out artificial aid from shaken out seeds, of which it produces great abundance. From its rapid and luxuriant growth it is not adapted for sowing with the ordinary grass seeds, and it is said to be very effectual in keeping down weeds, whether sown by itself or with grain crops.

The soils best suited to this grass are such as are rich and dry; on wet clays, it does not succeed at all. In poor sands, *after well manuring*, it has produced astonishing crops both in France and Australia. Having a large cluster of small roots, and an extensive surface of stems and leaves, it derives a very large portion of its nourishment from the atmosphere, and is not considered to be particularly exhausting to the soil, from the mere surface of which it obtains its inorganic food.

Whether this grass could be relied on so far north as Canada, may, in the absence of experience, be considered doubtful. Trials carefully conducted would soon decide this important point. In northern and central France, where the winters are often severe, with a dry atmosphere similar to what we have in Canada, the plant is seldom injured; but in this moist climate of Scotland the old plants were mostly killed during the unusual degree of cold of the winters of 1861-62; but those from autumn sown seeds were not sensibly injured. In our newer settlements, where sufficient protection is yet afforded by the forest, and snow continues on the ground till spring has fairly set in; in other words where winter wheat is not endangered, the introduction of this species of Brom would probably succeed. As the increase of live stock is now universally acknowledged to be among the principal means of improving our agriculture, a condition implying an increased amount of cattle food, no means should be left untried for accurately testing the suitability and adaptation of new forage plants to our climate and requirements.

Labour Saving Machines.

Numberless as are the machines in use upon our farms, there are yet heavy operations for which no substitutes for human hands have been found out, and the field for invention as applied to agricultural practices has much in it that is still unworked, and that calls for the aid of machinery. Among these want are contrivances for loading hay upon the rack when in the field, for loading, unloading and spreading manure, (doing away with the very hard work of shovelling,) for the more perfect pulverization of the soil before seeding, for the better raking of hay with a horse, for the digging and gathering of potatoes, and numerous other occupations Some of these it is true have been attempted, but are, so far as we are acquainted, rather failures than successes, and show that they need to be improved upon to become of much utility. That they will ultimately succeed we have no doubt.

The remark has often been made that with the great change which has been brought about in the farmer's work by the introduction of machinery, it would seem that they would have more leisure time than they do, but, on the contrary, they appear as busy and as hard at work at ever. This, we think, is only in part true. All farmers have enough to do the year round if they are so disposed, for many of our farms are comparatively new, and there is much to do to clear them up, properly fence them, build good buildings and keep them in order. But aside from this, farmers do have more leisure and get along with much less hard work than formerly. This leisure is being turned to good account, we judge, for farmers are better informed, read more and think more than before the days of machinery. The work of the inventor has not only blessed the farmer by rendering his labour easier, but by enabling him to have an opportunity to store his mind with useful knowledge, thereby taking a higher rank in the scale of humanity. And the next generation will continue to reap the benefits of this introduction of machinery to a still greater degree than the present.—*Maine Farmer.*

Utility of Surface Drains.

During a recent ride into the country immediately after the copious rains of May 27 and 28, we were forcibly impressed with the great value of surface drains, and were more strongly convinced of the truth of the views of Mr Harris, as given in our issue of two weeks ago. It is almost a wonder that this matter has not been thought of before, and that small surface drains have not been employed to carry off that superfluous water which has been allowed to evaporate. We have noticed that upon much land where the water stands in considerable quantities after a heavy rain, farmers are obliged to wait a long time for the water to evaporate and the soil to become in a state of readiness for working, when by a little labour in opening a small drain upon the surface the water could be carried off in a few hours, and the process of drying greatly hastened. Again, the difficulty which Mr. Harris speaks of, viz: "Liability of washing, and thereby injuring land by the loss of its most valuable portion," can, if the location and direction of the surface drains are studied and well considered, be completely overcome in almost every instance. In a ride of twenty miles we did not see a single instance of water standing in pools upon the surface that could not have been carried off by small open drains, and made to flow over permament grass, thereby acting beneficially in two ways, preparing the ploughed land to be worked and irrigating the grass land with the finest and best part of the soil washed from the field above. We are satisfied great benefits would result from a well considered system of surface drains and are inclined to believe with Mr. Harris, that "millions of dollars are annually lost by the farmers of the United States, for want of care and attention in this respect. We hope to see the subject practically considered and put in use by our farmers in all situations where it can be productive of the benefits above stated.—*Maine Farmer.*

Ameliorating Effects of Cultivation.

There is scarcely a vegetable we at present employ that can be found growing naturally. Buffon asserts that our wheat is a factitious production, raised to its present condition by the art of agriculture. Rice, rye, barley, or even oats, are not to be found wild—that is to say, growing naturally in any part of the earth; but have been altered by the industry of mankind, from plants not now resembling them in such a degree as to enable us to recognize their relations, The acrid and disagreeable *Apium graveolus* has been transformed into the delicious celery; and the Colewort, a plant of scanty leaves, not weighing altogether half an ounce, has been improved into a cabbage whose leaves alone bear many pounds—or into a cauliflower of considerable dimensions, being only the embryo of a few buds, which in their natural state would not have weighed as many grains. The potato, again, whose introduction has added millions to our population, derives its origin from a small and bitter root which grows wild in Chili and Montevideo If any of our readers are skeptical on the subject of such metamorphoses, let them visit the fairy bowers of horticulture, and they will perceive that the magic wand has not only converted the tough coriaceous covering of the almond into the soft and melting flesh of the peach, but that by her spells the sour sloe has ripened into the delicious plum, and the austere crab of our woods into the golden pippin. That this again has been made to sport in almost endless variety, emulating in beauty of form and color, in exuberance of fertility and richness of flavor, the productions of warmer regions and more propitious climates.—*Dr. Parr on Diet.*

Cheese Factory at Mitchell.—The *Mitchell Advocate* understands that "two gentlemen of large means and long and practical experience in the business, have entered into the necessary arrangements for the establishment of a Cheese factory in the vicinity of Mitchell. The land has been already rented, and the establishment is expected to be in working order immediately after harvest." We hope that the enterprise will prosper, and we have scarcely a doubt but it will prove remunerative to the enterprising gentlemen.

Facts bout Maple Sap.—Sap runs best on a warm day following a frosty night. The best season is usually when the ground is frozen deepest. Sap runs faster when the snow is dug away from the trees. Sap will cease to flow when the wind is to the south. We should like for some of our vegetable physiologists to explain this fact. Sap will flow beter before a rain-storm than a snow-storm. Sap is sweeter from old than young trees; from those that have been repeatedly tapped, than from those that have never been.—*Maine Farmer.*

Professor Voelcker on Wood Ashes.—At a recent meeting of the Royal Agricultural Society of England, in reply to the enquiry of a member respecting the fertilizing properties of wood ashes, Dr. Voelcker is reported to have said that "wood ashes contained many other good things in addition to potash. Amongst these were phosphate of lime in considerable quantities, carbonate of lime, and sulphate of lime. Indeed, the the application of wood ashes might be said to amount to a dressing of potash, a dressing of bones, a dressing of gypsum, and a dressing of marl; and this must surely account for the greater benefit which wood ashes produced in comparison with potash alone. He would rather buy wood ashes, therefore than potash, for potash contained only one of these constituents. There was a good deal of potash in wood ashes, and although the ashes might be washed, they still formed silica of potash."

Stock Department.

Lincolnshire Sheep.

In a recent address before the Cirencester Farmers' Club, Mr J. A. Clarke, of Long Sutton spoke of this famous breed of sheep as follows.—"The old Lincolns, such as my grandfather knew were ungainly animals, with carcases long and thin, razor backs, legs thin and rough, bones large, pelts thick, and though attaining a great weight (mainly 'live weight,' I should fancy!) were very deliberate in laying on flesh—in fact, they were 'regular brutes,' as if they had been bred by some Anti-Bakewell, if you can fancy such a character with a perverse love of clumsiness and slow feeding, and selected generation after generation, not with an eye for early mutton, but with a view to superphosphate and sheepskin, developing the skeleton, and the hide! Their chief merit was their fleece, weighing 8 lbs. to 16 lbs., with a staple 10 to 18 inches in length. This long wool made the breed profitable to the lowland graziers, although covering such an unthrifty coarse-grained carcase of mutton. Now, however, Mr. Clarke observed, the Lincolns were vastly improved, not only with regard to size, but also as to wool; and he went on to say—A farmer, at Liverington, near Wisbeach, grazed 219 Lincoln hoggets and 40 Lincoln shearlings; and the 259 fleeces weighed 117 tods, or an average of 12½ lb. per fleece. Mr. Plowright, near Spalding, whose fat sheep I have already referred to as attaining such great weights of mutton, had in that same year the following 'tod bill'—of hogg and wether sheep, 690 'threes,' 376 'twos,' and 2 'ones,' or 2824 fleeces, being about 11 lb. per fleece, and many of them had been shorn in spring off sheep sold to the butcher. Probably, in ordinary breeding flocks, where the proportion of hogg wool is about one-third of the whole, the fleeces average 8¼ to 9 lb. each. As to the individual animal, the weight of wool is sometimes very great. In 1862, a two-shear Lincoln ram, clipped by Mr. Bond, of Yarborough, yielded a fleece of 23¾ lb.; and though heavy fleeces are too commonly coarse in quality, this was as remarkable for length and fineness of staple as for actual weight. My father's prize lamb at the Lincoln Royal Meeting of 1854 had clipped 5¼ lb. of wool in three years, an average of 17½ lb. per fleece. Lincoln wool is in great request, from its peculiar properties of length, strength, and lustre and brightness. It is not requisite that the fibre should be very long—indeed, it need not exceed some six inches in length—to come under the designation of 'lustre wool;' but the longer and stronger it is, providing it be bright, and not coarse, the more valuable it is. At Battersea Show, my father and myself exhibited a hogget fleece on the back of the sheep, the length of staple of which averaged about 17 inches; the age was about 16 months. I have a lock or staple of wool from a ewe hogget which is 24 inches, and another from a ewe, but of more than two years' growth, which is no less than 40 inches in length. You are aware that wool is classed by manufacturers in two general divisions. These are clothing wools and combing wools. The short wools for the most part belong to the clothing, and the long wools to the combing quality. The short wools are pre-eminent for their felting property—that is, the tendency of the fibres to adhere together, owing to the minute serrations (sometimes over 2000 in a lineal inch.) When the wool has been carded, spun, and woven into woollen cloth, and is then put under the strokes of the fulling mill, this process of felting takes place. But long wool, having fewer of the serrations upon its fibres, possesses the felting property in a minor degree, and it is called combing wool, because one of the first operations in manufacturing stuff and worsted goods from it is to pass the wool through heated iron combs, thus rendering the fibres smooth, and more like fibres of silk or cotton, without, however, losing in the natural lustre. One main use for which our lustre wool is sought after is in the manufacture of 'Alpacas,' "Coburgs," and various fabrics composed of mixtures of cotton and wool; the gloss given by the wool is so admired as to have become a rage and fashion in materials for both gentleman's paletots and ladies' dresses; and the weaver likes the wool because the microscopic saw-like teeth of the fibres take hold of the cotton in the process of weaving, and bind both together, making a sound and serviceable cloth.

The product in thread or cloth from a fleece of wool is something astonishing. At Norwich, many