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THE

Canadian Agriculturist.

VOL. IX. TORONTO, DECEMBER, 1857. No. 12.

NOTICE TO SUBSCRIBERS—END OF THE VOLUME.

The present number closes the *ninth* volume of the *Agriculturist*. We have endeavored under many discouragements, to keep the *Agriculturist* up to the standard which we marked out at the beginning of the year; but have probably failed, and come short in some points. Still, on going through the volume for the purpose of preparing an Index, we have felt assured, by the variety, interest, and importance of the contents, that *if read* by those into whose hands the work has been placed during the year *much good* must have been accomplished.

In addition to the twelve numbers of the *Agriculturist* we have been able through the liberality of the Board of Agriculture, to supply our subscribers with several pages of the current volume of the Board's "Transactions," containing matter of peculiar interest to every Canadian Farmer. This has been furnished at considerable extra cost and trouble to us, and without any expectation of direct profit in return. We hope our subscribers, and especially members of Agricultural Societies, will appreciate these efforts to disseminate useful information, and to awaken increased interest in their calling among the tillers of Canadian soil. If they do, they will show that appreciation by making additional efforts to extend the circulation and usefulness of the *Agriculturist*. We want at least 5,000 additional subscribers to make the work a paying one at the present price. Will the farmers of Canada allow us to go on, year after year, devoting a large portion of time and means to to their interests, without even a fair indemnity for actual loss? We have persevered for ten years in this almost thankless labour, and begin to feel somewhat weary. It would grieve us to see the publication we have endeavored to establish through so many years of trial and disappointment go down at last. Other pursuits offer the writer far more encouraging rewards, but he could not abandon the *Agriculturist* without a pang of regret. As we stated on a former occasion, it has been from the first a "labour of love." But we did hope to establish the work on a footing of respectability, as to appearance and intrinsic merit, that would command the support, pecuniarily, of the

class in whose cause we labour. The price has unfortunately been fixed so low that a very large circulation is required to pay expenses. We believe every half-dollar Agricultural paper in the United States but one, has been given up. It was the issue of a number of these and their introduction into Canada, that induced us to lower the *Agriculturist* to the same price. The question now is, whether we ought not to raise the price or abandon the work? As it circulates chiefly among Societies, and as they want all the funds at their command for exhibition purposes, we fear an increase of price to *them* would prevent them taking the paper.

We shall therefore make an effort for another year, at the present rate, trusting to an increased circulation.

All subscribers for 1857 who *continue the work*, will receive the remaining sheets of "Transactions," thereby obtaining a complete volume of that publication. If the Board furnish us their next volume on the same terms as the present, we will send that also to subscribers.

Persons *renewing* their subscriptions should state that they were subscribers for 1857, if they desire the remainder of the "Transactions."

Societies in arrears, will greatly oblige us by an immediate remittance. And those ordering for 1858, should remember that our terms are *payment in advance*. It causes us much embarrassment as well as loss, to wait till the end of the year. Printers and paper-makers cannot, and *will not* wait so long. Still where Societies have not the funds in hand, we must wait as heretofore.

Terms, for 1858—50 cents per copy.

AGRICULTURAL STATISTICS—THEIR IMPORTANCE.

The following remarks on Agricultural Statistics, is from the *Mark Lane Express*, the highest authority on all such topics in Great Britain. The figures and comments upon them, relating to the United States and Canada, will be found worthy of perusal by the intelligent agriculturists of this country. We trust when the next Census is taken in Canada, efforts will be made to secure more reliable statistics in regard to the agricultural productions of the country, than on the last occasion :—

Looking at the large extent of our trade with the United States, and the extensive supplies of agricultural produce we draw from thence, accurate statistics are greatly required, and would be very acceptable. The American government professes to do much in the way of returns, and the commercial journals of the States issue elaborate, but very conflicting estimates from time to time, of the prospects of the crops, the results of the harvest, the shipments, average prices, &c. In nearly all the departments of human effort connected with commerce and agriculture, with which the prosperity of the Republic is most immediately identified, there is felt to be a lamentable want of trustworthy information.

One of the latest Philadelphia papers received, touching upon this subject, says:— "The great crops of the present year are nearly harvested over a large portion of the country, and are rapidly maturing in the other part of it. Yet at this time we have not even the meagre returns which are issued from the Patent-Office of the results for last

year There are no official data at Washington upon which the productive industry of the United States can be accurately calculated; and all the statements which have been put forth, professing to give precise aggregates of the various crops, are conjectural and without any means of verification."

To the statesman, the merchant, the farmer, the mechanic, the manufacturer, and indeed the men of every pursuit, reliable returns of the production and industry of a country are of the first consequence. They form the basis upon which public policy should be directed and private interests governed.

Most of the European governments have, with a just appreciation of the value of statistics, taken extraordinary pains to establish a thorough system, extending to every calling, through which the completest and most detailed information is obtained every year. The examples of Scotland and Ireland show that there is no serious practical difficulty in organizing a system for obtainining early and reliable information with regard to the yield of the cereal crops. It requires but two leading requisites: first, intellectual comprehension, to grasp the subject in its large entirely; and next, the faculty of detail, by which its minute parts might be judiciously distributed over so large an area as the American Union presents, and embracing so many pursuits. A department or bureau on such a basis would materially reduce the cost of taking the decimal census besides furnishing materials for authenticating its most valuable results; and the people would thus be enabled to get some actual knowledge of the progress, resources and annual wealth of the country.

In the absence of these collective official data, we are left to glean from various commercial channels the figures calculated ta afford any indications of the condition of the States.

Agriculture has made wonderful progress everywhere in the last quarter of a century, and especially in the United States. The Americans are now not only producing grain enough to supply their own rapidly increasing population, but have millions of bushels to spare. In the ten years between 1840 and 1850 the annual aggregate wheat crop of the United States was increased from 84,000,000 to 100,000,000 bushels, an advance of nearly 20 per cent.; but in 1855 it had further increased to 165,000,000 bushels, a larger ratio still.

In the new States the wheat crop is greatly on the increase, owing to the virgin soil of the country, and the large tracts of land which are annually cleared or broken up and brouht under cultivation. In the middle States, where a favourable soil has been supported by careful tillage and suitable manures, the wheat crop has held its ground. But in the older States, wheat production may be said to be rapidly on the decline. Climate in the north-earstern States, and careless culture, with a general disregard of the wants of the soil, are among the most active causes for this decline.

Europe can no longer, under the increasing demand for comforts by the million, supply their food-wants: and an annual balance has therefore to be drawn from the countries across the Atlantic. The additional work to be performed by the United States long since exceeded the labouring force at her disposal; and a triumph of intellect over physical exertion was finaliy achieved by the inventive genius of the nation. Sowing, reaping, thrashing, and mowing machines have, according to the American journals, turned already, in the United States, a million of hands from the labours of the field and the barn to other kinds of employment, which, though necessary, would otherwise have been left undone. The entire value of the work produced by this million, while the newly-created machinery prepares the materials for their sustenance, is a clear annual gain to the country and to society at large.

In the invention and construction of labour-saving machinery to farming purposes consists the progress of the middle of this nineteenth century in agriculture: and, wonderful as the results appear, we stand as yet only upon the threshold of the new era of reform and improvement.

The United States may br divide into four characteristic geographical sections: I. The large southern and south-western section, engaged extensively in the cultivation of the great staples of cotton, sugar, and rice, with Indian-corn as the principal element of subsistence. 2. The southern and south-western section, engaged principally in the cultivation of grain, tobacco and hemp, and the rearing of live stock, in which slave-labour is employed to a considerable extent, though not upon so large scale as in the first section.

3. The large northern and north-western sections, engaged very extensively in growing all kinds of grain, hay, root-crops, and other agricultural products of less value. 4. The eastern section, where manufacturing and mechanical arts form leading branches of industry in most of the States, combined with agricultural products (consumed almost exclusively at home), with dairy husbandry, and fishing and navigation followed in most of them.

The value of the breadstuffs and provisions exported from the United States has progressed as follows:—1845, 16,743,421 dollars; 1850, 26,051,373 dollars; 1854, 65,901,240 dollars.

The aggregate domestic exports of the country, which in 1821 were under 65,000,000 dollars, were in 1849 131,710,081 dollars, and in 1856, 266,438,051 dollars, while in 1854 they had been even twelve millions of dollars higher.

We have data from Washington before us, which, though not very accurate, gives probably a tolerably close estimate of the agricultural produce of the United States in 1855. From these it would appear that the crop of Indian corn was about 600,000,000 bushels, valued at 360,000,000 dollars; the crop of wheat, 165,000,000 bushels, valued at 247,500,000 dollars.

The oat crop, 170,000,000 bushels, valued at 68 million dollars, and potatoes—110,000,000 bushels, worth 41½ millions dollars. The cotton crop was estimated at 136 million dollars, while the hay and fodder crop was equal to 160 million dollars. The aggregate of the vegetable products was valued at upwards of £271,000,000 sterling, and the domestic animals and their products at 186½ million pounds more, showing that the agricultural resources of the country are of vast extent and magnitude. From the single port of Chicago alone the grain and flour exports to Europe are enormous. The shipments in 1855 were equal to 16,633,813 bushels, and in 1856 to 21,583,221 bushels while the general receipts of grain have gone on increasing until that city has become the largest grain depot in the world. In 1854, 15,804,423 bushels were received there; in 1855, 20,487,973 bushels; and in 1856, 24,674,824 bushels, a steady annual increase of 20 to 30 per cent. The whole shipments from the United States to England in the year ending June 30, 1856, were 8,269,001 bushels of wheat, and 6,704,105 bushels of Indian corn, which was not equal to the collective shipments to different places from the single port of Chicago.

The British province of Canada is keeping pace with the United States in its grain produce. The wheat crop has increased by some 12,000,000 bushels in five years; and last year 9,391,531 barrels of flour were exported, against 6,413,428 barrels in the previous year.

REAPING-MACHINES IN SCOTLAND.

We condense the following from a Scotch paper. An interesting local competition of reaping-machines took place at Inchture, under the auspices of Lord Kinnaird. The match took place on a field of wheat on the farm of Mr. Suttie, New Mains of Inchture, and although many who had been expected were prevented from attending on account of Falkirk Tryst being held the same day, the novelty of the scene attracted a good many spectators, and their number would have been largely increased had the competition been more generally known. Among those present were the Right Hon. Lord Kinnaird; Hon. Arthur Kinnaird, M.P., Sir John Ogilvy, M.P., Mr. Heneage, M.P., Colonel Kinloch of Kilrie: Mr. Sime, Balgay, &c. Lady Kinnaird and the Hon. Mrs. Kinnaird were also present in their carriage during a considerable part of the day, and appeared to be interested spectators of the working of the various machines. The machines entered for competition were:—

1. Lord Kinnaird's, made by James Bury, self-delivering, the delivery of the grain being by three revolting strips of cloth, with cross wooden bands at short distances, to give a roughness to the surface—a recent improvement by Lord Kinnaird.

2. M'Cormick's machine, made by Bury, and also self-delivering by a revolting web (the machine that was used by Lord Kinnaird last year), belonging to Mr. Suttie.

3. A Dray's Hussey, belonging to Mr Murray, Wardheads, and the delivering of the grain being by a person with a rake.

4. A Bell's machine, belonging to Mr. George Bell, Inchmichael.

5. Burgess and Key's improved M'Cormick, with the self-delivering screw apparatus adjusted to it by them.

6. A Crosskill's Bell, belonging to Mr. Brough, Mains of Inchture. This machine was withdrawn shortly after the commencement.

The trial commenced about twelve o'clock noon, the field of wheat having been previously divided into portions of two imperial acres for each machine.

The first machine, which attracted much attention on account of its novelty, was the property of Lord Kinnaird, and was at work for the first time, having only been completed a few hours before the commencement of the competition. The leading peculiarities in this machine are—that it has a lever-power attached to it by which the cutters can easily be shifted so as to cut the grain high or low, and that it delivers the grain on an entirely new principle. Instead of delivering the grain by a sheet of canvas this is effected by means of three revolving canvas belts or bands, on which are placed small wooden bars at short intervals. This machine cut the wheat most satisfactorily, and left the grain at the side in a very regular way, so as to make the work of binding a comparatively easy matter.

The second machine, which is the property of Mr. Suttie, and which was exhibited last year by Lord Kinnaird, delivers by a revolving web of cloth, like Bell's, and is worked with great ease, the work being also well done.

The third (or Dray's Hussey's) machine, which belonged to Mr. Murray, Wardheads, and with which he has cut down all his crop this year, was also admired for the excellent work it made. It is smaller than any of the other machines, and therefore cuts down a less breadth of grain in a given time, and it has also this additional disadvantage, that it requires two men to work it—one to drive, and another to stand behind and deliver the grain with a rake. This, however, is partly compensated by the fact that the deliverer leaves the grain in neat sheaves all ready for binding, so that the time spent in gathering the grain into sheaves after the other machines is saved by the Hussey machine. It is also comparatively light, costs only £25., makes excellent work on all kinds of grain, and is altogether a very good machine for a small farm, as it cuts down from seven to eight acres a-day, and with nine persons in attendance to bind and stock the grain, besides the two who work the machine, the work is completely finished at once.

The fourth, or Bell's machine, the property of Mr. Bell, Inchmichael, was the largest and heaviest machine, and could evidently go through much more work than the others in a given time, though with harder work to the horses. It has this great advantage, that as it is driven from behind, it can enter the field at any part at once, while all the others require first a portion to be cut down by the scythe, as they are either driven by the side or front of the machines. Another advantage possessed by Bell's machine is, that as the grain can be delivered at either side of the machine, it can cut up or down the field with equal facility. The great drawback of the machine at work on Tuesday was its extreme weight, upwards of 17 cwt., while Lord Kinnaird's and the other machines were scarcely half that weight. We believe, however, that this description of reaper is now made of lighter construction, and in that case it is likely to keep its ground as an excellent machine, for general use, for although it is much higher in price than Dray's Hussey, or even than Lord Kinnaird's improved machine, it does its work much more quickly, and on the whole nearly as satisfactorily as these machines; for although Dray's Hussey leaves the grain in sheaf, it requires an additional man to do so.

The fifth machine, which was a M'Cormick, improved by Burgess and Key, and is the property of Mr. Suttie, divided the attention of the spectators with Lord Kinnaird's partly on account of its novelty, and partly on account of the neat method in which it delivered the grain by means of revolving screws. This machine gained the prize at Salisbury last year, and it has certainly many claims on the attention of the farmer, as it appears to cut the crop as well as Bell's machine, while if lays the grain out in a finer swathe.

The sixth machine was a Crosskill's Bell, the property of Mr. Brough, but it was not so long on the field as the others, and besides it is more generally known, so that it excited less curiosity.

After the machines had cut down their respective lots, the company were hospitably entertained to luncheon by Mr. Suttie.

The judges—Colonel Kinloch of Kilrie; Mr. Bowie, Mains of Kelly; and Mr. Smith, Westhall—gave in the following report at the close of the competition:—

"We the undersigned, having been requested by Lord Kinnaird to inspect and report upon the merit of several reaping machines, as well as upon the skill and proficiency of the conductors at a trial held on Mr. Suttie's farm at New Mains of Inchture, give it as our opinion, although difficult to decide from the unfavourable state of the field and the lay of the wheat, that the prizes, amounting in all to £3 and the Highland Society's silver medal, should be awarded in the following order:—

"1st To David Anderson, servant to Mr Suttie, New Mains, conductor of Burgess and Key's screw machine, 5s, and the medal.

"2nd To Andrew Anderson, servant to Lord Kinnaird, driver of Lord Kinnaird's new machine £1.

"3rd. To David Bisset, deliverer, and to Barclay Murray, driver of Dray's Hussey machine, belonging to Mr. Murray, Wardheads, 10s. each.

"4th. Peter M'Donald, driver of Bell's machine, belonging to Mr. Bell, Inchmichael, 10s.

"5th. W. Anderson, driver of Lord Kinnaird's old machir servant to Mr. Suttie, New Mains, 5s.

"Considering the nature of the crop, the work on the whole was very much to our satisfaction. We remarked specially the efficiency of the work performed by Burgess and Key's machine, and the regular way it laid the wheat in the swathe. Lord Kinniard had a machine at work for the first time, in which he has introduced several improvements—more particularly his principle of shifting to cut high or low, and the wooden-barred canvas belts in place of the large sheet of canvas commonly in use. This machine costs only £30, and did its work admirably. We also noticed Mr. Bell's machine making fine work, although we considered both man and horses rather hard wrought. Hussey's machine made excellent work, and was very well handled by the two men in attendance, but it went over less ground than most of the others. We cannot omit noticing the great zeal and perseverance of the landlord, Lord Kinnaird, in trying to get the best reaping machines introduced into this country; and the exhibition of to-day warrants us in giving it as our opinion that very soon a perfect reaping-machine will be in general use."

Turkish Mode of Making Coffee.—The Turkish mode of making coffee produces a very different result from that to which we are accustomed. A small conical saucepan, with a long handle, and calculated to hold two table-spoonful of water, is the instrument used; the fresh-roasted berry is pounded, not ground, and a dessert-spoonful is put into the minute boiler; it is then nearly filled with water and thrust among the embers; a few seconds suffice to make it boil, and the decoction, grounds and all, is poured out into a a small cup, which fits into a brass socket much like the cup of an acorn, and holding the china cup as that does the acorn itself. The Turks seem to drink the decoction boiling, and swallow the grounds with the liquid. It is taken plain—sugar or cream would be thought to spoil it; and Europeans, after a little practice, are said to prefer it to the clear infusion drank in France. In every hut you will see those coffee-boilers suspended, and the means for pounding the roasted berry will be found at hand.

There is nothing so agreeable to nature or so convenient to our affairs, whether in prosperity or adversity, as friendship.

Tar, a Remedy for Mice.—I find that the application of tar with a stiff brush to the bodies of young fruit trees will prevent the mice from girdling them, when drifted with snow in winter. Will you or some of your subscribers be so kind as to inform me whether tar will be in any way likely to injure the young trees.—J. V. Shanke, *Springport, in R. N. Yorker, Nov.* 1857.

Remark.—The tar will not injure the trees, so say those who have tried it.

ETOBICOKE TURNIP MATCH.

The match comprised ten competitors, paying one pound each; the Agricultural Society, for the encouragement of root culture adding the sum of five pounds, making a total of fifteen pounds, which was divided into three premiums, £6 5s., £5, and £3 15s., espectively.

Toronto, Nov. 14, 1857.

Thomas Musson, Esq., Sec. Etobicoke Agricultural Society.

Dear Sir,—We the undersigned having been appointed, with Mr. George Leslie, (whose unavoidable absence we regret); judges of turnips, and instructed to assign three prizes to the three best specimens of turnips, of not less than one acre each, beg to report as follows:—

On the 10th and 11th instant, we inspected the turnips of the six competitors who had resolved on standing the trial. In each case we measured off a space 33 feet square, equal to the fortieth part of an acre, in what appeared to be an average portion of the field, and after topping the bulbs the produce was carefully weighed, a process much better calculated to secure trustworthy results than the most exact measuring.

We shall state briefly a few facts and inferences relative to each growth, in the order of the amount of produce, beginning with the largest.

Mr. Robert Conway, near Weston, in the Township of York, had a splendid piece of purple and green top Swedes of about two acres. The ground was deeply ploughed in the fall after potatoes, and liberally manured with farm-yard dung. Turnips sown about the middle of June, with a slight dressing ot the same kind of manure, in drills 24 inches asunder. The soil a lightish loam resting on a thick stratum of gravel. The latter fact will in a measure account for the soundness and superior quality of the bulbs after so wet a summer. The space measured (one-fortieth of an imperial acre,) yielded 1642 lbs of excellent well-grown turnips. Estimating a bushel of Swede turnips at 56 lbs, this would be at the rate of 1173 bushels per acre!

Mr. William Lee, of York Township, near the Don, dressed with stable-yard manure, purple-top variety, in drills 20 inches apart, sown 10th of June. A light soil, resting on a wet subsoil. Bulbs rather small, with a strong inclination in some to decay, and long necks or shanks; owing, no doubt, to the wetness of the soil and the peculiar character of the season. Yield 1129 lbs., being at the rate of 887 bushels to the acre.

We were much interested in observing the operation of some covered drains in the same field, four feet deep. They were laid with three-inch pipes, and have kept running through the whole of the summer, discharging an immense amount of water. Mr. Lea manufactures various kinds of draining tiles, pipes, &c., of excellent quality.

Captain Shaw, near the city of Toronto—Sowed in drills 20 inches apart, about the middle of June, after a dressing of farm-yard manure. Soil, a lightish loam; but the subsoil appeared wet, and the corp, both as to quantity and quality, had severely suffered thereby. The season had evidently been too unfavourable for the usual display of the Captain's skill and perseverance in root culture. Many of the bulbs were rapidly decaying, and distinguished by long necks. The produce was 1052 pounds, or 751 bushels per acre. That the inferiority of the quality and style of growth in this crop was owing to the peculiarity of the season, and not to the impurity of the seed, is in this instance most conclusive. Last year Captain Shaw's purple tops were well grown and sound. He had a considerable portion of old seed left, which has produced this season turnips inferior in size and quality with long necks, &c. Indeed, on wet lands in particular, this tendency has been obvious in other productions during the late remarkable season.

Mr. E. W. Thomson, Aikenshaw, York Township—Purple tops, sowed in drills 28 inches apart, with farm-yard manure. Soil light, dry, and sandy. Previous treatment liberal; bulbs of uniform, moderate size, well shaped, devoid of long shanks, and perfectly sound. Yield, 1019 pounds, or 728 bushels to the acre. Sown about the middle of June.

John Clayton, near the Humber, in the Township of Etobicoke.—Soil light and sandy; sown in drills only 18 inches asunder; no manure; had turnips last year on the same ground, well manured with farm-yard dung; bulbs small, with symptoms of decay.—Yield, 928 pounds, being equivalent to 663 bushels per acre.

William Wilson, Mimico, Township of Etobicoke.—Soil black vegetable matter, lying low and wet; the turnips, consequently, after such a season as the last, were generally unsound and rotting. Drills 22 inches apart, with no manure, after turnips last year with manure. Produce 720 pounds, or 515 bushels per acre.

In comparing the above mentioned facts, we award the first prize to Mr. Robert C nway; the second to Mr, William Lea; and the third to Mr. E. W. Thomson. Although the weight of Captain Shaw's was somewhat more than that of Mr. Th mson's, we are of opinion that the decidedly superior quality of the latter renders the crop more valuable either for the market, or for ordinary feeding purposes.

It was impossible to make this tour of inspection without being deeply impressed with the great benefits that draining produces on wet lands. The general culture of the crops we investigated, appeared in all cases far more uniform and thorough than results would seem to indicate—the difference being largely attributable to the different conditions of the soil in regard to heat and moisture. Even in dry seasons, land naturally or artificially drained, is found to pass the trying ordeal of a drought much better than wet; the large amount of moisture contained in atmospheric air in the driest weather, gets access to the roots of plants by means of the drains and the interstices of the soil.

Although the late season has not proved favourable to the healthy growth of root crops, we cannot conclude this brief sketch without expressing a conviction, after an experience of three successive years in a duty of this nature, that this important department of husbandry is surely progressing in these Townships, and we trust and believe, through the country generally. For it is in a high degree we must look to a more extensive and perfect culture of root crops for the sustentation of improved breeds of stock, which are essential to the advancement and profit of Canadian agriculture.

Respectfully submitted,

GEORGE BUCKLAND.
JAMES FLEMING.

TELEGRAPHIC IMPROVEMENTS.—Edward Highton, C.E., of England, has just obtained a patent for, firstly, sending telegraphic messages *both* ways through one and the same wire, at the same instant, without interfering in any way with each other; secondly, for preventing the destruction of a wire in the sea or under ground; and, thirdly, for mending a decayed telegraphic wire in the ocean without raising it out of the mud.

IRON CARS.—Sheet-iron cars, cushioned inside, have been in use on the Baltimore Railroad for about five years, for freighting purposes, and in one instance one of these cars loaded with 80 barrels of flour, was precipitated down a steep embankment without doing it material damage.

ELK BREEDING IN NEW YORK.—A Cattaraugus paper says:—"We paid a flying visit to the Elk Park of L. D. Stratton, in Little Valley, last week. We perambulated the park, containing a hundred acres, with a strip of some four or six rods of clearing round the entire park, the centre being in the original forest state, in pursuit of the elk, in company with several gentlemen, and came up with a drove of nine which was really an interesting sight. They were quite tame, so much so that Mr. Stratton could call them up to him, and they eat salt from his hand. These nine are from the original pair of elk brought to Little Valley from the South-west. Mr. Stratton took his original pair of elk to the recent State Fair at Buffalo, procured a canvas, and exhibited them. He cleared $700 over and above the expenses, having actually taken a little over $1,000; and, at the close of the State Fair, Mr. Stratton sold his pair of elk for $1,000, to some Canadian gentlemen, who made the purchase for the purpose of exhibiting, and are to take them to England."

Charles Holman, youngest son of Orin Holman of Lancaster, Mass, died a few days ago from a bite of a spider. On Wednesday morning he complained of a pain in his mouth, which made it quite difficult for him to eat. Soon a considerable swelling was observed upon one side of his face, and this extending to the brain, ere long produced aberration, and at last mortification set in, and finally death followed.

AGRICULTURE—PAST AND PRESENT.

The growth of everything valuable is slow. A century is required to mature the time-defying oak, while other trees of less value mature in a few years. The pages of history record the triumphs of the warrior, the statesman, the philosopher, the sculptor, the poet and the architect—all of whom left imperishable monuments of their genius, which even yet excite admiration. The painters, the sculptors, the architects of the present day study the works of past ages,—are proud to imitate, and hardly dare hope to equal, much less excel the "masters" of antiquity. The agriculturist looks to the past in vain for knowledge to guide him in his avocation. He finds no Roman or Grecian models worthy of imitation. The rude Roman plough, harnessed to the oxen by the simplest contrivance imaginable, showed a lack of thought and invention, and only excites a smile. The agriculturist cannot look backward for his glory, but onwards and upwards. Light and knowledge are to be gained only by earnest thought and well-tried experiments. New facts are to be developed, new modes of culture proved useful, or discarded as unwise, new machines are to be devised to lighten labour and lessen the cost of producing the necessaries of life. A glorious career awaits the agriculturist of the present age, and he should be truly thankful that he lives in a day of improvement, of light and knowledge: honour awaits him, but it must be earned—fought for, laboured for—a clear active head and a strong arm may secure the prize.

In ancient times agriculture was considered honourable, for historians have recounted instances of warriors and statesmen engaged in this peaceful occupation. Cincinnatus when called to the head of the Roman nation was found at the plough; and if a little of the wisdom for which he was famous, had been exercised in improving that useful implement, his name might have been more honoured, and lasting benefits been conferred upon the community. But, in early times, as has been truly said, population bore but an insignificant proportion to the extent of inhabited country; so that men were not compelled then, as they are now, to cultivate infertile soils, or crop them so frequently, in order to obtain the necessaries of existence; they confined their simple operations to the rich alluvial land which nature had prepared ages before, in anticipation, as it were, of a helpless state of society, and which yielded its increase from the most imperfect cultivation. While, therefore, the philosophy, literature and fine arts of the ancients have formed the basis upon which those of modern times have been reared, the art of cultivating the soil has received little or nothing from ancient agriculture to which its present comparatively advanced state can be ascribed; that advancement is to be sought for, not among the relics of antiquity, but among the materials principally furnished by a generation scarcely yet passed away.

Had we sufficient space, it would be interesting to trace the progress of agriculture from the time that it first seemed to enter the minds of some men that it was susceptible of improvement—that it was not the better way to plough and sow exactly as their fathers had done. It was in 1534 that the first successful attempt was made in England to collect the scattered fragments of agricultural knowledge. At that time Sir Anthony Fitzherbert, published his "*Booke of Husbandrie.*" Although the author knew nothing about chemistry and its application to agriculture, nor of the rotation of crops, he did much good by pointing out prevailing bad practices, and suggesting improvements. He endeavored to impress upon his readers the truth that "a husbandman cannot thrive by his corne without cattelle, or by his cattelle without corne."

In 1580, Thomas Tusser, an agricultural poet published in verse "*Five Hundred Points of Good Husbandry.*" This work contained many valuable practical hints, and passed through several editions. The author mentions carrots, turnips and cabbages then recently introduced as kitchen herbs. From 1600 to 1650 several books on agriculture were published, among them "The whole art of Husbandry," by Barnaby Googe, and "The Improver Improved," by Blythe. Cromwell, himself a farmer, in early life was a munificent patron of agriculture, and Harttibb, an agricultural author received from him a pension, with instructions to devote his time to agricultural investigations. During the

next century many agricultural works were published, but nothing new or particularly valuable appeared until the time of Jethro Tull. He had observed in his travels that in the vineyards where no manure was used, but the ground kept constantly stirred that the vines grew well and produced abundant crops. After labor and reflection Tull laid it down as a general rule that crops would grow well on poor soils without manure, if the ground was kept thoroughly pulverized, and that the only advantage derived from manure was in the pulverization of the soil by fermentation, and that this could be done by tillage without manure. He therefore recommended drilling and horse-hoeing. Although wrong in theory, much good was done by the investigations and labours of Tull. To no one, taking the age in which he wrote into consideration, is agriculture more indebted for its subsequent advancement and present position.

Sir Humphrey Davy followed, and Liebig, giving to agriculture the benefit of their scientific investigations. So that now, although we have much to learn, we do not labour entirely in the dark. Every year new facts are developed and new theories formed. Ours is a day of progress, and he who does not strive to keep up with the times will find himself sadly in the rear.

LAYING FARM-YARD DUNG ON CLAY FALLOWS FOR WHEAT.

The preparation of clay lands for a succession of crops by the process of summer fallowing, which pulverizes the soil and removes all weeds and stones, reaches the condition of receiving farm-yard dung for manure in the end of August or during the month of September. Early operations are the most effectual, and the best performances get the land ready in August for the reception of lime and dung. The first article, in a pulverized condition, is spread evenly over the land, and harrowed into the ground by a double tine of the common-purpose harrows. The farm-yard is laid in small heaps on the land, spread by the hand forks evenly over the surface of the ground, and covered by one furrow of the plough. The dung may be carried in the fresh condition from the cattle yards, being the production of the latest store cattle, and from the soiling beasts that consume the green food, or it may have been placed in a heap on the field of land from the month of March to the time of use, and will have reached a partially, if not a half-rotten condition, when it is spread over the ground in August. The lumps of dung will often not be covered by the plough, and lie on the surface, being pushed before the coulter, and not falling into the bottom of the furrow. A lad or woman with a hand fork follows the plough, and throws the pieces of dung into the hollows, where they are covered immediately by the next furrow of ploughing. This provision is made against the loss by evaporation from exposure of dung on the surface of the ground; but the theory of loss from exposure does not yet hold a confirmed dominion among undoubted facts.

The common plough opens drills with one furrow at convenient distances for green crops, and on light soils the dung is well covered by one furrow of earth being laid over it. Clay lands for wheat are drilled in the same way by one furrow, the dung is spread along the hollows, and covered by splitting the ridglets with the plough. In this way the plough opens a drill in going the length of the field, and in returning covers a drill of dung by reversing the furrow. This mode covers the dung very completely, and exhibits the field in the form of drills; not highly raised, or widely formed, as for green crops, but flatly done, and executed for the sole purpose of covering the dung from exposure. A cross harrowing is required to level the ground when the land is seed-furrowed in October. The two drillings of one furrow are less labour than one ploughing, and cover the dung much better. Even the harrowing that is required before the seed-furrow, does not raise the expense to an equality with the ploughing of the dung into the ground.

The wet nature of moist clay lands prevents the carting of dung on the surface in October, and consequently, the manure must be applied at an earlier period, and the land ploughed again for the sowing of seed. Cases occur when the dung is applied in October; but chiefly on the grattans of beans and peas, and on some few clay lands of the driest nature. Few wheat soils admit the application of dung in October, unless the modern system of frequent draining has produced a dry condition to bear the necessary

cartage. Consequently the dung is covered by ploughing in August, or In early September, and a seed-furrowing is done for sowing the seed in October.

The hitherto refrigeration of our globe from a state of expired combustion in a fiery mass, renders necessary the use of decomposing bodies as manures, to afford by decay the caloric to vegetables, and raise the temperature of the ground, and also to place bodies in quantity together in the ultimate elements at insensible distances, in order to produce the same results of caloric and temperature, by the mutual action of fusion and attrition. Hence there arises a most important consideration in what way, mode, or manner the articles of manure are to be applied, in order to afford caloric to the plants and temperature to the soil in the largest and most effectual manner that is possible.—Farm-yard dung buried in the cold clay ground can excite little action to raise the temperature of the soil—the quantity is too small to overcome the opposing resistance of clay and cold moisture, and the benefit is corresponding. Manure laid on the surface of the ground affords caloric in two ways; by sheltering from cold the vegetable growth, and by the residual decomposition of the substances sinking into and mixing with the surface ef the ground, and producing the usual effect of mixture and combination. Farm-yard dung will be best laid on young wheats as a top-dressing in February and March, by means of timber railways placed on the ground at regular distances, and moved to the required positions. On this railway there runs a light iron four-wheeled waggon, which receives the dung from the carts at the end of the field, conveys it along the railway, and the dung is thrown from it on each side over the land in the quantity allowed, and to the distance that is convenient to the strength of a farm. The dung is immediately spread over the surface of the ground, and most carefully broken into small pieces, in order to cover every inch of ground for the purpose of a close protection. This performance must be very carefully executed, as the effect mainly depends on its disposition. The vicissitudes of the weather in suns, rains, winds, frosts, and thaws, will destroy the matters of the dung, and exert a joint effect on the surface of the ground. In the usual dry season of sowing grass-seeds, the land is well harrowed, in order to mix the light alluvium with the remains of the dung, which will produce a most choice bed for the grass-seeds that are sown upon it, and pressed into a covering by an iron roll not less than a ton in weight. The harrowing produces an alluvium top-dressing for the wheat that exerts a most wonderful effect on its growth, and is regularly done in Poland as a part of wheat farming. The mixture of the dung with the fine earth in the present mode, raises a bed for the grass seeds that is not equalled in any other way, and the heavy roll presses all matters together with the wheat plants almost invisible among the raised and compressed earth of the surface. The growth is quick and rapid from this bed of favourable composition, and surprises every observation and experience; the grass seeds are delighted in the matrix of a most intimate comminution of soil that is so essential to their nature, and which is not obtained from the stale surface of autumn-sown wheat, and manured at that time. This advantage to the grass seeds is very large, and along with the superior benefit to the wheat crop, constitutes a mode of applying farm-yard dung that is much beyond the value of the common way during late summer or early autumn, which prevents the full action of the manure, by denying the opportunities that are necessary for the full development of its power. The cold of winter follows the winter application, the increasing warmth of the returning sun attends the use of the dung in the early spring, and these two very different elements confer a power of the utmost value and efficiency. It must be studied that all applications of manures are made under the best known circumstances to develope their power, and promote their action.

It has happened to the writer of this essay to have had a very extensive and largely varied experience in practical farming, both on turnip lands and clay soils; and the length of the practice gave many opportunities of observation and experience. The prepared heap of farm-yard dung having failed to complete the manuring of a field of clay fallow in the end of August, a quantity of fresh dung from the stable door was applied to cover the remnant of the ground, and it was strawy and rough beyond the power of being covered by the plough, consisting of dry straws, and dry feeæs of the horse. The dung lay exposed till October, when the land was seed-furrowed, and sown with wheat; the matters were better covered then than by the summer furrow, while the harrowing pu'led into pieces, and spread the dung over the surface. In winter the ground was pretty well covered with fragments of dung, among which the wheat soon evinced a superiority that continued very visible till harvest, and the crop was

larger and thicker on the ground. The grass-seed being sown in April, the advantages are derived that have been mentioned, as arising from laying the dung on the surface of the ground. This casual experience confirmed the mode now recommended, of applying farm-yard dung, and it destroyed in no small degree the theory of damage to farm-yard dung by evaporation from exposure. This theory has been very justly doubted, though conviction requires a length of time to be entertained. There is also called into question the fermentation of dung in heaps, and the fresh condition showed greater, at least equal results. J. D.

JOHN JAMES AUDUBON, THE ORNITHOLOGIST.

There is not an American name more extensively known throughout the civilized world, nor one for which a higher respect is cherished among men of learning and science, than that of the distinguished Ornithologist Audubon, whose birth occurred on the 4th of May, 1780, in the city of New Orleans. His parents were French, and being blessed with the means, sent their boy to Paris to acquire his education in the best schools of that gay metropolis. After spending eight or ten years abroad, he returned to his native country, as the proper field in which to pursue those studies for which he had already acquired an over-mastering passion.

Ornithology and Entomology had long attracted the attention of young Audubon, and before he returned to America he had made considerable proficiency in these sciences, although the field of his observations was extremely narrow and unsatisfactory; but now his scope was unbounded and the material ample, and he resolved to give it a thorough investigation. As soon as he could put himself in a state of readiness, he commenced those indefatigable and hazardous labours which ended only with his life, and which have crowned his name with an imperishable halo of glory.

Audubon was one of the earliest pioneers of the Great West, and with knapsack slung, and his rifle, and net, and snares in his hand, he made the longest journeys across the broad prairies, and through the wide bottoms, counting no labour lost, and no hardship of any account, so that he could bag a new bird or insect. As early as 1810, we find him sailing down the upper Mississipi in a birch canoe, with his wife and one child, who shared his perils and his joy.

From that period his career was one of adventure, romantic incident and varied fortune. Hardly a region in the United States was left unvisited by his presence; and the most inaccessible haunts of Nature were disturbed by this adventurous and indefatigable Ornithologist, to whom a new discovery or a fresh experience, was only the incentive to greater ardour, and further efforts in his favourite department of science.

It was many years subsequent to this period that Audubon conceived the noble project of giving to the world a perfect history of all the feathered race in the United States. His project was on a scale commensurate with the magnificence of the subject, and was not completed until after a quarter of a century's hard labour. Without funds, and with bnt the promise of some patronage, he set himself to this great work of his life with more zeal and cheerfulness than he would have done to the acquisition of a fortune—counting no labour too much, and no pains or cost too great, so that he might gain one step in his great purpose. Those whose good fortune it was to become acquainted with him at this time, describe him as a man of marked appearance, original in his character, of childlike demeanour, entirely free from that savageness of manner so natural to one whose days are spent in the wilderness. Yet there was a fire in his piercing eye, and a spirit in his striking brow and erect mein, which evinced an unconquerable energy of purpose, and gave warrant of success in all the great plans of his life.

In 1824 he went to England, where, though unknown, and, at first, friendless, he soon became "the admired of all admirers." Says the *American Phrenological Journal*, "Men of genius—the Wilsons, the Roscoes, the Swainsons, recognized his lofty claims; learned societies extended to him the warm and willing hand of friendship; the houses of the nobility were opened to him; wherever he went, the solitary, unfriended American woodsman was the conspicuous object of a wide remark and love." In 1831, at Edinburgh he put forth his first volume of Ornithological Biography. The striking superiority of this soon procured him subscribers for the remainder of the work. In

France he received like honours, but soon returned to America, which he explored from Florida to Labrador, expanding the Biography to five volumes. At length the "Birds of America" was completed. The elegance of the engraving, the richness and delicacy, as well as the life-likeness of the colouring, took the world by surprise, and forever established the fame of Audubon as the great American Ornithologist.

As an instance of the wonderful perseverance of Mr. Audubon, it is related that having wandered and tolled for years to get accurate representations of American birds, he found that two Norway rats had in a single night destroyed two hundred of his original drawings, containing the form of more than a thousand inhabitants of the air.—All were gone, except a few bits of gnawed paper, upon which the marauding rascals had reared a family of their young. "The burning heat," says the noble-hearted sufferer, "which instantly rushed through my brain, was too great to be endured, without affecting the whole of my nervous system. I slept not for several nights, and the days passed like days of oblivion, until the animal powers being again recalled into action, through the strength of my constitution, I took up my gun, my note book and my pencils, and went forward to the woods as gayly as if nothing had happened." He went forth, and in less than three years had his portfolio filled.

For the last ten or twelve years of his life, Audubon reposed upon his laurels, and in his quiet little home, near the city of New York, enjoyed the only repose he ever knew. Satisfied to have around him a few choice spirits, he did not mingle much in society, and to the world he has been known only through the results of his labours. Here he died in peace on the 27th of January, 1851, aged seventy-one years.

THE SICKLE, THE SCYTHE, THE REAPING MACHINE.

In making a comparison between cutting grain by the sickle and by the reaping machine, we have been in the habit of regarding it chiefly as a question of expense; now, however, we are forced to look at it in another light: we must view it more as a question of expediency and of necessity. Our corn must be cut down and harvested—we cannot get sufficient hands to do it for love or money—what means must we adopt to attain our object? It is calculated that three scythemen, with their followers, will, on an average, cut, bind. and stock 4¾ imperial acres in the day. To perform the same work with the sickle eighteen people will be required, with the Hainault scythe twelve, and with the reaping machine seven. Now these people are distributed in the following manner:—

	Women reaping gathering, &c.	Men cutting.	Men binding.	Men at machine.	Child at rake.
Sickle,	15	.....	3	.....	.....
Scythe,	3	3	3	.....	1
Hainault Scythe,	9	.....	3	.....	.....
Reaping Machine,	3	.....	3	1	.....

As the greatest number of hands is required for the sickle, it is evident that a general deficiency will be felt by those most who use it, while a deficiency in the number of men usually employed as scythemen and bandsters will be felt by those most who use the scythe. But of the two there is no doubt that emigration at present will cause the greatest inconvenience to the former; for, though there may be a deficiency in men for bandsters, this evil can be in some measure remedied by teaching others to do it, and by farmers being satisfied with an inferior class of work. We would, therefore, advise all whose crops are not too much lodged or twisted to endeavour to reduce their harvest expenses by using the scythe, which will, perhaps, at the same time, relieve them of no little anxiety if people are scarce, and reduce the risk of having a large breadth of crop ready to be cut, and no person to do it.

Of all the different modes of reaping however, the greatest saving of hands is that obtained from the use of the reaping machine. It is true we cannot expect to have all our crops cut by it in its present state, but by the use of it and the scythe very few more people than those ordinarily employed on the farm would be required during harvest,

which every farmer must admit would be a great advantage. The reasons for the use of machines are—1st, All our corn crops come to maturity at present nearly at the same time. 2nd, Our country laborers are reduced in number. 3rd, There is now a much greater quantity of corn to cut down. 4th, Harvest work has become more expensive." A committee appointed by the central Society of Agriculture of the Seine-Inferieure to report on the subject, gave it as their verdict that "the automaton machine of Aitken and Wright was preferable to all other reaping machines."—*Abridged from the Journal of Agriculture.*

SKILL IN EVERYTHING.

The science of agriculture is made up of a whole group of sciences, whose theory and applications the farmer must understand and practice, if he would be master of his profession.

He must know something of Chemistry, to understand the treatment of the soil, and the composting and use of manures. He must understand Botany, to manage all the vegetables, grains and fruits which he grows. He needs Physiology and Medicine, to treat his animals well in health and sickness. If he builds a house or a barn, a knowledge of Architecture will stand him in good stead. If he has a threshing machine, or mower, he needs some acquaintance with the principles of motive power. In the construction of drains, he must apply the principles of Hydrostatics, and to some extent of Hydraulics too

We give these facts as illustrations of our meaning, not by any means as exhausting what might properly be said on this matter. The truth is, the farmer must be a bit of a genius in almost everything, if he would stand at the head of his profession.

It was not our purpose, however, when we penned the heading of this article, to say much on these grave themes. It was an humbler topic that tempted our pen.

We wish to exhort our readers to become well skilled in all the minor operations which the management of the farm and garden involves. What we mean, two examples will show.

Mr. A. is a farmer, and *nothing else*. If a strap breaks in a harness, he sends two miles to have it mended. If a horse's leg is bruised, he will not treat it himself, but sends for a farrier. His bee-hives need repairing, and he hires a carpenter to do what a very little skill would enable him to do for himself. He cannot even mend an old sled, or repair a broken-backed rake, without foreign aid. He is a good farmer. He keeps his implements in good condition too, but it is at great expense.

Mr. B. is another sort of man. He is as good a farmer as Mr. A. But he is limber and elastic too. All the little jobs about the house he does himself, or teaches his boys to do. He can roof a house; he can hoop a barrel, or he can dig and wall a well. He can build a sled, put a spoke into a wagon-wheel, graft or bud a fruit tree, or make a new harness out of an old one, with an awl, a waxed end, and a bit of leather. If he attends a fair, he sees the "point" in the improvements that are on exhibition, and he can apply them to his own work without any further aid.

We will go but little further. Our readers see what we are at. We hope they will themselves be, and bring up their sons to be, men who will have some skill in everything.

Here are some reasons for this recommendation, which we will give at the risk of making this article a little longer:

1. Almost every farmer will need this kind of skill. Not one in a thousand will live so near a village where there are skilled mechanics, as to be able to use their aid at all times. Fewer still will farm on so large a scale as to embrace all these trades in the force employed on their own grounds. He will need some skill himself.

2. Such skill renders its possessor more independent. The sense of such independence is a great comfort. Its exercise is sometimes a great advantage.

3. It saves a great amount of time and money. We knew a man who lost a whole day's time, and several dollars in money in the following way:—A part of the harness was taken away. He had not enough tact and skill to repair it with a piece of a rein or halter.

4. It will develop talent in many persons, where it now slumbers useless and powerless The exercicees in mechanical skill furnished by the farm, have awakened the mind of many a youth, who has ripened into a noble and skillful mechanic or artist.

But we have said enough. Give the boys and girls a good chance to cultivate their powers in a practical way. You can never predict what treasures you will find.—*Ohio Farmer.*

STABLE MANURE—DOES IT PAY TO PURCHASE?

This depends entirely upon circumstances. If it is not sold too high, it certainly may, and at present prices in the immediate vicinity of cities and large towns, where market gardening on a large scale is an object, and where every article produced by cultivation finds a ready sale and brings a quick return in cash at high prices, there can be no doubt but it pays well.

But in the country, (and the country imitates the city in more things than one, else city prices for manure had never been adopted,) we very much question whether the farmer, who must wait until the market of his produce comes round in a natural and often a somewhat circuitous channel, and where the profits of the well-tilled acre must be less than in the immediate vicinity of towns, a better and more economical way of fertilizing can be adopted.

No farmer thinks of applying less than twelve loads of manure to an acre, and often puts on a much greater quantity. So then, the lowest rate we can estimate upon to enrich that acre, is twelve dollars. Now the question is, are there no means by which that acre can be made equally fertile at a less expense?

There are but few farms that do not furnish natural facilities for manure making beyond the stock that is wintered upon them, while many are blessed with one of the best of all deposits, the muck bed, to favour the object. Wherever this is found, no practical experiments can for a moment doubt but that he can manufacture manure for less than one half the price now asked by those who have manure to sell.

The first expense is hauling out the muck, and this must depend upon the distance it is taken to the compost heaps, which of course can be no greater than drawing one-half of the manure purchased, so that the cartage, taken as a whole, may safely set one against the other.

All that prevents the immediate use of muck, is the coldness and acidity it acquires from its continually being in water. These may be removed by an exposure to the atmosphere, frequently turned, or by adding correctives, such as lime, ashes or gypsum, and its value is inceased in proportion as these substances are added, especially the two last.

Now we insist upon it, that for root crops and top-dressing, a load of well-prepared meadow or swamp muck is worth more than a load of stable manure, such as is usually sold. We claim it from the fact that it contains so large a portion of fibre, that will be long in going to decay, and yet its decay will not only furnish a natural and healthful food for plants, but will keep the earth in a porous condition so that the roots of plants may extend themselves, and the air and the dews may exert their healthful influence upon them.

On dry sandy or gravelly soils the effect of barn yard or stable manures is soon lost It was formerly contended that these soils were so porous the strength of the manure passed down. Evaporation probably had something to do in this matter. Where composts, of which muck is the principal ingredient, are used on such soils, the evil is remedied by its giving tenacity, and what is better, it yields its richness only as plants require it. Its effect is therefore more durable, as well as more strongly marked.

On loamy lands where clay forms an essential part, it restores an important quality lost by continued cropping, to wit, vegetable matter, which gives all new lands, in a great measure their fertility. On such lands its effect is visible twice as long as that of stable manure.

As a top-dressing for meadows, it performs a double service. Every farmer knows by his observations that the roots of grass, after one or two seasons, become exposed more or less above the surface. The frost heaves them, and the rains wash the loose soil away. Muck fills these vacant places with a durable protective power, and at the same time furnishes food for the plant. What untold wealth its use will give the farmer, and this at a cheap and independent rate! W. B.

PROCESS OF MAKING ICE IN THE EAST INDIES.

Natural ice is never seen in the warmest parts of that country. To procure ice by artificial means, they dig, on a large open plain, not far from Calcutta, three or four pits about thirty feet square, and two feet deep each, the bottom of which they cover about eight inches or a foot thick with sugar cane or the stems of the large Indian corn, dried. On this bed are placed, in rows, a number of small, shallow, unglazed earthen pans, formed of a very porous earth, a quarter of an inch thick, and about an inch and a quarter deep, which, at the dusk of evening, they fill with soft water that has been boiled In the morning before sunrise, the ice makers attend the pits, and collect what is frozen in baskets, which they convey to the place of preservation. This is generally prepared on some high, dry situation by sinking a pit fourteen or fifteen feet deep, lining it first with straw, and then with a coarse kind of blanketing. The ice is deposited in this pit, and beat down with rammers, till its own accumulated cold again freezes it, and forms one solid mass. The mouth of the pit is well secured from the exterior air with straw and blankets, and a thatched roof is thrown over the whole The quantity of ice formed by the method above described depends on a light atmosphere, and clear serene weather. Three hundred persons are employed in this operation in one place.

At first sight this curious process may appear to be an effect of evaporation: but this is not the case; for it is remarkable that it is essential to its success that the straw in which the vessels are placed should be dry, whereas if evaporation were concerned in the congelation, wetting the straw would promote it. When the straw becomes wet by accident, it is obliged to be replaced by dry straw.

The earth is continually losing heat by radiation, and it loses most on clear, starlight nights, when there are no clouds to intercept and send back the rays of heat. The straw like all filamentous substances, is a good radiator of caloric, and it is in consequence of the heat that is thus given out by it into space on clear nights that the ice is formed. When the weather is windy and cloudy the effect does not take place.—*American Druggists' Circular.*

The Iron Trade.—As to the growth of American iron manufactures, the *Pennsylvanian* says:—

"Since 1848, the consumption of that article in the United States has augmented in an unprecedented manner. The consumption of foreign iron, and manufactures of iron, which previous to 1848 never reached, in any one year, the value of $9,000,000, amounted in 1850 to $15,600,000; in 1856 to nearly $20,000,000. On the other hand, the domestic production of pig iron made very considerable progress. From 1852, when it amounted to 500,000 tons, it rose to 1,000,000 tons in 1856. The domestic manufacture of rail-road iron has as yet only reached about one-half of our annual requirements. But, considering that eleven years ago we made no rails at all, this result must be regarded as exceedingly encouraging. The value of domestic manufactures of wrought iron of every description amounted in 1840 to $12,800,000; in 1850 to $22,600,000; in 1855 to $28,300,000."

Steam Wagon.—In the course of the present week it is expected that the steam wagon in course of costruction at Sacramento City will be ready for the trial trip. As we have already stated, a joint stock company has been organized for the construction of several of these wagons, to be placed on different routes in various parts of the State. Every one who has seen the operation of the model steam wagon must have been convinced of its utility.—*San Francisco Globe, July* 20.

A Novel Combat.—We witnessed an interesting combat between a fox and a snow-goose, and concluded the latter was the victor from the advantage which flight gave it over his enemy, who sought the hills, the other darting with great impetuosity and making furious onslaughts on him from time to time to complete his victory.—*Dr. Armstrong's Personal Narrative of the Discovery of the North West Passage.*

Another Attempt at Tea Culture.—Mr. Fortune, who has been employed for a number of years in China, by the East India Company, has been requested by the Patent Office to make selections of the tea plant and other seeds for introducing into the United States. He will probably accompany his selections to this country, for the purpose of selecting the proper localities in which to commence these experiments.

More than 60,000 of the Indian population of Bolivia have died of the yellow fever.

KYLOE CATTLE.

Scotland possesses only two varieties of cattle that have been settled into breeds, the West Highlands and of Galloway, denominated the Argyle and Galloway breeds. The former exist in the largest size in the county of Argyle, as that country affords the best maintenance throughout the year. The size is lessened over the northern counties of the mainland, and the general conformation is impaired; the bulk is further diminished in the Hebridean Islands, and further still in the Orkney and Shetland Islands, which afford the coarsest animals, and those of the Hebrides are more thriving and symmetrical. The Argyle breed and the West Highland cattle, the Kyloes and the cattle of the Western and Northern Islands—these distinctions are the modern understanding of the terms.

These cattle are colored in very many shades and varieties, black being the favorite and prevailing colour, which is much intermixed with white, red, dun, and brindled. The horns are long, wide and tapering, and in accordance with the size of the animal. The Argyle cattle have the largest horns; the Hebridean Kyloe has the finest spear horn, clear glittering and pointed; while the Northern Islands show a coarse and stunted horn, short and proportional to the animal frames. The eye is fierce and the character mischievous, habits restless and unruly, body short, paunch deep, hide thick, flesh very good, and finely marbled with veins of fat. The maturity is regulated by the maintenance that is afforded the age of six years is attained before a fattened carcase is produced; four years in the native country, and two in the lowland treatment.

It is well known that the Galloway cattle afforded the material service of the short-horn breed, hence called the "alloy," in reproach of the coarse mixture that was introduced into the Yorkshire cattle. Passing over that point at present, as unconnected with our present subject, the Galloway cattle have been much improved among themselves by judicious selections, and much yet remains to be done. Vast quantities of these animals are transported to the southern turnip counties, and are much esteemed for beef and profit. But the old faults still remain, and in abundance.

The Kyloe cattle, properly so called, are a most motley production in colour, shape and quality, by a promiscuous breeding without any care or attention. The mountains and the open range of hill grounds do not afford the benefit of enclosures in the adaptation and restriction of the sexual intercourse, which is consequently altogether unconfined, and spreads into numberless descents and endless pedigrees. Good and bad animals are thus produced in accidental varieties; the latter always predominates and the former bear the usual proportion to the efforts of nature's course. This unrestricted breeding has gone on from the earliest records, and also the careless provision of winter food, on which the whole success depends of Highland farming with cattle or sheep. But the most unfavorable circumstances of situation do not prevent the selection for the purpose of breeding, of the best shape, and forms that are produced by accident, and from which every refinement of animals has progressed. It is not at all advocated here that the size of the Kyloe cattle be increased or any cross be introduced by foreign blood; the present bulk of the animal is very ample for the maintenance, and any mixture of blood would disarrange the long-established descent, and introduce an irretrievable confusion. Such mixtures of species and varieties in animals continue for a time, gradually degenerate into numberless branches, and at last are wholly extinguished. The true way is to improve cattle among themselves, by selecting the best specimens for breeding, and carefully rejecting all bad ones, and to continue in this course most obstinately; but not to produce a size or quality that is beyond the circumstances of use. Abundance of materials exist, and only want the application, even under the ordinary management of Kyloe cattle.

Our experience and acquaintance having been very considerable among the Kyloe cattle, our attention was very naturally directed to their qualities, habits, and varieties. It appeared that very valuable distinct breeds may be produced by a careful selection from the very heterogeneous multitude—a glossy black variety, that comes at present from the Western Islands, with white colours on the face, breast, and flanks, not largely intermingled, but pleasingly patched; a brindled variety, with little or no white colour on the body, at least very sparingly, the red brindles being of a very deep dye; and a breed wholly dun in colour, without the least mixture of any other stain, and the coat of hair thick and curly. This dun colour abounds among all the Highland cattle of Scotland, and always indicates a hardiness and vigorous constitution, and a propensity to fatten, in every animal organization. These two propensities cannot be surpassed in any

breed of cattle; they form the strongest stamina of existence, and are certain proofs of superiority. A most choice breed of Kyloes would be propagated by this selection of the dun colour, hardy and vigorous, fleshy and symmetrical, with a coat of hair close and curly, with a hide elastic, and mellow in the thickness. Mr. Quartly's Devon cattle may be well quoted as an example of this curly coat of hair, and possess all the qualities abovementioned, with an acknowledged superiority of the points of excellence. Our judgment has ever most highly approved these Devon cattle.

A herd of dun Kyloe cattle would be most picturesque and pleasing to the fancy, besides inheriting the very best qualities of excellence. A similar valuable breed of Welsh ponies may be propagated from the stray productions of the dun colour that are found on the mountains of the Principality. The uniform colour of animals ever carries along with it a combination of qualities that do not attend in heterogeneous colouring.

A dark-red brindled breed of Kyloe, without the least mixture of any other colour, would be valuable; or the dun variety equally beautiful, but wanting the curly coat of hair, and more resembling the cattle of the Lowlands.

Heading Cabbages in Winter.—Select a suitable spot in a garden or field, six feet in width, of any desired length, free from standing water; run a furrow the proposed length of your bed, and throw a back furrow upon it. The double furrow will form a *side wall* of your cabbage house. In the trench stand your cabbages on their roots leaning to the furrow at an angle of 40 to 45 deg. Let the next furrow be thrown upon the roots and stalks of the cabbages, and another row be placed in the trench made by the second furrow; thus proceed until your six feet of width is planted: then let the last furrow be a double one—making the other side wall about the height of the cabbage head. Through the whole length of the middle of the patch lay rails lengthwise, supported by crutches, at a height of about two feet from the cabbages; this will form the ridge of the cabbage house. Lay light brush-wood from the side walls to the ridge pole; then throw on salt hay, or bog hay, or straw, two inches in depth. As the cold weather advances, throw on dirt until you have a depth of say six or eight inches, or even more when the winters are severe, and finally spank the dirt roof with the flat of the spade until it will shed the rain. Fill up the two ends of your house in the same manner, leaving only small air holes of a foot or two in diameter, which may be closed with hay. The length of the house should be on a north and south line.

In the early spring you will find your most unpromising plants have heads of their own, and all be thriving and fresh. Try it at once, and you'll try it ever afterwards.—*Exchange.*

Portuguese Cattle.—The King of Portugal has recently sent over to England a present of cattle of a very peculiar breed, to Queen Victoria, consisting of a bull, two heifers, and a bull calf.—The animals are of the most perfect symmetry, and very diminutive, standing scarcely 40 inches high. They are of a dun color, and in fine condition. The cows are very docile; but the bull, on being driven from the station to Prince Albert's model farm at Frogmore, where they are now installed, exhibited a disposition rather the reverse of that of his companions, by tossing an unfortunate donkey about his own size, which happened to come in his way. These Lilliputian animals much resemble the Alderney or Jersey breed, but appear to be scarcely more than half the size.—*Exchange.*

To Become Unhappy.—In the first place, if you want to be miserable, be selfish. Think all the time of yourself, and of your own things. Don't care about anybody else. Have no feeling for any one but yourself. Never think of enjoying the satisfaction of seeing others happy; but the rather, if you see a smiling face, be jealous, lest another should enjoy what you have not. Envy every one who is better off in any respect than yourself; think unkindly towards them, and speak slightly of them. Be constantly afraid lest some one should encroach upon your rights; be watchful against it, and if any one comes near your things snap at him like a mad dog. Contend earnestly for everything that is your own, though it may not be worth a pin; for your "rights" are just as much concerned as if it were a pound of gold. Never yield a point. Be very sensitive, and take everything that is said to you in playfulness in the most serious manner. Be jealous of your friends, lest they should not think enough of you. And if at any time they should seem to neglect you, put the worst construction upon their conduct you can.

SPECTACLES.

These aids to failing sight were first used about the latter end of the thirteenth century and their invention is ascribed to Roger Bacon. Sir David Brewster says:—"Persons who have enjoyed distinct and comfortable vision in early life, it is remarked, are the most likely to appreciate the benefit to be derived from glasses. Between the ages of thirty or forty, they begin to experience a change in sight, During the progress of this alteration, much inconvenience is experienced, as no spectacles seem to be servicable in giving correct vision. Happily, however, two or three months ends this difficulty, and as soon as the alteration is complete, distinct and comfortable vision is at once obtained by the use of well selected glasses of a convex figure. During this transition state it is important that the eyes should be subjected to no severe strain, and great regard should be paid to the general health.

The material of spectacle lenses should be glass, of a very slow dispersive power or better still of rock crystal. They should be as thin as practicable. To correct a common error in the manufacture of lenses, by which the distance between the centres of the lenses is equal to the distance between the pupils of the eyes, the following is given:—'Draw on paper an isoceles triangle the two sides of which are equal to the distance of each pupil from the point to be seen distinctly; while the third side or base is equal to the distance between the pupils when the eye view that point. Then set off on each side of the triangle, from each end of the base, the distance of the centre of lenses or their frames from the pupil, and the distance of these points will be the distance of the centres of the lenses required.

The long-sighted persons will generally, for ten or twelve years, require glasses only for reading or work done by hands; but as life advances other spectacles will be needed for objects at greater distances, and it will be of great advantage to have two or three pairs of different local distances. It is a very incorrect notion that it is prudent to avoid the use of artificial helps to the eyes as long as possible.

The human eye is too delicate a structure to bear continued strain without injury, and the true rule is to commence the use of glasses as soon as we can see better with than without them."

Bad Effects of Grass on Colts.—When horses are turned out to grass in the spring of the year, the succulent nature of the food causes them to purge, often to a great extent; this is considered by many persons a most desirable event—a great misconception. The herbs are overcharged with sap and moisture, of a crude acrimonious nature, to such an extent that all cannot be taken up by the organs designed for the secretion of urine, or by absorbent vessels of the body; the superfluous fluid therefore passes off through the intestines with the indigestible particles of food, and thus the watery faces are thrown off. Flatulent colic or gripes is a frequent attendant. The system is deranged; but the mischief does not terminate here. If the purging is continued, constitutional relaxation of the bowels is established, very deliberating to the animal, and often difficult to control. I am so decidely opposed to unrestricted allowance of luxuriant grass to horses at any age, that nothing could induce me to give it to them. After the second year, hay should form a considerable portion of the daily food in summer to every animal intended for riding or driving. So says the *Mark Lane Express*, an English agricultural journal of high character.

Good Advice for Loafers.—A chap in this city, who was bred to the trade of a carpenter, but who has abandoned that calling for a gentleman loafer, because it is not "genteel," called on a female acquaintance the other evening. During his stay he complained of a lack of exercise and a want of companionship. "I am dying," said he, "of enuni; I wish you would find me a first rate companion, with whom I can while away my time." "I know of one, just the one you used," she replied. "Who's that?" he asked. "*Jack-plane*," was the cool and wicked response. The fellow suddenly conceived that he felt a flea in his ear, and left to consult an artist, aud has not called to see his plane-talking female adviser since.—*Lowell News*.

Corn Fritters.—One teacupful of milk, eggs, one pint of green corn grated, a little salt, and as much flour as will form a batter, beat the eggs, the yolks and whites separate. To the yolks of the eggs add the corn, salt, milk and flour enough to form a batter, beat the whole very hard, then stir in the whites, and drop in the batter, a spoonful at a time, into hot lard, and fry them on both sides of a light brown color.

DOES SUNSHINE TEND TO EXTINGUISH FIRE?

The common opinion that the sun shining on a fire tends to extinguish it, and that consequently the embers must be shaded, if we would preserve them alive in a fire place, was made the subject of experiment in the year 1825 by Dr. Thomas McKeever, of England, and the results seemed to show a real foundation for the opinion that solar light does actually retard the process of combustion. These results were copied by the contemporary scientific journals, and even the great German chemist, Leopold Gemelin, in his *Hand-book of Chemistry*, announces Dr. McKeever's conclusions, without expressing any misgivings in relation to their accuracy. Sunshine is an agent which is certainly capable of producing very remarkable effects; but the disagreement of this with other facts, has recently led Dr. John LeConte. Professor of Natural Philosophy in the South Carolina College, to repeat the experiments of McKeever, but using greater care; and the results obtained, as detailed by him at the late meeting at Montreal, tend to overthrow the idea, and prove that light has no influence whatever on the rate of combustion.

The fire employed in both the sets of experiments was simply a wax candle. McKeever found it to burn about 12 per cent faster in the dark; but LeConte finds the light of the sun, even when concentrated by a large lens produces no effect except by heating. If the air in the dark be heated to the same extent, and the air in each case be kept equally quiet. the candle burns at precisely the same rate. McKeever's experiments indicated that the candle burned from 5 to 11 per cent faster in the dark than in common sunshine. He supposed that the chemical rays exercised a deoxidizing power which, to some extent, interfered with the rapid oxydation of the combustible matter, and by trying the candle in different parts of the colored spectrum (produced by decomposing a ray of light in passing it through a prism,) his experiments appeared to indicate that a taper burned more rapidly in the red than in the violet extremity of the solar spectrum.

The whole subject cannot as yet be considered definitely settled, as the recent paper is regarded as merely preliminary to a more thorough experimental investigation, which Dr. LeConte proposes to undertake during the next twelve months. It is obvious that these researches have a practical bearing.

An Open Winter is predicted by our exchanges, both East and West. Some aver that the appearance of robins in large numbers during the warm days of Nov., indicates an open, mild winter. A Chiago paper says that Nature has demonstrated the fact that the coming winter will be mild, by covering the ears of Indian corn with very thin husks this year—furnishing them, indeed, nearly "nothing to wear"—whereas they were abundantly clothed the two preceding seasons! Well, we trust the augury is correct—for a mild winter will not only prove a God-send to the suffering poor of our cities and villages, but an oasis to the farmers and their flocks and herds over a large extent of country.

Natural Hieroglyphics.—Grand animals trod this globe in hundreds of thousands, for thousand of years, and left their skeletons behind; and the geologist uncovers their strange forms from the ice gravel of Russia, the mud of Pampas, and the gypsum of Montmartre, and learns to decipher their history, as Rawlinson interpreted the cuneiform inscriptions of Babylon and Nineveh, not passage by passage and line by line, but letter by letter, bone by bone, tooth by tooth, and stratum by stratum, till the disinterred skeletons became living witnesses, and the bygone history of myriads of past ages stand forth revealed.—*Stones of the Valley.*

The Atlantic Cable.—Active preparations are making to lay the Atlantic cable next June. Four hundred additional miles of cable have been ordered, and if the effort to recover the 340 miles now submerged should be succesful, that amount also will be added, so that the length of the cable will be nearly 3,000 miles. The British Government has signified its intention to detach two vessels from the navy next year to assist in the work, and it is presumed that the American Government will also repeat the favor of last year.

Farmers note This.—In a cloudy morning, it is a matter of importance to the farmer to know whether it will be sunshiny or showery in the afternoon. If the ants have cleared their holes nicely, and piled the dirt up high, it seldom fails to bring a clear day to the farmer.—Spider webs will be very numerous about the tops of the grass and grain, some cloudy mornings; and fifty years' observation has shown that those little weather-guessers seldom fail in their predictions of a fair day.

THE PRESSURE OF WATER.

Water exerts the pressure caused by its own weight and that of the air above it, equally in all directions; and on this principle depends the hydraulic press—one of the most useful applications of a philosophical principle known in modern times. The direction of the pressure is not equal in all directions, but is controlled, in a great measure, by the shape of the containing vessel, as, for example, in a round cup having a flat bottom, the pressure is equal and greatest over the whole base, and gradually diminishes as it ascends the sides, and so in all regular figures. In a bottle having a long narrow neck, the pressure is greatest on the base, and then on the semi-circular portion where the bottle bugles out.

When constructing a canal, or water course, the sides should incline from the base outward, because then, the pressure will be at right angles with the sides, and so exert its force on the earth; whereas, should the sides be perpendicular, the pressure would be a direct thrust against it, and it would require so much stronger embankment to prevent the water forcing its way through. It is advisable also, to form the bottom inclined towards the centre, or in a semi-circular form.

In the case of a dam to stay the course of a long current of water, or to form the head of a mill pool, the form to be preferred is a segment of a circle from side to side, and widening from the top downwards; but should the river or stream be too wide for this method to be adopted, then a straight one can be built, placed at an angle with the course of the stream—like the one on the Schuylkill, at the Fairmount Waterworks—that it may serve to break the force of the stream. If a V-shaped one be thought the best, the apex of the V must be placed against the course of the stream, and not with it; or, in other words, the outside of the letter must form the dam, and not the inside.

Mammoth Forest.—From the *California Farmer* we learn that a grove of mammoth trees has been discovered in Yosemite valley. The first tree that was measured was eighty feet in circumference three and a half feet from the ground; another tree was ninety feet in circumference at the same distance from the ground, while close to the roots it was one hundred and two feet round it, and it was three hundred feet high. The number of trees measured was one hundred and fifty-five, and they are about half the group; none were less than forty feet in circumference and there was one hundred over fifty feet. The largest tree now lies upon the ground; it is charred, and its heavy bark is gone, and yet it measures thirty-three feet in diameter, or one hundred feet in circumference, and must have been four hundred feet high. The *Farmer* concludes by saying:—"This we believe to be the largest tree yet discovered; and this forest we claim as the Parent Forest of the world."

Sugar Maples.—The New York *Tribune* has published several articles setting forth the importance of the soft maple as an ornamental and valuable tree in other respects, and also as a sugar-producing tree. In a late issue it presents the following, from an experienced sugar maker in Vermont:—

"The flow of sap from this variety of the maple is considerably larger than the variety known as sugar or rock maple—probably double in quantity. But it does not contain more than half the sacharine quantity *per gallon* contained by the sap of the other variety. Sugar can be made from the soft maple sap, and also from the sap of the yellow birch (which flows in still more plentiful amount); but the difficulty is that so much more fuel is required to reduce the sap to sugar than is required with that syrup derived from the sugar maple, that it will not pay the cost."

In addition to this difficulty, it is understood that soft maple and birch sap will not granulate into sugar, but will, like the juice of the *Sorgho Sucre*, remain a simple cheap syrup or molasses.

Statistics of Consumption.—Medical statistics appear to prove that consumption, where prevalent, originates as often in summer as in winter, and the best authorities declare that it is more common in hot than in cold climates. There is more consumptions in the Tropical Indies, both East and West, than in the almost artic Canadas. The number of the British troops attacked with this disease in Jamaica is annually twelve in one thousand, while in Canada it is only about six. The British goverment have accordingly resolved upon sending their consumptive soldiers to a cold climate in preference to a warm one.

LARGE EXPERIMENTS WITH THE CHINESE SUGAR CANE.

Messrs. L. Tucker & Son.—In your sheet under date of 15th Oct., I see several reports of trials with the sugar cane. Allow me to trouble you with another. Having planted several acres of the Sorghum I procured from Hedges & Free of Cincinnatti, a cane mill with three rollers 32 inches long by 11 inches diameter. Pans and other arrangements, which a novice might deem sufficient, were added, and we waited for the maturing of the cane.

Sept. 14th, we made our first trial. Cut and ground one acre by measurement. The per cent. of juice expressed from the cane by the mill was a trifle over fifty by weight. A load of cane, as it averaged when cut, gave one gallon of juice to eleven canes, and one gallon of fair syrup to eleven of juice. The cane was but early in blossom. The yield per acre was precisely 100 gallons.

This trial consumed two days. We then went into the field and spent one week in stripping cane.

Sept. 23rd, resumed grinding. Found that our cane increased very rapidly in its richness. The average yeid of syrup to juice, was now one to eight, and per acre 135 gallons of thick syrup, and improved in taste over the former. This trial consumed four and a-half days, and three acres of cane.

Oct. 7th, we resumed our experiments. The seed was nearly and quite ripe. The improvement in the quality of juice surprised us all. One gallon of syrup, thick and smooth like honey, to six and one half of juice was now the result. The yield was one hundred sixty-two gallons per acre with two acres manufactured. R. J. WILCOX

Sheffield, Bureau Co., Ill., Oct., 1857.

MUSIC OF SHOP AND FARM LABOUR.

BY MRS. FRANCIS D. GAGE.

The banging of the hammer,
The whirling of the plane,
The crashing of the busy saw,
The creaking of the crane,
The ringing of the anvil,
The grating of the drill,
The clattering of the turning lathe.
The whirring of the mill,
The buzzing of the spindle,
The rattling of the loom,
The puffing of the engine,
The fan's continuous boom,
The clipping of the tailor's shears,
The driving of the awl—
These sounds of honest industry,
I love—I love them all.

The clicking of the magic type.
The earnest talk of men,
The toiling of the giant press,
The scratching of the pen,
The tapping of the yard stick,
The tinkling of the scales,
The whistling of the needle
(When no bright cheek it pales,)
The humming of the cooking stove.
The surging of the broom,
The pattering feet of childhood,
The housewife's busy hum,
The buzzing of the scholars,
The teacher's kindly call—
These sounds of active industry
I love—I love them all.

I love the ploughman's whistle,
The reaper's cheerful song,
The drover's oft repeated shout,
Spurring his stock along;
The bustle of the market man
As he hies him to the town;
The halloa from the tree-top,
As the ripened fruit comes down;
The busy sound of threshers,
That clean the ripened grain;
The husker's joke and catch of glee
'Neath the moonlight on the plain;
The kind voice of the herdsman,
The shepherds gentle call—
These sounds of pleasant industry
I love—I love them all.

Oh, there's a good in labour,
If we labour but aright,
That gives vigor to the day-time,
And sweeter sleep at night;
A good that bringeth pleasure,
Even to the toiling hours;
For duty cheers the spirit,
As dew revives the flowers.
Then say not that Jehovah
Gave labour as a doom;
No!—'tis the richest mercy
From the cradle to the tomb.
Then let us still be doing,
Whate'er we find to do,
With a cheerful—hopeful spirit,
And free hand, strong and true.