

noticed at Vienna, as also at the Royal Irish Agricultural Show just held. Its labour-saving power may be realised when we say that a man with a pair of hands can raise from three to four acres of potatoes in a day. It leaves fewer in the ground than when dug by hand, and raises the roots without scratching the skins. Then for earthing-up potatoes, it will be found to be of greater use than the ordinary ridging plough, as it throws the earth lightly on to the plants, and the draught is easier. Another advantage is that it can be readily converted into a ridging plough by the addition of a pair of breasts, which are manufactured for the purpose. These ploughs are made with one or two wheels, and of various sizes—the average weight of a plough being 1½ cwt. From inquiries we made we found there had been a great demand for them in Germany, Saxony, Bohemia, Austria, and Hungary.

THE NEW UNION DOUBLE PLOUGH—manufactured by J. & F. Howard—has been made perfect by a combination of patents; one of the leading features of this plough is that the lifting out of work at "land's end" is done entirely by the horses. The ploughman has merely to release a lever handle, when, by the onward motion of the horses, the shares are lifted out of the ground—a process which greatly facilitates the "turning." We noticed that some of the ploughs on view were made with bodies entirely of wrought iron. While this reduces the weight, it adds to the strength and durability of the plough. They are made from 2½ to 3½ cwt. While we were at the stand there were some Bohemian farmers present. They had perhaps never before seen anything so complete in the shape of a plough. Indeed its mechanism seemed to puzzle them not a little. One of the party who it was easy to see had been used to the old wooden appliance which necessitates the raising of the handles to get it to work, remarked upon the weight of the plough under notice, as he lifted in the primæval fashion. The gentleman in attendance, however, soon set him right by explaining that the handles did not require elevating, because the coulter worked of its own action. "This, it appears, was no new experience to the attendant, who had to give similar explanations every day. It is satisfactory to note that these explanations generally resulted in an order, and that the plough is likely to be generally used in the countries where wider furrows are ploughed than in England; they have been much in demand since they have been shown at Vienna—several having been sold for the estate of Prince Liechtenstein, in Bohemia. They weigh from 1½ to 3 cwt., and they can be had for something like a five pound note apiece. These ploughs also attracted much attention at the recent Royal Irish Agricultural Show. We should add that during our stay in Vienna we learnt the "Howard's Besserabian Plough" was in great demand in Southern Russia, where they were being sent by the hundred. It is a strong implement of the simplest design and construction, made of wrought iron and steel, and with wrought iron wheels. It is intended for deep ploughing, and will stand a deal of rough usage.

THE STEAM THRASHING MACHINE is a very useful machine, and specially adapted for countries where straw is used as feed for horses; for while it thrashes the corn, it chops the stalks into chaff, which is stacked by means of an elevator that blows it into position.

This machine which is manufactured by Ransomes, Sims & Head is much used in South America. When the machine is at work, the wheat, barley, or oats to be thrashed, are placed in at the top of the machine in the ordinary manner, and the grain comes out at one end of the machine, perfectly clean and ready for market; whilst the straw passes out of the other end into the straw chopper, which reduces it into small pieces perfectly separated and softened, in the same way as when trodden out by cattle; in addition to which the straw thus chopped up is entirely free from dirt, dust, or dung. The results obtained by these machines in practice have shown that they are much more economical than the old system of treading out the grain. The farmer is enabled to thrash a large quantity of grain in a short space of time, and without the immense loss which has always attended the method hitherto employed; in addition to which he obtains a better price for his grain, owing to its being perfectly clean and of a uniform sample; and the cattle also thrive better on the straw chopped by the machine, on account of its freedom from dirt. The chopped straw may be raised to a stack of almost any height by means of a blast elevator, consisting of a fan, revolving in a sheet-iron box fixed to the front of the thrashing machine. This fan draws all the chopped straw away from the rollers, and blows it through the square wooden tube, which can be raised or lowered to any height by means of a common winch. This apparatus will effect a saving of at least four men, besides preventing the chopped straw from being blown away between the machine and the stack.

THE MACHINES FOR WASHING, SCOURING AND DRYING WOOL occupy a prominent place in the machinery department of the Vienna Exhibition. They are manufactured at Rochdale by John & William McNaught, and will wash equally well either the longest or shortest of wools, and will deliver them in a beautifully free and open condition—such as is seldom otherwise obtained. When only a moderate or small quantity of wool is required to be washed, a single machine may be used, the wool being passed twice through the machine—the first time to scour it, the second time to wash or rinse it. When a considerable quantity of wool is to be washed, it is the custom to arrange two, three, or four machines connected in the same manner as the two machines (double machine) the wool being scoured and washed at one operation. The greatest portion of the grease and sand or dirt from the wool accumulates in the trough of the first machine. When requisite, the trough of this machine is emptied and refilled with the liquor that has been used in the second machine; which in the case of three machines (a triple machine) may be refilled by the liquor that has been used in the third machine. If there be four machines (a quadruple machine) the liquor used in the fourth machine runs in a similar manner be transmitted to the third machine. The last trough in a double, triple, or quadruple machine may, if required, be used for rinsing in clear cold water, a volume of which may be kept constantly flowing through it. It is a specialty in these machines that the liquor is emptied out of one machine into another by means of a patent steam jet transmitter. This consists of a steam jet introduced in the pipes connecting the troughs, and, when required,

causes the liquor to flow from one trough to the other very rapidly and also allows of the machines or troughs standing all on the same level, instead of at different levels. It also dispenses with the objectionable inclined endless apron or feeder, hitherto used to convey the wool from the squeezers of the first or preceding machines up into the machines that follow. In dispensing with the endless apron, the space that was occupied by it, say about three feet for each machine, is saved. The quantity of steam required to transmit the liquid contents of one trough into another is very small and is all utilised in warming up the liquor in its passage. Another speciality consists in a wool washing machine, which is used in rooms where there is not sufficient length for the requisite number of ordinary straight machines. The trough instead of being straight forms an elbow, thus the feeding part is at right angles with the delivering part. By this method a number of machines may be arranged on three sides of a small room, and still deliver one to another continuously. By the lifting apparatus, the wool after passing through the scouring or washing trough is conveyed to the squeezers with the greatest regularity and certainty. This is the most important feature of a wool washing machine, and it is in this feature that this machine particularly excels. The swing rakes are balanced and fitted with adjustable radius motion. The perforated false bottom plates are all drilled and cleanly countersunk, and the squeezer rollers are fitted with an improved lift whereby they can be relieved from the pressure of the weights when not in work. The machine requires very little power, as all its motions are smooth, simple, and perfectly balanced. Once washed, it is necessary to dry the wool, and this is accomplished by another of Messrs. McNaught's ingenious machines. The agent employed is warm or hot air dispensed by two longitudinal fans. The heat may be varied from cool to hot by regulating the supply of steam to the pipes, or the machine may even be worked entirely by cold air if required. When the wool is wanted to be quickly dried, however, hot air is indispensable. The wool is placed upon wire-works at the top of the machine, the air being blown through by the fans which work beneath. Six passages in the feet and four openings in the ends of the machine supply the latter with air, a very large volume of which passes in contact with the steam pipes, and is distributed evenly through the entire surface of the wool. Both of these machines were tested in our presence, and worked most admirably. They rank among the curiosities of the hall, and crowds of people stand around and examine them, being struck with amazement when, after forty minutes' manipulation, they see the dirty, grimy merino fleeces thrown out perfectly spotless.

THE annual meeting of the Ontario Fruit Growers' Association was held at London, Ontario, on 26th September, Rev. Robert Burnett, President, in the chair. The membership has reached nearly 3000. At the recent exhibition at Boston they carried off 6 medals.

The Guelph Central Fair, just finished, is less imposing, but in some of its de-