

yellowish grain, and the former much whiter and finer in its flour. The *beladi* is sown early in April, generally on ground that has given a crop of clover. After the land has been well weeded, and the weeds burned and scattered over it, it receives one ploughing. The sowing is then done by drilling two or three pickles of the grain into holes about three inches deep, which are then covered in and the ground divided into small squares of four or five feet, enclosed by raised borders round which the water is carried in narrow gutters. As each square is sufficiently moistened, the water is run off round another till the irrigation of the whole is complete. The frequent watering required being altogether artificial, where the land is distant from the Nile, and so impracticable for *sakkias* or *shadoofs*, the precious fluid has to be carried in skins, in which case it is poured only over the holes containing the seed, with the result of an inferior yield. About three weeks after the sowing, a top-dressing of nitrous earth is given to the ground by some cultivators, to hasten the crop. The harvest takes place about the middle of July, when, after the ears have been cut off and laid aside to dry, the stalks—eight or ten feet high—are pulled up, and piled away to be used as fuel in lime-kilns, to cover in garden alleys, roof village huts, or with the addition of canal mud to build huts altogether. Much of this *beladi* variety is eaten roasted, and in this form is a very common article of diet. The *dhoura shâmy* quickly follows during the early rising of the Nile, and, except that it is less careful, its culture closely resembles that of the spring crop. The produce of the two, from 1,884,414 feddans of land, amounted in 1875 to 10,502,715 ardebs, worth E.£8,193,000, or with E.£325,107 realised for the straw, a gross total of E.£8,427,952. *Dhoura* was already an old Egyptian staple in the days of Herodotus, and the

method of its culture is still such as he witnessed nearly eighty generations ago.

In acreage and value of produce *Beans* ranked next, occupying 1,220,073 feddans and yielding 4,575,273 ardebs, which, at the current value of 100 piastres per ardeb, were worth E.£4,575,273. This crop is grown in nearly all parts of the country, and forms a common article of food for both man and beast. It is sown in October or early in November, after one ploughing, and the seed, which is thrown broadcast, is then covered in with a second. It is cut in March or the beginning of April, when the beans are shelled by the *nôreg*, and the bruised stalks, as in the case of wheat-straw, are reserved for fodder.

In the same year (1875) *Barley* was grown on 520,617 feddans, with a produce of 3,103,085 ardebs, worth E.£2,394,000. This also is a winter crop, sown in November and harvested early in May, and its cultivation is in the main similar to that of wheat. Soon after the subsidence of the inundation, the ground receives a light ploughing, and is then roughly levelled either with a rake or by cattle being driven over it, instead of harrowing. One ardeb of seed is sown to a feddan, with an ultimate yield—varying according to the quality of the land—of from 4 to 10 or even 12 ardebs of grain. Barley, like *dhoura*, is pulled up by the roots, and not cut like wheat.

Rice, which is chiefly grown in the lower Delta, is sown in April, and harvested in October or early in November. The ground to be occupied by this crop is first covered for several days with water, and after having been twice ploughed, is left for a while to dry. It is then again ploughed and submerged, and when thoroughly saturated the surface is smoothed and the seed—having been previously soaked and allowed to germinate—is thrown on broadcast. Round Damietta about one-tenth of a daribé

of seed is given per feddan, but near Rosetta a sixth is used, the produce varying from 2 to 5 daribés, or from 4 to 6 under the most favourable circumstances. Three days after sowing, the ground is again flooded for some days and then drained, and this process is frequently repeated till the maturity of the crop, when the stalks are cut and the grain crushed out by the *nòreg*, like wheat and barley. It is then cleaned from the husks by being passed twice through a mill, receiving during the second passage a slight mixture of salt. The total produce of this crop, the surplus of which is chiefly exported to Turkey, was 98,521 ardebs, valued at E.£738,908.

These five crops complete what may be called the great cereal produce of the country, the minor ones—which are rather leguminous herbs than cereals—being lentils, lupins, chick-peas, and a seed with a somewhat bitter taste called *helbé*, the flour of which is mixed with *dhoura* by the fellahs. The first of these is sown in the middle or end of November, and ripens in from 100 to 110 days, when the stocks are pulled up and shelled with the *nòreg*, like beans. The year before last it occupied 89,180 feddans, and produced 312,119 ardebs, worth E.£374,543. Lupins, which are sown and harvested about the same time as lentils, yielded, from 26,624 feddans, 132,121 ardebs, officially valued at E.£133,121. Chick-peas, also sown in November, ripen in 90 or 100 days, and from 27,561 feddans produced 110,245 ardebs, worth E.£165,368. Besides these, many other garden-plants are grown in great abundance, of which only onions, garlic, cucumbers, lettuce, beet-root, water-melons, *bámias*, and potatoes need be specially mentioned. These last, however, are not much grown, as the rich alluvial soil is not well adapted to them, and most of the inconsiderable consumption of the root is supplied by imports from Malta and Sicily.

Finally, it may be remarked that oats are not grown at all in Egypt.

Among the non-cereal crops, *Clover* (Arab. *berseem*) ranks next after cotton. In 1875 its total yield was valued at E.£3,043,465, of which 210,273 ardebs of seed, at 150 piastres each, produced E.£315,410; green-stuff on 520,322 feddans of pasture, at 300 piastres in the Delta and 250 piastres in Upper Egypt, E.£160,390; and 8,451,102 loads of dry fodder at 15 piastres each, E.£1,266,665. Three and sometimes four crops of this valuable grass are grown within the year, separately or mixed with other crops—the first sown early in October and ripening in a couple of months; the second fifty or sixty days later; the third is left for seed; and the fourth, which is raised by irrigation, produces no seed, but, like the first two, is eaten on the ground. All working animals in Egypt require a course of *berseem*-feeding every year, their food during the rest of the twelvemonth being dry, mostly beans and chopped straw. This pasturage season begins in November and lasts till March, during which the animals are grazed four times over the same field, which also receives as many artificial waterings. Clover is, in fact, to the Egyptian horse, buffalo, donkey, and cow what *dhoura* is to their human co-labourers the fellaheen.

The cultivation of *Sugar-cane* on an extended scale is a comparatively recent addition to the husbandry of Egypt, and promises, if developed in the ratio of the past dozen years, to become one of its chief sources of agricultural wealth. Forty years ago, only 252 feddans of land were thus occupied; in 1875 cane was grown on 74,855 feddans. Of this large area, 47,696 feddans belonged to the *Daira* estates in Upper Egypt, the remainder being chiefly cultivated by private owners there and in the Delta for sale of the cane to be eaten fresh. The

value of the whole crop for the year was estimated at E.£1,659,023, of which E.£871,833 was produced by 927,471 quintals of sugar (at 90 piastres each) and 371,100 quintals (at 10 piastres) of treacle made in the Khedive's sugar-factories, noticed elsewhere. The profits of this crop to his Highness of course depend primarily on the fluctuations of the sugar market, and to some extent on the accident of a good or bad Nile; although these last affect the Daïra estates less than private land, since in practice they enjoy a first charge on the canals in their neighbourhood, and obtain water, want who else may. The plantation takes place in March, when the cane is laid in furrows about four feet apart, and bearing north and south, so that the prevailing wind may enfilade the young plants. The crop ripens about Christmas, and when cut is at once conveyed to the mills, as any delay in crushing the cane sets up a chemical action that injures the juice, and so damages the sugar. The produce varies from 12 to 20 or even 25 cantars per feddan, according to the quality of the soil, and especially to the abundance of water and care in the cultivation; but while on these estates there need, as a rule, be no want of water, the cultivation is notoriously inferior, and the average yield is therefore not much beyond 12 cantars of refined and 6 of brown sugar per feddan. Even this, however, would yield an excellent commercial return, if the original outlay on the factories had not been excessive, and if their working were more carefully supervised. But they have to contend against the dead-weight of an enormous first cost, and of a management which is, to say the least, much less economical than if the property were worked for private owners. In the hands of a European company, these great estates and factories together would almost certainly yield large profits on a moderate purchase-capital

or rent; as it is, it may be doubted if, with every advantage of privileged labour and water, they now pay 7 per cent. on the cost of the mills alone. Local opinion, nevertheless, is clear that, under sounder economical conditions, sugar-culture might be made one of the most prosperous industries of the country.

At a considerable remove from this great crop, *Flax* forms another important product of the Egyptian farmer. This very ancient plant is cultivated in two ways. In the Saïd, soon after the subsidence of the river in early November, the seed is thrown broadcast on the half-dry ground, which receives no labour whatever, before or after, till the plant is pulled in the following March; in Middle and Lower Egypt, on the contrary, the land is first ploughed and roughly smoothed, it is next divided into small spaces on which the seed is cast, and is then watered. As soon as the plant has sprouted it receives, like the commoner crop of dhoura, a top-dressing of nitrous soil, and is again frequently watered till ripe for pulling. Its subsequent treatment is then nearly identical in both sections of the country, and is closely similar to the methods of preparation—steeping, drying, beetling, and scutching—still followed in those parts of Ireland where handwork has not yet been superseded by machinery.

In 1875 this crop, grown on 23,467 feddans of land, produced 113,577 quintals of the fibre, valued (at 200 piastres per quintal) at E.£227,154, and 82,075 ardebs of linseed, worth E.£123,111. *Hemp*, a sister crop, which is grown chiefly for its oil and its intoxicating preparation called *hasheesh*, is sown and ripens at the same time as flax, to which its subsequent treatment is also in the main similar.

In money-value *Tobacco* ranks next among the minor crops remaining to be named. A considerable quantity of

it is grown in Middle Egypt, but the quality is inferior, and it is used only for the consumption of the army and the fellaheen, Turkey and Syria supplying most of that smoked by the wealthier classes. It pays however a heavy excise duty, and its cultivation therefore is strictly watched by the Treasury. The produce of 1875 amounted to 27,171 quintals, valued (at 500 piastres each) at E. £135,855. *Toombak*, a species of Persian tobacco used in the narghileh, was also grown, to the extent of 4,400 quintals, valued at E. £22,000. *Sesame*, which is principally cultivated for its oil, produced 22,683 ardebs, worth E. £56,706. It is a summer crop, sown a week or ten days after the *dhoura byood*, and ripens in about three months and a half. *Henna*, valued for its dye, yielded 28,473 quintals, worth (at 200 piastres each) E. £56,946. *Indigo*, grown chiefly in Upper Egypt and the Fayoum, produced 4,425 quintals, valued at E. £6,637. This plant gives three years' crops from one sowing, in the first of which it yields four cuttings, and in the second and third years three each. Sown in April, the first crop ripens in seventy days, the second in forty, the third in thirty, and the fourth in twenty-five. The ground is then left without water throughout the winter, but is well irrigated in March, after which a first second-year's crop is grown in forty days, a second in thirty, and a third also in thirty, and the same in the following year, when after a similar interval of rest the seed must be renewed. Of the ten cuttings thus obtained the first two or three are the best. The subsequent extraction of the dye is very simple: the leaves of the plant are thrown into earthen vessels, which are buried in pits and filled with water, heat is then applied, and the liquid boiled till the indigo thickens, when it is pressed into shape and dried.

Safflower, or the bastard saffron (Arab. *cortum*, or

záferán) the flowers of which are used for dyeing, and oil extracted from its seeds, is sown in the middle of November, and ripens in five months. The land receives no preparation before the sowing, but is raked once afterwards, and the grain, when well dried, is threshed out with a rude sort of flail. In 1875 an area of 1,871 feddans was sown with this crop, and the produce valued at E. £11,858.

Opium (Arab. *aboom*, "father of sleep"), though not reported* in the official return from which the statements of quantity and value above mentioned are mainly taken, completes the tale of agricultural products that need be mentioned. It is sown in November in a strong soil in furrows, and in a couple of months attains a height of four feet, when the stalk is covered with long oval leaves, and the fruit, which is greenish, resembles a small orange. As it approaches maturity in April, incisions are made every morning in the fruit, from which a white liquor distils, which is collected in a vessel: this soon becomes black and thickish, and being then rolled into balls, covered with washed leaves of the plant, is ready for the market. The best and most abundant crop is grown on inundated ground: the seeds are crushed for lamp-oil, and the stalks used for fuel.

The *Rose* crop of the Fayoum, though no longer of its former importance, is still a feature in the agriculture of that province. The annual culture begins in May, when the soil, after having been twice ploughed, is divided into square patches, and slips of the flower are planted in holes two or three feet apart. These crops are then covered in, and the earth kept constantly moist, till the young shrubs begin to appear above ground, when the irrigation is reduced, and the trees gradually attain their

* Because, probably, the cultivation is nominally prohibited, though openly connived at by the local authorities.

average height of about two and a half feet. At the end of December, the shoots are cut at the surface of the ground, and irrigation is resumed for thirty or forty days, when the budding and the full blowing of the flower takes place. The young roses are then gathered early every morning, with the dew fresh upon them, and are placed in an alembic, where distillation ensues for six hours. The water is then drawn off, and being slightly yellowed with other water in which roses have been infused, is ready for sale. The consumption and consequent production of the article have greatly fallen off within late years, owing to the old custom of sprinkling guests—for which it was chiefly used—having gone largely out of fashion. About 50,000 ounces is now said to be the quantity annually distilled, nearly the whole of which goes to Cairo and the Levant. No otto of roses is here manufactured, although, from the suitability of its soil and climate for the growth of this flower on the largest scale, the Fayoum might, in respect of the more precious extract, compete favourably with the rose-farms of Adrianople.

The crops thus briefly catalogued have been noticed in the order of their importance: it may be convenient to re-group them in that of the three seasons into which the agricultural year in Egypt is divided. These are (1) the so-called winter (*shitawee*) season, which follows the subsidence of the inundation in the beginning of November, and during which the lands that have been directly watered by the flood are sown with wheat, barley, lentils, rice, beans, clover, lupins, flax, chick-peas, &c., as above detailed; (2) the summer season (*sêfi*), beginning soon after the spring equinox, when the Nile is at its lowest, during which cotton, millet (*dhoura sêfi*), and indigo are grown; and (3) the high Nile (*demeereh*) season, com-

mencing soon after the summer solstice, when the chief crop is a second growth of millet or maize (*dhoura shâmy*)—making a third harvest in the year.*

In addition to these various field-crops, nearly 1,000,000*l.* worth of esculent vegetables, fruit, and other garden-stuff was registered during the year, while more than 4,500,000 date-trees (which are the subject of special taxation) completed the vegetable produce of the twelvemonth, with a gross yield of E.£1,583,000, making, with all that precedes, an agricultural total for the year of E.£45,382,332. With this the official return groups a further total of E.£6,540,783, for horses, donkeys, cows, buffaloes, camels, sheep, wool, fowl, eggs, butter, cheese, honey, salt, fish, quarry-stones, wood, and other quasi-farm produce, raising the entire earnings from the land and its belongings for the year to E.£51,923,115—a sum which, it might be fairly argued, goes far to justify the whole of the present direct taxation of the country. Nor is this at all the limit of its agricultural wealth. As has been previously mentioned, extended irrigation would not only largely augment the produce from the area already under crop, but would add to it above a million feddans of new soil, reclaimed from the desert, and requiring only moderate working capital and a better use of the existing labour-supply to yield as large return as any equal acreage now under cultivation. It is, assuredly, rather in her agriculture than in any possible manufacturing competition with Europe that the true elements of the national wealth and prosperity of Egypt are to be found.

* In the rotation of crops now most commonly practised, wheat is generally followed by barley, dhoura, beans, or lentils; clover by wheat; safflower by tobacco, lupins, or chick-peas; sugar-cane by dhoura; the latter by flax; and that again by indigo, which, as stated in the text, lasts for three years.