap in bread—Apt reason for use of alum by bakers—Assize of bread—All bakers formerly millers—Proportion of flour in wheat—Why the miller's calling became distinct from that of baker—Assize of bread now abolished—Why potatoes are used in making bread—Bone dust in bread—Other adulterations—Carbonate of ammonia—Its action on bread—Carbonate of magnesia—Substitute for yeast—Baking powder, &c.

THESE ingredients are now considered indispensable by the London bakers in the manufacturing of second or household bread, that is, the bread in daily use in the metropolis. The effects of alum upon bread are not well understood; but it is generally said to bleach and act as an astringent. Accum says that "the theory of the bleaching property of alum, as manifested in the panification, or making into bread, of an inferior kind of flour, is by no means well understood; and indeed it is really surprising that the effect should be produced by so small a quantity of that substance, two or three ounces of alum being sufficient for a sack of flour. From ex-

periments in which I have been employed, with the assistance of skilful bakers, I am authorized to state, that without the addition of alum, it does not appear possible to make white, light, and porous bread, such as is used in this metropolis, unless the flour be of the very best quality."

Mr. A. Booth, an eminent lecturer on chemistry, asserts that "alum bleaches from the attraction of alumnia, one of its constituent parts, to the colouring matter of the flour, and also acts as an astringent on the bread."

If these opinions are to be relied upon, of course the question is settled as to the indispensability of alum in making London bread. Accum asserts that he, in conjunction with skilful bakers, has tested the thing by experiments which prove that alum cannot be dispensed with. For our part, we are inclined to think that the whiteness of the London bread is owing, in some degree, to the process of baking, a process widely differing from that followed by women in making home-baked bread; which, as we have elsewhere asserted, is never so white or so porous, though made of the same flour, as bakers' bread. Accum, whatever talent he might possess as a chemist, was a fraudulent writer, and therefore his assertions are not to be relied on as to the experiments which he alleges he had made. We agree with him, however, in his observation that "the theory of the bleaching property of alum, &c., is by no means well understood."

The quantity of alum used in baking is much less than the public generally imagine, even by the most fraudulent of cheap bread-bakers, and indeed much smaller than many of the bakers themselves imagine. This may appear a strange assertion, and it is probably one never made before in print; but a little explanation will make the point quite clear. It is well known that the bakers are liable to a heavy fine if alum is found

on their premises. To avoid this liability as much as possible, they have long been in the habit of buying the alum already powdered at the druggists', under the appellation of *stuff*. The druggists keep this *stuff*, which the bakers imagine is unadulterated ground or powdered alum, but which is, in fact, a compound, consisting of one part alum, and three parts of muriate of soda, that is, common table salt. This compound is made by pounding the salt with the alum in a mortar, and is kept by the druggists in pound packages, which they sell at twopence each. For this statement we have the authority of several druggists, and the evidence of our own eyes. It may appear extraordinary that the bakers should suffer themselves to be so *cheated;* but be this as it may, we believe it to be the fact. It should be recollected that few bakers are readers, particularly of scientific or medical works. In the fourth edition of Gray's supplement to the Pharmacopœia and Treatise on Pharmacology, under the head of *stuff*, this term is thus defined — "Alum in small crystals, one pound, common salt, three pounds, to mix with flour for baking." We have the evidence of our own senses for knowing, that the respectable bakers of home or household bread do not put more than half a pound, or eight ounces, of *stuff* to a sack of flour; and this stuff, as we have shown on the authority of Gray, only contains one fourth part, or two ounces, of alum, the remainder being common salt. Some persons, however, will ask for powdered alum, but the druggist, knowing from the quantity required and the appearance of his customer that it is wanted for baking, uniformly serves him with the before-described mixture of salt and alum. This we have frequently seen done. The object of the druggist is profit. It would be scarcely worth his while to sell powdered alum for twopence a pound. Gray, in his book, puts it down at one shilling and sixpence a pound. This is

ridiculously too high a price by the pound, but it is generally charged a penny an ounce. A baker, to whom this information had just been imparted, is said to have exclaimed, "You don't say so ! the infamous rogues—why the rascally druggists cheat us before we can cheat our customers ! !"

Such being the case, it seems almost inconceivable that so small a quantity as two ounces of alum in two hundred and eighty pounds of flour, the weight of a sack, should have any effect in bleaching it ; especially when we consider that one hundred parts of alum contain but a fraction more than ten parts of alumnia, the only constituent in alum, as we are informed, that possesses the property of bleaching. Nevertheless, there can be no doubt that alum, though perhaps not by itself, yet in conjunction with other ingredients, has the effect of whitening the bread. A circumstance occurred, which we have from indisputable authority, of a baker leaving out of his dough, by accident, his usual quantity of *stuff*, containing not more than two ounces of alum. The consequence was a batch of brown bread, which he was obliged to sell at half price.

Alum, it is true, is used in small quantities—for the most part in quantities too small to affect the health, perhaps, materially ; but still, as it only whitens the bread and makes it otherwise more pleasing to the eye, while it deteriorates its wholesomeness and injures its flavour, one would suppose that the great majority of people would prefer home-baked bread, as it is called, or bread without alum. This, however, they do not do ; and there is little probability that they ever will. The Londoners in particular do not like home-baked bread. There have been many instances of persons being induced for the sake of their health to eat it for a time, but they always returned to the *alumed* bread ; and we question whether there is a

single baker in the metropolis who sells sufficient home-baked bread to support himself and his family.

Formerly every baker was his own mealman or miller. This is the case now in Glasgow, and in other parts of Scotland. The bakers buy their own wheat, and manufacture it into flour at their own mills, which are held by them as joint-stock proprietors.

It seems to be generally agreed that alum in bread is detrimental to the health of those who consume it. The fact, however, is, that the bakers eat the same bread as their customers ; and it appears very improbable that there should be a set of men who knowingly poison themselves.

The following is Dr. Ure's opinion upon the effects of alum eaten in bread, as stated in his Dictionary of Chemistry :—"The habitual and daily introduction of a portion of alum into the human stomach, however small, must be prejudicial to the exercise of its functions, and particularly to persons of a bilious and costive habit. And, besides, as the best sweet flour never stands in need of alum, the presence of this salt indicates an inferior and highly acescent food, which cannot fail to aggravate dyspepsia, and which may generate a calculus diathesis in the urinary organs."

To ascertain whether alum is present in bread, crumble a portion when somewhat stale into cold distilled water; then squeeze the mass through a piece of cloth, and pass the liquid through a paper filter. A limpid infusion will thus be obtained. A dilute solution of muriate of baryta, dropped into the filtered infusion, will indicate by a white cloud, more or less heavy, the presence and quantity of alum.

It is said that to counteract the costive quality of alum, when consumed in large quantities, the bakers frequently use jalap in the composition of their bread. This we do not believe. Dr. Darwin says that when much alum is used it may be distinguished by the eye

in the place where two loaves have stuck together in the oven; they break from each other with a much smoother surface than those which do not contain alum. We believe this to be correct; indeed, the bakers say that this is one of their reasons for using alum.

When the statute was enacted by King John for regulating the price of bread, and during many of the subsequent statutes of assize, the baker was his own manufacturer, purchasing his own corn, and having it ground and separated into flour, pollard and bran. According to Pownall's work on the assize of bread, which we have no doubt is correct, this flour, or the flour from which the bran and pollard only are separated, was found, from an unvaried series of experiments made from age to age, through the course of many hundred years, to be three-fourths in weight of the whole grain of wheat, taking all sorts of wheats together; and the bread made from this flour has always been decreed the standard of the food of bread corn. But, by insensible degrees, the manufacture of bread became separated into two distinct employments. To this cause Mr. Edlin attributes the custom —the pernicious custom, as he considers it—of making bread from other flour than that we have described, which many persons assert is more wholesome and more nutritious than that made of the finest flour. The miller, not considering himself answerable to the assize laws, made different kinds of flour, some of which was extremely fine and white. The bread made of this flour was so very white and pleasing to the eye and palate, that in the course of a few years it got into general use, and the people, particularly the Londoners, refused to buy the bread made of the whole of the grain, except the husks, or coarse and fine bran.

To this circumstance, perhaps, may be attributed

the almost universal use of alum in bakers' bread not made of the finest flour; and very little of it is so made, for it is impossible from seconds flour, which is the flour generally used, to make bread white without the employment of the bleaching properties of this ingredient.

The assize of bread, by which the price was formerly regulated, has been for some time abolished, and the baker is entitled to sell his bread for as much as anybody is willing to give for it. There is very properly still, as we have already shown, a heavy penalty attached to selling bread short of weight.

Potatoes, called by the bakers *fruit*, are used by them for the purpose of aiding the fermentation, and, as they say, for the purpose of improving the appearance of the bread, and not for saving flour. Indeed, in the small quantities in which we have seen them used, not more than seven or eight pounds to two hundred and eighty pounds of flour, there can be little or nothing gained by them. Potatoes, however, as well as damaged rice, are no doubt used in large quantities by cheap fraudulent bakers. We utterly disbelieve the stories about bakers using ground bones to adulterate bread, for this reason—namely, that the expense of making them fit for such a purpose would be much greater than the cost of flour itself.

There are instances on record of convictions having been obtained against bakers for using gypsum, chalk, and pipe-clay in the manufacture of bread.

Carbonate of ammonia, which is sometimes used by bakers in producing light and porous bread from sour or damaged flour, does not appear to be liable to the same objections as those urged against alum; as the action of the former upon the bread is merely mechanical, no part of this salt remaining in bread after it is baked. During the operation of baking, it causes the dough to swell up into air bubbles, which carry before

them stiff dough, and thus it renders the dough porous ; the salt itself is at the same time totally volatilized, and not a particle remains in the bread. Carbonate of ammonia, however, has not, like alum, the property of bleaching the bread.

It is said that the carbonate of magnesia of the shops, when well mixed with flour in the proportion of twenty to forty grains to a pound of flour, materially improves it for the purpose of making bread. It is recommended to be employed when the flour is new, or of a bad quality. Mr. Davy, professor of Chemistry, says that this substance must be most intimately mixed with the flour, previous to laying the sponge, and gives it as his decided opinion that not the slightest danger can be apprehended from the use of so innocent a substance, in such small quantities as he recommends.

The action of yeast on flour, though it causes the bread to rise by fermentation, tends to decompose a small portion of it, amounting to about 2 per cent. To obviate this, bicarbonate of soda and hydrochloric acid are sometimes employed, in the proportion of 320 grains of the former to four pounds of flour. When the soda is well incorporated with the flour, a mixture of 300 grains of common salt, dissolved in 35 ounces of water and 6½ fluid ounces of hydrochloric acid is added, and after being thoroughly kneaded, the mass is placed in the oven. When the mixture is made, the acid acts on the bicarbonate of soda, forming common salt, which is left in the dough, and carbonic acid is liberated at every point, which communicates a spongy texture to the dough. The chief objection to bread made in this way is that it has too salt a taste. This principle in a great measure forms the basis of the manufacture of baking powders, self-raising flour, and other similar preparations.

VIII.

METHOD OF MAKING BAKERS' BREAD.

Old method—Addition of "stuff"—Quarter sponge—Half sponge—Proving—Cutting and weighing the dough—Moulding the dough into loaves—Time in oven—After treatment—Modern method—Preparation of potatoes and yeast—Manipulation of flour—Setting the sponge—First rising—Second rising—Mixing liquor with sponge—Proving—Scaling off—Moulding—Cleaning oven—Placing loaves in oven—Batch bread—Cottage bread—Making next ferment—Labour required of journeymen bakers—Making dead men—Machinery in bread making—Why the ordinary method is objectionable—Advantages resulting from the use of machinery—Money saved by use of machines—Aerated bread.

AVING briefly described the utensils of a bakehouse, and having descanted at some length (but not longer, it is hoped, than the importance of the subject requires) upon the ingredients used by public bakers in the manufacture of bread, we shall proceed at once to show the methods they generally employ. We must observe, however, that the first method described was witnessed by Mr. Edlin nearly forty years ago ; and that the second is the mode now generally followed.

To make a sack of flour into bread, according to the old method the baker bakes that quantity of flour, and empties it into the kneading trough—it is then carefully sifted through a wire sieve, which makes it lie lighter and reduces any lumps that may have been found in it. The next process is to dissolve two ounces of alum, technically *stuff*, or some call it rocky, in a little water placed over the fire. This is then poured into the seasoning tub, and four or five pounds of salt are added to it, with a pailful of water pretty hot, but not too much so. When this mixture, technically *liquor*, has cooled to the temperature of about 84°, from three to four pints of yeast are mixed in it, and the whole having been strained through the seasoning sieve, is emptied into a hole made in the mass of the

flour, and mixed up with a portion of it to the consistence of thick batter. Dry flour is then sprinkled over the top. This is called the *quarter sponge*, and the operation is denominated setting. The sponge must then be covered up with sacks or woollen cloths to keep it warm, if the weather be cold.

In this situation it is left three or four hours, when it gradually swells and breaks through the dry flour laid upon its surface. Another pailful of water, impregnated with alum and salt, is now added and well stirred in, and the mass sprinkled with flour and covered up as before. This is called setting *half sponge*.

The whole is then well kneaded, with about two pailfuls more of water, for about an hour, when the dough is cut into pieces with a knife, and, to prevent it spreading, pinned or kept at one end of the trough by a pin board. In this state it is left to *prove*, as the bakers call it, for about four hours. After the proving process is over, the dough is again well kneaded for about half an hour. It is then removed from the inside of the trough to its lid, where it is cut into pieces, and weighed into the quantities suitable for each loaf.

The operation of moulding the dough can be learnt only by practice. It consists in cutting the masses of weighed dough, each into two equal parts. They are then kneaded either round or long, and one placed in a hollow made in the other ; and the union is completed by a turn of the knuckles on the centre of the upper piece. The loaves are left in the oven from one hour and a half to two hours. They are then taken out, and to prevent their splitting, are turned bottom side upwards. They are afterwards covered up with a blanket to prevent as much as possible evaporation, by which weight is lost, and the bread becomes dry and unpalatable.

Mr. Edlin has made one mistake in the above account; namely, as regards the time when the salt and alum are incorporated with the flour. These ingredients ought never to be put into the sponge. If they were, the salt would retard the fermentation, and this Mr. Accum, as a chemist, ought to have known and not, like many others, have copied and adopted Mr. Edlin's error.

The following is the modern method of making bread—Take a peck of potatoes, or about eight or ten pounds, and boil them with their skins on—then mash them in the seasoning tub, with about three or four pounds of flour; add two pailfuls of warm or cold water; mix well together, and add about five pints or three quarts of patent yeast (as directed to be prepared, p. 27); stir well together, and cover the mixture up close with a sack, and let it stand from six to twelve hours, by which time this "ferment" will be ready for use. A sack of flour should have been emptied into the trough, and sifted. Take a little more than a quarter of a sack of the flour; and pen or block it up at one end of the trough; pour in about half a pail more warm water with the ferment—in summer, cold—stir up the mixture with the hands, bring the seasoning tub with the ferment in it to the trough, and strain it through a sieve (for the purpose of separating the skins of the potatoes) into the end of the trough where the flour is pinned or blocked up, using the other half-pail of liquor to wash round the tub, and to pour over the skins in the sieve; remove the sieve and sticks put across to support it; proceed to set the sponge with the strained liquor at the end of the trough, and mix it well into the flour with the hands—sprinkle a little flour over the top, and let it stand five or six hours, during which time the sponge will have risen twice. The first rising is suffered to break and go down. In about an hour or so, according to the heat of the bakehouse, the

sponge rises a second time, and just as it is about again to break, or when the air escapes by the bursting of the bubbles, a sufficient quantity of water (about three pail-fuls) to make up the batch is poured into the sponge from the seasoning tub, about three pounds of salt and eight ounces of what is called stuff having been previously dissolved in the water. Some use more than a pound, or sixteen ounces, of stuff. The liquor ought to be well mixed with the sponge; which being done, the pin board is taken away, and the whole of the flour is well worked up into one mass, which is blocked up by the pin board to one end, and left about an hour in summer, and two hours in winter, to prove; the vacant part of the trough is then sprinkled with flour to prevent the dough from sticking, the pin board is knocked out, and the dough is pitched out of the trough on to the lid of the opposite trough, when it is cut into masses and weighed—technically *scaled off*. These masses are then moulded into shape and put aside in a regular manner, to be finally moulded into loaves, taking care to mould those first which were first *scaled off*. Previous to the moulding, the oven must be well *swabbed out*, or cleaned with the swabber or scuffle, and the up-sets chalked to prevent the bread sticking to them. They are then placed at the back and on each side of the oven by means of the peel; the long loaves, or the quartern and half-quartern bricks, are put into the oven, packed together as close as possible—the common round bread is also packed close—but the cottage bread must be placed separately, each loaf by itself, or it will not be crusted all round. After placing the loaves in the oven, or, as the bakers say, *setting the batch*, which requires a good hand to do properly, an up-set is placed in front of it. The potatoes for the next *ferment* are put into a tin or iron kettle, generally round, but sometimes in the form of a fish kettle, and placed in the oven to boil. When the potatoes are done, and

while they are hot, the ferment for the next batch must be mixed. Twenty-four hours elapse from the mixing of the ferment to the time when the bread is taken out of the oven.

From the foregoing account of baking a batch of bread, it is quite clear that the journeyman baker is so occupied as to leave him little time to sleep, and less for recreation or reflection. And it will be well here to give an account of the ordinary work of the journeyman baker during each twenty-four hours. The position of the journeyman was somewhat ameliorated by the strike of 1872; his wages are higher than they were, and he now enjoys the Saturday half-holiday.

At six o'clock in the morning he mixes the ferment; then he re-heats the oven a little for the rolls and cottage bread, which are a part of the common bread dough set aside for these purposes, its superior lightness arising from having been longer proving. While the rolls and cottage bread are baking, he carries the bread just baked to the shop, and then cleans out the bakehouse, that is, washes the seasoning tubs, scrapes the troughs, or as the bakers call them *trows*, sweeps them clean, and cleanses the bakehouse generally. Before, however, he has finished the "cleaning out" of the bakehouse, the rolls, &c., are drawn from the oven and taken to the shop. He then eats his breakfast in the bakehouse. When all is done and every thing "straight," the bakings begin to come in, which occupy his time till about one. The poor journeyman then gets his dinner. At two o'clock he is occupied in carrying out bread till about half-past four, when he sets the sponge—cleans out the bakehouse again, cleans the hand-cart, and if there is a horse, attends to him, which avocations occupy him till about six o'clock. He then goes to bed and reposes till eleven o'clock, by which time the sponge is ready for use. The making the dough occupies about an

hour, after which he has to attend to the heating of the oven whilst the bread is proving—at this time, he may get a few minutes' relaxation. In summer the bread will prove in about an hour, in winter it takes two hours. From this time he is most laboriously engaged in *pitching the dough*, cutting, *scaling off*, moulding, and setting the batch, during which he is exposed to the excessive heat of the oven. He then lies down on the top of the trough with a tin baking-pan for his pillow, and "lulls himself in sweet repose" for about an hour. This is called "having a pitch," the word *sleep* never being used by journeymen bakers talking to each other. Then comes on the drawing the batch, when the next day's work commences. This is the description of a very "easy place." When more bread is baked, the journeyman does not get to bed before nine o'clock, and he works harder throughout the day. On Saturday, as it has been said, he gets his half-holiday, but the Sabbath brings no rest to him. He must be in the bakehouse by four o'clock on the Sunday morning, and prepare for the Sunday bakings. For all this almost incessant labour in the confined air of a cellar, the London journeyman baker gets comparatively low wages, frequently not more than a pound a week. It is true that the master finds him in bread, flour, and sometimes potatoes, which is a great assistance ; but, after all, it is an unwholesome and ill-paid business.

We have heard of an expedient, however, to enhance their wages at the expense of their masters' customers. This is called *making dead men*. This fraud, or rather theft, for it is sheer robbery, is perpetrated by charging a credit customer, for instance, with three loaves, when he has taken but two ; and then selling the saved loaf to a ready-money customer.

It will be seen from the foregoing account that the labour required of journeymen bakers is extremely hard, extends over many hours, and is detrimental to health.

The following extract from the Operative Bakers' Manifesto, which was published in the daily papers of Tuesday, September 3, 1872, is not worded too strongly. "The journeyman baker's existence is that of a dog; he scarcely knows what it is to enjoy a night's repose. His sleep is a 'pitch' in the heated bakehouse, his bed the board upon which the bread is made, and, when he rises from his hard couch, his sweat and tears are literally mingled with the ingredients of which the staff of life is manufactured, and which the public are compelled to eat."

The amelioration of the condition of the baker can only be effected by the universal adoption and use of machinery in bread making and the relinquishment of the present system of kneading the dough by plunging the hands and arms elbow deep and even more into the sticky glutinous dough, which clings in string-like masses to the arms of the operator when they are withdrawn from the trough. There is no excuse to be found in the non-existence of machinery suitable for the purpose, for patent bread-making machines, and biscuit-making machines as well, of thorough efficiency, and for working by hand or power, are supplied by Mr. E. Stevens, of 120, Barnsbury Road, Islington, London, N., in all sizes, at prices varying from £3 to £130 for public and private establishments, asylums, hospitals, unions, prisons, bakeries, club-houses, hotels, ships, mansions, and small households. Mr. Stevens will gladly forward his circulars and price lists to any applicant, and in the interests of humanity we strongly urge all who still continue the manufacture of bread on the old system to purchase and adopt them without delay. *The cost of a machine will be saved in a comparatively short time by the increase in the yield of bread from each sack of flour, and the improved health, and therefore the greater efficiency, of the journeymen bakers employed.*

Cleanliness, healthiness, economy of time and economy of flour, are the four chief advantages to be derived from the use of Stevens' Patent Bread-making Machines. They are thoroughly cleanly in operations, because the bread cannot possibly be touched by the human hand and arm, as in the ordinary objectionable practice of kneading. They promote health by relieving the journeymen bakers from this most severe, unhealthy and injurious portion of their labour. There is economy of time in their use, because the kneading occupies less than half the time required under the ordinary method; and lastly, economy of flour is procured by the increased yield of bread, amounting to about three quartern loaves per sack of flour, an important result, which is effected by the thoroughly perfect mixing and breaking up the sponge, and kneading the dough, there being no loss of flour, and avoidance of all dust and sweepings. All is thus utilized; and even the removal of the dough from the trough is performed by the same machinery, by the use of the emptying scoop, and still further, machine-made bread has a cleaner appearance, and is much better bread, and therefore more easy of digestion, caused by the superior mixing of the sponge and kneading of the dough.

Even on the low ground of the natural desire of every man who is engaged in trade to get his work done at as little cost as possible, and therefore with as much profit to himself as possible, their use is to be advocated. Lieut.-Col. Colvile, the Governor of the Middlesex House of Correction, Coldbath Fields, E.C., bore ample testimony to the saving that may be effected by their use when he said, "The average consumption of flour daily here is ten sacks: the saving has been 1*s.* 6*d.* per sack, or about £4 7*s.* 6*d.* per week. Stevens' Patent Bread-making Machine has been in constant use forty-six weeks, and in that time we have saved, by the use of the machine, £207."

We may find a fitting close to this chapter in the mention of aerated bread, which is made by machinery on a system invented by Dr. Dauglish, and is baked in ovens heated from without by hot air. The loaves are not touched by the hand until the process of baking is complete and they are ready for delivery to purchasers. In the ordinary mode of making bread, when the flour has been moistened with water and worked into dough, yeast is added, which causes the flour to ferment or decompose, when carbonic acid is given off at every point. The bubbles of this acid gas expand under the influence of heat when the bread is placed in the oven, and cause the bread to become light, and in some cases full of holes and cavities, like a sponge. The method of making aerated bread consists in placing the flour in a shut-up iron box and impregnating it with carbonic acid water, or what is commonly known as soda water. The dough is then worked up for a few minutes by machinery contained within the box, after which it is taken out and formed into loaves, the carbonic acid within the dough expanding and making the bread more than usually light and easy of digestion. It is claimed for this method that 10 per cent. more bread can be made out of a sack of flour than by the old method; that considerable time is saved in the manufacture, the whole process being effected in half an hour; that the bread thus made is untouched by the hand until it is ready for use; and that it is pure and wholesome, consisting of nothing more than flour, salt, and water.

IX.

MANUFACTURE OF SHIP BISCUITS, OR UNLEAVENED WHEATEN BREAD.

Constituents of sea biscuits—Navy biscuits—Biscuit baking house—Ovens—Men employed at each oven—Mode of manufacture—Breaking the dough—Moulding—Docking and stamping—Baking—Rapidity of the operation—Suit—Capability of ovens—Victualling Office at Deptford—Grant's machine—Stevens's machine—General principle of biscuit making by machinery.

THE sea biscuit, or the biscuit used by sailors, is flour and water only, and consequently is pure unleavened bread. When properly manufactured, it will keep good for many months, and hence its applicability as food for those persons engaged in the prosecution of a long voyage at sea.

The biscuits used in Her Majesty's Navy, and also in the Merchant Service, are made of flour from which the bran and coarse pollard only have been separated. In Her Majesty's Victualling Offices it is usual to highly dry the wheat before grinding it, particularly inferior wheats. In private biscuit baking establishments the flour called middlings or fine sharps is much employed. It is bought from the millers, and, if good, answers the purpose equally as well as that which we have just described.

The biscuit baking house, which we are about to describe, consists of two long buildings, each divided into two baking offices, with six ovens in each, which are ranged back to back along the whole length of the centre of the building, a stone staircase being placed in the middle of the length, by which you first ascend out of one office to the height of the ovens, and down on the other side into the other office. This arrangement has been made for the convenience of superintending the works. The kneading troughs, kneading boards, and breaks, by which the dough is kneaded, with the assistance of a man, are ranged round the

outside walls of the building, one opposite each oven. The ovens are all made of wrought iron, in shape resembling the segment of an ellipse, that is, half an oval, with an area of one hundred and sixty square feet. The furnaces employed for heating the ovens, and which are placed on their sides, are also of iron. Coal is the fuel used. The men employed to work each oven are five in number; and they are called the *furner*, *furner's mate*, the *driver*, the *breaker*, and *idleman*.

The manufacturing is thus carried on—The flour is put into a trough, which is supplied with water by means of a cock, and here it is kneaded by the *driver's* naked arms into a rough dough.* It is then placed on a strong table or platform, where it comes under the operation of the breaker, who proceeds as follows. This man takes hold of the break staff, which is a strong lever, and presses down the dough by sitting upon the end of the lever, which he raises up and down, and moves from side to side of the dough, by rapidly, and to a stranger comically and fantastically, jumping about. After the dough is well broken, which it must be to produce a good article, it is put on the moulding board, which is placed near the mouth of the oven. Here it is divided into lumps of the proper size for a single biscuit. It is then moulded into a circular shape by the hands; the biscuits as they are made are laid in pairs one upon another, when they are pierced with holes, or docked, as it is technically called, by an instrument denominated a docker, which at the same time stamps the biscuits at the Government establishments with the royal arms, and the number of the oven, &c. This is done in order to identify the biscuit with the establishment at which it was baked, in case it should be in any way defective.

* Of course, this is obviated when the Patent Biscuit-making Machinery is used.

When the biscuits are stamped, they are thrown six or eight at a time upon another table, nearer the oven than the moulding table, where the *furner*, the *furner's mate*, and the *idleman*, are placed. The *idleman* separates the double biscuits, hands them singly to the *furner's mate*, who rapidly, dexterously, and, we may say elegantly, pitches them upon the peel, which is in the oven to receive them. The *furner* then, by means of the peel, with extraordinary dexterity and facility, places them, as he receives them, side by side all over the bottom of the oven, drawing back his peel a short distance at each placing to receive another biscuit from his mate. It is scarcely to be believed by the uninstructed, yet it is neverthelesss true, that such is the speed and facility with which this operation is performed, that frequently more than one hundred biscuits are thus placed in the oven in the short space of one minute.

In order that the biscuits may be all equally baked, those that are first put into the oven are made larger than those that come after. When the oven is filled, the door is closed for about ten minutes, and the biscuits are taken out.

The quantity baked each time is called a suit, and weighs about one hundred pounds, having lost about twelve pounds, or 9 per cent., in baking. A hundred weight of biscuits contains on an average about five hundred and eighty, being about six biscuits to the pound. At the rate of twelve suits per day, which is the ordinary number, the twelve ovens in the bake-house we are describing will bake about 14,400 pounds of biscuits, which in number will amount to about 85,000. On extraordinary occasions these ovens, however, have been known to bake sixteen or seventeen suits per day.

The order and arrangement in a large biscuit-baking establishment are greatly to be admired. The thing,

indeed, is altogether of a character, to an inquiring stranger, that will repay the time required to examine it. The bakehouse attached to the Government Victualling Office at Deptford has been thus described—"On a stranger entering the door opposite the middle stone steps or staircase, he is struck with the perfect order and dexterity of the six divisions of the men—each one attired in a clean checked shirt, white linen trousers, apron and cap — plying their several avocations with steady rapidity, but without noise or the slightest appearance of hurry and confusion."

The above method of manufacturing biscuits, with some variations, is the one which has been employed from time immemorial; but in the year 1833 a machine was invented by Mr. Grant for kneading the dough, cutting it into proper-sized pieces, and, at the same time, docking and stamping them. By this machine much manual labour is saved, and the manufacturing is greatly facilitated as regards time.

It must be added that since the introduction of machinery into biscuit making by Mr. Grant, considerable improvement has been effected in biscuit manufacture by the patent machines of Mr. Ebenezer Stevens, which are now in use in most of the important bakeries throughout the world.

As to the rapidity of manufacturing biscuits by a machine compared to the hand, the former mode possesses very great advantages. By the use of the machine, sixteen men and boys will produce as many biscuits as forty men by manual process.

The following description will show the *general principle* involved in making biscuits by machinery. The flour is put into a hollow cylinder, three feet three inches diameter, and a proper quantity of water is admitted to it by means of a gauged cock. Along the centre of the cylinder, from one end to the other, a rotatory shaft is placed, on which are fixed knives

The spindle being put in motion, the knives operate upon the flour and water, passing through and through till they have thoroughly amalgamated the mixture, which they do in the short space of two minutes. After this operation the cylinder is removed from the trough by a very easy contrivance, and the mixture of flour and water (for in this state it cannot properly be called dough) is with great facility removed, and placed under the breaking rollers, where it undergoes the operation of kneading, that is, of being made into a perfect dough.

These two rollers, which are of great weight, are made to pass backwards and forwards over the mixture for three minutes, in which time it becomes converted into dough. It is then cut into pieces eighteen inches square, which are passed under other rollers, by which they are rolled into the thickness of a biscuit, each rolling being of the same length and width, by means of the board on which it has been rolled. It is then placed under the cutting and stamping plate, which at the same moment cuts the dough into biscuits of a hexagon shape (six-sided) and stamps them complete for the oven, in which they are placed by the *furners* as in the old manual process.

X.

COMPOUNDS USED IN THE PREPARATION OF FANCY GOODS, &c.

Fancy goods defined — Receipts given are reliable — Special articles used by the trade in the preparation of fancy goods — Their constituents — Blanched Almonds — Honey water — Icing for a cake — Prepared treacle — Rennet.

HAVING disposed of all matters relative to common bread and biscuit baking, we now come to a very important, because a very difficult, branch of the art of baking, whether exercised as a profession, or by private individuals, namely,

the manufacturing of what are technically called "*fancy goods.*" The reader scarcely need be informed that this term includes all those varieties of baked manufactured eatables in which such ingredients as sugar, eggs, spice, and butter are used, with many other not necessary to enumerate here.

It ought to be observed that the following directions for making the kind of goods alluded to have been all *tested*, and found to be so exceedingly accurate as to proportions, that a deviation in a quantity so small as an egg, or even half an egg, will deteriorate the quality of the article. These directions are not generally known in the trade, and out of the trade they are entirely, we believe, unknown. They will be found, therefore, a valuable acquisition to those ladies who manage their own domestic affairs, and who are in the habit of making little *knick-knacks* for their children or their dessert tables.

Previous to giving the directions in question, it will be necessary for our readers to be made acquainted with the mode of preparing certain articles which are more or less employed in the manufacturing fancy goods. We are aware that there are many private individuals who would object to use the preparation called "honey-water," as well as that called "prepared treacle," on the ground of their consisting chiefly of drugs. As regards the use of carbonate of ammonia (honey-water), it may be safely affirmed, that there is, in small quantities, nothing unhealthy in it, but on the contrary; the carbonate of ammonia used in biscuits, &c., is volatilized by the heat of baking, and of course escapes. Its operation is therefore mechanical, and the only effect it has upon the biscuit is to make it light.

With regard to the article called prepared treacle, which consists of treacle, alum, and pearlash, we have to observe that alum taken in considerable quantities

is decidedly unwholesome, it being of a powerfully astringent nature ; but in the very small quantity here prescribed, and considering that treacle is an aperient, and will consequently counteract the effects of the alum, we should say that there can be no harm in using it. Pearlash, being an alkali, we should consider rather beneficial than otherwise, as it would prevent the treacle in ginger-bread turning acid on the stomach.

Having made these preliminary observations, we shall at once proceed to give directions for making those preparations used in pastry and fancy goods. The *break* alluded to in making fancy biscuits is an instrument similar to that used in manufacturing ship biscuits, but of course of much smaller dimensions.

1. *Blanched Almonds.*—Cover your almonds with water in a stew-pan ; set the pan on the fire, and strain them off soon after the water begins to boil, by which means the skins will peal off easily ; put them under the oven for a night, in a sieve, and they will be dry and fit for use.

2. *Honey-water.*—This liquid is made as follows—Take two ounces of carbonate of ammonia, pound it fine in a mortar, add a little water, and rub it well against the sides, adding water gradually until a pint has been used, and the volatile salt dissolved ; keep it in a bottle close corked for use.

3. *Iceing for a Cake.*—Pound and sift double refined sugar through a lawn sieve ; take one pound of it and put into a very clean pan or basin ; add the whites of three eggs, and stir well with the sugar for about five minutes with a wooden spoon, then add gradually the strained juice of a lemon, stirring it well each time after adding any of the juice, until it becomes a nice thick smooth batter, and will hang round the pan to any thickness you may choose to spread it. When your cake is nearly cold, spread your iceing nicely over the

top and sides with a pallet knife; let it stand in a warm place, and it will soon dry.

4. *Prepared Treacle.*—Dissolve two ounces of alum in a half pint of boiling water, and stir it into seven pounds of treacle; then dissolve four ounces of American pearlash in a quarter of a pint of cold water, and well incorporate it with the treacle by stirring.

5. *Rennet.*—Milk is turned into curds and whey by means of rennet, which is the stomach of a calf taken out as soon as it is killed, well cleansed from its contents, then scoured inside and rubbed with salt; when thoroughly salted, it is stretched on a stick to dry. A bit of this is to be soaked in boiling water for several hours, and the liquid put in milk warm from the cow, or made of that warmth. Use alone can prescribe the exact quantity: never use more than enough to turn it, as it hardens the curd. The skin of the gizzard of fowls and turkeys may be prepared in the same way, and answer the same purpose.

XI.

FANCY BISCUITS.

American—Brighton—Buttered—Captain's—Drop—Filbert—Lemon—Naples—Queen's—Rout—Savoy—Seed or Abernethy—Wine—York—Powder—Drops—Cracknels.

AMERICAN.—Into four pounds of flour rub half a pound of butter; add a full pint of milk, or water; well wet them up; break your dough well, and bake in a hot oven.

2. *Brighton.*—Take one pound and a quarter of good moist sugar, roll it fine, mix it with two pounds and a half of flour, and sift it through a flour sieve; rub in two ounces of butter, make a hole in the middle, and strew in a few caraway seeds; pour in half a pint of honey-water, and half a pint of milk; mix it into a dough, but do not work it too much; roll it out in thin

sheets ; cut into biscuits, and place them on buttered tins about two inches apart ; wash the tops with milk and bake in a steady heat.

3. *Buttered.*—Rub one pound of butter into seven pounds of flour ; wet up with one quart of warm water, and half a pint of good yeast ; break smooth ; prove, cut into biscuits, and bake in a strong heat.

4. *Captain's.*—Rub six ounces of butter into seven pounds of flour ; wet up with a quart of water ; break your dough smooth ; and bake in a good strong heat.

5. *Drop.*—Warm your pan ; then put in one pound of powdered loaf-sugar and eight eggs ; beat it with a whisk till it becomes milk-warm ; then beat it till it is cold ; stir in lightly a pound of sugar, two ounces of fine sifted flour, with about half an ounce of caraway seeds ; put your batter into the bladder, and drop it through the pipe, in quantities about the size of a nutmeg, on wafer-paper ; sift sugar over the top, and bake in a quick oven.

6. *Filbert.*—Rub a pound of butter into three pounds and a half of flour ; make a hole, and put in ten ounces of powdered loaf-sugar ; wet up with four table-spoonfuls of honey-water, one of orangeflower-water, and three-quarters of a pint of milk ; break your dough smooth ; mould them as large as a nutmeg, and as round as you can ; cut them twice across the top each way, about half through, with a sharp knife ; place them on your tin, and bake them in a steady heat.

7. *Lemon.*—Prepare your dough as for filbert biscuits, only leave out the orangeflower-water, and use about six drops of essence of lemon ; cut them out, and dock them with a lemon docker ; bake them in a good steady heat.

8. *Naples.*—Take six ounces of good moist sugar, and six ounces of loaf ; a quarter of a pint of water ; and proceed the same as for diet cake, with six eggs, and three quarters of a pound of flour ; have your tins

papered ; fill them nearly full of the batter ; sugar over the tops ; and bake them in rather a slow oven. These biscuits are, in fact, nothing more than diet-bread batter, fancifully dropped into tin, papered with white paper, and baked in a warm oven, with a little sugar sifted over the top.

9. *Queen's.*—Rub one pound of butter into two pounds of flour ; mix one pound of powdered sugar with it ; then make a hole and pour in a quarter of a pint of milk, to mix it up with ; you may add a few caraways, if you choose ; roll the paste in sheets of the thickness of a halfpenny, cut into biscuits with a small round or oval cutter : place them on clean tins, but see that they do not quite touch, prick them with a fork, and bake them in a quick oven till they begin to change colour ; when they are cold, they will be crisp.

10. *Rout.*—Put one pound of powdered loaf-sugar into a basin, with three parts of a half pint of milk, and let it stand two hours, stirring it occasionally ; rub half a pound of butter into two pounds of flour ; make a hole in it, add a small bit of volatile salt pounded fine, and an egg, with the dissolved sugar, stir together, and mix into a smooth dough. Or, the sugar may be put into the hole in the flour without being soaked first, with three parts of a half pint of milk, and two table spoonfuls of honey-water ; mix it up together ; let it lie ten minutes ; cut it out, and place them on buttered tins; see they do not touch ; wash with milk, and bake quickly.

11. *Savoy.*—Powder and sift one pound of loaf-sugar ; sift one pound of flour, warm a pan, and put in the sugar ; break one pound of egg upon it ; beat both together with a whisk till it becomes warm—beat till it is cold, and then stir in your flour ; have a bladder and pipe ready ; put your batter into the bladder, and force it through on sheets of paper ; sift sugar over them and bake in a quick oven ; when cold turn them up, and, with a washing brush, wet the bottom of the

paper; turn them back again, and in five minutes they will come off easily. Arrange in pairs, putting the bottoms together.

12. *Seed or Abernethy.*—Rub one pound of butter into seven pounds of flour, make a hole, put in one pound of moist sugar, rolled fine, and two ounces of caraway seeds; pound four ounces of volatile salt fine, and mix it with one quart and a half pint of water; make into a smooth dough; roll it into sheets; dock thickly over the surface with a "seedy docker;" cut into biscuits, place on buttered tins; wash the tops with egg, and bake in a quick oven.

13. *Wine.*—Take two pounds of flour, one pound of butter, and four ounces of sifted loaf-sugar; rub the sugar and the butter into the flour, and make it into a stiff paste with milk; pound it in a mortar; roll it out thin, and cut it into sizes or shapes to your fancy; lay them on buttered paper, or iron plates; brush the tops with a little milk; bake in a warm oven. When done, they can be glazed by brushing them over with a brush dipped in egg. A few caraway seeds may be added if thought proper.

14. *York.*—Prepare your mixture as for filbert biscuits; dock them with the Duchess of York, or any other docker—they are best baked in a hot oven, and not washed over.

15. *Powder.*—Dry your biscuits in a slow oven; roll them and grind with a rolling pin on a clean board till the powder is fine; sift it through a fine hair-sieve, and it is fit for use.

16. *Drops.*—Take half a teacup of water, six eggs, and one pound of sifted loaf-sugar—whisk them together till thick; then add a few caraway seeds, and eighteen ounces of flour—mix it lightly together, and drop the mixture on wafer-paper, about the size of a small walnut; sift sugar over them, and bake in a hot oven.

17. *Cracknels.*—Rub six ounces of butter into three pounds and a-half of flour—make a hole, and put in six ounces of powdered loaf sugar—wet up with eight eggs and a quarter of a pint of water—break your dough smooth—make them and dock them like a captain's biscuit—form them on your reel; drop them into a stew-pan of water boiling over the fire—when they swim take them out with a skimmer, and put them into a pailful of cold water; let them remain full two hours before you bake them—you may drain them in a cloth or in a sieve—bake them on clean tins in a brisk oven, or on the bottom of the oven.

XII.

CAKES.

Almond cakes—Almond Savoy—Bride cake—Bath—Banbury—Breakfast—Cinnamon, Currant, and Caraway—Common Cheese—Curd Cheese—Almond Cheese—Lemon Cheese—Derby—Diet bread—Ginger—Lord Mayor's—Lunch or School—Macaroons—Madeira—Moss—Plum—Pound—Prussian—Queen's—Queen's Drops—Rout—Raspberry—Ratafias—Savoy—Sponge—Seed—Shrewsbury—Tea—Twelfth—Yorkshire—York Drops.

ALMOND CAKES.—Take one pound of sweet Valentia, or Provence almonds—cover them with boiling water in a saucepan; let them just boil up, then strain them out of the water and rub them out of their skins; cut about two ounces of them into thin slices; put the rest into a mortar, with two pounds and a quarter of loaf-sugar, the whites of six eggs, and one table spoonful of orangeflower-water; pound it fine; lay your wafer-paper on the tin, and drop your almond cakes on it about the size of a walnut—then drop a few of your cut almonds on each of them, and bake them in a slow oven.

2. *Almond Savoy.*—Take one ounce of bitter and three ounces of sweet almonds that have been blanched and dried (see p. 53), pound them fine in a mortar,

with half a pound of loaf-sugar, and sift through a wire sieve. Put the almonds and sugar into the mortar or basin, and stir well with it the yolks of six eggs ; then beat the whites to a strong froth, and mix it well with the yolks and sugar. When perfectly mixed, stir in four ounces of flour as lightly as you can, and bake in a slow oven. If in a hoop, paper the bottom and sides and dust the top with sugar; if in a mould, butter it nicely, dust it with fine sugar, and fill three parts full.

3. *Bride Cake.*—Wash and pick two pounds and a half of currants very clean ; dry them in a cloth—stone eight ounces of Muscatel raisins—add a quarter of an ounce of mace, and half as much cinnamon ; pound it fine in a mortar ; boil four ounces of Jordan almonds in a little water ; strain the water off, skin them, and slice them fine ; take two ounces of citron, two ounces of candied orange, and two ounces of candied lemon peel ; cut them into thin slices ; break eight good new eggs into a basin ; take one pound and a quarter of fine flour, and sift in one pound of loaf-sugar powdered fine ; warm a pan, and beat one pound of best butter with your hand, till it comes to a very fine cream ; put in your sugar, and beat it together till it is fine and white--then put in a fifth part of your flour ; give it a stir, and put in nearly half your eggs ; continue to beat it; add a little more flour, and the rest of your eggs ; beat it again ; stir in the rest of your flour and currants—then add your almonds, raisins, candied peel, spice, and half a gill of the best brandy—mix all well together ; paper your hoop with double paper round the side and bottom ; put in your cake, and bake in a very slow oven.

4. *Bath.*—Take one pound and three quarters of good moist sugar ; roll it fine—put in a pan with three quarters of a pint of water ; let it stand all night ; rub three ounces of butter into four pounds and a half of flour ; make a hole and pour in your sugar with half a

pint of honey-water—roll it out thin—cut out, and place them on buttered tins—wash with water, and bake in a quick oven.

5. *Banbury* (*First Method*).—Take one pound and a half of flour, and one pound of butter; roll the butter in sheets in part of the flour; wet up the rest of the flour in nearly half a pint of water and a little German or brewer's yeast, make into a smooth paste, roll in a large sheet, and lay on the butter; double it up, and roll it out again; do this five times, and then cut it into square pieces, about an ounce and a half each. Mix together currants, candied peel chopped fine, moist sugar, and a little brandy; put two tea-spoonfuls of this mixture on each piece of paste; bring the two corners together in the middle, and close them up of an oval shape; turn the closing downwards; sift finely powdered loaf-sugar over the tops—put them on a cold tin; let them stand awhile in the cold to prove, and bake them in rather a cool oven.

6. *Banbury* (*Second Method*).—Take two pounds of currants, half an ounce each of ground allspice and powdered cinnamon; four ounces each of candied orange and lemon peel; eight ounces of butter, one pound of moist sugar, and twelve ounces of flour; mix the whole well together; roll out a piece of puff paste; cut it into oval shape; put a small quantity of your composition into each, and double them up in the shape of a puff; put the whole on a board, flatten them down with a rolling-pin, and sift powdered sugar over them—do not put them too close together; bake them on iron plates in a hot oven.

7. *Breakfast.*—Mix half an ounce of German yeast, or a spoonful of brewer's yeast, with half a pint of warm milk in a pan; weigh two pounds of flour and take sufficient of it to make the milk the consistence of batter. When this sponge has risen, take a little milk, —melt in it three ounces of butter; add a tea-spoonful

of salt, and the yolks of eight eggs ; mix well with the sponge, and make into a dough with the remaining portion of flour. Do not use more milk with the eggs than will make half a pint, or the dough will be too soft. When the dough is proved, make it into cakes about two inches thick ; put them into buttered hoops ; lay the hoops on iron plates, and when they are lightly risen, bake them in a warm oven. When done, cut them into slices half an inch thick, and butter each slice as you would a roll ; then cut them into pieces, and serve up for breakfast or tea.

8. *Cinnamon, Currant, and Caraway.*—Rub one pound of butter into three pounds and a half of flour ; make a hole, and put in one pound of powdered loaf-sugar ; then wet it up with half a pint of honey-water, and half a pint of milk. Divide your dough into three parts ; add to one part a little powdered cinnamon ; to another a few currants ; to another a few caraway seeds. Roll them in sheets to the thickness of the currants ; cut them to about the size of a penny piece ; wash them with a little milk, and bake in a good steady heat.

9. *Common Cheese.*—Take four ounces of butter ; beat it with the hand in a warm pan, till it comes to a fine cream. Then add four ounces of powdered sugar ; beat it well ; add the yolks of two eggs ; beat again—then add a little milk ; beat all well together, and mix in four ounces of clean currants. Lay your puff paste in the patty-pans ; fill them half full ; shake a little sugar over, and bake them in a good heat.

10. *Curd Cheese.*—Warm one pint of new milk ; stir in a little rennet ; keep it warm till a nice curd appears ; break it to pieces, and strain the whey through a hair sieve. Then, having your mixture prepared as for common cheese-cakes, but without any currants, put it into the sieve with the curd, and rub it all through together. Then mix in your currants ; fill them out, and bake them in a good heat.

11. *Almond Cheese.*—Take three or four bitter, and one ounce of sweet almonds ; boil and skin them ; put them into a mortar, with two ounces of loaf-sugar, and the yolks of two eggs ; pound them fine. Then rub two ounces of butter to a cream, and mix all together. Put puff paste in the patties ; fill them three parts full with the batter ; lay a few cut almonds over the top ; sugar over, and bake them in a steady oven.

12. *Lemon Cheese.*—Prepare your mixture as for common cheese-cakes ; grate the rind of a nice fresh lemon ; squeeze the juice, and mix with it. The currants may be left out or not.

13. *Derby.*—Rub one pound of butter in two pounds and a half of flour ; make a hole, and put in one pound of powdered loaf-sugar ; beat two eggs with three tablespoonfuls of honey-water, and as much milk as will make up half a pint. Add half a pound of currants ; mix all up together ; make them what size you please, and bake them in a steady oven.

14. *Diet Bread.*—Whisk the yolks of twelve and the whites of six eggs together, so as just to break them. Put a quarter of a pint of water into a saucepan or small stew-pan ; add a pound of loaf sugar, and put it on the fire. Take it off just before it boils ; put in the eggs, and whisk it well together till cold ; then stir in lightly one pound of flour, and put your mixture into square tins papered. Sift sugar over the tops, and bake in a cool oven, till they are dry and firm on the tops. A few currants or caraway seeds may be occasionally used to vary them.

15. *Ginger.*—Prepare your dough as for Bath cakes, but add as much ground ginger as will give them a pleasant taste ; cut them about the thickness of a shilling, and full as large as a penny-piece ; wash them with water and bake quick.

16. *Lord Mayor's.*—Put one pound of sifted loaf-sugar and eight eggs into a warm earthen pan ; whisk

them well for fifteen minutes, or until quite thick. Then add a few caraway seeds, and a pound of flour; mix it all up lightly with a spoon, and drop them on paper, about the size of a small tea-cup; place them on iron plates; sift sugar or caraway seeds on the top, and bake in a hot oven. When done, take them off the papers, and stick two together.

17. *Lunch*, or *School*.—Mix half a pound of moist sugar into two pounds of flour; make a hole in the middle of it, and put in a tablespoonful of good thick yeast (not bitter); warm half a pint of milk rather more than blood warm, but not hot enough to scald the yeast; mix it with the yeast and a little of the flour, about one-third part. When it has risen, which will be in about three-quarters of an hour if the yeast is good, melt half a pound of butter in a little more milk; —be careful it is not hot enough to scald the yeast. Add one pound and a half of currants, a little candied peel, and grated rind of lemon, and a teaspoonful of powdered allspice—mix all together; butter your hoop or tin, put it in, and set it in a warm place to rise. When it has risen, bake it in a warm oven. When you think it is done, stick in a small twig of your whisk, and if it comes out dry it is done; but if it is sticky, it is not sufficiently baked. The cake should be mixed up rather softer than bread dough. A few yolks of eggs mixed up with it will make it eat much better.

18. *Macaroons*.—One pound of blanched and dried sweet almonds, pound them fine in a mortar, and pass through a wire sieve. Make into a softish batter, with the whites of five or six eggs, and a spoonful or two of orangeflower-water; beat well, lay them out on wafer-paper of an oval shape; dredge the tops with powdered loaf-sugar, and bake in rather a cool oven. When lightly coloured they are done.

19. *Madeira*.—Whisk four eggs until they are as light as possible. Then, continuing to whisk them, throw in

by slow degrees the following ingredients in the order named—six ounces of sifted sugar, six ounces of flour, dried and sifted, four ounces of butter, slightly dissolved but not heated, the rind of a fresh lemon, and the third of a teaspoonful of carbonate of soda. Beat well in just before the cake is moulded, and bake for an hour in a moderate oven. In making this cake be particular that each portion of the butter is beaten into the mixture until no appearance of it remains, before the next is added.

20. *Moss.*—Rub a little rout cake paste through a wire sieve, and it will look like moss. Gently squeeze a little together, about the size of half-a-crown, and bake them on wafer-paper of a light colour. After they are done, touch the tops with cochineal. If they are made up round, the finger pressed in the middle, and two or three caraway comfits put in, they will resemble bird's nests, with eggs in them ; and to make the resemblance more complete, just touch the tops with a green colour.

21. *Plum.*—Set a sponge with one pound of flour, half a pint of warm milk, and about three table spoonfuls of good yeast. Then take four ounces of butter, four ounces of powdered sugar, two eggs, and four ounces of flour. Proceed to beat it up the same as for pound cake ; then put in your sponge, and beat all well together ; after which, add one pound of currants, nicely cleaned. Paper your hoop to put it in ; bake it without proving, and in a slow oven.

22. *Pound.*—Take one pound of butter, beat it with your hand in a warm pan till it comes to a fine cream ; put in one pound of powdered loaf-sugar—beat it together to a nice cream. Previously, have one pound and a quarter of flour, sifted ; put in a little, and give it a stir ; put in four eggs, and well beat it ; then take a little more flour, and four more eggs as before, and beat it well again ; then stir in the remainder of your

flour. If you are making small cakes, butter your tins; if large cakes, paper your tins. Sugar over the top, and bake them in a moderate heat. Some persons use this method :—Sift one pound of loaf-sugar, and add to it one pound of fresh butter, melted a little, and worked with the hand to the consistency of cream; beat them together, and while doing so, add ten eggs; keep beating the whole till well incorporated. Take four ounces of candied orange or lemon peel, shred or cut small, a few currants, and one pound of flour; mix the whole well together, and put in a hoop; sift some sugar on the top, and then bake in a warm oven.

23. *Prussian.*—Rub four ounces of butter into seven pounds of flour; wet up with one quart of milk, warm, one pint of warm water, four yolks of eggs, and half a pint of good thick yeast; but if you are obliged to take more yeast, leave out some of the water, or you will make them too poor : let your dough lie about ten or twenty minutes; mould them up round, about half or three quarters of a pound each; place them on your tins, about two inches from each other, and put them in a warm place, and prove them well. Bake in a good steady heat, and melt a little butter to wash them with when they are done.

24. *Queen's.*—Warm one pound of butter a little in an earthen pan, and work it with the hand to a smooth cream; add one pound of finely-powdered and sifted loaf-sugar, stir well with the butter for five minutes, and add eight eggs and two spoonfuls of water gradually, continuing the beating until the whole is well mixed; then stir in lightly twenty ounces of flour, and a handful of currants; fill some small round tins that have been buttered, with the mixture, dust the tops with powdered loaf sugar, and bake in a warm oven.

25. *Queen's Drops.*—Prepare your mixture the same as for pound cakes, but add about two ounces more of flour, one pound and a half of currants; drop them on

whited brown paper, in drops about the size of a large nutmeg, about two inches from each other; put your sheets on tins, and bake them in a steady oven.

26. *Rout.*—Take one pound of sweet almonds, blanched and dried (See p. 53); then take one pound of loaf-sugar—pound both in a mortar, and get as much as you can through a sieve; put the rest into a mortar again, with four yolks of eggs, and the rind of a nice lemon; pound it very fine, and put in what has passed through your sieve, and mix it all together; cut them in blocks, or make them in any shape you please. Sprinkle them lightly with a little water; sift sugar over them, and put them on tins that have been rubbed with a bit of butter. See that they have room, so as not to touch each other; bake them in a rather brisk oven till they are lightly coloured over. If you see them coloured too deep at the bottom, put cold tins under them to finish baking.

27. *Raspberry.*—To one pound of raspberry jam put one pound of loaf-sugar, powdered and sifted fine; mix it well together, and have a ring made of tin, with a handle on the side of it, about the size of a penny-piece; place the ring on a sheet of paper; fill it with the jam, and move your ring, and the cake will remain; do the same till the whole is done. Make the tops smooth with your knife as you fill them; then put them in a warm place to dry, till they get a little set; then take the crooked end of the handle of a spoon, and make five or six marks on the top of each cake. Set them to dry again, till they are fit to be removed; then take them off with the point of a knife: have a box papered to put them in, and lay slips of paper between every layer of cakes.

28. *Ratafias.*—Take four ounces of bitter, and four ounces of sweet almonds—blanch and dry them; put them into a mortar, with one pound of loaf-sugar! pound them fine, and sift them, adding the whites of

four eggs, as for macaroons, and drop them out upon whited brown paper. See that they are all about the size of a nutmeg, and full half an inch apart; shake sifted sugar over them, and bake them on tins, in a slow oven: when they are all of a colour they are done; when cold they will come off the paper.

29. *Savoy.*—Take care that the shape in which it is to be baked is clean and dry; butter it, and sift sugar into it, and turn out all the sugar that does not stick to the butter; then have half a pound of sifted sugar, and six ounces of sifted flour; warm your pan, put in your sugar, break in four whole eggs, and then one yolk; whisk it till it is first warm and then cold; then stir in your flour, and turn your batter into the shape, and bake it in a slow oven; it will take about one hour. When done, turn it out bottom uppermost: it will look very handsome for the middle of the table.

30. *Sponge.*—To three quarters of a pound of powdered sugar, break three quarters of a pound of eggs into a warm pan—whisk it till it is cold, and stir in half a pound of flour—have your tins ready buttered and sugared; put about three parts of a table-spoonful into each of them, sift sugar over them, and bake them in a moderately brisk oven.

31. *Seed.*—Proceed as directed for pound cakes, but instead of currants and candied lemon peel, substitute a few caraway seeds—omit the sugar on the top.

32. *Shrewsbury.*—Powder three quarters of a pound of loaf-sugar, and mix it with one pound and a quarter of flour—rub three quarters of butter in with the flour and sugar—then add one white and three yolks of eggs—mix it together to a smooth paste; roll it into thin sheets, and cut out your cakes about the size of half-a-crown—place them on clean tins, not to touch—bake them in a slow oven till they begin to change colour.

33. *Tea.*—Break eight eggs into a warm pan on a pound of pounded and sifted loaf-sugar—beat both

together till they become thick and whitish ; then stir in lightly one pound of sifted flour, and with a bag and pipe, as directed for Savoy biscuits (p. 56), form the mixture into drops about the size of half-a-crown an inch apart, on sheets of whited brown paper. A few currants may be put on the tops of some, caraway seeds on others, chopped almonds on another portion, and finely cut preserved orange or lemon peel on another portion. Dust lightly with powdered loaf-sugar, place on tins, and bake in a good heat. When nicely coloured they are done. Take them from the paper as directed for Savoy biscuits.

34. *Twelfth.*—Prepare your mixture the same as for plum cake, or bride cake ; or, if you prepare it as for plain pound cake (p. 64), take three pounds of currants, four ounces of candied orange and lemon peel, to every pound of sugar—make them of any size you please—when done, ice them over, as directed in p. 53, and lay on your ornaments while the iceing is wet. You may get the ornaments from the wholesale confectioners.

35. *Yorkshire.*—Rub four ounces of butter into seven pounds of flour, wet up with one quart of warm milk, one pint of warm water, and half or three quarters of a pint of good yeast ; let it prove about twenty minutes, make it into cakes, and put them on warm tins—see that they have room so as not to touch—when well proved, make a hole in the middle, the size of a large thimble—bake them in a hot oven—when done, wash them with a little melted butter.

36. *York Drops.* — Pound eight ounces of sweet almonds in a mortar, having blanched and dried them as directed—add the whites of three eggs, and rub them with the pestle till quite fine—then add the whites of four more eggs, and one pound of sifted loaf-sugar—mix all well together, and lay it out on paper the size of large peas ; bake in a warm oven, or on iron plates, and when done and cold, take them off the paper.

XIII.

FANCY BREAD, GINGER-BREAD, BUNS, ROLLS, MUFFINS AND CRUMPETS, &c.

Almond bread—Colchester—Diet—French rolls—Short bread—Queen's gingerbread—Spice gingerbread—Thick gingerbread—Sweetmeat nuts—Spice nuts—Muffins—Crumpets—Rusks—Sweet rusks—Tops and bottoms—Sally Lunns—Scones—Soda scones—Vienna bread.

ALMOND BREAD.—Take eight ounces of sweet, and one ounce of bitter almonds, that have been blanched and dried, pound them fine in a mortar with one pound two ounces of loaf-sugar, and pass through a sieve. Mix into a soft batter with the yolks of eggs, working it well until it looks light, and rather white, and similar to tea drops (p. 67). Grate off the yellow rind of one lemon, and add to it, with two ounces of flour. Mix in lightly as for sponge cakes; then pour the batter into square flat tins, buttered, with the sides and ends turned up about two inches high; bake in a cool oven, and when cold, ice it over with the iceing (see instructions for iceing cakes given in p. 53), and sprinkle some coloured sugar-plums on the top. You may cut it in any shape or form, and mix with your rout cakes.

2. *Colchester.* — Prepare your dough as for Bath cakes; cut it with a Colchester cutter to about the thickness of a penny piece, wash it with milk, bake it quick, wash it with egg and milk while hot; when baked and cold cut them apart.

3. *Diet.*—Put three quarters of a pound of loaf-sugar into a saucepan, with a quarter of a pint of water; put it over a steady fire, and stir it till it is dissolved; beat six eggs with a whisk in a pan; when the sugar boils pour it gently on the eggs, keeping it well beat till cold; then stir into it three quarters of a pound of fine sifted flour; have your frames papered, fill them three parts full with the batter, sift sugar over them, and bake them in a steady oven.

4. *French Rolls.*—Set a sponge with a quart of warm water, and half a pint of good small-beer yeast; let your sponge rise and drop, then melt one ounce of butter in a pint of warm milk, and one ounce of salt, to wet up with; it will take about seven pounds of flour altogether; let it lie about half an hour, then put them on warm tins: prove them well, and bake them in a quick oven.

5. *Short Bread.*—Rub one pound of butter into three pounds of flour, and put in one pound and a half of powdered loaf-sugar; then wet up with a quarter of a pint of honey-water, a quarter of a pint of milk, and two eggs; break in pieces about an ounce and a half each, roll them oval or round to the size of a tea-saucer; pinch round the edge; place them at the distance of one inch from each other on clean tins, not buttered; cut half a pound of candied orange or lemon peel into pieces, and lay them on the top of your cakes; bake them in a good steady oven.

6. *Queen's Gingerbread.*—Take two pounds of honey, one pound and three quarters of the best moist sugar, and three pounds of flour; half a pound of sweet almonds blanched, and half a pound of preserved orange peel, cut in thin fillets; the yellow rinds of two lemons grated off, an ounce of cinnamon, half an ounce of cloves, mace, and cardamons, mixed and powdered. Put the honey into a pan over the fire, with a wine-glassful of water, and make it quite hot; mix the other ingredients and the flour together, make a bay, pour in the honey, and mix all well together; let it stand till next day: make it into cakes, and bake it; rub a little clarified sugar until it will blow into bubbles through a skimmer, and with a paste-brush rub over your gingerbread when baked.

7. *Spice Gingerbread.*—Take three pounds of flour one pound of butter, one pound of moist sugar, four ounces of candied lemon or orange peel cut small, one

ounce of powdered ginger, two ounces of powdered allspice, half an ounce of powdered cinnamon, one ounce of caraway seeds, and three pounds of treacle; rub the butter with your hand into the flour; then add the other ingredients, and mix it in the dough with the treacle: make it into nuts or cakes, and bake them in a cool oven.

8. *Thick Gingerbread.*— Prepare seven pounds of treacle, rub three quarters of a pound of butter into twelve pounds of flour; mix three ounces of caraway, two ounces of ground coriander seeds, and two ounces of ground allspice, with your flour and treacle; mould it well together; in a week make it into cakes, on a mould or print; butter the sides, and place them close together on buttered tins; put up-sets round them, wash with milk, and bake in a steady heat; when they are done, wash with egg and milk.

9. *Sweetmeat Nuts.* — Prepare seven pounds of treacle; mix four ounces of ground ginger, six ounces of ground allspice, eight ounces of candied lemon and orange, cut small, with nine pounds of flour; wet it up with your treacle, then beat in your dough four pounds of butter, and five pounds of good moist sugar; lay them off on buttered tins, about the size of walnuts, flat down, wash with water, and bake in a slow oven.

10. *Spice Nuts.*—Prepare seven pounds of treacle; rub one pound of butter into nine pounds of flour; mix four ounces of ground allspice, four ounces of ground ginger, two ounces each of caraway and coriander seeds powdered, with your butter, flour, and treacle; roll one pound of moist sugar, and strew it over the top, so that you take a little in every piece you cut from it; roll them out in long rolls about the size of your finger; cut them in pieces the size of a nutmeg; place them on buttered tins, but not to touch; wash with water or small beer, and bake in a good steady oven.

11. *Muffins.*—Muffins are baked on a hot iron plate, and not in an oven. To a peck of flour add three quarters of a pint of good small-beer yeast, four ounces of salt, and as much water (or milk) slightly warmed, as is sufficient to form a dough of rather a soft consistency. When light, small portions of the dough are put into holes, made in a layer of flour about two inches thick, placed on a board, and the whole is covered up with a blanket, and suffered to stand near a fire, to cause the dough to rise ; when this is effected they will each exhibit a semi-globular shape ; they are then placed on a heated iron plate and baked ; when the bottoms of the muffins begin to acquire a brownish colour they are turned, and baked on the opposite side.

12. *Crumpets.*—Crumpets are made of batter composed of flour, water (or milk), and a small quantity of yeast. To one pound of the best wheaten flour you may add three table-spoonfuls of yeast. A portion of the liquid paste, not too thin (after being suffered to rise), is poured on a heated iron plate, and baked, like pancakes in a pan.

13. *Rusks.*—Put a quart of warm milk into a pan, with one ounce of German yeast, four ounces of moist sugar, and about six ounces of flour ; mix, and put it aside in a warm place to rise. Rub six ounces of butter into three pounds and a half of flour, and make into a dough with the ferment as soon as it is ready ; let it prove a little, and divide it in pieces of about a pound and a half each ; roll them in long rolls about the size of a rolling-pin ; place on buttered tins, about three or four inches apart ; flat them down a little with your hand, prove them well, and bake them in a moderately heated oven ; when cold, cut them across in slices ; place them to touch on the tins, and brown them off on both sides in a brisk oven.

14. *Sweet Rusks.*—Cut a diet-bread cake into thin

long slices ; lay them on iron plates, and brown them quickly in a very hot oven ; turn them when of a light-brown colour ; and when of a similar colour on the other side, they are done.

15. *Tops and Bottoms.*—Prepare your mixture as for rusks, and make it into small balls about the size of a large walnut, place them on your tins in straight rows just to touch ; prove them well ; bake them in a moderate heat : when cold, draw a sharp knife between every row ; to cut your balls out square, turn them on their side, and cut them through the middle, one at a time : place them on the tin as close as you can, with the cut part upwards ; put them in a warm oven ; watch till nicely browned over ; then they are done.

16. *Sally Lunns.*—With flour, a little salt and butter, two or three eggs, a small quantity of yeast, and milk and water, make a light dough, which should be set to rise after kneading. Make the dough into cakes, large enough to slice into rounds for toasting. Bake slightly and quickly in a hot oven.

17. *Scones.*—Warm fresh milk almost to boiling, and then stir in as much flour as will make a mass that will turn clean out of the bowl without leaving anything adhering to the sides ; roll out thin, cut into rounds, and bake lightly and quickly.

18. *Soda Scones.*—To two pounds of flour add one ounce of butter, half an ounce of bicarbonate of soda, a quarter of an ounce of tartaric acid, and a quart of milk or butter-milk. Proceed to mix and bake as in the preceding receipt.

19. *Vienna Bread.*—To make this light and delicious bread, to one pint of new milk, two ounces of fresh German yeast, six ounces of best loaf-sugar, and six ounces of good butter, add sufficient of the best fine Vienna flour to form a tight or stiff dough ; shape into rolls, pointed at either end, and bake of a rich brown colour in a quick oven.

XIV.

TARTS AND PIES.

Puff paste — Short paste—Tart paste—Apricot tart—Covered tart—Raspberry tart—Mince pies—Raised pie.

PUFF PASTE (*First Method*). Take one pound of flour, and one pound of good, firm butter ; cut your butter into slices, roll in thin sheets on some of your flour ; wet up the rest with about a quarter of a pint of water ; see that it is about as stiff as your butter ; roll it to a thin sheet ; cover it with your sheets of butter ; double it in a three double ; do the same four times ; then double it up ; lay it in the cold to use when you want it, keeping the air from it : you ought to make it before the sun rises, unless you have a cold place to make it in.

2. *Puff Paste* (*Second Method*).—Take one pound of flour and eight ounces of butter ; rub the butter into the flour with your hand, and make it into a paste with water, to the same consistence as the butter ; roll out your paste thin ; break eight ounces more butter into pieces of the size of a shilling, and put them in all parts of your paste ; fold it up, and after standing a short time, roll it out again ; when it has been rolled out three times, it is fit for use.

3. *Short Paste.*—Rub one pound of butter into two pounds and a quarter of flour ; wet it up stiff with cold water ; work it smooth, and it is fit for use.

4. *Tart Paste.*—Eight ounces of butter rubbed into a pound of flour with your hand, and made into a stiff paste with water, is an excellent paste for tarts.

5. *Apricot Tart.*—Lay your puff paste in patties ; put your jam in the middle, and bake them in a brisk oven ; or you may bake your puff paste first with a bit of bread in the middle ; then take out the bread—fill the hole with jam ; it will look very handsome.

6. *Covered Tart.*—Take your short paste ; cut it into pieces to the size of your patties ; roll them out thin ; lay in the bottoms ; put your fruit as high as you can ; put a pinch of sugar on the top ; close your tart ; sprinkle water over it ; put a pinch of powdered loaf-sugar on the top ; sprinkle with water ; and bake them in a good steady heat.

7. *Raspberry Tart.*—Take short paste ; cut it into small pieces, and roll them about the thickness of a penny-piece, the size of your patties ; then with your thumb drive it thin in the middle ; leave it thick at the edge ; cut it round close to the patty-pan, and notch it with the back of your knife ; thin your raspberry-jam with a little water, and fill the tart three parts full ; bake them in a brisk oven. Or you may make them with puff paste, in the same manner as apricot tarts, if you choose.

8. *Mince Pies.*—Stew three pounds of lean beef till it is tender ; chop it fine with one pound and a half of beef suet, one dozen of apples, and one pound of stoned raisins ; mix all together, with three pounds of currants, washed and picked clean, half a pound of candied peel, cut fine, half an ounce, together, of cloves, cinnamon, and mace, pounded fine, a little all-spice, a pint of brandy and sherry mixed, and one pound and a half of good moist sugar ; squeeze it close down in a glazed pan ; tie it down about ten days, and it will be fit for use ; then roll your puff paste in sheets about the thickness of a penny-piece ; cut out the tops to the size of your patties ; put your cuttings for bottoms ; fill them to your fancy ; cover and close them ; and bake them in a steady oven.

9. *Raised Pie.*—Take seven pounds of flour ; then take one pound of lard or butter, or part of each ; put it into a saucepan, with one pint and a half of water, and set it over the fire till it boils ; make a hole in the middle of your flour, and pour in your liquor boiling

hot ; then mix in your flour with a spoon till you can bear to put your hand in ; mix it till it becomes a nice smooth piece of dough ; cover it over with a cloth ; and raise your pies with as much of it as will make the size you want ; when filled and nicely closed, wash with egg, and lay on your ornament. Your oven must be brisk, if for small pies ; but if for large ones, a more steady heat will be best.

XV.

SUBSTITUTES FOR WHEAT-FLOUR BREAD.

Substitutes for bread—Bread corn—Wheat, etc.—Rice—Maize—Oatmeal—Pease and beans—Starch in Cerealia—Potato—Bread from rice—Method of making it—Potatoes in bread—Parmentier on the use of the potato in bread-making—Khyogg's method—Potato bread of Saxony—Oat-cake—Bread made of roots—Mode of extracting starch from roots—Ragwort—Turnip bread—Apple bread—Meslin bread—Salep bread—Oat and barley bread—Debretzin bread—Its manufacture—Millet bread—Maize bread—Hominy cake—Bean-flour bread—Buckwheat bread—Acorn bread—Oatmeal cakes—Oatmeal and pease bread—Chesnut bread—Potato bread—Rye bread, barley bread, etc.—The bread-tree—Dampier's account of its fruit—Cook's account—Hawkesworth on its advantages—Bread-fruit bread—Mahie—Sago bread—Sago of commerce—Cassava bread—Plantain bread—Banana bread—Moss bread—Dried fish bread—Earth bread.

UNDER this head we intend to treat of the various substitutes which have been used at different times, and in different countries, for bread made of wheat-flour. We allude to bread made of rye, barley, oats, peas, beans, buckwheat, maize, farinaceous roots, and of mixed substances, &c. This subject is not without interest, independent of utility, and a work of this kind would scarcely be complete if it were not introduced. We shall enter upon it with a few general remarks.

1. *Bread Corn*, properly so called, of which bread is made in this country, and other civilized nations,

comprehends the seeds of all *cerealia*, or farinaceous grass-like plants, for they all contain a farinaceous or mealy substance of a like nature; and which substance is chiefly composed of starch. The seeds or grain in common use are, first and principally, *wheat;* second, *rye;* and third, *barley*.

Wheat is the only grain from which really good, porous, or light bread can be made; but rye and barley are occasionally used, as well as other grain. The bread, however, is of an inferior quality. A sort of bread is also made from *oats*, *maize*, *rice*, *millet*, &c.

Rice is said, and no doubt truly, to nourish more human beings than all the other seeds together used as food; and it is by many considered the most nutritive of all kinds of grain. Accum, in the "Art of making Bread," says that "it has been ascertained that one part of rice contains as much food and useful nourishment as six of wheat;" an assertion, by the way, which we are much inclined to disbelieve. But, be this as it may, there is no doubt that rice makes a very nourishing and healthy food, notwithstanding the prejudices that prevailed against it, on the unfounded allegation that it caused diseases in the eye. Rice is the principal food of most of the eastern nations, a fact which shows that it is not unhealthy. Rice is not, however, often made into bread without the addition of flour, and when it is, it forms a loaf of very inferior quality.

Maize is frequently employed as bread-corn in America, but it will not by itself make good loaf-bread; but unleavened cakes are made of it, very nutritive and palatable.

Oatmeal is seldom used for making loaf-bread, but is extensively used in Scotland in making unleavened bread, commonly called oat-cakes. It may be observed here, that the objection to biscuits, oat-cakes, maize-cakes, and other unleavened bread, on the ground of their being unhealthy, and of course not nutritive,

appears to be without foundation. There can be no doubt, however, that they are inferior as food to good wheaten loaf-bread.

The seeds of leguminous plants, such as pease and beans, are sometimes used as substitutes for bread-corn. They yield a great deal of meal, which is of a sweetish taste, but it forms a coarse bread, and is generally considered neither palatable nor digestible. Dr. Cullen says that "on certain farms in his country, upon which the leguminous seeds are produced in great abundance, the labouring servants are much fed upon this kind of grain ; but if such servants are removed to a farm upon which the *leguminous seeds* are not in such plenty, and they are therefore fed with the *cerealia* (wheat, barley, &c.), they soon find a decay of strength ; and it is common for servants, in making such removals, to insist on their being provided daily, or weekly, with a certain quantity of the leguminous meal." It does not, however, follow that pease or bean flour bread would be found generally so nutritive or digestible as wheat-flour bread. A great deal may be attributed to habit, and the laborious employment of farmers' servants in the open air.

All the vegetable substances from which bread is made contain more or less of *starch*, or what is otherwise called amylaceous fecula, and this is the most valuable and nutritive part of all such substances, whether they consist of grain, or roots, &c.

We scarcely need observe, that the potato, amongst roots, is the most extensively used as a substitute for bread. In many countries, particularly Ireland, it is almost the exclusive food of the poor. The potato contains a great deal of starch.

2. *Rice*, notwithstanding its rough and dry qualities, as a farinaceous vegetable, is capable of being converted into bread, without the addition of any other substance. The Americans, however, make bread of rice, by

washing it in water till perfectly clean. They then, after the rice has been sufficiently drained, put into a mortar and reduce it while damp into a sort of powder; it is then completely dried, and passed through a hair-sieve. The flour thus obtained, it is said, is then generally mixed with a little Indian corn-meal, and boiled into a thickish consistence, which is sometimes mixed with boiled potatoes, and fermented and baked in tins, or pans, in the usual manner. The bread, we are told, made in this way is light and wholesome—"pleasing to the eye, and agreeable to the taste."

But a sort of bread may be made from rice, without the addition of any other kind of meal. Let a sufficient quantity of rice-flour be put into a kneading trough, and at the same time let a due proportion of flour be boiled, into which throw a few handfuls of rice in the grain, and boil it till it is broken. This compound will form a thick and viscous substance, which is poured upon the flour, and the whole is kneaded with a mixture of salt and yeast, or other fermenting matter. The dough is then covered with flannel or other cloths to keep it warm, and left to rise. This dough, though firm at first, in the course of fermentation becomes as liquid as soup, and is quite incapable of being worked into loaves, in the usual manner, by the hand. The following is the mode by which this difficulty is surmounted—The oven is heated while the dough is rising; and it being sufficiently hot, the dough is put into a tin pan, which is covered with a paper, or large leaves. The tin is then placed in the oven, and immediately reversed or turned upside down; the heat prevents the dough from spreading, and, in fact, fixes it in that shape given it by the stewpan or box. This bread is said to be "both beautiful and good;" but when it gets stale, it becomes very much deteriorated—as indeed does all bread in which there is rice.

3. *Potatoes* mixed in various proportions with meal

are frequently employed in the making of bread. The London bakers all use them in greater or less quantities—not, as they say, to save flour, but to assist fermentation. There are various ways in which potatoes may be used with meal in the production of bread—potatoes alone will not make good bread: the potato is not of an adhesive quality, and the bread is not only brown and heavy, but crumbles to pieces. M. Parmentier, to render it more adhesive, mixed with the potato-meal a decoction of bran, and sometimes honey and water; either of which, he says, much improved it, by rendering it lighter, better coloured, well tasted, and sufficiently consistent.

He obtained also, he adds, well-fermented bread, of a good colour and taste, by mixing some potato pulp with meal of wheat, or potato-meal, with the addition of yeast and salt. After repeated trials he recommends, in time of scarcity, a mixture of potatoes with the meal of wheat, in preference to the meal of any other grain. Where no flour or grain can be obtained, Parmentier recommends the use of bread made from the amylaceous (partaking of starch) powder of potatoes—potato pulp, mixed and fermented, with the addition of honey. Potato-meal, when mixed with water, acquires a gluey consistence, but bread made from this and the flour of wheat is never of a good colour. That, however, which is made of a mixture of the pulp with the flour of wheat is much whiter. Parmentier, we are informed, made bread very much resembling that of wheat, by mixing four ounces of amylaceous powder of potatoes, one dram of mucilage, extracted from barley, one dram of the bran of rye, and one dram of glutinous matter, dried and pounded into powder.

A German writer upon country affairs, of the name of Khyogg, who has obtained the name of the Rustic Socrates, recommends that potatoes well boiled and carefully peeled should be put into the kneading trough

covered with boiling water, and beaten or bruised till they are converted into a kind of soup, of one consistence throughout. This soup may be mixed with the flour of wheat in the proportion of one-fourth, one-third, and even one-half: and if the flour be of good quality, the bread will be found pleasant, nourishing, and wholesome. This is the principal food of the peasantry in German Lorraine, and the people of that country are remarkable for their healthy, robust, and vigorous constitutions; the young men are tall and handsome, and the country is thickly populated.

In Saxony, potatoes are prepared for bread by peeling them, grating them very fine, and by putting the pulp into a milk-pail, or some other suitable vessel. It is then mixed with cold water, which is allowed to remain upon the pulp twenty-four hours. The water is then drawn off, and other water added, and again drawn till the water comes off quite pure. The potato pulp is then drained through a clean cloth, and then spread upon a plate, or some other surface, till dry. After this, it is reduced to a fine powder, mixed with an equal portion of wheat flour, and made into bread by the usual process.

We have thought it right to lay before our readers the various ways in which it has been recommended to employ potatoes in making bread in times of scarcity; but after all, our own opinion is that the best and most economical mode of using potatoes is simply to boil them as they do in Ireland, where, it is much to be regretted, they stand in stead of all other food to the mass of the population.

Many other substances have been employed in making bread other than those of the flour of farinaceous vegetables, such as wheat, barley, rye, Indian corn, oats, &c. The latter grain makes an excellent unleavened bread, and is much eaten in Scotland, Lancashire, and several of the northern English counties.

It is called oat-cake, and is preferred by many persons to wheaten bread.

4. *Bread made of Roots.*—M. Parmentier, late chief Apothecary in the Hôtel des Invalides, whose authority we have before quoted, has published numerous and very curious experiments on the vegetables which in times of scarcity might be used in the subsistence of animals, as substitutes for those usually employed for that purpose. The result of these experiments in the mind of M. Parmentier was that starch is the nutritive part of farinaceous vegetables, and that the farina of plants was identical with the starch of wheat. The plants from which he extracted this farina are the bryony, the iris, gladiolus, ranunculus, fumaria, arum, dracunculus, mandragora, colchicum, filipendula, helleborus, and the roots of the *gramen caninum arvense*, or dog grass of the fields.

The mode employed by M. Parmentier to extract the starch, or farina, from these vegetables was merely bruising and boiling. The roots were cleansed and scraped, and then reduced to a pulp. This was soaked in a considerable quantity of water, when a white sediment was deposited, which when properly washed and dried was found to be pure starch. M. Parmentier converted this starch into bread by mingling it with an equal quantity of potatoes reduced to a pulp, and employing the usual quantity of yeast or other leaven. The bread, we are informed, had no bad taste, and was of excellent quality.

From these experiments of M. Parmentier it appears that it is chiefly the amylaceous matter or starch of grain that is nutritious; and that the nutritive quality of other vegetable substances depends in a great measure on the quantity of that matter which they contain. Starch, formed into a jelly and diffused in water, will keep a long time without change.

5. *Ragwort.*—Bread has been made in times of scar-

city from the roots of this plant. When ragwort root is first taken out of the ground, it is soft and viscous, but becomes hard in a short time, and may be preserved in that state for years without being at all deteriorated, providing it be kept in a dry, airy place. When this root is ground and reduced to flour, which it may easily be, it has an agreeable nut-like taste. It is said to be easily digested when made into bread, and to be more nutritive and "exhilarating" than wheaten bread. The same properties and effects are attributed to radishes, but we apprehend not truly.

6. *Turnip Bread*—is made of turnips mixed with equal quantities of wheat flour. The turnips must be first washed clean, then pared and boiled. Mash them and press the water out of them—at least the greater part. Mix with an equal quantity in weight of coarse meal flour—make the dough in the usual manner, and when risen, form it into loaves, and bake it rather more than ordinary bread ; when taken from the oven it will be light and sweet, with a little taste of the turnip. "After it has been allowed to stand twelve hours," says our authority, "the taste of the turnips is scarcely perceptible, and the smell is quite gone. After an interval of twenty-four hours, it cannot be known that it has turnips in its composition, although it has still a peculiar sweetish taste : it appears to be rather superior to bread made only of wheat flour, is fresher and moister, and even after a week continues very good." We are of opinion, however, that it cannot be so good as wheat bread ; for, independent of other considerations, turnips do not contain so much starch or nutritive matter as wheat.

7. *Apple Bread.*—A bread said to be very superior to potato bread has been made from the use of common apples with meal. Boil one-third of peeled apples ; while quite warm, bruise them into two-thirds of flour, including the proper quantity of leaven, or yeast ;

knead without water, the juice of the fruit being quite sufficient. When this mixture has acquired the consistency of paste, put it into a vessel to rise for about twelve hours. By this process may be obtained a very sweet bread, full of eyes and extremely light.

8. *Meslin Bread.*—A good bread is made in many parts of England from what is called meslin, which is a mixture of rye and wheat. This is raised on one and the same ground at the same time, and passes through the processes of reaping, thrashing, grinding, and dressing, in the mixed state.

9. *Salep Bread.*—Dr. Percival recommends the employment of orchis root in powder, or, as it is called, salep. He says that an ounce of salep, dissolved in a quart of water, and mixed with two pounds of flour, two ounces of yeast, and eight grains of salt, produced remarkably good loaf, weighing three pounds two ounces ; while a loaf made of an equal quantity of the other ingredients, without the salep, or powdered orchis root, weighed but two pounds twelve ounces. If the salep be in too large quantities, its peculiar taste will be distinguishable in the bread.

10. *Oat and Barley Bread.*—The Norwegians, we are informed, make bread of barley and oatmeal baked between two stones. This bread, it is added, improves by age, and may be kept thirty or forty years ! At their great festivals they use their oldest bread ; and it is not unusual, at the baptism of a child, to have bread that was baked at the baptism of the grandfather.

11. *Debretzin Bread.*—In some parts of Hungary, Debretzin for instance, they have a peculiar mode of fermenting bread without yeast, by means of a leaven made in the following manner. Two large handfuls of hops are boiled in four quarts of water ; this decoction is poured upon as much wheaten bran as it wil moisten, and to this are added four or five pounds of leaven.

When the mass is warm, the ingredients are well worked together, so as to be thoroughly mixed. It is then deposited in a warm place for twenty-four hours, and afterwards divided into small pieces, about the size of hens' eggs, which are dried by being placed upon a board and exposed to dry air, but not to the sun; when dry, they are laid up for use, and may be kept for six months.

The following is given as the mode by which bread is made from the above-described ferment. For baking six large loaves, six good handfuls of these balls are dissolved in seven or eight quarts of warm water—this mixture is poured through a sieve at one end of the bread-trough, and after it three quarts of warm water, the remaining mass being well pressed out. The liquor is mixed up with flour sufficient to form one large loaf; they then strew this mass over with flour, the sieve with its contents is put upon it, and the whole is covered up and kept warm and left to rise, or till the flour upon it begins to crack. Fifteen quarts of warm water, in which six handfuls of salt have been dissolved, are then poured upon it through the sieve; the necessary quantity of flour is added, and the whole is well kneaded together. The dough is then covered up and kept warm for half an hour. It is then formed into loaves which are kept for another half hour in a warm room; and after that they are put into an oven, where they remain for two or three hours, according to their size.

There is certainly an advantage in this kind of ferment, which is its capability of keeping for a long time, and of being made in large quantities. On this account it would be convenient on board of ships, or in the camp of an army.

12. *Millet Bread.*—Bread made of millet, if eaten when warm, is pretty palatable, but when cold, it becomes dry and crumbly. Besides, though nutritive when boiled, it is not so in bread, but becomes a very

powerful astringent. According to Pliny, however, it would appear that millet was in very general use as food in Italy among the peasantry. "There is no grain," he says, "more heavy, or which swells more in baking"—probably the Italians had some method for counteracting its astringent properties. It is said to make an excellent leaven, and has been recommended for malting.

13. *Maize Bread* is made of maize, or Indian corn flour, which is in common and extensive use in nearly all parts of North and South America. Knead the flour with a little salt and water into a stiff mass—roll out into thin cakes, and bake on a hot iron. A hoe is frequently used in America. Another kind of maize bread is called

14. *Hominy Cake.*—To make this the Indian corn, freed from the husks, is boiled with a small portion of French beans, until the whole becomes a pulp; this is made into cakes, and baked over hot embers, or it may be eaten in the pulp, which is frequently the case.

15. *Beanflour Bread.*—Take a quarter of a peck of bean-flour and one ounce of salt; mix it into a thick batter with water—pour a sufficient quantity of this batter to make a cake into an iron-kettle, and bake over the fire; it will require frequent turning.

16. *Buckwheat Bread* is thus directed to be made by the Board of Agriculture: Take a gallon of water, set it over a fire, and when it boils, let a peck of buck-wheat-flour be mixed with it, little by little, and keep the mixture constantly stirred, to prevent any lumps being formed, till a thick batter is made. Then add two or three ounces of salt, set it over the fire again, and allow it to boil an hour and a half; pour the proper proportion for a cake into an iron kettle, and bake it.

17. *Acorn Bread* is made of ripe acorns deprived

of their husks or skins, and beaten into a paste. To extract the astringent quality of the acorns, put the paste into water for a night, and then press the water from the paste. The mass, when dried and powdered, must be kneaded up into a dough with water, and raked out into thin cakes, which may be baked over embers. This bread is said not to be disagreeable, and no doubt was considered a great luxury by our British ancestors in the time of the oak-worshipping Druids.

18. *Oatmeal Cakes* are thus made: To a peck of oatmeal add a few table-spoonfuls of salt; knead into a stiff paste with warm water; roll the paste into thin cakes, and bake it in an oven, over a hot-iron plate, or on embers. Sometimes oat-cake is fermented a little, which makes the cakes light and porous.

19. *Oatmeal and Pease Bread.*—To a peck of pease flour, and a like quantity of oatmeal, previously well mixed by passing the two flours through a sieve, add three or four ounces of salt; knead into a stiff mass with warm water; roll out into thin cakes, and bake in an oven. In some parts of Lancashire and Scotland, this kind of bread is made into flattened rolls, and they are usually baked in an iron pot.

20. *Chesnut Bread* is made from horse-chesnuts, which are seldom or never used for food in this country, though their nutritious qualities are well known to the people in the southern parts of Europe, particularly in some districts of Italy and in the island of Corsica, where it is the chief and almost the whole of the food of the peasantry. To make this bread, take a peck of horse-chesnuts; peel the skins off them; let them be bruised into a paste; dilute the mass with water, which destroys their astringency, and then strain them through a sieve; a milky liquor is thus separated, which on standing deposits a fine white powder; this, on being dried and ground into flour, is found to be

without smell or flavour. It is then made up, sometimes by itself, and not unfrequently with an equal portion of wheat flour, into a paste, with warm milk and a little salt, and when baked makes a very eatable bread.

21. *Potato Bread.*—Boil the potatoes, and rub them through a cullender or sieve, and, while hot, rub them in with the flour, which ought to be previously dried. The potatoes should be in proportion to the flour of one-third or one-half. Milk and water is sometimes used for making potato bread.

22. *Rye Bread, Barley Bread,* and bread made of equal parts of rye-flour and wheat-flour, or of equal parts of barley-flour, rye-flour, and wheat-flour—are made in the same way as already described. Milk, or milk and water, is preferred, in making rye bread, to pure water.

23. *The Bread-tree.*—Various substances have been employed in different parts of the world as substitutes for making bread, in the absence of farinaceous or flour-yielding vegetables. The bread-tree, or rather the fruit of this tree, ranks first among the substances alluded to. The bread-tree is common in many parts of the east. It is very abundant at Surinam, where extensive avenues may be seen of it, loaded with luxuriant crops of fruit. As a brief account of this extraordinary tree cannot fail to be interesting to our readers (previous to giving a description of the mode of preparing the fruit for food), we beg to lay before them the following remarks and extracts.

All the species of the breadfruit-tree, of which there are eight, are natives of the South Sea Islands. More than one hundred and fifty years ago, this tree had excited great interest amongst Europeans, and particularly among the people of this country. Dampier, who performed his voyage round the world in 1688, thus describes it—

"The breadfruit, as we call it, grows on a large tree as big and high as our largest apple-trees; it hath a spreading head, full of branches and dark leaves. The fruit grows on the boughs like apples; it is as big as a penny loaf when wheat is at five shillings the bushel; it is of a round shape, and hath a thick tough rind. When the fruit is ripe it is yellow and soft, and the taste is sweet and pleasant. The natives of Guam use it for bread. They gather it when it is full grown, while it is green and hard; then they bake it in an oven which scorcheth the rind and maketh it black; but they scrape off the black crust, and there remains a tender thin crust; and the inside is soft, tender, and white, like the crumb of a penny loaf. There is neither *core* nor *stone* in the inside, but all is of a pure substance like bread. It must be eaten new, for if kept more than twenty-four hours it becomes hard and choaky; but it is very pleasant before it is too stale. This fruit lasts in season eight months in the year, during which the natives eat no other sort of bread kind. I did never see this fruit anywhere but here. The natives told us there was plenty of this fruit growing on the rest of the Ladrone islands; and I did never hear of it anywhere else."

So much for Dampier's account, which, however, does not appear to be quite correct. Our great circumnavigator, Cook, thus describes the fruit in question—"It grows on a tree about the size of a middling oak. Its leaves are frequently a foot and a half long, of an oblong shape, deeply sinuated like those of the fig-tree, which they resemble in consistence and colour, and in the exuding of a white milky juice upon being broken. The fruit is about the size and shape of a child's head, and the surface is reticulated, not much unlike a truffle. It is covered with a thin skin, and hath a core about as big as the handle of a small knife. The eatable part lies between the skin and the

core. It is as white as snow, and somewhat of the consistence of new bread. It must be roasted before it is eaten, being divided into three or four parts. Its taste is insipid, with a slight sourness, somewhat resembling that of the crumb of wheaten bread, mixed with a Jerusalem artichoke."

The above is the sober and satisfactory account of the bread-tree and its fruit, as given by the illustrious Cook. Dr. Hawkesworth's description of its advantages is amusing, but extravagant. He says, "if a man plants ten bread-fruit trees in his life-time, which he may do in about an hour, he will as completely fulfil his duty to his own and future generations, as the natives of our less temperate climate can by ploughing in the cold winter, and reaping in the summer's heat, as often as those seasons return—even if, after he has procured bread for his present household, he should convert the surplus into money, and lay it up for his children."

The breadfruit-tree has been planted in some of our West India colonies, but with little success as to any advantages to be derived from it. Indeed, its fruit appears to us to have been greatly exaggerated with respect to its beneficial application as food for the use of man. It has been observed, however, that "even in those colonies into which the breadfruit has not been generally introduced as an article of food, it is used as a delicacy ; or whether employed as bread, or in the form of pudding, it is considered as highly palatable by the European inhabitants."

24. *Breadfruit Bread.*—To prepare the fruit for use instead of bread, it must be roasted, either whole, or cut into three or four pieces. It is also cooked in an oven, which renders it soft, and something like a boiled potato ; not quite so mealy as a good one, but more so than those of an inferior description. The Otaheitans make three dishes of it, by putting either

milk or the milk of cocoa-nut to it, then beating it to a paste with a stone pestle, and afterwards mixing it with ripe plantains, bananas, or mahie.

This mahie is a preparation of the ripe breadfruit, for which it is substituted during the season, just before gathering a fresh crop. It is made thus—The fruit is gathered just before it is perfectly ripe, and being laid in heaps, is closely covered with leaves; in this state it undergoes a fermentation, and becomes disagreeably sweet. The core is then taken out entire, by gently pulling the stalk, and the fruit is thrown into a hole which is dug for that purpose, generally in the houses, and neatly lined in the bottom and both sides with grass; the whole is then covered with leaves, and heavy stones laid upon them. In this state it undergoes a second fermentation, and becomes sour; after which it undergoes no change for many months. It is taken out of the hole as it is wanted for use, and being made into balls, it is wrapped up in leaves, and roasted or baked. After it is baked, it will keep five or six weeks. It is eaten both cold and hot, and the natives seldom make a meal without it. To Europeans, however, the taste is said to be as disagreeable as that of a pickled olive generally is the first time it is eaten.

25. *Sago Bread* is made from the wood of the sago-tree, in the following manner — The natives of the islands of Banda and Amboyna saw the body of the tree into small pieces, and, after bruising and beating them in a mortar, pour water upon the fragments. This is left for some hours undisturbed, to let the pithy farinaceous matter subside. The water is then poured off, and the meal, being properly dried, is formed into cakes, or fermented and made into bread, which, it is said, is nearly as palatable as wheaten bread. The Hottentots make a kind of bread from another species of sago-tree. The pith of this tree is collected, and tied up in dressed calf, or sheep-skin, and then buried in

the ground for several weeks, which renders it mellow and tender. It is then made into cakes, which are baked under hot embers. Others roast the sago-tree pith, and make it into a kind of porridge.

The sago of commerce is made from the pith of this tree, but it is granulated by passing it through a sieve. It acquires its brown colour from drying it on hot stones.

26. *Cassava Bread* is made in the Carribbee Islands from a very poisonous root called *manioc*, rendered wholesome by the extraction of its acrid juice, which the Indians use for poisoning their arrows. So powerfully poisonous is this juice, that a tea-spoonful is sufficient to take away the life of a man. The root of the *manioc*, after being washed, scraped clean, and grated in a tub, in enclosed in a sack made of rushes, of very loose texture. This sack is suspended upon a stick placed upon two wooden forks. A heavy vessel is suspended to the bottom of the sack, and is so contrived as to press the juice out of the roots. When the juice is all taken from the roots, they become a sort of starch, which is exposed to smoke in order to dry it; when well dried, it is passed through a sieve: it is now called cassava. It is baked into cakes by laying it on hot iron plates, or on hot earth. The article called *tapioca* is the finest part of cassava, collected and formed into small tears, by straining the mass, while it is still moist, so as to make it into small irregular lumps.

27. *Plantain Bread* is made from the fruit of the plantain-tree. This fruit is about a foot long, and from an inch and a half to two inches in diameter, and has a tough skin, within which there is a soft pulp, of a sweet flavour. The fruit is generally cut when green; the skin is taken off, and the heart is roasted in hot wood-embers for a few minutes: it is then scraped, and served up as bread. This tree is a native of the East Indies, and other parts of the Asiatic continent, but it

is cultivated on an extensive scale in Jamaica. It is said, that without this fruit the West India Islands would be scarcely inhabitable, as no species of provisions could supply its place. Wheaten bread flour is not so agreeable to the negroes, and they greatly prefer it to the fruit of the bread-tree.

28. *Banana Bread* is made of the fruit of the banana-tree. This fruit is about four or five inches long, of the shape of a cucumber, and of a highly grateful flavour. They grow in bunches that weigh twelve pounds and upwards. The pulp of the banana-tree is softer than that of the plantain-tree, and of a more luscious taste. When ripe it is a very pleasant food, either undressed, or fried in slices like fritters. All classes of people in the West Indies are very fond of it. When preparing for a voyage, they take the ripe fruit and squeeze it through a sieve ; then form the mass into loaves, which are dried in the sun, or baked on hot ashes, having been previously wrapped up in leaves.

29. *Moss Bread*, or bread made of moss, is prepared from a species of the tribe *lichen*, called rein-deer moss, which contains a considerable quantity of starch. The Icelanders form the *lichen Islandicus* into bread, and it is said to be very nutritive. The moss is collected in summer, dried, and ground into powder—of which bread, gruel and pottage are made. It is also boiled in milk or whey till it comes to a jelly. It should be previously steeped some hours in warm water, in order to extract the bitter matter with which it is impregnated, which is not only disagreeable as to taste, but is also a purgative.

30. *Dried Fish Bread.*—We have shown that a great variety of substances are used as substitutes for flour bread. We now come to dried fish, which appears to be an odd thing to make bread of. In Iceland, Lapland, Crim Tartary, and other parts of the north, a kind of bread is made of dried fish, beaten first into

a powder, sometimes with the inner bark of trees, and then made up into cakes.

31. *Earth Bread.*—The strangest substitute for corn bread that has ever been employed, is a kind of white earth found in Bautzen, in Saxony, of which the poor in times of scarcity have frequently made bread. This bread-earth, if we may so designate it, is dug out of a hill where saltpetre had formerly been worked. When heated by the sun it cracks, and small globules proceed from it like meal, which ferment when mixed with flour. It is said on good authority that many persons have subsisted for a considerable time on this earth, made into bread. An earth very similar is found in Catalonia, and Sweden, in which country and Norway sawdust has been mixed with meal in times of scarcity to eke out the supply of bread.

In the western parts of Louisiana, the inhabitants eat a sort of white earth, mixed with clay and salt. The boatmen on the Mississippi drink large quantities of muddy water, which must leave on the stomach a considerable quantity of earth—and this cannot, one would think, be productive of health. It does not, however, appear to affect them.

Reverting once more from the various substitutes for bread to bread itself, a few remarks on its uses and properties will form a fitting conclusion to a treatise on the baker and the various productions of his valuable art.

Bread differs widely from the flour of which it is composed, owing to the chemical changes that take place during the process of baking, for although raw flour contains starch, gluten, and saccharine matter, none of these substances can be found in their true character in baked bread. A chemical combination has therefore taken place, by which a new compound has been formed, and which is fitter for

digestion than either of these proximate principles separately. Bread may be made of the flour of different grains, but wheat flour, on account of the gluten which it contains, admits more readily than any other of being converted into light spongy bread. Hence wheaten bread is most generally acceptable, because the more porous bread is, the more easily it is digested. The reason of this is that the bread which by its lightness has the largest volume presents the greatest surface to the digestive juices, and is more easily absorbed. It is, however, insisted upon by medical authorities that bread for ordinary consumption should not be made of too fine a flour, for the gluten of bread is apt to oppress the stomach in process of digestion, so that the coarser particles of flour are required for the purpose of acting mechanically upon the coats of the stomach, and to keep up a degree of wholesome irritation to assist its functions. The result of investigation and of various tests tends to prove that persons who are in robust health, who take much exercise, or who eat bread in small quantities only, and mixed with other food, may freely partake of the finest wheaten bread without suffering any ill effects, but that persons in a delicate state of health, especially dyspeptic patients, others whose employment is chiefly sedentary, and others, again, who consume large quantities of bread, would do well to eat brown bread, in which a portion of bran is introduced, wholly, alternately, or occasionally, as may be deemed requisite. Bread should always be thoroughly baked, and should never be eaten until it has stood at least twenty-four hours after being taken out of the oven. Newly baked bread contains an excess of mucilage in consequence of not having parted with its moisture; hence it invariably disagrees with the stomach, and frequently produces indigestion, biliousness, diarrhœa, dyspepsia, and similar ailments.

Bread has been called the "staff of life," because it is the only food that could alone support life for any length of time; and because we ordinarily eat more of bread than of any other kind of food, and always with an undiminished appetite and relish. It is not necessary to eat bread with every kind of diet, but a certain proportion should form an addition to every meal with those whose digestion is at all weak. With articles of food that contain much nourishment in small bulk, it is useful to give the stomach the proper degree of expansion. When added to animal food, bread has also the advantage of preventing the loathing attending a too copious use of animal food, and also of counteracting its strong tendency to putrefaction. Under certain conditions, however, bread becomes prejudicial; if eaten too freely, or to serve as a meal, it produces viscidity, obstructs the intestines, and lays the foundation of habitual constipation; it is also injurious to young infants, and occasions disorder, griping, and flatulence. If circumstances render it necessary to give bread to infants, it should at all events be slowly toasted, or re-baked as hard as a biscuit or rusk throughout, and then well soaked.

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