

## USEFUL PLANTS.



PLANTS not only supply man with a large proportion of his daily wants, but they also contribute, directly and indirectly, very materially to his comforts and luxuries. As many of us know little even respecting a great many of the plants which so constantly furnish us with the supplies of the food most necessary for the sustenance, of by far the larger portion of the human race, a short account first of some of these may be both interesting and instructive.

The grass family (*Graminaceæ*) is a most important one, for it contains, besides many others, the wheat, which furnishes the staple food of more than three-fourths of the population. The wheat is one of what are called by botanists the cereal grasses. It is a true grass, though it has been so changed by cultivation that few of us would recognise it in its natural or wild state. The botanic name of the wheat is *Triticum*, given to it, according to Varro, from its grain being originally worn or rubbed down (*tritum*) in making it eatable. There are a great many different kinds of wheat, but in England only two are generally sown—viz., the winter wheat (*Triticum vulgare*, variety *hybernum*), and the spring or summer wheat (*Triticum vulgare*, variety *æstivum*). The former (which is the kind most depended on for the crop) is a biennial—that is, it is sown towards the close of one year and flowers and comes to perfection the following year; while the latter is sown early in the spring and comes to perfection the same year. Wheat succeeds best on strong firm land. When the land has been ploughed, and ploughed again, and harrowed, the seed is sown either by a man walking all over the field with a box or bag strapped before him, and throwing the seed out of it by handfuls, which is called broadcast; or by a machine, into which the seed is put, and which, being drawn across the field, sows the seed in straight lines. This latter mode, which is preferable to the former, is called drilling. When the wheat is ripe it is, as most of us know, cut by persons called reapers with a sharp reaping-hook or sickle, or with the reaping machine, the latter being now very commonly employed, and with considerable saving of time—an important point in a climate so changeable and uncertain as that of Great Britain. As the wheat is cut it is tied in bundles called sheaves, and these, when dry, are taken to the rick-yard and put into a rick. As the corn is required for the market, it is thrashed out either with a flail or with a thrashing machine, the latter being the mode now most commonly adopted, and preferable to the former. The grains of wheat being thus separated from the straw, they are winnowed—cleared of the chaff. The wheat is afterwards sent to the mill to be ground into flour, the husky part, which is the bran, being separated by passing the flour through a fine sieve. The straw of the wheat is used in England for various purposes—for thatching houses and other buildings, for making beds for horses and cows, and for making straw bonnets and straw hats. For the latter purpose the best straw is that grown on dry chalk. The leghorn bonnets are made of the

straw of a very fine-stalked wheat (quite different to the common kind), which is cut green, and bleached by laying it for a long time in the river Arno, which has a gravelly bottom. This fine straw is plaited without splitting it, and this is the reason the leghorn bonnets are so strong. Straw bonnets are not so commonly worn now as they were formerly in this country. Straw manufacture is carried on at Luton, in Bedfordshire, and at St. Alban's, in Hertfordshire.

The wheat is generally considered to be a native of a district of Russia and Asia, inhabited by the Bashkirs, a warlike race of men of Turco-Mongolian origin, who are admirable cultivators of various kinds of grain. Large quantities of wheat are imported into this country from various parts of the globe. We receive supplies not only from almost every port in Europe and North America, but also from Northern Africa, the East Indies, Australia, and occasionally from the Brazils. While the quantity of wheat grown in the United Kingdom is about 144,000,000 bushels, or 18,000,000 quarters, the quantity imported is nearly 4,000,000 quarters.

Other plants of importance belonging to the grass family are the oat, barley, rye, Indian corn, rice, millet, and the sugar cane. Few plants belonging to the family are more graceful and elegant than the oat (*Avena sativa*), with its beautiful large panicles of flowers. Many varieties of the oat are cultivated, but in England most commonly the two kinds are the white and the black, or Tartarian, both of which are annuals. In Scotland the kind called the potato oat appears to be most generally grown. The native place of the oat does not appear to have been satisfactorily ascertained, though in the northern parts of Britain the oat in times past formed the staple article of human food. Its greatest use now is in feeding horses. Oatmeal is used for porridge and oat-cake.

The quantity of oats grown in Great Britain and Ireland far exceeds that of all the other cereal grains put together, the total being 30,500,000 quarters, or 244,000,000 bushels. The quantity imported is very much smaller than that of wheat, not one half. "Groats" (so much used in making gruel) are oats with the bran or outer skin removed; "embden groats" are oats skinned and partially crushed.

Barley (*Hordeum distichon*) is another grass of considerable importance to man. Pliny says that barley was the most ancient food of mankind; but it is not so much used for food now as formerly. Tartary is generally supposed to be the native country of the barley. The quantity of barley grown in Great Britain is very large, amounting to about 10,000,000 quarters, but only a small quantity is imported (about 51,000 quarters), all of which we receive from the North of Europe. The barley bread which was once the common food of the poorer classes is now rarely seen in this country. The grain is now mostly used for making beer and spirits, and, when ground, for fattening pigs.

For beer the barley requires to be first malted—that is, the grain is induced to germinate by soaking it in water and applying heat. By this process the starch, existing abundantly in the grain, is converted into sugar, which, if fermented, is easily converted into the half-vinous beer, and by increased fermentation into alcohol.

Rye (*Secale*—from *seco*, to cut—*cereale*) is a native of the Crimea. It is cultivated to some extent in the North of Europe, and there, and throughout Germany, it is generally used for making bread, either alone or mixed with wheat, ranking next in value to that grain for the purpose. Though the flour of rye is very nutritious, it is not much used in this country,

as there is a prejudice existing against it, arising most probably from the very serious and fatal effects produced by what is called ergot of rye, a very poisonous fungus, which attacks this grain. This fungus, when it exists in considerable quantities in bread-corn, produces the most dreadful effects on the human frame, causing the most terrible ulcers and gangrenes, which at length destroy the limbs. Similar effects have resulted from the use of mouldy provisions.

Indian corn, or maize (*Zea*—from *zao*, to live—*mays*), has now become a grain of very great importance, and furnishing us with a most wholesome and nutritious food. It is extensively cultivated throughout the whole of the American continent, most parts of Asia and Africa, and the southern parts of Europe; but it is not suitable for being grown in England, as our summer is too short, and our autumn usually too wet. Large quantities are imported from the United States and Italy. The flour of maize is not very suitable for making bread, but it is well adapted for making puddings. The Indian corn was found invaluable in 1846, the year in which the potato crop so completely failed, when the imports amounted to 3,614,637 quarters!

Rice (*Oryza*—from *eruz*, its Arabic name—*sativa*) is a most useful grain, largely consumed in this country, rather, however, as a luxury in the form of puddings and in confectionery, than as a principal article of food. The rice plant resembles very much the oat in its habit of growth, and has a graceful appearance. It differs, however, from all the bread-corns in being a marsh plant, requiring to be grown almost in water; that is, the ground must be kept covered with water while the plants are growing. Rice is cultivated in great abundance in India, in the southern provinces of China, in Cochin China, Cambodia, Siam, Japan, and other parts of the world. In Carolina it has long been a staple commodity. Its cultivation in the State of Carolina is the result of a small bag of *paddy* (the name by which it is called by the Hindoos), which was given as a present by Dubois (at one time treasurer of the East India Company) to a Carolina trader. Rice has also been introduced into cultivation in the southern kingdoms of Europe—Italy, Spain, and the South of France; and, more recently, into Hungary and Westphalia. Even in England a crop of rice has been obtained on the banks of the Thames, near Windsor. The rice which we get from the southern States of North America is decidedly the best, being much sweeter, larger, and better-coloured than that of Asia, where its cultivation is less carefully managed. The States of Carolina produce the best American rice, and from Patna we get the best East Indian rice. In India a kind of arrack, or strong spirit, is distilled from rice. The beautiful Chinese "rice-paper" was, until recently, erroneously supposed to be made from rice. It is now, however, quite certain that this paper is made from the most beautifully white pith of *Aralia papyrifera*, a very ornamental plant (belonging to the ivy family), with large, deeply-lobed leaves, which may be seen growing luxuriantly, even in the open air, during the summer, in the gardens of the Royal Horticultural Society at South Kensington, in Hyde Park, and in other places. The water-colour paintings of flowers, fruit, and insects on this so-called rice-paper have a very beautiful effect.

Millet.—There are several kinds of this grain which we use, all belonging to the grass family. One kind is the *Panicum* (from *panicula*, a panicle; or *panis*, bread) *miliaceum*, a native of the East Indies, where it is extensively cultivated. Another is the Italian millet (*Setaria*—from *seta*, a bristle—*italica*), which produces a small, round, sweet grain,

used in this country chiefly in confectionery. And a third is the German millet (*Setaria germanica*), used chiefly for feeding cage-birds. Other kinds are used for food in various parts of the world.

The sugar-cane (*Saccharum officinarum*) is a perennial grass of large size, growing from six to twelve feet high. The stem, which is jointed at short intervals, is full of an extremely sweet juice. This grass has now become of immense importance. It is cultivated in a zone extending from 35 to 40 degrees on each side of the equator. It was probably first cultivated in India, for the Venetians imported it thence by the Red Sea prior to 1148. It is supposed to have been introduced into the islands of Sicily, Crete, Rhodes, and Cyprus by the Saracens. It was afterwards cultivated in Spain—in Valentia, Granada, and Mercia—by the Moors, and sugar is still made in these provinces. In the fifteenth century the cane was introduced to the Canary Islands by the Spaniards, and to Madeira by the Portuguese, and thence to the West India Islands and the Brazils. It is now also cultivated in Australia. The Dutch began to make sugar in the Island of St. Thomas, under the line, in 1610, and the English in Barbadoes in 1643, and in Jamaica in 1644. The culture of the cane has since become general in warm climates, and the use of sugar being universal, it forms one of the first articles of commerce throughout the world. Raw sugar is imported from the West Indies, from the East Indies, from Havannah, from the Mauritius, and from the Brazils. The quantity consumed in great Britain has kept increasing every year. In 1851 the quantity imported amounted to 314,300 tons; and now the quantity is more than 400,000 tons. The sugar-cane in the West Indies is propagated by cuttings from the root end, planted in trenches in the spring or in the autumn, something in the manner of hops. The cuttings root at the joints underground, and from those above send up shoots, which in eight, twelve, or fourteen months are from six to ten feet in length, and fit to cut for the mill. A plantation lasts from six to ten years. Sugar-mills are merely iron rollers placed vertically or horizontally, between which the canes are passed and repressed. The juice thus squeezed out is collected and boiled with quick-lime, which, being an alkali, imbibes the superfluous acid, that would otherwise impede crystallisation; all impurities rise to the surface and are skimmed off, and the boiling is continued until a thick syrup is produced, when the whole is cooled and granulated in shallow vessels. In this state it is the raw or muscovado sugar of commerce, and the moist or brown sugar of the shops. The refining of sugar is a process by which all the colouring matter is entirely removed; and thus we get lump or loaf-sugar, which is called single or double refined, according to the number of operations it undergoes. The operation of refining is seldom or never performed by the growers, and generally forms a separate branch of manufacture, extensively carried on in this country.

Sugar-candy is formed by dissolving loaf-sugar in water over a fire, boiling it into a syrup, and then exposing it in a cool place to crystallise. Barley sugar is a syrup from the refuse of sugar-candy, hardened in cylindrical moulds.

Molasses, or treacle, is the uncrystallisable portion of the juice of the sugar-cane, used for various purposes, especially by the poorer classes. Rum is distilled from the molasses, or from the fermented juice of coarse sugar and water.

Most plants contain sugar, and it has been extracted from the beet, and the mangel-wurzel (especially in France), the parsnip, the

maple, the birch, the grape, and the date, though the sugar-cane is preferred, as it is the most profitable, from the greater quantity of sugar obtained. From potato-starch sugar has also been extensively manufactured for mixing with cane-sugar, but the manufacture is illegal in this country.

VARIETIES.

PAYING FOR A TESTAMENT.

A HAWKER once presented himself at the door of a hut situated on the skirts of a wood in a remote district of France. A poor woman opened the door to him. No sooner had he offered her a Testament that she seized his hand with an air of gratitude, and said—

“I thank you; I already possess this book, and have a debt to pay.”

“I have never seen you before,” replied the hawker.

“I will tell you how it happened,” said the woman. “Six years ago a hawker passed this way; he offered me this book, but I had not sufficient money to pay for it: fifty centimes (fivepence) was a great sum to me, and still I had a great longing to possess the book. The man, who observed this, said to me, ‘Take it. I leave it with you; if you have no money to pay for it, you will pay it to the first hawker who passes after me.’ I accepted his offer. At first I thought the book sufficiently expensive; but when I began to read it I considered it cheap. I then began to put a few halfpence aside, but as I advanced I found in it so many beautiful things that I added now and then a few more halfpence. I have known many unhappy hours; I have been sometimes without bread, but not for all the world would I have touched this money.”

As she said this the poor woman produced the fruit of six years' economy. It amounted to five francs, which she consigned with joy to the hawker, telling him that she did not consider that she could ever pay for the book its real value; that to her it was worth more than a thousand francs, but that she gave all that she had.

THE WEARY PLOUGHMAN.—The following line from Gray, “The ploughman homeward plods his weary way,” has been found to admit of eighteen transpositions without destroying the rhythm or altering the sense. The reader will perhaps be content with the following:—

- The weary ploughman plods his homeward way;
- The weary ploughman homeward plods his way;
- The ploughman, weary, homeward plods his way;
- The ploughman, weary, plods his homeward way;
- Weary, the ploughman plods his homeward way;
- Weary, the ploughman homeward plods his way;
- Homeward the ploughman plods his weary way;
- Homeward the weary ploughman plods his way;
- Homeward the ploughman, weary, plods his way;
- The homeward ploughman, weary, plods his way;
- The homeward ploughman plods his weary way.



THAMES CHURCH MISSION.

Thames Church Mission, 31, New Bridge-street, Ludgate-circus, E.C.

MY DEAR MR. EDITOR,—More than a year has elapsed since your most interesting exhibition of ladies' needlework—the outcome of competitive and careful labour by the subscribers to THE GIRL'S OWN PAPER—drew admiring crowds to the premises of the Religious Tract Society.

The committee of this mission owe you hearty thanks for having included “sailors' book-bags” among the many useful articles for which prizes were awarded, for not only was there immediate and substantial gain by your kind gift at the close of the exhibition, but numbers of ladies who had never even heard of a “sailor's book-bag” discovered a fresh outlet for their energies; whilst others, who had already done work of a similar nature, received an impetus to renewed exertion. Others again (unable themselves to make these pretty portable book-cases) found pleasure in filling them with the numerous superfluous volumes and magazines crowding their library shelves.

Thus the happy thought of the editorial mind resulted in a widely extended and daily increasing interest and sympathy in those brave seamen to whom we all owe so much, and your fair readers would rejoice and feel abundantly repaid for all their exertions could they witness the intense delight with which a ship's crew receive the gift of a well-stocked book-bag.

The first book placed in each bag is an eightpenny Bible, numbers of which have been generously granted for this special purpose by the British and Foreign Bible Society. To this are added hymn-books and tracts, and as many interesting and illustrated works of travel, biography, poems, &c., &c., as can possibly be crammed into the remaining space. Outside is the blue mission flag, and a notice that the books will be exchanged on the vessel's return to port.

For small ships one bag is sufficient, but on board the large ocean liners at least five must be given.

During the past twelve weeks alone nearly 2,000 volumes have gone forth to all parts of the world, and there is a constant cry for more.

It is in the power of most, if not all, of your readers to respond to this appeal, and I earnestly trust the response will be liberal and hearty.

There are thousands of warm hearts among those who read your paper. Will you then, Mr. Editor, again direct the current of sympathy into the channel which has already conveyed so much real practical good to our sailors; and the workers, while their fingers are diligently engaged in carrying out your directions, will, I trust, breathe an earnest prayer for a rich continuance of that Divine blessing which, for thirty-seven years, has enabled the chaplains and missionaries of the Thames Church Mission to lead many a sailor to the Captain of his salvation.—Believe me, my dear Mr. Editor, yours faithfully,

E. J. MATHER, Secretary.

Our readers will find directions on p. 175, vol. ii., for making this simple and most useful article. We trust many kind readers will be found willing in this way to help on the work of a most admirable mission to seamen. The bags, when made, should be sent to the secretary, who will gladly acknowledge their receipt.—Ed.