

It is now some time since M. Esprit de Fabre showed that our cultivated wheat has been derived from a wild grass still to be met with in the South of Europe; and this he did by a series of well-conducted experiments extending over some few years; which experiments were repeated in the trial-grounds of the Royal Agricultural College at Cirencester. I remember M. de Fabre's essay on the subject in the Royal Agricultural Society's magazine, but, in spite of a pretty accurate memory, I dare not quote it from memory, and I cannot find the number containing the article among the file of the magazine in the library of the Montreal Natural History Society: it was published somewhere about the year 1850.

As regards barley, Professor Lindley has written: "*Hordeum distichum*.—This is the only kind of barley that has been found apparently wild. We have now, before us specimens, gathered in Mesopotamia during Col. Chesney's expedition to the Euphrates, with narrow ears little more than an inch long, exclusive of the awns, or four and half inches awns included, and others from the ruins of Persepolis with ears scarcely so large as starved rye." This, perhaps, with from six or eight grains on a side, may, as the results of cultivation, attain to a ear of barley from five to six inches in length, without the awn, and with from seventeen to twenty grains on a side.

As regards rye, the authority just quoted tells us that:—"*Secale cereale*, common rye, is a cereal grass, distinguished from wheat by its narrow glumes and constantly twin narrow florets, with a membranous abortion between them. Otherwise, it is little different in structure, although the quality of its grain is so inferior. According to Karl Koch, it is found undoubtedly wild on the mountains of the Crimea, especially all round the village of Dshimil, on granite, at an elevation of from 5,000, to 6,000 feet.

Seeing then that different kinds of grain are all derived from some wild forms, it follows that the kinds met with on our farms must have been brought to their present state of quasi-perfection by the art and ingenuity of man, exactly in the same way as the Leicester sheep was evolved from the active, penetrating mind of the great breeder of Dishley; and the process, compared with the natural course of production, must have been something like this:

WILD PLANTS—HOW PRODUCED.

In wild nature, the seed of a plant, when ripe, falls near and around the parent stock; or, if scattered by the wind or other causes, it forms a new colony. In these colonies the soil is not prepared, the plants are not thinned, and the result is a wild unimproved plant like the parent.

CULTIVATED PLANTS—HOW DEVELOPED.

The cultivated plant is due to processes of cultivation, as follows:

1. Selection of seed.
2. Keeping of seed in order to sow at an appointed time.
3. To sow in tilled and manured ground.
4. Sowing at stated distances, or thinning out.
5. Keeping free from weeds.
6. Selection of sorts.

The chief points of the standard to be aimed at in the selection and propagation of seed grain are, according to Major Hallett:

1. Hardihood of constitution, or power to resist extremes of climate.
2. Trueness to type.
3. Quality of sample.
4. Productiveness.
5. Power of tillering.
6. Stiffness and toughness of straw, to avoid lodging.
7. Earliness of ripening.

And, the effects of careful selection may be seen in the

following tables, extracted from Major Hallett's account of his experiments on wheat near Brighton, Eng.:

Year.	Ears selected.	Height inches	Containing grains	No. of grains from finest stool.
1857	Original ear.....	4 $\frac{3}{4}$	47	..
1858	Finest ear.....	6 $\frac{1}{4}$	79	10
1859	Finest ear.....	7 $\frac{3}{4}$	91	22
1860	Wet season—ears imperfect..	8 $\frac{1}{2}$	123	52
1861	Finest ear.....	8 $\frac{3}{4}$	123	52

Thus, by means of selection alone, the length of the ears has been doubled, their contents nearly trebled and the tillering propensity of the stools increased more than five-fold.

Now, mind, I do not at all feel inclined to recommend every farmer to go to the trouble of selecting his seed-grain year by year. It is not possible, particularly here, where our seasons are so short, and our labour so costly. I only give this table to show what has been done *intensively*, and thereby to incite my readers to take a little more pains in the dressing of their seed-grain. There are many winnowing machine (Scottic's, fanning-mills) that will turn out thoroughly clean samples of grain; some working faster than the others, but in this case pace should yield to perfection of work. Look at the two engravings in the present number. Observe the superb ears in No. 1, and compare them with the thin, faulty ears in No. 2. The ears are by no means exaggerated in size: I have seen many quite as fine, and some still finer. It is unnecessary to say that I do not dream of seeing such wheat grown on our Sorel sands, or on the worn out clays of the St. Hyacinthe country; but wherever a good sound loam is found, like the land on the Island of Montreal, on the sunny slopes of Richmond, or on the kindly terraces of Compton, there, without doubt, a judicious selection of seed, a fair amount of manure, and a wise system of cultivation, will produce a crop with ears approximating, more or less, to those displayed in the engraving No. 1.

KINDS OF WHEAT.—*Nomen illis legio*, their name is legion! Professor Low, of Edinburgh, enumerates eleven different sub-divisions; Lawson, the well known seeds-man to the Highland Society, has described eighty-three varieties; the Museum of the Highland Society contains one hundred and forty-one sorts; and Colonel le Couteur, of Jersey, had in his possession, so long ago as 1836, no fewer than one hundred and fifty varieties. Many of these differ certainly in appearance; but much of the difference is probably derived from the mode of cultivation. For instance: the finest white-wheats, sown on our poor clays in Kent, turn in a few years to brown wheat. Oats, again: the finest sample of Scotch potato oats sown in poor, badly cultivated land, will in two or three seasons become bearded, like the Tartar oat, whereas the original stock has no beard at all; showing, of course, a tendency to revert to the wild oat.

After all said and done, I take it, the best way to classify wheat is to regard the shape of the grain, and the form of the ear, for I know, of my own knowledge, that the usual distinction of bearded and non-bearded, spring-wheat and fall-wheat, are, for all practical purposes, vain. Many bearded wheats lose the beard under improved cultivation, and, as in the case above mentioned of oats, the reverse obtains when cultivated on poor soils and exposed situations. As to spring- and fall-wheat, the names are most misleading; for the Talavera succeeds when sown at either season, and nothing is more common, in my part of England, than to sow fall-wheat in February.