

hours before being sown; this will ensure their coming up. In the case of turnips a good plan is to soak half the seed and sow mixed with the other half unsoaked. This will give two distinct bruids, and consequently two chances against the fly. The seed must not be kept over after having been soaked.

*The Agriculture of the French Exhibition.* By John Wilson, F.R.S.E., F.G.S., &c., Professor of Agriculture in the University of Edinburgh. Edinburgh: Adam & Charles Black. 1856.

*From the Canadian Journal.*

The work which stands at the head of this article was prepared in the form of a lecture, and delivered by the author to his Agricultural class in the University of Edinburgh. Professor Wilson is favorably known on this side of the Atlantic. He was appointed one of the British Commissioners to the New York Industrial Exhibition in 1852, when he attended the Provincial Shows of both sections of this Province. Canada is under great obligations to him for the interest he took in our department of the London Exhibition, in 1851, and the favourable disposition he has subsequently shown towards Canadian productions, both in the Paris Exhibition, and with reference to their introduction to the Crystal Palace at Sydenham. The British department of Agriculture in the Paris Exposition was entrusted to his care, and he was also appointed a Juror in the general examination and adjudication of awards. We need scarcely say, therefore, that Professor Wilson must be highly qualified, from previous acquirements and professional duties, to speak and write on the Agriculture of the French Exhibition. We proceed to lay before our readers a few facts and statements relating to this department, gleaned principally from his lecture.

The Agriculture of France continues as yet very defective in reference to two of its most important departments, *drainage*, and the use of *special manures*. The former, Professor Wilson says, is daily becoming more appreciated, and some few plans of drainage were exhibited, with a comparative statement of results. A French writer on agriculture, who has already established a European reputation, Leonce de Lavergne, observes in a recent number of the *Revue des Deux Mondes*: "That with badly worked and badly manured fields as is still the case with three fourths of France, drainage can produce but little good effect. Great progress has to be made in most districts before that. The adoption of a good rotation costs less, and may prove as productive. Then comes the employment of some improved implements, as a good plough, a good harrow, threshing by machinery, and the use of improvers for the soil."

Guano till quite recently has been but

very sparingly used in France. During the first six months of 1854, out of 225,000 tons exported from the Chinese Islands, 113,000 went to England, 98,000 to the United States, and only 5688 to France. In 1855, however, France imported 100,000 tons of this valuable fertiliser. Considerable attention seems lately to have been given in that country to the manufacture of artificial manures, several of which were exhibited. "Of these," the Professors remarks "one, the Fish Guano—

"Particularly claimed attention, inasmuch as the practicability of the manufacture was lately the subject of much discussion in scientific as well as in commercial circles. It was manufactured, I was informed, upon a considerable scale, the process differing somewhat from that suggested in this country. The fish, either the refuse of the market or otherwise, is cut into pieces, and submitted to the action of high pressure steam (four or five atmospheres) in suitable vessels, for about an hour. It is by that time sufficiently cooked, and is then ready for the presses, which expel a great proportion of the water, and leave the residue in the form of a cake. This cake is, by means of a coarse rasp or grating machine, broken up into a sort of pulp, which is spread out in thin layers on canvass, and dried by means of warm currents of air. It is sold either in this state or more minutely divided by means of the ordinary grinding processes. It is stated in this condition to correspond to 22 per cent. of the crude weight of the fish, and to contain from 10 to 12 per cent. of nitrogen, and from 16 to 22 per cent. of phosphate. The price was 20 francs per 100 kilogrammes (about £8 per ton), and the demand regularly increasing. Probably there are few places where this manufacture could be carried out more advantageously than along the north-east coast of this country, where both the raw materials,—fish and fuel,—are so abundantly provided; and I certainly think the simple process of the "*Engrais Poisson*" is more economical than and preferable to the processes hitherto recommended."

In the agricultural implement department there was an extensive display, but nothing particularly novel or superior to what had been previously exhibited elsewhere. There were no less than 350 exhibitors, whose productions as might be expected indicated very different orders of merit.

"The practical trials of the implements were of a somewhat irregular and protracted character. Those coming immediately under the adjudication of the Agricultural Jury were carried out satisfactorily, considering the difficulties attendant upon the operations of such a large number of machines and implements, most differing from, and many of them entirely new to the agriculture of the land. The trials occasioned considerable excitement,—each time the country sent its representatives from far and near. Ministers of State and Imperial

Commissioners, with their President, the Prince Napoleon, Arab chiefs, and foreigners from all parts of the globe, came to see the experiments; while the presence of a battalion and a brigade, with their martial accompaniments, conferred a *novelty*, if not a charm, upon the field. After all, these warlike accompaniments formed a striking background for such a living picture of the peaceful arts. The results of all these comparative trials will be officially made known by the Jury. The character of the English implements was well sustained, in none perhaps more than in the *ploughing* trials, when the dynamometer showed, that while it required only a force equal to 17.01, to turn over a *certain quantity* of earth in a *certain time*, with the best English plough, it required a force of more than 27 to do the same work with the *best* French one, and 32.3 with the best Belgian plough. Many other ploughs were tested, some requiring a force of 60, 80, and indeed nearly 100, so that practically one horse with the English plough would be as efficient as *four* or *five* horses attached to some of the other ploughs. In the trials of Reaping Machines, the Americans were each time victorious; the work was admirably done. An English and a Canadian machine, on *Bell's* principle, were forced to withdraw from some derangement of the working gear. These machines, from their economy of labor, and rapidity and excellence of work, appeared to produce a great effect upon the crowds who witnessed their operations. I fear, however, that the agriculture of France is not sufficiently advanced for their successful introduction. What Palladius said of old, is equally true now,—that they are only to be used when the fields are large, and the surface level,—and these are certainly not the present conditions of France."

"Of all implements," says M. de Lavergne, "the most necessary is the most difficult to perfect; there is not such a thing as a *perfect* plough, and it is very doubtful if it be possible to find one which shall satisfy every condition. All the ploughs were tried by the jury; those which did apparently the best with the least draught were, the English *Honard*, the American [Canadian] *Bingham*, the Belgian *Odeurs*, and the French *Frignon*. As the experiment shewed no very marked superiority in any, it is probable that each nation will keep to its own. That which is defective and imperfect in the work of the plough has to be supplied by other implements; as scarifiers, diggers, harrows and rollers. For these the superiority of the English is incontestable. Nothing can match Garrett's *cinease*, Colman's weeder, and the Norwegian harrow and clod crusher of Crosskill. These superior implements are now copied in France, as far as the high price of iron and the means of our cultivators admits."

In the trial of implements we understand that *Morse's plough*, manufactured at Milton in Upper Canada, stood next to *Howard's*