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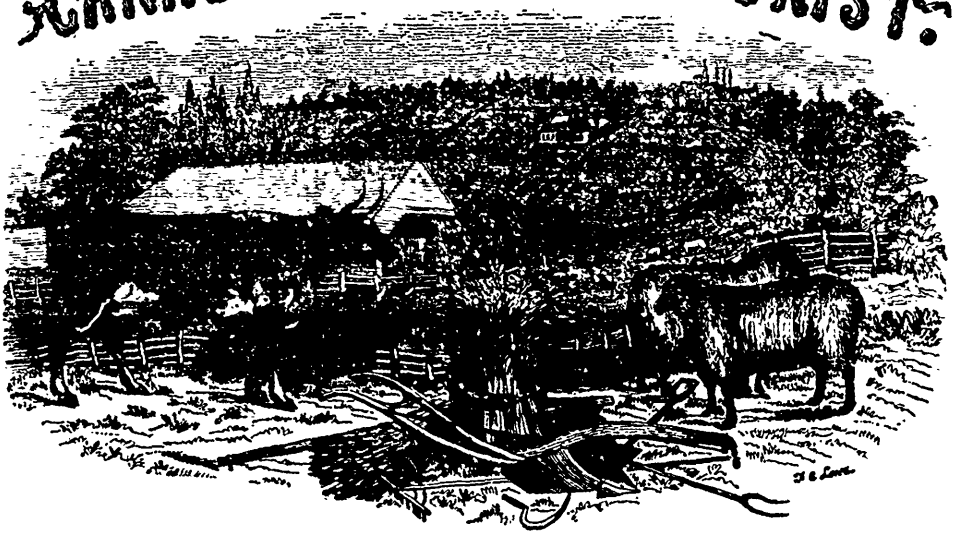

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR.
WILLIAM McDOUGALL, } ASSISTANT EDITOR

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TERMS.

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WORK TO BE DONE.

We proceed to offer a few practical suggestions to our Agricultural readers in addition to those contained in the last number.

The season, contrary to general expectation a few weeks since, promises to be a late one.—At the time we are writing (April 18) scarcely any of the characteristics of Spring are visible; vegetation has not awakened from its wintry slumbers, and the severe frosts which we have experienced for some time past, with the frozen drifts of snow in the more backward and elevated situations, have prevented the all important operations of the plough. The sudden freshet experienced in the beginning of this month throughout this Province has not only done immense damage to bridges, roads and other public and private works; but in many cases it must have been greatly injurious to farmers, who will have their energies taxed to their utmost when the season for active operations fully arrives.

Before this sheet reaches our readers we hope to experience a more genial temperature, and that the main operations of the farm, such as ploughing and sowing will have fairly commenced. In such a season as the present, when the ordinary horse-power on most farms, is very inadequate to immediate and pressing wants,—every thing relative to the preparation of the soil and sowing the seed, having to be done in so short a time, what an advantage would it be to the farmers, of any considerable extent to possess that invaluable and economical implement, the *Cultivator*. By this we do not mean that little convenient implement usually termed a horse-hoe, which is so admirably adapted for the cultivation of growing crops planted in rows, but something approaching the large and heavy implement known in the old country as grub-

bers or Cultivators, requiring the draft of three or four horses. Such an implement would thoroughly pulverize even the heaviest clays, to the depth of ten or twelve inches, and still deeper if desired, and several acres could be gone over in a single day. Thus *a deep land bed* might be readily obtained, which is an important object in this climate for all kinds of crops, and one that we might say is essential to the success of root culture. Heavy soils ploughed in the fall, and so drained or furrowed as not to allow of the stagnation of water, are immensely benefitted by exposure and frosts, and a good Cultivator will easily bring them into a fine and deep tilth for Spring crops, without an additional ploughing. Light sandy soils are in general but little benefitted by fall ploughing, an operation that may be deferred, without any serious disadvantage till Spring.

Wheat that is thin and weakly should receive as soon as vegetation becomes active, a top-dressing of manure; wood ashes and soot, with a portion of gypsum are recommended. Potash, soda (Nitrates) and Guano are used in the old countries with great advantage; but the price of these articles precludes their general use, at least for the present, in this country. We are of opinion, however, that an occasional application of artificial manures for *special purposes*,—as when a crop is in immediate want of one or two ingredients essential to its growth will even in Canada, frequently pay expences and bear a profit. In the selection and application of these kind of manures, however, both experience and some degree even of scientific knowledge are necessary. When a top-dressing is given to wheat, and clover is sown, a slight harrowing is much to be recommended, finished by the application of the roller. Harrowing wheat when done with judgment and care is a beneficial practice, whether seeds or manure are sown or not.

The preparation of the land for Potatoes, and other root crops must be proceeded with without delay, as it is of importance that most kinds of vegetables should be sown in good season.—Although the potato is yet far from being restored to its former healthy condition, and the cause of its disease continues wrapt in obscurity; still extended observation and scientific investigation, have suggested several valuable and practical hints to the cultivator of this important vegetable. In all countries, and with all varieties, *early planting* has been found beneficial; the late crops having suffered the most from the ravages of disease. We should consider it hazardous to recommend to our readers to enter upon an extensive cultivation of this very uncertain plant; yet by the prudential observance of a few simple conditions upon a comparatively small scale, a tolerable degree of success may be, in most instances, realized.—Select healthy tubers, plant early in a soil that is dry and well cultivated, and moderately rich in organic substances. Strong animal manures should not be applied, at least but very sparingly; lime or wood ashes, would be far preferable.

The ground for Barley requires to be of good natural fertility, or well manured, and should receive the best cultivation. Drilling the seed, or ribbing, will be found advantageous with this as with most other kinds of grain. From two and a half to three bushels of seed to the acre, provided it be clean and good, will be sufficient, and should be sown as early as possible, but not exposed to the risk of frosts.

Such varieties of Indian Corn as are suited to this northern climate might be more extensively cultivated with advantage both for grain and fodder. The land for this crop should be dry, warm and rich; and the cultivation liberal. It is useless to attempt to grow maize, on cold backward soils; but much of our rich, wet land abounding in organic matter might, if thoroughly drained, be profitably brought under the culture of this crop. It is an excellent plan as soon as the leaves have made their appearance to sprinkle a little stimulating manure over the hill, such as gypsum, ashes, &c., with a view to push forward the young plants at this early stage beyond the depredations of insects, and thereby also ensuring an earlier harvest; which is an object in our climate of the very greatest importance.

As to Turnips, Mangel Wurzel, Carrots, &c., all that we can now say is, that no prudential farmer ought to be without them. In these matters we recommend *a thorough and liberal cultivation on a small scale*, as much safer and far more profitable, than an imperfect and slovenly treatment of a large breadth. One acre in root crops well managed, will yield a larger produce than treble that extent, under the treatment that is commonly practiced.

As the season is now far advanced, those of our readers who are anxious to secure a liberal store of food, both in hay and roots for carrying their stock through the next winter, must not lose a single moment in completing the necessary preparations. Meadows kept in good condition by liberal seeding and manuring, and suitable soils selected for root crops subjected to a system of efficient management, will generally enable the persevering farmer, notwith-

standing the length and usual severity of our Canadian winters, to make ample provision for sustaining his live stock, in a comfortable and improving condition.

ON PRACTICAL FARMING.

[The following article from the pen of a farmer in Lizabethtown, was originally addressed to the Directors of the *Johnstown Agricultural Society*, who have kindly permitted us to publish it.]

TILLAGE FARMS

Are the most profitable to the community, because they give employment to the greatest number of persons, and are the most productive of human sustenance, for although the quantity of fodder used for the support of the cattle employed in cultivating them, must be deducted from their produce, and the remainder is all that is available to man, yet that will exceed the largest amount of human food that can be obtained from an equal number of acres of the same soil, under pasture or meadow. In a private point of view, however, grass land, when of good quality, is of the greatest value, because it produces an abundant crop without the expense of cultivation. It is, also, for that reason, a more secure investment to the owner; and, therefore, unless seduced by the very high price of grain, they rarely allow such to be broken up. But in point of convenience, of general profit, and of pleasure, a farm composed of both arable and pasture is to be preferred to one of either alone.

It is still an undecided question whether farms of mixed soil are preferable to those of one equal quality. The advocate of the latter urge advantages attendant on a uniform system, fewer implements, and the consequent greater ease and economy of management; while the supporters of the former insist on their superiority in affording a wider range for experiments, a greater variety of crops and seasons; and a better division of labor and hazard; which remarks apply with peculiar force to stiff clays, on which the teams must remain idle during many days when they might be employed on land of more various quality. A bad soil it has been justly observed, is an exhaustless source of amusement to the possessor; an untoward one, the plague of autumn—the pest of his winters—and the never failing curse of spring. To which it may be added, that bad land is dear at any price. By bad land, however, is not meant poor land, from much of which, when of a kindly nature, money is to be made under proper management; but cold and wet clay and gravelly soils should be carefully avoided; for although subject to heavy and constant expenses for draining, and of a difficult tillage, they are uncertain in their returns, and only fit to be laid down to grass. Rich soils are scarce, and not easily obtained, but a sound hazel loam, though not of the first quality, yet if deep enough not to be easily affected by drought, and both dry and friable enough to work kindly in the early part of spring, will seldom disappoint an active and intelligent farmer.

The choice of a farm is an object of the deepest importance to the man who depends on it for subsistence; but it is only rarely that he can select such a one as would prove in all respects desirable. Yet, although in most instances the competition for land may compel him to take what he can get, rather than what he would choose, there are still considerations which no one of prudence can overlook. The nature of the market, the cost of essential improvements, and the price of labor, are each deserving of serious reflections; in the aggregate they determine the requisite amount of that which demands the most especial attention, namely:—

CAPITAL.

Most farmers are anxious for large farms, and many are thus betrayed into the error of purchasing a greater quantity of land than they have the means of managing to advantage; some in the delusive hope of acquiring those means by future slaving; others from the vanity of holding more land than their neighbors.—Hence arises deficiencies of stock, imperfect tillage, and scanty crops, all the consequent train of evils, arrears, wages ill-paid, and debts unsatisfied, distress, and final ruin in many cases. Where, as he who is prudently content to commence only with such a number of acres as he has the power of cultivating with proper effect, is certain of obtaining the full return from the soil; while, not being burdened with more land than he can profitably cultivate, keeps his engagements within his means, and thus, while enjoying present ease of mind, he lays the surest foundation for his future prosperity.

There is no mistake more common, nor more injurious than that of supposing the more land a man holds, the greater must be his profits, for the profit does not arise from the land itself, but from the manner of using it; the best soil may be made unproductive while the poor may be rendered profitable by the opposite course; but without sufficient capital no land can be properly cultivated. There is nothing to which capital can be applied with greater certainty of

a fair return for its liberal expenditure when correctly employed, than land; but on the other hand, there is nothing more ruinous when the capital is either insufficient or injudiciously laid out. In fact—assuming always that the expenditure be directed with judgement, it will be found that the profit upon the outlay increases more than in proportion to the amount of expenditure. It therefore behoves a man to weigh well the charges with his means, and not allow himself to be seduced by an ideal prospect of gain, into the imprudence of trying to cultivate a larger farm than his capital will enable him to manage with the spirit necessary to insure success.

Much larger capital than was formerly required has become indispensable since the general adoption of the alternate system of husbandry; for the foundation of that system, and all good farming, is the support of more live stock than possible when the land was brought round to the reproduction of wheat by means of repeated fallows, instead of green crops. The charges, being then confined to those incidental to mere tillage, were comparatively light; whereas now there are arable farms without an acre of pasture in England. By soiling, more stock is kept and more manure is made. But the produce is proportionately larger and more grain is raised or meat produced. Of two farmers, each possessing the same quantity of land, and devoting the same proportion of it to grain, he who can support the most live stock, will not only realize the customary profit on that stock, but will also grow the most grain. The farmer who has the means, as well as the discernment, to make some of the various branches of grazing or the dairy, an essential part of his business, and thus nurses a proportion of his land, preserves the tillage in constant heart with the additional manure; and although the gross amount of grain may be less than if more ground were under the plough, yet the profit will be greater and the deficiency will be more than made up by the supply of cheese and butter, and of flesh. He also divides his risk; so that, in the event of an unfavorable harvest, the loss upon his crops will probably be reimbursed by the profit on his cattle. It is a common observation, that grazing and dairying are the most regular profit, to which it may be added that the bane of all necessitous farmers, and the ruin of land are being under stocked and over cropped.

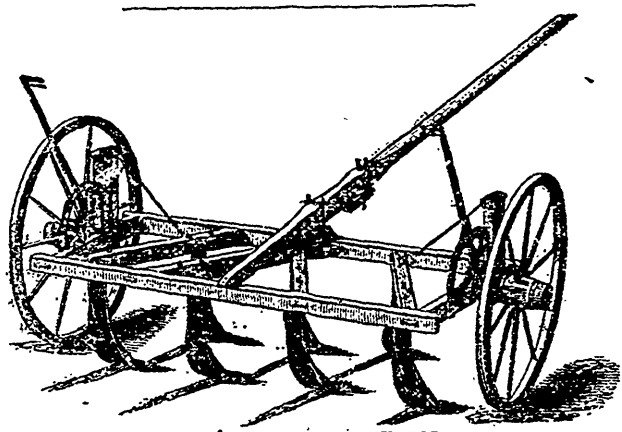
By the *Old Husbandry* I mean the prevailing system of the country which is progressively deteriorating our lands, lessening their products, and sinking our farmers to ruin; a system which neither makes the land dry, nor keeps it rich, and which tills and mows, and pastures the same fields till the plough land is worn out, grasses in the meadow land run out, and the pastures over grown with bushes and noisome weeds and mosses. I call it an exhausting system, for it not only exhausts the soil, but the purse of the cultivator. By the new husbandry I mean the system which has enriched England, and which is now enriching every farmer of our country where it has been fully adopted; the system of draining, manuring, alternating of clover and roots with grain, &c, and of blending cattle with grain husbandry. I call this the *augmenting* system, because it augments, or at least preserves the fertility of the soil, and secures profits of agricultural labor. It is affirmed by intelligent practical men, that under this system more cattle can be fed and fattened, upon the roots and straw of the tillage land than can be fed and fattened upon a like number of acres, kept permanently in meadow and pasture, leaving the grain as extra profit. The new system prevailed long in Flanders, ere it was introduced into Great Britain, and it is perhaps no where now carried to higher perfection than in Scotland. The Scotch excel in their system of draining, and perhaps are behind few in the improvement of their stock, and judicious alternation of their crops. Grass grounds are there almost invariably broken up the second or third year after seeding.

PREPARATION FOR, AND ROTATION OF CROPS.

First. If land is wet, either flat or rolling, it must be drained, either by under-ground or open drains, in order to bring it into a proper state for the rotation of crops. If land should be spouty or springy, and the soil deep it must be drained by under drains to ensure success to the agriculturist, but flat and shallow soils may be drained by open ones. First place, divide your farm into say six large fields and as many small ones as you think necessary near your house. Take No. 1, plough in the fall or autumn, in the spring sow peas and oats, potatoes and root crops; this breaks the sward. The second year summer fallow, if the land is thistly plough deep the beginning of June; harrow when the land is dry, the weather hot, and not let a thistle show an inch above ground. Plough the beginning of July, and again the first of August and drag thoroughly, then it will be fit for the seed furrow, or ridge, which should run North to South, and should be from 8 to 12 feet wide; when ridges run East and

West, the one half shades the other half; the North side is shaded so that it keeps frozen two or three days longer in spring than when running from North and South. Manure must be put on the fallow, if it is free from foul seed, it should be put on before the first ploughing. If foul, by the common practice of throwing out with the chaff all foul seed was not removed, it must be heaped and fermented, so as to kill all foul seed, and applied the last time of ploughing. In regard to ploughing for the seed furrow it should be ribbed so that the seed will fall in rows or drills, the advantage of this is the roots stand combined together which resist the frost in the spring, which is so apt to heave out the wheat. Another is the air circulates between rows and the crop is not so apt or liable to rust. The quantity of wheat sown varies from one and a half to two bushels per acre; if fall wheat, should be sown the last days of August or beginning of September. However I think that one and a half bushels is sufficient on good land, the seed should be steeped and prepared as follows:—2 oz. of blue vitriol to the bushel, dissolved in sufficient water to wet the wheat, put into a cask and soaked four or six hours; then dry with new lime by sifting three or four quarts to the bushel. Another way is to lay down your wheat on a barn floor, then wet the wheat perfectly with water, then sift four quarts new lime upon it, stir it well, in six hours wet it again, and stir it well, let it lay twelve hours, and do the same in six hours after occupying in all twenty-four hours. In either way I am not troubled with smut; and if our farmers would mind the foregoing remarks and sow *clean seed*, we should not hear so much complaint by the farmers, that the buyers knock off two or three pounds for chess to the bushel, and the cry that wheat turns to chess, would not be advocated by so many as it is at the present day. The quantity of grass seed to the acre, 8 quarts and 4 lbs. of clover seed in the spring, some time in April if dry enough, a roller should pass over to press the seed into the ground, some prefer a harrow with wooden teeth, with one horse. I think a harrow is quite as good on account that the roller packs the land, if wet, quite hard, and if dry weather follows it is injurious to the crop. Cut the grass fourth and fifth years and sixth year, pasture. After this summer fallows may be dispensed with if properly subdued, if not go through the same process again untill wild grasses and weeds are totally destroyed. The above applies to heavy clay soils and vegetable mould or wheat soil and grass land.

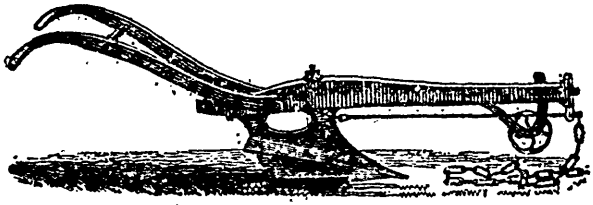
(To be continued.)



IDE'S WHEEL CULTIVATOR.

This is an implement of an improved kind in the *Cultivator* line. We heard parties at the New York State Fair, who had used this implement, speak highly of its merits. It will be seen by the cut that there is a contrivance for raising or lowering the frame to which the iron cultivators are fastened. By this means the teeth may be set to any depth required.

The use of the Cultivator instead of the harrow would often prove a decided advantage. Where fall ploughing is practised and spring crops sown without a second ploughing, as is frequently done in Canada, this Cultivator would answer a good purpose in preparing the soil for seed. The rapidity with which the work could be done would in an economical point of view warrant the expense of procuring the Cultivator. We are not aware of the existence of a manufactory in Canada at which these implements are made. They may be obtained at Rochester, New York, at a very reasonable price.



SUB-SOIL PLOUGH.

In our last number we published a short article on sub-soiling, which we would advise the reader to turn to a second time. A great deal has been written on the subject, but the article in question contains all the principles and some of the practice necessary to elucidate it. In some parts of the State of New York the attention of the farmers has been aroused to the great advantage to be derived from a judicious use of the Sub-soil Plough, and thousands are being manufactured and sold. The above represents a kind in common use, which may be made for $12 or $15 each. As the reader will see, the object of a Sub-soil Plough is not to turn the clay or *pan* upon the surface, but to loosen it, to allow air and moisture to prenetrate, and thus secure a deep, friable soil which must in all cases be an advantage. Try it, ye whose soils are not already too rich. Try it.

PRICE OF BUTTER IN THE WEST INDIES.

To the Editors of the Canadian Agriculturist.

GENTLEMEN—

In looking over some files of *DeCordova's Mercantile Intelligencer* (Jamaica,) I perceive that *Halifax* Butter usually commands there a higher price than *American*. Thus, while *Irish* brings 9½d. @ 10½d., *Halifax* figures at 8d.@8½d. and *American* only 6d.@8d. per lb. These prices are, however, in sterling money which is the Jamai currency.

Undeniable as it is, that the climate of Nova Scotia is well adapted for dairy farming, I should like to know whether *our farmers*, could not make prices like the above available for profit, by paying attention to the making, curing and preparing butter?

Perhaps under our ordinary prices, good butter meets a more profitable market at home. But, Sirs, why have we so much bad butter, which is both discreditable and profitless to the producer?

I remain, Gentlemen,
Your obedient servant,

* * *

[We quite agree with our Correspondent that the farmers of Upper Canada should give more attention to the important subject of the Dairy. At present, good butter commands a high price in the Toronto market, and very little that is *really good* can be obtained at any price. If the price of grain for the future should rule low —which we think will be the case—our farmers will be compelled to resort more to dairy products; and with good management, both cheese and butter may be produced in Canada of the best quality, and in quantities sufficient to supply all home demands, with an annually increasing surplus for exportation.]

Spirit of the Agricultural Press.

IMPROVEMENT OF CLAY LANDS.

The change that has been wrought in the wet, tenacious clay soils of England and Scotland, by means of thorough draining, and trench or sub-soil ploughing is truly marvellous. These improvements have been going on most rapidly within the last dozen years, and the produce in most instances has been doubled, in some trebled, and even quadrupled. Too much praise cannot be given to Mr. Smith, of Deanston, who ranks first among those enterprising individuals, that first wakened up the public mind to the importance and practicability of these improvements. Although in Canada, an expenditure so large as these operations cost in the old country, is not required, nor would it be profitable, yet much might be done,—and we think *must be done*,—in this direction, before our Agriculture can settle down under any intelligable system of correct principles, and fully remunerate our most intelligent and spirited cultivators.

AGRICULTURAL EDUCATION.

We are happy to learn that at the College of *Chambly* measures are about to be adopted to ensure Scientific Agricultural Education. A farm of 54 acres attached to the College, will be cultivated on the best principles, and Agricultural Chemistry will be carefully studied. This arrangement we understand, is to take place from the first of May, 1850.—*Montreal Pilot.*

DEEP PLOUGHING.

In a recent number of the *Michigan Farmer* it is stated, that two adjoining fields were ploughed, one *four inches deep*, the other *eight;* the first gave only *seven* bushels of wheat to the acre, the last *thirty-two!* It is possible that other causes might, in this instance, have combined to produce this result; still there can be no doubt whatever that *deep* cultivation, particularly in climates subject to summer droughts, has a wonderful influence on the amount of the crop. We have seen ourselves similar instances to the above.

IMPORTATION OF MANURES INTO GREAT BRITAIN

It is calculated that the amount of Guano consumed in England and Scotland, amounts to upwards of two hundred thousand tons a year, and of Bones an equal quantity; which at a very moderate calculation must cost upwards of three millions of pounds sterling.

PROFESSOR JOHNSTON'S LECTURES.

We have seen as yet, only the first lecture of the interesting course which Professor Johnston recently delivered before the members of the New York State Agricultural Society at Albany. The report, which we find in *Moore's Rural New Yorker*, is very copious, and appears to present in many parts the very words that were used by the learned Professor. We shall present our readers, from time to time, with such extracts as our space will admit. The first lecture is on *the relations of Physical Geography to practical Agriculture.* The following remarks on the practical bearings of general science on the farmer's pursuits, we recommend to the attention of our Agricultural readers.

It will be impossible for me to fill up a single one of the numerous outlines I shall have occasion to present to you. My purpose will be to impress on you the great breadth of existing knowledge which bears on the farmer's art. And first, to show the character, the true practical position which his own art occupies among human pursuits. And in the second place, to satisfy men engaged in other occupations, that whatever farmers, as a class, may be, in any country, at any time, they ought not, either for their own individual interest or for the interest of the country to which they belong, to be less intelligent, or less instructed in general and special knowledge, than other classes of the community are.

Such a course of lectures is likely to be useful at the present time; in the first place, because of the position which according to my judgment practical agriculture now occupies in this State; and secondly, because of the measures which the State Legislature, during the present session, are likely to take—I hope will take—in order to improve that condition.

I shall also make it one of my objects to show that natural science has not only a direct money bearing on the pockets and property of the farmer, but opens up also large views of the natural capabilities of countries, and of the relations of these capabilities to the comfort and welfare of man: which are not only interesting in themselves, but such as belong to statesmen to become familiar with.

INFLUENCE OF LATITUDE ON VEGETATION.

You know, that if you pass from the southern extreme of this large country northwards you pass over different climates, so to speak; you pass over different parts of the earth, the latitude of which differs. As, for instance, in passing from the extreme south towards Maine, you know that you pass from the sugar and cotton-producing country, into the wheat-producing, and from this to the barley and oat-producing country—which description properly represents Maine—and that whatever is true along the sea-board, is true of all the interior portion, and of all America, from the extreme north to the extreme south; that latitude very materially modifies the kind of culture which it is necessary to adopt to make crops grow best.

On this I need not dwell; but to show you how very small differences in latitude most materially affect the growth of plants and crops, take one single example. The growth of sugar presents this example. According to the results of experience, the sugar cane will thrive where the mean temperature is from 64° to 67° of Fahrenheit. By mean temperature, I mean that which is obtained by averaging the temperature of every day in the year. If this temperature is from 64° to 67° in any given place, there is the place where the sugar cane will thrive. But though the sugar cane may thrive in such a latitude, and may be cultivated with success where the temperature ranges from 67 to 68°, still, it grows most luxuriantly, and yields the largest return at the least cost, where the mean annual temperature ranges from 70° to 77°. All other things being equal, the counties where the highest temperature prevails, are those where the sugar cane can be grown at the least cost, and drive all others out of the market.

The southern part of Spain, near the Straits of Gibraltar, presents the first degree of temperature spoken of. Here the sugar cane will thrive; and here was grown the first sugar that came into the market. The northern part of Africa has a temperature of the second grade—67° to 68, or nearly 70°. There, and in the Azores and the Canary Islands, the sugar cane was cultivated profitably; and there it was cultivated after southern Spain had ceased the culture. But in Jamaica, and other neighboring islands and countries, with which all are familiar, and where the temperature is about 77°, there the sugar cane grows most luxuriantly. But Cuba, and the northeastern part of Brazil, possess the most favourable temperature for the growth of the sugar cane. Thus the single circumstance of variety of temperature, depending on latitude, designates the places where the culture of sugar cane can be carried on most successfully.—All other things being the same, the cost of labor, the energy and enterprise of the people, the institutions of the country—all these conditions being equal—these two countries ought to drive every other country out of the sugar market of the world. But these conditions do not exist; and in other countries the energy of their population, and the effect of their institutions, come into play, and they may compete successfully even with those most favored by climate for the culture of sugar.

EFFECTS OF WATER ON CLIMATE.

The distribution of land and water, is a most important element in the determination of what crops will grow best in countries having the same latitude. You know that all along the sea-board of any one of these continents the climate differs from that of the interior;

and that the climate of the interior of the country differs from that of the sea-coast, whether of the Atlantic or Pacific side. So in the interior, bordering on these lakes at the north and west, you know that these bodies of water very much modify the climate. All who live near those lakes, know very well that the climate is very much modified by them, that is to say, that the capability of the land to produce certain crops, is modified by the position it occupies on the borders of these great inland seas. You know further, that the rivers of a country have a great influence, not only on the agricultural products of a country. Suppose the interior of this country were not intersected by these great rivers. Large rivers, are the great highways to market, and you know how little would be the profit to the farmer, who is distant from market, but for these rivers, though he might raise any quantity of grain.

ELEVATIONS—DELTAS, &c.

A most important point in physical geography, is the elevation of a place above the level of the sea. In various parts of the world there are great ridges of mountains all of which you are familiar with, as well as with the high table lands, which are to be found in many localities in Europe and America. All these mountain elevations, table lands, and plains, are characterized from certain circumstances, by peculiar agricultural products, entirely depending on physical conformations. These things are obvious and I pass over them.

But the effect of elevations is felt at a great distance. Two illustrations will suffice, on the first, I do not, I will merely name it. Prof. J. here pointed to the map of Europe—to the North sea—to Holland—to the Rhine, tracing its rise in the mountains of Switzerland, until it empties into the North sea, forming at its mouth, islands or deltas. All of you, he continued, recollect the fact, I shall hereafter advert to, of the peculiar unhealthiness of the deltas there.—Now, the character of these islands, and of the low country at the mouth of the Rhine, is determined very much by the nature of the elevations from which the water comes. What has been published of the Natural History of your own State, tells you how much the region through which the water flows, determines its quality, what it holds in solution, and how, when it reaches the sea this matter is deposited in the form of deltas and islands that occupy the mouths of rivers. This is an illustration of the effect of elevations to modify the character of a country, through which the rivers coming from them flow.

But a more striking illustration is presented in another part of the world. The river Nile rises in Abyssinia, flows through Nubia and Egypt into the Mediterranean. It is remarkable that the countries through which the Nile flows, are bounded by deserts.—These countries would have formed part of these great deserts, but for the waters of the Nile. This river rises in the Mountains the Moon, which are covered with snow at their summits. At certain seasons of the year, this snow melts, and swells the Nile to such a degree as to overflow and cover this vast plain, and fertilizes what would otherwise be barren, thus giving to the soil its capability to grow crops, and sustain a population which, in remote times, was very great. It is interesting to remark how, on apparently small things, which have their connection with distinct branches of human knowledge, the comfort and even existance of whole nations is found clearly and distinctly to depend.

Another remarkable phenomena, which has attracted the attention of physical geographers, is the large deltas formed at the mouths of great rivers, everywhere. Those at the mouth of the Mississippi, are familiar to you all. You know that these deltas found at the mouths of all great rivers, being formed of rich alluvial soils, are generally of an unhealthy character; unhealthy, because of their richness, and because of that unhealthy character in other situations, and under other circumstances, would not be cultivated at all. If time permitted, I might here show you, how much the agricultural prosperity of a country, not its capability, (for these deltas are capable of the highest degree of production,) but how much agricultural products depend on the healthy character of the climate. Farmers thrive in countries far more cold and severe, than others; because those cold and severe countries are mostly healthy. I am sure the hardy farmers, who cultivate the soil of New Brunswick, though they suffer from the extreme cold of the country, and complain of it, yet certainly enjoy far more happiness, so far as happiness depends on bodily health, than the inhabitants of other richer countries, such as Georgia, the Carolinas, Florida, and other southern States, which are far richer, and produce more, with far less labour. Hence, in all cases, in the temperate and colder climates, rural economy in general, attains much higher state of improvement, than in the richer and warmer, but less healthy countries.

There is one circumstance, in connection with these deltas, to which I will draw your attention, and only one; that is to say, of the land at the mouths of rivers, and the character of the banks of the rivers themselves, when they are of great width, and when deposites have formed of alluvial soil, as is the case at the mouth of the Mississippi, and in other parts of the world. It is the character of these deposites to a higher elevation at the exterior than the interior part; and from this peculiar conformation—the depression of the interior parts—marshes and bogs, and bogs of peat marsh, in some localities are formed in these depressed portions.

DEPRESSIONS—RELATIVE LEVEL OF CASPIAN, BLACK AND DEAD SEA.

Among the most interesting phenomena of physical geography, are the depressions in certain parts of the world, compared with the level of the sea. I have spoken of elevations; but there are parts of the world, below the level of the sea, which notwithstanding, grow crops and nourish a large population.

I draw your attention to the Caspian Sea. This is a large body of water, from the edges of which, start plains in every direction.—This body of water is considerably below the level of the Black Sea and the Atlantic. If any circumstance should happen, by which a connection were formed between the Black Sea and the Caspian, the waters of the latter would be raised from 60 to 80 feet: a very great area of country would be submerged, and the borders of that sea greatly enlarged.

But the most remarkable case of this kind is presented in that part of the world with which we are familiar by name, and that is Palestine. In the interior of this country, is the Dead Sea, into which the river Jordan flows, through certain lakes, among them the Lake Tiberias. The Dead Sea is twelve hundred or thirteen hundred feet below the level of the Mediterranean. The Lake Tiberias is some five hundred feet below the level of that sea. If any circumstance should open a track or canal from the Mediterranean into the valey of the Dead Sea, its waters would rise twelve hundred feet and drown a large portion of the people of that country, with which our oldest and most sacred associations are connected.

I shall have occasion in a subsequent lecture, to draw your attention to the circumstance of there being certain parts of the world in which no rain ever falls, and certain other parts where the quantity of rain is very small. It is because the rain that falls in this country,

bordering on the Dead Sea and the Caspian, is no greater than the evaporation, that it remains as now, and has not been submerged long ago. With such a climate as you have, and as we have in Great Britain, where the rain that falls is greater than the evaporation, the population of those regions would have been annihilated by the rising waters.

SWAMPS AND WET LEVEL LAND.

There are large tracts of country, which are not either above or below the level of the sea; but which are so flat, that the water that falls, remains and stagnates. In this country, large tracts are rendered useless for agricultural purposes, by the extreme evenness of the surface. In New Brunswick, there are large tracts of this character, and which seem to defy agricultural improvement.

Again, there is a tract of country on the bay of Chaleurs, which though exceedingly flat, is naturally fitted to become as rich as some of the richest lands of Scotland, even those celebrated for their richness. It is so flat, that the water cannot escape. It is not a bog, or a swamp, but so wet that it cannot be cultivated profitably by the settlers.

Besides these phenomena, there are certain natural obstructions, which present themselves, in the course of rivers, and give rise to new conditions of the country bordering on them, which are more or less unfavorable to the growth of crops, but which farmers make profitable. In New Brunswick, there are many such—which may be called bogs, or swamps. In your own States, in Cayuga county, I believe chiefly on the outlet of Cayuga Lake, lies the Montezuma Marsh. I have not visited it myself, but am advised, that the marsh is formed by obstructions, which can only be removed by operations on a large scale, by which a partial drainage is effected, and thus the water enabled to flow from the lake, and thus a large extent of land, capable of being made of the most productive character, may be redeemed from barrenness. In other parts of your country, in Georgia, for instance, there are large swamps, and in Florida, there are what are called everglades; in regard to which, I am happy to hear, that steps are talked of for draining and reclaiming.

THE RHINE—FORMATION OF HOLLAND.

I promised to draw your attention to the Rhine. The Rhine, when it reaches the North of Europe, becomes loaded with mud to a great degree—not so great as the Mississippi; but there is the difference: the Rhine empties itself into a bay, where the waters from the north and south-west meet, and a drawing back takes place, and a precipitation of the earths in suspension goes on at the mouth of the river itself. Now, there was a time when these desposites took place without being heeded; when there were formed islands of small extent, the edges of which being raised above the rest, by the action of the waves and the current, formed strips of land on which trees and plants grew—the external being higher than the internal parts—thus forming a large extent of boggy, muddy, and sandy country, stretching from the mouth of the Rhine, north, to the Zuyder Zee; that is to say, forming the country now called Holland. By degrees, the fishermen settled on these little knolls, and fertility being soon known, the farmers were attracted thither, and by indomitable perseverance and enterprise, these and the adjacent lands were reclaimed by artificial works, and form what is now the limited province of Holland. I will not dwell on the history of this people; but you must see that the character of a people in such a country, formed originally by natural operations, and reduced to a habitable region by human perseverance and skill—you must see in the nature of the country, which must have moulded the character of the inhabitant, and formed the national character of its people—something of their remarkable characteristics. If time permitted, I might enter into details illustrative of these—the result of personal observation in that country—going over its dykes, sailing on its canals, and witnessing everywhere the triumphs of human power and art over extraordinary difficulties, a country which, from the beginning of the Christian era, has been subjected to continually repeated inundation. Records go back through a period of thirteen centuries, during which have been great inundations, which have broken up dykes, let out canals, overflowed cities, and drowned large numbers of people, once in seven years. For thirteen centuries, the Hollanders have been subjected, on an average once in seven years, to these inundations. I have thought, in going through that country, how many struggles that people have undergone, what perseverance they have displayed, what victories they have achieved over stubborn and apparently indomitable nature, what effect the consciousness of having done all this must have upon individual as well as national character, and what a great triumph it is in itself thus to have fixed themselves firmly on the soil!

Gentlemen, it is useful to us—it carries with it a great moral lesson—to survey such a country as this; teaching us that those who possess great natural advantages, whether as nations or as individuals, are not always either most blessed or happy; that difficulties bring out energies of individuals and nations, and that those nations and those individuals are not only happiest, but in general most successful, who have those difficulties to encounter.

TIDE IN THE BAY OF FUNDY.

With the subject of rivers are connected the tides. The flowing of rivers is naturally connected with the flowing of tides, and the flowing of tides is a physical phenomenon intimately connected with agricultural prosperity in many parts of the world. I need not go far for an illustration—if I take you to the Bay of Fundy, which separates Nova Scotia from New-Brunswick—the waters of which rush up with great velocity, and rise to a great height. Fifty or sixty feet is no unusual tide at the head waters of the bay. As they rush up, they sweep the banks on either side, which on the Nova Scotia side are composed of a species of rock and clay, and arrive at the extremity of the bay loaded with mud to a very great degree. They are the muddiest waters I ever saw. This mud is deposited at the head waters of the bay, in great quantities, and forms the richest land existing in that part of the world. The richest land in Nova Scotia and New Brunswick, is formed of such deposites as these—mainly from the waters of the Bay of Fundy, which not only bring with them the ingredients that fertilize the soil they form themselves, but bring to the industrious farmer the means to fertilize the uplands to a great extent. I do not mean to say that there, or in other parts of North America that I have visited, the advantages of these desposites are fully put to use; but still, the means these marshes afford of enriching the uplands is very great, and capable of producing enough to nourish a large population.

AMOUNT OF RUTA-BAGA TURNIPS CONSUMED BY STOCK PER DAY.—An ox weighing 40 stone, (560 lbs) will eat about 100 lbs of ruta-baga or Swedish turnips a-day along with straw or chaff. Ten sheep of 64 lbs. each, will eat about 200 lbs. in the field, and rather less in the house.—*Agricultural Gazette.*

STEPHEN'S "FARMERS GUIDE TO SCIENTIFIC AND PRACTICAL AGRICULTURE."

Mr. Henry Stephens, of Edinburgh, the author of that excellent work "The Book of the Farm," has published the 1st Volume of a work under the above title, "detailing the labors of the farm as they successively occur." An arrangement has been made to republish this work in the United States from the stereotype plates of the original; Professor Norton, of Yale College, undertaking to adapt the work to farming operations on this Continent. We have had the first No. of this republication laid on our table by Mr. Maclear, bookseller of this city, and we have no doubt the entire work will be a most valuable acquisition to the Farmer's Library. Every thing we have seen from the pen of Mr. Stephens bears the stamp of a mind well versed in all the practical details of the farmer's art, and possessing a most accurate knowledge of the improvements and discoveries which science has so largely yielded. Professor Norton's contributions will be in the shape of an appendix to the several parts of the work; a clumsy arrangement which could not very well be avoided. The author goes into the minutiæ of all important operations which, of necessity, swell the work to a large size; but it will be a library in itself, and although many of his directions will be quite inexplicable to Canadian Farmers, yet every line may be read with profit. The intelligent agriculturist will easily distinguish those methods of culture, crops, &c., suitable to the soil and climate of this country from those recommended for Scotland, and to the uninitiated and unskilled, we trust the explanations and additions of the American Editor will make every thing plain.

We shall from time to time extract for our readers such passages as we may deem most useful, but we hope they will nevertheless buy the work itself. Village, Township, and School Libraries should secure this book as soon as possible. Mr. Maclear will, we dare say, be most happy to take orders.

The following passage may be read with some profit by those who cannot see the advantage of Agricultural Schools, or a system of special instruction for farmers' sons who intend to adopt their father's profession. We may remark that it is a frequent practice in the old country to place young men who are intended for farmers, for two or three years with some good practical Agriculturist to be taught the business, and Mr. Stephens seems to have had these *pupils* in his eye (we beg pardon for the pun), when he wrote his book.

ON THE BRANCHES OF SCIENCE MOST APPLICABLE TO AGRICULTURE.

I believe I have said enough on the best means, in existing circumstances, of acquiring a thorough knowledge of practical agriculture: it is now incumbent on me to indicate those branches of science which will most enlighten the mind of the pupil for the most ready appreciation of agricultural practice; and I may, perhaps, excite general surprise, when I state that no art bears so close a relation to so many branches of science as agriculture.

Indeed agriculture may perhaps be considered one of the experimental sciences, as its principles are no doubt demonstrable by the test of experiment, although farmers have not yet attempted to deduce principles from practice. The necessity for such a deduction is, no doubt, the less urgent, that husbandry is usually pursued as a purely practical art; and the facility of thus pursuing it successfully, of course renders practical men indifferent to science, as they consider it unnecessary to burden their minds with scientific results, whilst practice is sufficient for their purposes. Could the man of practice, however, supply the man of science with a series of accurate observations on the leading operations of the farm, the principles of these might be truly evolved; but I conceive the greatest obstacle to the advancement of scientific agriculture is to be sought for in the unacquaintance of men of science with practical agriculture. Would the man of science become acquainted with practice, much greater advancement in scientific agriculture might be expected than if the practical man were to become a man of science; because men of science are best capable of conducting scientific research, and, being so qualified, could best understand the relation which their investigations bear to practice; and, until the relation betwixt principles and practice is well understood, scientific investigation, though important in itself, and interesting in its results, would tend to no practical utility in agriculture. In short, until the facts of husbandry are acquired by men of science, these will in vain endeavour to construct a satisfactory theory of agriculture on the principles of the inductive philosophy.

If the science of agriculture in its present position be thus correctly represented, it may be expected to remain in an incipient state until men of science become practical agriculturalists, or, what would still prolong such a state of lethargy, until farmers acquire scientific knowledge. It is certainly remarkable that so few scientific men were for a very long period induced to subject agricultural practice to scientific investigation; though of late many, both at home and abroad, have devoted a portion of their time to such a study, and which has already afforded abundant proof, that extensive as the field of research is, it has only to be occupied by numerous observers to produce results interesting alike to the man of science and the man of practice. The long neglect of agriculture by scientific men may perhaps have arisen from the circumstance of its having so intimate a relation to almost every physical science, so that until all its relations were first investigated, no sufficient data could be obtained for a satisfactory explanation of its practice. A short review of the actual relation which the physical sciences bear to agriculture will render this suggestion the more probable.

The sciences which agriculture most immediately affects are mathematics, natural philosophy, chemistry, natural history, comparative anatomy, and veterinary science. Of mathematics, the most useful parts are geometry and trigonometry, and the application of these to the measurement of surfaces and solids. Without a knowledge of mathematics no one can understand

natural philosophy; because it is they alone which can demonstrate the powers of those laws which determine the motion of matter. Of natural philosophy, the most useful branches to the agriculturalist are *mechanics*—"the science of the laws of matter and motion, so far as it is accessary to the construction of machines which, acting under those laws, answer some purposes in the business of life," such as the culture and manufacture of crops; *pneumatics*, "that branch of physics which treats of air, and the laws according to which it is condensed, rarified, or gravitates;" *hydraulics*, that branch of hydrodynamics which treats of fluids in motion, and in particular of the conveyance of water through pipes and channels; *electricity*, which endeavours to determine "the operations of a principle of very wide influence through nature: a cause which is, and perhaps can be no otherwise conceived, than as a highly attenuated form of matter existing in different substances, and passing from one to another with various effects, among such bodies as can be excited to give or to receive it;" *optics*, by which the laws of light, as affecting vegetation by the influence of color, are investigated; and *heat*, which, by diffusing itself through neighboring substances, gives to every object its existing form. By the aid of chemistry, "the manufacture of manures may be expected to continue to improve, the supply of manure further augmented and cheapened, and the development of the resources of the soil thereby hastened and increased." Of the branches of natural history, the most useful to agriculturalists are *meteorology*, "the science of the atmosphere and its phenomena;" *botany*, "which treats of the structure, functions, properties, habits, and arrangement of plants;" and *zoology*, as restricted to the natural history of quadrupeds and insects. The branches of the medical science useful to agriculturalists are *comparative anatomy*, which treats of the structure of the bodies of animals as compared with that of the body of man; and *zootomy*, which treats of the structure, and explains the principles of the art of healing the diseases of the domesticated animals.

Viewing the general aspect of these sciences as presented to the agricultural pupil, in the definitions just given of them, he must at once observe the advantages he would derive by studying them. It is well observed by Sir John Herschell that "between the physical sciences and the arts of life there subsists a constant mutual interchange of good offices, and no considerable progress can be made in the one, without of necessity giving rise to the corresponding steps in the other. On the one hand, every art is in some measure, and many entirely, dependent on those very powers and qualities of the material world which it is the object of physical inquiry to investigate and explain." It is evident that most farming operations are much affected by external influences. The state of the weather, for example, regulates every field operation, local influences modify the climate very materially, and the nature of the soil generally determines the kind of crop that should be cultivated. Now the pupil should desire to become acquainted with the causes which give rise to those influences, by understanding the laws of nature which govern every natural phenomenon. The science which investigates those laws, is called *Natural Philosophy*, which is divided into as many branches as there are classes of phenomena occurring in the earth, air, water, and heavens. Those laws, being unerring in their operation, admit of absolute demonstration; and the science which affords the demonstration is called *Mathematics*. Again, every object, animate or inanimate, possesses an individual character, so that it can be identified, and the science which makes us acquainted with its characteristics, is termed *Natural History*. Farther, every object, animate or inanimate, is a compound body made up of certain elements, of which *Chemistry* makes us acquainted with their nature and combinations. The pupil thus sees how suitable those sciences are to the explication of the phenomena around him, and their utility will be the more apparent to him, the more minutely each science is investigated.

MODE OF CHURNING IN SOME OF THE COUNTIES OF NEW YORK.

At a meeting lately held in the County of Norfolk, C. W., on the occasion of a dinner being given to the Hon. H. J. Boulton, M. P. P., a Mr. Bowlby in reply to a toast to the "Agriculturists," described one of the "Yankee" methods of Churning as follows:—

It seems to be a favorite practice with the politicians of the evening, to press into political matters on the other side of the water, and compare the working of different measures among the "shrewd Yankees" with laws we have in existence here. Now, sir, why cannot the agriculturists profit by the same practice as the politicians? I would simply draw your attention for a moment to the manner in which butter is made in some of the principal counties in New York. They churn all there by mill. They churn it slow, and continue the operation about four hours when it is sweet and cold; by which means they obtain about one third more butter from the same quantity of milk, and that usually of a better quality, than we generally get in the ordinary way of setting the milk and churning only the cream when sour. By this method of keeping dairy, the labor of churning is considerably increased to obviate which they use a tread wheel power suitable to the number of cows kept; for 10, 15 or 20 cows, the power is propelled by a large dog; or more frequently a sheep is used, the preference is given to the sheep as it is steadier than a dog; it can be kept in a small yard close at hand, while a dog will soon learn to con. up missing about the time of churning. When their dairy is very large they use horse power. Their whole business is reduced to a system. Instead of turning their milk into pans, &c., to raise the cream, as is usually done here, the labor of which, in skimming and cleaning dishes alone, exceeds that required for finishing their whole dairy, they turn the milk drawn at night into one churn or more according to the number of cows kept, in the morning they repeat the same process, mixing the morning and evening's milk so that it will cool and be ready for churning about ten o'clock the same morning. When the weather is very warm they add cold water freely to keep the milk at the proper temperature while churning, which operation they continue till two in the afternoon. If the butter is likely to gather soon they stop the motion of the churn, or lessen its motion and churn slow. By this process the same amount of butter will be obtained by less than one-half the labor required in the usual method of making it.

That the dairy business would be remunerative in the townships is readily proved from the fact, that large dairies are kept in Genesee County, which is considered the best county in the State of New York for growing wheat, and being in the vicinity of Rochester, it demands a good price, from 10s. to 12s. per bushel, while here wheat is only 5s. or 6s. per bushel. Their land is worth $50, $60 and $80 per acre, while our land, that will yield equally as much pasture, is worth $10, $15 and $20 per acre. Notwithstanding their great advantage in the price or grain, and disadvantage in the

price of land, they find it more profitable to keep dairy, and pay 12½ per cent. for the privilege of supplying the Canadian markets. As the evening is advanced I will close my remarks by a recommend to the agriculturists of Townsend to turn their attention more to this line of business, and supply their own markets.

MILK-HOUSES.

Opinions have changed as to milk-houses.—Some years ago, those made by a spring or cold brook, so that cold water would constantly run around the pans, were considered the best; and those who had not the advantages of a stream of cold water, chose a cold part of the cellar as the next most eligible situation.

But experience shows that spring-houses are too damp, if not too cold, and the bottom of a cellar, if neither too cold or damp, is generally without sufficient ventilation; and in a cellar there are generally many substances injurious to milk, and if a room is made in the cellar purposely for milk, it often communicates with other parts that are used for various purposes.

We think that milk-rooms may be made above the ground, or partially above it, so as to have a good ventilation, and, of course, a pure air, and at the same time sufficiently cool. If no ice is to be used to mitigate the extreme heat, it may be necessary to have the bottom of the house a few feet below the surface of the ground, or to have it constructed on a plan similar to that of an ice-house, in part, excepting arranging it for thorough ventilation, which is not necessary in ice-houses.

If a part of the cellar is used for a milk-room. it should be in the driest part, and where the house is most elevated, that there may be an opportunity for windows well-arranged for ventilation. In a close deep cellar, foul air settles to the bottom, which has an unfavorable effect on milk and butter.

One important objection to cold, damp, and unventilated milk-rooms, is their unhealthy condition for those who attend to the milk, and to churning, and working and packing butter in such rooms in very hot weather.

We take the following interesting article on this subject from the *Wool-Grower*, an excellent paper, recently started by Mr. Peters, of the Buffalo Wool Depot.

Experience had taught me that the great difficulty to be encountered in the manufacture of butter, in warm weather particularly, is the preservation of the milk after it is taken from the cow, until all the cream can rise to the surface, be taken off, and transferred to the churn in a perfect state. To obviate this difficulty after a consultation with my wife, who, by the way I must be allowed to puff a little, is *au fait* in all matters of this kind,—we devised, and had constructed, a milk-house on the plan and of the dimensions following. Intending to make butter for my own family use only, the arrangements were to be, of course, upon a corresponding scale.

Now, then, to a description of the building:—

Frame of joice and scantling, seven by ten feet; six and a half feet from floor to plate, covered with inch pine stuff, planed and matched, painted on the outside; roof of the same. At each end, and near to one side, a window, exactly opposite each other, twenty inches wide, extending from the floor to the bottom plate, covered with wire cloth sufficiently fine to exclude flies, and painted to prevent rust. In the front end a door, and in the rear end a window exactly opposite, about twenty by thirty inches, covered the same as the other windows, and placed sufficiently high from the floor to be on a level with a stationary table, (one and a half inch plank,) for the convenience of straining, skimming, working out butter, &c. Six shelves on one side of the room, ranged one above the other. These shelves are each composed of two strips of pine stuff, one and a half inches in diameter, and of the length of the room, joined together at the ends and middle by cross pieces framed in, leaving the longitudinal strips about four inches apart. These shelves are supported at the ends by strips nailed to the window frames inside, at suitable distances, and at two places between these points by corresponding strips fastened at one end to a stud, and at the other to a stancheon placed about twenty inches in front of the stud, and secured at the top and bottom. This distance is necessary, that the shelves may slide back and forth, as convenience in handling pans of milk requires. In this way but a small part of the bottom of the pan is covered by the shelf, leaving a free circulation of air, which comes in at the window of each extremity. The building is placed under a cluster of fruit-trees, which effectually shields it rays of the sun during the heat of the day.—A second roof of rough boards elevated, say two feet above the top of the milk-house, and of sufficient dimensions to cast a shade all round it, would doubtless answer every purpose.

I do not pretend to say that this is the very best kind of milk-house that can be constructed, but it is the best that we could devise, and with its results we are perfectly satisfied. It answers admirably all the purposes for which it was intended. The milk keeps much longer before changing, giving an opportunity for all the cream to rise; and during the warmest weather in July and August, we are enabled to make the choicest kind of butter, and, for aught I can discover, as much in proportion to the quantity of milk, as at any other time of the season. We have the benefit of an ice-house in close proximity, the contents of which I consider an indispensable auxiliary in the manufacture of butter in warm weather.

Before the erection of this building, we had tried in vain to make butter in warm weather. The cellar was too damp or too cold, or too something; and the pantry too hot.

CHEESE MAKING.

Our columns bear more and more to an awakening interest in this branch of business. It has not received the attention it deserved in past years, from the almost invariable devotion to wheat growing which has characterized the West; but as discouragement prevails in regard to that, from the general failure of the crop, attention is turned to this among other branches of business.

A correspondent asks for a recipe for cheese making. While we would say that no one can expect to make first rate cheese from a recipe, yet a recipe will do to begin on, and experience will carry us forward to any degree of excellence.

We will suppose the rennet procured and got ready, and the cheese to be made to weigh 25 or 30lbs., which will be made of the night's and morning's milk. The night's milk being set, and cooled if necessary, must be skimmed in the morning. This done, and the milk of night and morning mixed together, all must be warmed to 90° of Farenheit, or thereabouts, and the cream which was taken off returned to the milk. When the milk is warm enough, a gill or a little more of good rennet is to be added, and thoroughly stirred in. The whole is now let alone till it coagulates, or becomes cured, which will be in an hour if the rennet is good. With a long wooden knife it is now cut through and through at right angles, so as to make squares of about an inch in size. A strainer is now thrown overit, and the whey dipped off as long as it can be done. The curd is then again broke up, and the whey more completely dipped off than before. Some of the first whey is to be heated as soon as dipped off, for the purpose of scalding the curd. Great care must be taken not to scald the curd too much. Two pailsful at 130° will scald a curd of 20lbs.; but the weather and the quantity of curd must be consulted to determine correctly. When the hot whey is poured on, the curd should be broken up and mixed by hand, that all parts may be equally treated, and made as fine it as can be broken. It is now removed to a strainer and basket, and when the curd is drained, it is returned to the tub for salting. Half an ounce of good salt to a pound of cheese, will prove a good rule, but the taste of the dairy woman is perhaps as good a regulator of this matter as any. The salt must be pure and fine, and thoroughly mixed with the curd, or it will not ripen equally, and the unsalted places will acquire a bad flavor.—*Prairie Farmer.*

BEET-ROOT SUGAR.

The following is a cheap and easy way to manufacture Beet-Root Sugar, for domestic use, and which I have often tried with success. It will probably be new to many of our readers:

There is hardly a good housewife, of even the most limited means, to be found, who would not prepare her apple, peach, cherry, quince, or other preserves at the proper time. That is all well enough, but why not also lay in and prepare the annual stock of sugar and molasses, if it can be done with a trifling expense? A little plat of land for the culture of beet-roots can always be found, and if we consider the fact, that 100 pounds of beet-roots will yield twenty pound of syrup or molasses, or 8pounds of brown palatable sugar and 8 pounds of syrup, the little trouble connected with the manufacture, should be shunned by no good housewife. Except the raw material, the expense will amount to but a few shillings, and the process requires neither costly utensils or materials, nor a vast deal of chemical knowledge.

UTENSILS AND IMPLEMENTS.

1. A grater, for the purpose of mincing the roots.
2. A small wooden screw press, or if that can not be had, two boards loaded with heavy stones.
3. Two straining bags, one of cotton or linen, the other of flannel.
4. A barrel, smaller or larger according to the quantity of sugar to be made. This barrel is to be perforated by holes, three inches distant from each other, throughout its whole length, from the top down to about four feet from the bottom. These holes are filled by cork stoppers. A kettle. The flatter the latter is, the more appropriate will it be for the purposes of manufacturing sugar.

PREPARATORY LABORS.

1. *Preparation of the Lime Milk.*—Take one pound of white, well slacked lime, pour half a pound of lukewarm water upon it, and, after the lime has become pulverized, add nine quarts and a half of water, the whole mass to be stirred up well during the application of water.

2. *Preparation of Animal Charcoal.*—Take a quantity of bone-black (*cbur ustum*) which is to be had in every drug store, as much as necessary, put it into an earthen unglazed pot, and set it into the fire to remain there until it is red-hot. After having cooled off, put it into a dry well closed vessel. The best will be a good bottle.

MANUFACTURE OF THE SYRUP OR SUGAR.

Early in November remove the beet root from the ground, free them from the leaves and wash them clean. After they have dried up, grate them on a common grater, put the grated mass into the flannel straining bag, and press out the juice by means of a common wooden screw press, or by putting it between two well loaded boards. As soon as the proper quantity of juice has been pressed out, measure it into a kettle by the quart, and kindle a fire under the same. The juice, however, must not be allowed to boil at once, but kept in a very warm state, so that you may introduce your finger without feeling pain. Afterwards add to every thirty quarts of juice three quarts of lime milk, mix it well together, and pour it into the barrel, well supplied with holes, so as to discharge the fluid when it becomes necessary. Here the juice is to remain for three hours. One part of it will swim on the surface, and is to be skimmed off; another will sink to the bottom. The clear matter is to be removed from the barrel, by means of the discharging holes, strained again through the well-washed strained flannel cloth, and poured into a clean kettle, after which it is boiled down by a brisk fire to one-third of its volume. To ascertain the third part, measure the third part of the juice into the kettle, make the latter stand straight and fix a small stick in the centre of it. Sign the point of the stick up to which the liquid matter reaches, by a mark, and the latter will give the test after further boiling whether two-thirds have been evaporated. As soon as that is done to every thirty quarts of juice, one pound of well-bruised bone black or animal charcoal, but keep the whole mass constantly boiling, and apply the bone-black only in small doses. After having done so and the boiling being continued a quarter of an hour, reduce the fire somewhat, so that the mass appears to be boiling around the rim of the vessel. If you mean to have only syrup, boil the whole for two hours, add to thirty quarts of juice the white of six eggs, cause it to boil up again, strain it through a cotton of linen cloth, and you will receive from thirty quarts of juice, ten to twelve pounds of the finest syrup. If it is your object to have sugar, boil the whole so long, as to leave two quarts of liquid matter of thirty quarts of juice, add then half a pound of fine sugar, clear the whole by the white of six eggs, strain it, and leave it till it becomes lukewarm, put it then into an enlarged earthen vessel and the sugar will crystalize within a few days. The syrup is poured out, the sugar dried in a warm place, and stored up for use. It is neccessary to take great care of the fire at the last boiling, as too strong a fire will be apt to prevent the crystalization or consolidation of the sugar.

The whole process is a very simple one, and as sugar is an important item in domestic uses, it is worth trying the experiment. We ought to mention, yet, that it is only the white Silesian sugar beet that can be used for

the production of sugar, all the red or reddish varieties are unfit for use. A. L. KRAUSE.
—[*Wool Grower.*

AMOUNT OF FOOD RAISED ON AN ACRE.

The amount of human food that can be produced upon acre is worthy of great consideration. One hundred bushels of Indian corn per acre is not an uncommon crop. One peck per week will not only sustain life, but give a man strength to labor, if the stomach is properly toned to that amount of food. This, then, would feed one man 100 weeks, or almost eight years!

Four hundred bushels of northern potatoes, can also be raised upon an acre. This would give a bushel a week for the same length of time; and the actual weight of an acre of sweet potatoes is 21,344 pounds, which is not considered an extraordinary crop. This would feed a man six pounds a-day for 3,557 days, or nine and two-thirds years!

To vary the diet, we will occasionally give rice.—This has been grown at the rate of ninety-three bushels to the acre over an entire field. This at 45 lbs. to the bushel, would be 4,185 lbs.; or, at 28 lbs. to the bushel when hulled, 2,604 lbs., which at two pounds a-day would feed a man 1,302 days, or more than three and a half years!

Upon reflection, it is not very wonderful that so many non-producers are able to find food, when we see how many mouths one laborer can fill.—*American Agriculturist.*

SMALL POX IN SHEEP.—A renewed outbreak of small pox among the sheep of Norfolk is announced in the English papers.

IMPORTANT TO STOCK BREEDERS. — Farmers are strongly recommended to wash all roots before giving them to cattle. Professor Dick states that he has seen 100 lbs. of earth taken out of a horse which had been destroyed by it.

MAPLE SUGAR.

It is hardly probable that the sugar crop will be very large this year, as the season has thus far been extremely unpropitious, at least in these parts. Still there will in all probability, be some made yet in this month; and it may not be unprofitable to relate a process of refining that we once learned in the days of our *bush-whacking*, which we know to be simple and quite superior to most practices in use.

When the sap is boiled to about the consistence of good sale molasses, set it by to cool, preparatory to applying the finings. Both milk and eggs are used, but eggs are entirely preferable, as in the rising of the curd to bring up the impurities, the whole material of the egg coagulates and rises, while the milk only sends up the curd, leaving the whey to mix with the sugar, and injure its qualities.

Take three or four eggs to each gallon of syrup, and beat them well and thoroughly—mix them with the syrup while cold. Then pass it through a woolen cloth (woolen, mind that,) in preference to any other; for this is one of the important features of the manfacture, to strain through flannel *after fining*, and it is all the straining or settling that is required during the whole process. Reduce it by boiling, till, when dropped into cold water, it will retain its shape and not dissolve; take off the white scum and it is ready for graining.

It is a curious fact, that the process of refining maple sugar till it is entirely white, destroys its peculiar delicious flavor, and renders it a simple sweet, like cane sugar.—*Moore's Rural New-Yorker.*

EXPERIMENT WITH PLASTER ON CORN.—As accurate experiments are what we all want, I give below the result of which may be of interest to some of your readers.

Last spring I procured two barrels Plaster of Paris, at $2 25 per barrel, which was put on twenty acres of corn, with the exception of four strips across the field, that I might observe the difference. Forty-eight rows in the most even part of the field was chosen for the experiment—16 rows plastered upon each side of 16 rows not plastered; all having the same cultivation—the rows 120 hills in length. The corn where plastered grew much faster than the other, which enabled me to work closer while small, and when cut up, the stalks averaged about eighteen inches taller. When measured, strip No. 1, yielded 35 bushels; No 2, (not plastered) 28 bushels; and No. 3, 35¼ bushels.—(There was no apparent difference in the soil.) This gave me seven bushels, or one-fifth more corn for what cost me only 36 cents.—*Cor. of Ohio Cult.*

DISEASE IN SWINE.—A breeding sow was turned off to fatten. A few days after she was noticed to stand with her head down, and to be breathing with great distress, but yet, without any perceptible sound. This continued for a day or two, when supposing she was laboring under an attack of inflamation of the lungs, I cut off her tail, from which she bled freely. This was followed by immediate relief, and in a day or two she was quite well.—*Am. Ag.*

IMPORTANT DISCOVERY.—Mr. Smith of Deanston, has made an important discovery in the treatment of the fleeces of sheep, whereby the fleece of the living animal is rendered repellant of water by a simple and cheap process; so that the sheep are defended from the pernicious effects of wet, whilst the natural emanations from the body remain unchecked, and the growth and quality of the wool are improved. The effect of this waterproofing has been practically tested on some of the most exposed sheep walks in Scotland, and with signal success. This process, it is expected, will effectually supersede the laying with tar and butter, and other salves, at one-third of the cost, whilst the wool will be preserved white and pure. Though the laying or salving of sheep hitherto has been applied chiefly to flocks on mountainous or exposed situations only, it is believed that the new mode of treatment will be found beneficial to flocks on the most sheltered and southern pastures; and that it will go far to prevent or to mitigate that destructive disease, the rot, which is neither more nor less than dysentery, caused by the continuance of wet weather, whereby the fleeces of the sheep become soaked with rain, and produce the same effect as is produced on man by wet clothing. It is also presumed that this mode of treatment will lead to the successful introduction of the Spanish sheep, and the Alpaca, which are known to have suffered from the prevalence of wet weather in this country. Mr. Smith has secured patents for the United Kingdom and the colonies.—*Scottish Paper.*

THE VALUE OF OIL IN INDIAN CORN.—According to Professor Johnston, the popping properties of corn depend upon the expansion of the oil, on the application of heat. A barrel of pop corn would give six barrels of popped corn; while the rice corn, which contains a still larger proportion of oil, would give thirty-six barrels of popped corn from one unpopped; while there are some kinds, which, from the absence of oil, would not pop at all. The structure of grains is a most important study. It is particularly important in its bearing upon the feeding of stock, The same explanation he applied also to wheat, which he said contains a smaller proportion of oil than corn.

Horticulture.

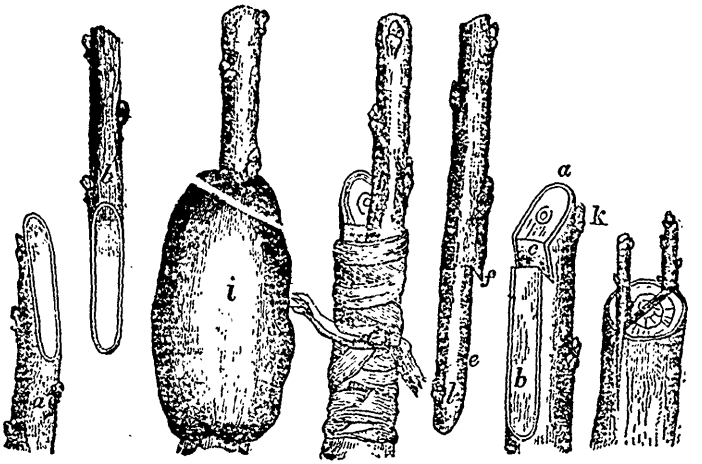


FIG. 1. FIG. 2. FIG. 3.

GRAFTING.

As this is an important operation which every farmer who has an orchard, (and every farmer *should* have an orchard) ought to be able to perform himself, we insert explanatory cuts and a few brief explanations.

When the branch to be grafted is of the same size with the scion, the operation of grafting is very simple and perfect. This mode is called *splice grafting.* (fig. 1.) By a smooth sloping cut upwards on the stock, a, and downwards on the scion, b; you make the two fit so that the inner bark of one corresponds with that of the other; then bind them firmly together with a strand of matting, or the like, cover the wounds with grafting clay or wax, and the operation is complete. But as the size of the stalk is generally larger than the scion, other modes are necessary which require more skill. The two most common are called *tongue grafting,* (fig. 2.) and cleft grafting, (fig. 3.) The following with the aid of the cuts will sufficiently describe them:—

In Tongue Grafting.—Having chosen your stock of the proper size, cut it off at the point where, *a*, it appears best to fit the graft. If the stock is quite small, it may be within three or four inches of the ground.—Then, with a very sharp knife, make a smooth cut upwards, *b*, about two inches in length. Next make a slit, from the top of this cut about one-fourth of the way downwards, *c*, taking out a thin tongue of wood. Cut the scion four or five inches long, or so as to have three buds; then shape the lower end with a single smooth sloping cut, *e*, about the same length as that on the stock, and make the tongue upwards, *f*, to fit in the slit of the downward stock. Now apply the scion accurately to the stock making the inner bark of the scion fit exactly the inner bark of the stock, at least on one side. Without changing their position, tie them together carefully with a piece of bass-matting or tape, *h*. And finally cover the wound with well prepared grafting clay or wax, *i*. This ball of clay should more than cover the union, by an inch above and below, and should be about an inch thick. If grafting wax used, the covering need not be above half an inch thick.

In a month's time, if the graft has taken, it will be expanding its leaves and sending out shoots. It will then be necessary to rub or cut off all shoots between the ball and the ground, if it is a small stock, or all those which would rob it of a principal share of nourishment, if upon a large tree. If the scion or stock is very weak, it is usual to leave one or two other buds for a time to assist in drawing up the sap. About the end of July, after a rainy day, you may remove the ball of clay, and, if the graft is securely united, also the bandage; and the angle left at the top of the stock, *a*, should now be cut off smoothly, in order to allow the bark of the stock and the scion to heal neatly over the whole wound.

Though it is little attended to in common practice, the amateur will be glad to know that the success of a graft is always greatly insured by choosing the parts so that a bud is left near the top of the stock, *k*, and another near the bottom of the scion.

Cleft grafting is a very easy mode, and is in more common use than any other in this country and the United States. It is chiefly practiced on large stocks, or trees the branches of which have been headed back, and are too large for tongue-grafting. The head of the stock is first cut over horizontally with the saw, and smoothed with a knife. A cleft about two inches deep is then made in the stock with a hammer and splitting knife. The scion is now prepared, by sloping its lower end in the form of a wedge about an inch and a half long, leaving it a little thicker on the outer edge. Opening the cleft with the splitting-knife, or a small chisel for that purpose, push the scion carefully down to its place, fitting its inner bark on one side to that of one side of the stock. When the stock is large

it is usual to insert two scions, fig. 3. On withdrawing the chisel, the cleft closes firmly on the scions, when the graft is tied and clayed in the usual manner.

The great number of modes described in books, says Mr. Thomas in his "fruit culturist," have tended rather to bewilder than enlighten beginners; the following remarks, therefore, are more for the purpose of laying down *reasons* on which success depends, than for pointing out the peculiar modes of operation, which may be varied according to convenience, provided attention is given to the essential particulars.

Propagation by grafting differs mainly and essentially from increasing by cuttings, by inserting the cutting into the growing stock of another tree, instead of directly into the soil. The stock thus supplies the sap, as the soil does in the case of a cutting; and the graft, instead of making roots of its own, extends its forming wood downwards, through the inner bark, into the stock itself. Hence there are two chief requisites for success: the first, that the graft be so set in the stock, that the sap may flow upward without interruption; and the second, that the forming wood may flow downward uninterruptedly through the inner bark.

To effect these two requisites, it is needful, *first*, that the operation be performed with a sharp knife, that the vessels and pores may be cut smoothly and evenly, and the two parts be brought into immediate and even contact. *Secondly*, that the operation be so contrived that a permanent and considerable pressure be applied to keep all parts of these cut faces closely together. *Thirdly*, that the line of division between the inner bark and the wood, should coincide or exactly correspond in each; for if the inner bark of the one sets wholly on the wood of the other, the upward current through the wood and back through the bark, is broken, and the graft cannot flourish nor grow.—And, *fourthly*, that the wounded parts made by the operation, be effectually excluded from the external air, chiefly to retain a due quantity of moisture in the graft, but also to exclude the wet, until, by the growth of the graft, the union is effected.

1. The first requisite is best attained by keeping a keen, flat-bladed knife to cut the faces, and another knife for other purposes.

2. The second requires that the jaws of the stock in cleft-grafting, press with some force, but not too much against the wedged-shaped sides of the graft. A stock one-third of an inch in diameter will sometimes do this sufficiently; but three-quarters of an inch is a more convenient size. In whip-grafting, the tongue and slit should be firmly crowded or bound together.

3. The third requisite is attained by close examination.

4. The fourth is accomplished by plasters of grafting-wax, and by the application of grafting-clay.—*Grafting-wax* may be made by melting together one pound of beeswax, two of tallow, and four of rosin. More wax and less rosin is less adhesive to the hands, but more expensive. This spread, when melted or softened, on muslin or thin unsized paper, with a brush or spatula. It is sometimes applied without plasters, in which case it should be worked with wet hands, until it may be drawn out into ribbons of wax, which are wrapped round the part. In all cases it should be applied closely, so as to allow if possible no interstices, and cover every cut or split surface otherwise exposed to the air. In cool weather, a lantern, chafing-dish, or hot brick, is necessary to soften the plasters before applying them.

Grafting-clay is prepared by mixing one-third horse-dung, free from straw, and two-thirds clay, or clayey loam, with a little hair, like that used in plaster, to prevent its cracking. Beat and temper it for two or three days, until it is throughly incorporated. When used, it should be of such a consistency as to be easily put on and shaped with the hands.

It is hardly necessary here to mention that propagation by grafting and by cuttings is to be performed early in spring before the buds swell; and that the grafts or cuttings may be cut late in autumn or at any time during winter, provided the natural moisture is preserved until they are used. A convenient mode of thus preserving them, is to wrap or imbed them in damp, not wet, moss; or bury them in a box, beneath the surface of a dry spot of earth, the box to be open downwards, and the grafts to be kept from contact with the earth by sticks across the inside of the box.

HINTS ON HORTICULTURAL SUBJECTS.

BY GEORGE LESLIE.

A few remarks on the *peculiarities* of such Trees and Shrubs as are hardy, and easily procured from a Nursery, might be serviceable in assisting to make a selection. All trees are *useful* by affording shelter, producing shade and seclusion, concealing disagreeable objects, and enhancing future value. They are also *ornamental*, never failing to create or add beauty to a residence or landscape,

The Horse Chesnut and Silver Maple may be ranked *first* in stateliness and general elegance. For *rapid growing* trees of a large size, we may take the English Elm, Chinese Abele, European Larch, the Locust, European Ash, Weeping Willow and Poplar. To these may be added, as eminent for the beauty of their flowers and foliage, but attaining less size, the Double Flowering and Hard Shell Almond, and Double Flowering Cherry.

The most *rapid growing* Shrubs are Lilacs of different sorts, Fringe Tree, Upright Honeysuckle, Privet, Syringo, and Guelder Rose.—Such Shrubs as are adapted to grow under the shade of Trees are Privet, Buckthorn, and Missouri Currant. The most remarkable for the beauty of their flowers are Deutchia Scabra, Mezereon, Double Hawthorns, and Tree Pœonias. The best climbing plants are the Queen of the Prairie Rose, Scarlet Trumpet, and Striped Monthly Honeysuckle, the latter rare, and of exquisite fragrance.

Some trees and shrubs retain their fruit and berries till very late in the fall, after having dropped their leaves, of these among trees are the Mountain Ash and Siberian Crabs. Shrubs of this description are Strawberry Tree, red and white, Barberry, and different descriptions of Snowberries.

THE FLOWER GARDEN.

The *Rose* has been a favorite flower from time immemorial among all nations. The at-

tention given to its culture of late years in Europe and the United States, has created many new and splendid varieties, impossible to enumerate. They require a rich deep soil somewhat heavy. Early in Spring all surplus shoots should be cut out, and considerably shortening last years growth of the remainder. Let some rotted manure be dug in around the roots, as early as possible, and suckers removed; a good bloom may then be expected.

Herbaceous Pæonias—These are beautiful hardy flowers, of the easiest culture, thriving in any ordinary soil. After being planted let them remain several years without removal, as they increase annually in size and abundance of flowers. The finest varieties are *Rosea*, large rose color and fragrant; Humei, double crimson, exceedingly large flowers; and Whitlejio, double white, large, beautiful and fragrant.

Phloxes—Of all hardy perennials none are so ornamental to the flower garden from June to November, or so perfectly hardy and easily cultivated as the Phlox. When planted out they require no care, except to tie the flower stalks of the tall sorts to a small stake. They can be obtained of a great variety of colors—pure white, pink, purple, striped, &c. The following would be a good selection:—*Maculata*, reddish purple—flowers in June. *Picta*, beautiful white with purple eye—July. *Frelinghuysen*, striped light purple and white—July and August. *Acuminata*, purple, tall—July and August. *Breckii*, purple with white eye, tall—and flowers in perfection in October. *Decustata*, very fine white, three feet high—August. *Paniculata*, fine pink—August.

It would be superfluous to enumerate more varieties, but where required, the writer can supply 20 distinct sorts, different in color, height and season in flowering. Price of Phloxes, single plant, 1s. 3d. A dozen varieties assorted 12s. 6d.

The *Verbena* is one of the richest of all flowers. They are tender and require to be housed in winter, but when turned out in spring they bloom in the greatest profusion all summer. Wherever flowers are cultivated they are perfectly indispensable, being particularly adapted to a hot dry climate, they appear bright when all else seems to shrink and wither.

Evergreen Trees, Dahlias, &c., will be noticed in your next.

Toronto Nursery, March 30, 1850.

MANURING ORCHARDS.

When orchards bear profusely, or the soil through which their roots extend, yields crops which are removed from the ground, the trees ought to be supplied with an ample dressing of manure, as often, at least, as once in four or five years. We think, however, a better way is to allow the orchard to take its place in a rotation. Unlike many others, we would not object to occupying the ground with any particular species of vegetation, but let it be potatoes, corn, wheat or oats, as the soil or the judgment of the owner may dictate. But we do insist, that where an exhausting crop has been taken, ample compensation in manures should be made, for the exhaustion thus occasioned.

It is better, however, as a general rule, that orchards be plowed only in their younger days, before their tops become much developed; then put the ground in the highest condition of fertility, and lay it down to grass, and invite the extremities of the outspreading, pendant branches to fall as low as the ground, if they prefer. This greatly facilitates and economises harvesting when fruit is hand picked, as all valuable fruit should be, and the grass may be equally well secured under such trees, as when the branches are more elevated. We admire a luxuriant orchard, with its broad, umbrella top, sweeping the ground when loaded with rich, blushing fruit, and no fields can be better occupied than with such a harvest, if the varieties are well chosen and the trees have received the proper care.

If the orchard is in a meadow, and the grass and apples are annually removed, the leaves will of course follow them, as soon as the autumnal blasts or wintry winds sweep over the smooth surface; and thus is the ground robbed of all the vegetable matter to which it has given life through the season. Were the orchard as well protected as the forest, by its numerous low swales, fallen branches, or upturned trunks and roots, and the innumerable standing trees, the decaying leaves and branches, and fallen trunks would restore to the soil all it had abstracted; but in the absence of these, its natural manures, it must receive others or starve.

Ashes are one of the best applications for an orchard; so, also, is swamp muck, or a compost of barnyard manure; charcoal is excellent, as is also lime, and occasionally bonedust, plaster, and salt, each of which is appropriately applied around the roots. Scraping the trunks when they become unthrifty, mossy or hidebound, and washing with strong soap suds or woodashes ley, and then giving a strong coat of whitewash, are attended with the best effects. These act both as manure and destructive of insects and worms.—*American Agriculturist.*

Couve Troncuda.—This is a species of mammoth cabbage, which grows in Portugal to a height of four or five feet. The seeds are sown and treated exactly like those of the common cabbage. The most valuable parts of the plant are the heart and tender flowers buds, which, when boiled tender, and served up with pepper, salt, a little garlic, olive oil, and vinegar, form a most delicious dish with the Portugese. The white ribs, also, when cooked, somewhat resembles seakale. The outer leaves and chopped stalks make excellent food for milch cows.—*American Agriculturist.*

New Green-House Plant.—Few recent acquisitions to the green-house, are of more merit than the Asiatic torrennia (*Torrennia Asiatica*). Its equisitely-shaded flower is small, and of a delicate light-blue, shaded towards the top with a rich, purplish-blue.—*Ibid.*

Pruning Resinous Trees.—The worst time to prune these is in the spring when they are beginning to grow, the safest in autumn or winter.—*Agricultural Gazette.*

General Science and Miscellany.

NORMAL SCHOOL, TORONTO.

The half-yearly examination of this valuable institution, which seems destined to run a career of increasing usefulness, took place in this city, on the 17th, 18th, and 19th of April. Our limits necessarily compel us to a brief general notice. The examination, upon the whole, was creditable alike to the indefatigable teachers and their pupils, and was witnessed by large and respectable audiences with evident satisfaction. His Excellency the Governor-General's prizes for the two pupils evincing the greatest proficiency in Chemistry, Geology, Animal and Vegetable Physiology; more particularly in their bearings on the theory and practice of Agriculture, were presented by His Excellency in person. It will be seen that the second prize was divided between two competitors, one of whom was a female, both being considered by the judges on a par. The following report of his Lordship's remarks, we copy from a city paper.

His Excellency was then called upon to present the prizes. He said, that before doing so, he desired to express his acknowledgments to those gentlemen who had been good enough to act as judges on the occasion, without whose assistance, and the admirable manner in which they had been seconded by the labours of Mr. Hind, what he (Lord Elgin) had done, would have been entirely useless. When the public mind of England had been aroused to the necessity of popular education, it was thought that there would be no difficulty in finding a sufficient number of teachers for the schools then established, that where the demand was created the supply would speedily follow; this was soon discovered to be a mistake, and that it was necessary to supply the want by carefully training them. It was satisfactory to think that in the early days of Canadian education, this fact had been recognised, and the desire to remedy it been evinced by liberal grants by Parliament to this institution and the attendance of large numbers of pupils. The prizes which he had offered were in one department only of the studies prosecuted in the institution; he hoped however, that they would not think from that circumstance that he was disposed to undervalue the other branches of instruction; he thought that the knowledge imparted should be as extensive as circumstances would admit, that the education of the persons who were to undertake the task of moulding the minds of the rising generation of the province, should be as high as possible, with a due regard, which should always be paid, to the great principle of religion and Christian morality. He did not undervalue other branches, but he had offered prizes to those who had attained most proficiency in the knowledge of scientific husbandry, because he believed that too little attention had hitherto been paid to it, and because it was one from which the Province might derive great benefit. He knew that there was a prejudice amongst practical men, against scientific agriculture, and it was not altogether unreasonable, as there had been, no doubt, a great many things set forth under high sounding titles, which were not founded on a sound basis, and had proved only sources of loss to their projectors; these failures, however, arose from not understanding thoroughly the true principles of the art. The difference between the two parties was simply this, the practical man judged of matters on a small scale, the scientific man on a large one; the practical man was in danger of taking an exception for a rule, a consequence for a cause; both agreed in there being certain natural laws, by which they were obliged to act; but the practical man judged only from his own experience of these natural laws—he refused to believe or profit by anything which he had not seen. He adopted the fallacy of Hume, who said that all contrary to experience was false—that miracles were contrary to nature, and the history of them therefore untrue. He believed that in giving the practical man scientific information, they were not only giving him the means of a direct benefit to himself, but giving him a guard against the projects of mere speculators. One other reason actuated him in choosing this subject. He thought it of the utmost importance in this country to raise the character of the agriculturist, to make the pursuit honorable, that young men might not suppose that their time was thrown away in cultivating the soil. In Great Britain, all the leading public men, statesmen, and even warriors, the Consort of Her Majesty himself, were scientific agriculturists, and even in knowledge of detail could put practical farmers to the blush. In the neighbouring country also, he had lately seen that at a trial of a new plough, the gallant soldier, who now occupied the position of President of the Republic, handled the instrument with the skill of a workman. In this age no art would keep its place among honourable pursuits unless science was called to its aid and he trusted that those before him, in the positions which they would shortly fill, would inculcate on their pupils the great importance of its introduction into Canadian Agriculture. His Excellency concluded with an earnest prayer that they might be successful in doing so, and that God might bless them in all parts of the laborious duty in which they were about to be engaged.

His Excellency then presented the prizes, which were in the form of very handsome books, to the successful competitors.

1st. Mr. Weston Herriman, of the Township of Whitby.

2nd. Mrs. Dorcas Clarke, of Pickering, and Mr. Finlay McNab, of North Elmsley, County of Lanark.

NATURAL PHILOSOPHY.

No. IV.

ON THE MECHANICAL POWERS.

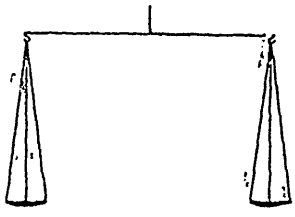
There are six mechanical powers, viz., the *lever*, the *pulley*, the *wheel*, and *axle*, the *inclined plane*, the *wedge* and the *screw*. One or more of these enters into the composition of every machine.

In order to understand the power of a machine, there are four things to be considered. *Firstly*, the power that acts; this consists in the effort of men or horses, of weights, springs, steam, &c. *Secondly*,—the resistance which is to be overcome by the power. The effect of the power must always be superior to the resistance, otherwise the machine could not be put in motion. For instance, were the resistance of a carriage equal to the strength of the horses employed to draw it, they would not be able to draw it. *Thirdly*, we are to consider the centre of motion, or, as it is termed in mechanics, the *fulcrum*, which means a prop. And *lastly*, the respective velocities of the power, and of the resistance.

THE LEVER.

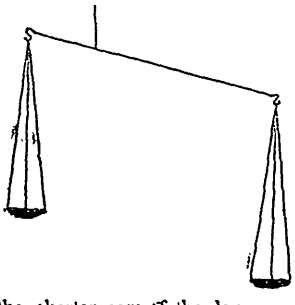
The *lever* is an inflexible rod or beam, that is to say one which is not supposed to bend in any direction.—For instance, the steel rod, to which a pair of scales

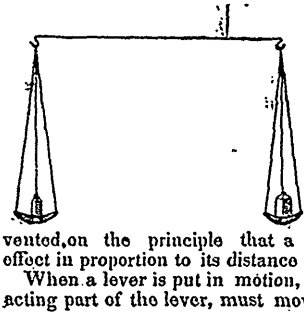
is suspended, is a lever, and the point by which it is suspended, called the prop or fulcrum, is also the centre of motion. The two parts of a lever, divided by the fulcrum, are called its arms.



Now, both scales being empty, they are of the same weight, and consequently balance each other. We have stated that if two bodies of equal weight are fastened together, the centre of gravity will be in the middle of the line that connects them; the centre of gravity of the scales must, therefore, be in the middle between them, as the fulcrum is, and, this being supported, the scales balance each other.

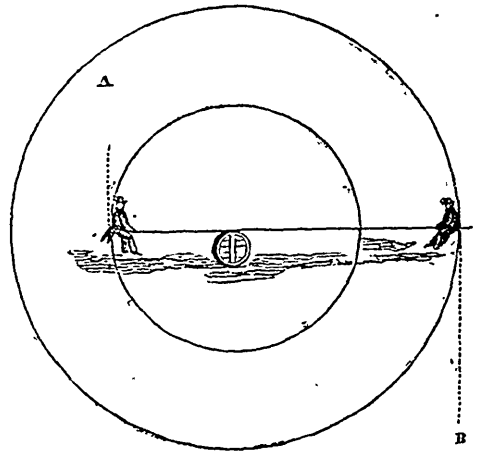
You recollect, that if a body be suspended by that point in which the centre of gravity is situated, it will remain at rest in any position indifferently: which is not the case with this pair of scales, for when we hold them inclined, they instantly regain their equilibrim. The reason of this is, that the centre of suspension, instead of exactly coinciding with that of gravity, is a little above it. If, therefore, the equilibrium of the scales be disturbed, the centre of gravity moves in a small circle round the point of suspension, and is therefore forced to rise; and the instant it is restored to liberty, it descends and resumes its situation immediately below the point of suspension, when the equilibrium is restored. It is this property which renders the balance so accurate an instrument for weighing goods. If the scales contain different weights, the centre of gravity will be removed towards the scale which is heavier, and being no longer supported, the heaviest scale will descend. If the lever be taken off the prop, and fastened on in another point, that other point then becomes the fulcrum. In this case the equilibrium is destroyed; the longer arm of the lever is heaviest, and descends. The centre of gravity is not supported, because it is no longer immediately below that point, as it is now situated, the scales will again balance each other. Thus if a heavier weight be placed in the scale suspended to the shorter arm of the lever, and a lighter one into that suspended to the longer arm, the equilibrium will be restored. It is not, therefore, impracticable to make a heavy body balance a light one; and by this an imposition in the weight of goods is sometimes effected. An ingenious balance, called a steelyard, has been invented, on the principle that a weight increases in effect in proportion to its distance from the fulcrum.





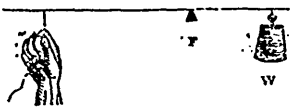
When a lever is put in motion, the longer arm, or acting part of the lever, must move with greater velocity than the shorter arm, or resisting part of the lever, because it is further from the centre of motion. When two boys ride on a plank drawn over a log of wood, the plank becomes a lever, the log which supports it the fulcrum, and the two boys, the power and resistance at each end of the lever. When the boys are of equal weight, the plank must be supported in the middle to make the two arms equal; if they differ in weight, the plank must be drawn over the prop, so as to make the arms unequal, and the lighter boy must be placed at the extremity of the longer arm, in order that the greater velocity of his motion may compensate for the superior gravity of his companion, so as to render their momentums equal. But we know that the action of the power must be greater than the resistance in order to put a machine in motion. For this purpose each boy at his descent touches the ground with his feet; and the support he receives from it diminishes his weight, and enables his companion to raise him, thus each boy alternately represents the power and the weight, and the two arms alternately perform the function of the acting and the resisting part of the lever.

A lever in moving, describes the arc of a circle, for it can move only around the fulcrum or centre of motion. It would be impossible for one child to rise perpendicularly to the point A, or for the other to descend in a straight line to B; they each describe arcs of their respective circles; and it may be judged from the different dimensions of the circle how much greater the velocity of the little child must be than that of the bigger one. Enormous weights may be raised by levers of this description, for the longer the acting part of the lever is in comparison to the resisting part, the greater is the effect produced by it; because the greater is the velocity of the power compared to that of the weights.

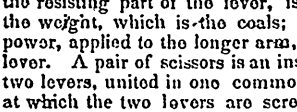


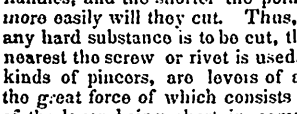
We have all seen a heavy barrel or tun rolled over by thrusting the end of a strong stick beneath it and resting it against a log of wood, or any other object which can give it support, near the end in contact with the barrel. The stick, in this case, is a lever, the support, the prop, or fulcrum; and the nearer the latter is to the resistance, the more easily will the power be able to move it.

There are three different kinds of levers: in the *first*, which comprehends the several levers we have described, the fulcrum is between the power and the weight. When the fulcrum is situated equally between the power and the weight, as in the balance, the power must be something greater than the weight, in order to move it: for nothing can in this case be gained by velocity. The two arms of the lever being equal, the velocity of their extremities must be so likewise. The balance is therefore of no assistance as a mechanical power, but it is extremely useful to estimate the respective weights of bodies. But when the fulcrum, F, of a lever is not equally distant from the power and the weight, and that the power, P, acts at the extremity of the longer arm, the power may then be less than the weight, W, its deficiency being compensated by its greater velocity; as we observed in describing the *see-saw*. Therefore, when a great weight is to be raised, it must be fastened to the shorter arm of a lever, and the power applied to the longer arm. But, if the case will admit of putting the end of the lever under the weight no fastening will be required, as you may perceive by stirring the fire. The poker is a lever of the first kind; the point, where it rests against the bar of the grate, whilst stirring the fire, is the fulcrum, the short arm or the resisting part of the lever, is employed in lifting the weight, which is the coals; and the hand is the power, applied to the longer arm, or acting part of the lever. A pair of scissors is an instrument composed of two levers, united in one common fulcrum; the point at which the two levers are screwed together, is the fulcrum; the handle to which the power of the fingers is applied, are the extremities of the acting part of the levers; and the cutting part of the scissors are the resisting parts of the levers: therefore, the longer the handles, and the shorter the points of the scissors, the more easily will they cut. Thus, when pasteboard, or any hard substance is to be cut, that part of the scissors nearest the screw or rivet is used. Snuffers, and most kinds of pincers, are levers of a similar description, the great force of which consists in the resisting part of the lever being short in comparison of the acting part.



In levers of the *second* kind, the weight, instead of being at one end, is situated between the power and the fulcrum. *In moving* it, the velocity of the power must necessarily be greater than that of the weight, as it is more distant from the centre of motion. We may sometimes see a barrel moved by means of a lever of the second kind, as well as by one of the first. The end of the stick is thrust under the barrel rests on the ground which becomes the fulcrum; the barrel is the weight to be moved, and the power the hands applied to the other end of the lever. In this instance there is an immense difference in the length of the arms of the lever, the weight being almost close to the fulcrum, and the advantage gained is proportional. The most common example that we have of levers of the second kind is in the doors of our apartments; in those the hinges represent the fulcrum; the hand, the power applied to the other end of the lever; and the door, or rather its inertia is the weight which occupies the whole of the space between the power and the fulcrum. Another very common instance is found in the oar; the blade is kept in the same place by the resistance of the water, and becomes the fulcrum, the resistance is applied where the oar passes over the side of the boat; and the hands at the handle are the power. Nut-crackers are double levers of this kind: the hinge is the fulcrum; the nut-crackers the resistance, and the hands the power.





In levers of the *third* kind, the fulcrum is also at one of the extremities, the weight or resistance at the other, and the power is applied between the fulcrum and the resistance. Thus the fulcrum, the weight, and the power each in its turn, occupies some part of the lever between its extremities. But in this third kind of lever, the weight being further from the centre of motion than the power, the difficulty of raising it, *instead of being diminished is increased*. Levers of this description are used when the object is to produce great velocity. The aim of mechanics, in general, is to gain force by exchanging it for time; but it is sometimes desirable to produce great velocity by an expenditure of force. The treddle of the common turning lathe affords an example of a lever of the third kind employed in gaining time, or velocity, at the expense of force. A man, in raising a long ladder perpendicularly against a wall, cannot place his hands on the upper part of the ladder; the power therefore, is necessarily placed nearer the fulcrum than the weight, for the hands are the power, the ground the fulcrum, and the ladder, the weight, which, in this, as well as in the door, may be considered as collected in the centre of gravity of the ladder, about half way up it, and consequently beyond the point where the hands are applied. This kind of lever is employed in the structure of the human frame. In lifting a weight with the hand the lower part of the arm becomes a lever of the third kind; the elbow is the fulcrum; the muscles which move the arm, the power; and as these are nearer to the elbow, than the hand is, it is necessary that their power should exceed the weight to be raised. It is of more consequence that we should be able to move our limbs nimbly, than that we should be able to overcome great resistance; for it is comparatively seldom that we meet with great obstacles, and when we do, they can be overcome by art.

White Zinc Paint.—The Society for the Encouragement of National Industry, in Paris, has granted a medal of gold worth 3,000 f. to M. Leclaire for his substition of white of zinc for white of lead. It appears that, from 1838 to 1847, no less than 3,142 persons entered the Paris Hospital, attacked by disease, *originating in the use of lead*. Of those, *1,893 persons* worked at white-lead or at minium; there were also 712 painters, 63 grinders of colors and 10 preparers of visiting cards with porcelain surface. Since 1846, no person has been attacked in M. Leclaire's establishment.—*The Builder.*

Salt Injurious to Poultry.—Do not give poultry salt, nor salt food. It is poisonous to them.

MEDICINE FOR HORSES.

As a general rule, any medicine, *except an emetic*, is good for a horse that is good for the same complaint in the human system. Multiply an ordinary dose for a man by nine, for a common horse, or even by twelve for a very large horse.

The above was obtained upon a late visit to Col. Wade Hampton, of South Carolina, and few men in this country are more competent to give prescriptions of the kind than that gentleman. He has been long known as one of the best breeders of horses, in the United States, as well as one of the first rate cotton planters and stock breeders in the south.—*Ibid.*

NEW MODE OF VENTILATION.

The discovery, in England, of a new principal of ventilation, the truth of which seems established beyond question, will furnish an important desideratum in green-house management.

It has been ascertained that air, like water, can be made to circulate through a syphon, but inversely with the latter fluid. That, whereas, water will enter a syphon by the shorter arm, and discharge itself by the longer, air on the contrary, will always enter by the longer arm and discharge itself by the shorter.

[This surely is a mistake—the illustration of the chimney proves it. The difference of action between air and water is not in the arms of the syphon by which the fluids enter, but in the position of the syphon. In the case of water the long arm is turned down, in the case of air up. Both enter by the short arm.—Ed. Canadian Agriculturist.]

Thus, if a stove-pipe elbow be inserted in the chimney, with one of its orifices facing the ceiling, a syphon will be formed of which the chimney will be the longer arm. The air will rush into the shorter arm of the stove pipe, and discharge itself by the longer arm of the chimney, without the necessity of a fire in the chimney, to cause a draught, which is often required where there is simply a hole in the chimney for ventilation.

One great advantage of this principle, as we understand it, is, that there is no inward current of cold air from the outside—that the syphon can only work in one direction. Thus, when there is no chimney, two stove-pipe elbows united can be inserted in a sash pane with the shorter elbow in the room. The current of air will set strongly from the room, and a person may sit immediately under the pipe without danger from the descent of the cold air upon him, which always takes place when a sash is lowered.

This principle is of no slight importance in its application to greenhouses. Every gardener knows the importance of getting rid of the bad air in his houses, and also knows the difficulty of doing so without having his plants *cut*, to use a technical term, by the cold air rushing in upon them. Now this discovery remedies the difficulty at once. All he requires, is a sufficient number of these stove-pipe elbows introduced, either into the back wall or roof, with means of closing them at pleasure, and he can, in the most extreme weather, throughly ventilate the house, without the least injury to his plants, from the cold.

Many of the inventions of the present day seem to be less the novel application of old principles, than the discovery of entirely new principles in natural science. Such is the case both with Fulmaise heating, and with the progressive tendencies of the age—still more important results may be anticipated from the exertion of mental inquiry in this direction.—*American Agriculturist.*

MANUFACTURE OF PARCHMENT.

Vellum is made of the skins of calves, kids, and dead born lambs; and parchment is made of thin sheep and she goat skins. The wool or hair must be removed from them first, and then they are steeped in a pit of lime water. After they are taken out of the lime pit, they are shaved and well washed, and then stretched on a frame made of upright and cross pieces strongly fastened together, and the bars are perforated with a series of holes to receive hard wood or iron tapered pins. Each pin has a hole in it like a violin pin, to hold the string tied to the skin, to stretch it, and prevent it from puckering while drying. Skewers are also employed to stretch more or less of the skin on this frame, *(horse,)* according as a greater or less piece is required to get hold of. Some employ hoops in place of the horse, and this answers tolerably well. The great point is to stretch the skins as much as possible, keeping out all the wrinkles. While the skin is on the stretching frame, the workmen with a currying double edged knife, remove the fleshy excresences by drawing the knife downwards. The skin is then sprinkled upon the fleshy side with chalk, and well rubbed with a piece of flat pumice stone. The pumice stone is then over the other surface of the skin without chalk. The skin is then allowed to dry, but must be protected from sunshine and frost. It must not be dried too suddenly. When it is perfectly dry, the chalk is removed by rubbing it with the wooly side of a lamb's skin; but great care must be taken in this process, not to injure the surface. All grease must of necessity be removed from it; this is the object of steeping it in the lime.

After the skin is dried, it is transferred to a frame called the scroper, where it is extended with cords, generally upon a piece of calf-skin well stretched. The skin is placed with the tail downwards, when the rough edges are pared off with a sharp knife, and then the outside surface is scraped obliquely downwards till it becomes perfectly smooth, and whatever irregularities may remain, are removed by a flat, smooth piece of pumice stone. To do this, the skin is placed upon a stool stuffed with wool and covered with soft parchment. It is called the cushion. The pumice stone should be very fine, the finer they are the better.—Sometimes there are small holes made in the parchment skin: these are neatly patched by cutting the edges thin and pasting on small pieces with gum water. Parchment is often colored green, which is done by a mixture of cream of tartar, virdigris and nitric acid, (only a small quantity of the latter) It is made into a solution of water and laid on evenly with a sponge—the skin having been first wet. Parchment receives its necessary lustre from the white of eggs, or weak gum water.—*Sci. American.*

MEDICAL USES OF SALT.

In many cases of disordered stomach, a teaspoonful of salt is a certain cure. In the violent internal aching, termed cholic, add a teaspoonful of salt to a pint of cold water—drink it, and go to bed; it is one of the speediest remedies known. The same will revive a person who seems almost dead, from receiving a very heavy fall, &c.

In an apoplectic fit, no time should be lost in pouring down salt and water, if sufficient sensibility remain to allow of swallowing; if not, the head must be

sponged with cold water until the senses return, when salt will completely restore the patient from the lethargy.

In a fit the feet should be placed in warm water with mustard added; and the legs briskly rubbed, all bandages removed from the neck, and a cool apartment procured if possible. In many cases of severe bleeding at the lungs, and when other remedies fail, Dr. Rush found two teaspoonfuls of salt completely stayed the blood.

In cases of bite from a mad dog, wash the part with strong brine for an hour, then bind on some salt with a rag.

In toothache, warm salt and water held to the part, and renewed two or three times, will relieve in most cases. If the gums be affected, wash the mouth with brine; if the teeth be covered with tartar, wash them twice a day with salt and water.

In swelled neck, wash the part with brine, and drink it also twice a day until cured.

Salt will expel worms, if used in the food in a moderate degree, and aids digestion; but salt meat is injurious if used much.

NEW CANDLE MACHINE.

We learn from the Baltimore American that the Messrs. Matthowson, of that city, have recently introduced a new patent candle making machine from England, which is said to be simple and ingenious in its construction, and promises to be of much utility.

It consists of a number of moulds, holding eighteen each, which are furnished with a bobbin to each mould holding wick for over one hundred candles on each bobbin.

At the commencement the first mould is threaded by hand. It is then placed on a railroad and brought under a cistern from which it is filled with tallow; it is then shoved along to a carriage, which when it has received its load, is conveyed by rail outside to an open shed in the yard, where it is allowed to cool. When that operation is completed it still continues its circuit on the railroad, until it arrives at the machine, upon which it is placed and a stroke of a lever ejects the whole eighteen candles, at the same time threading the moulds for a fresh charge;. a revolving saw knife cuts off the wicks as fast as the hand can move it across the machine, the ends of the wicks are seized by pinchers, which grip each of them as a person would with the finger and thumb; it is again placed on the rail and continues its course to undergo the same operation. On their way over the rail they are interrupted by a person who removes the pinchers and trims the butt ends of the candle.—*Farmer and Mechanic.*

To Decompose Dead Animals for Manure.—The most rapid way to effect decomposition of dead carcases is to mix them with something already decomposing. Chop the flesh up, and lay it in alternate beds with hot stable manure, and cover over with vegetable mould, burnt earth, or charred stuff of any kind. Any of these will detain the effluvia.—*Agricultural Gazette*

ELECTRICITY.

The earth is the great reservoir of electricity, from which the atmosphere and clouds receive their portion of the fluid. It is during the process of evaporation that it is principally excited, and silently conveyed to the regions above; and, also during the condensation of this same vapor, the grand and terrific phenomena of thunder and lightning are manifest to our senses.

In order to form a correct estimate of the immense power of this agent in the production of electricity, we must bring to our view the quantity of water evaporated from the surface of the earth, and also the amount of electricity that may be developed from a grain of this liquid. According to the calculation of Carvallo, about five thousand two hundred and eighty million tons of water are probably evaporated from the Mediterranean Sea in a single summer's day. To obtain some idea of the vast volume of water thus daily taken up by the thirsty heavens, let us compare it with something rendered more apparent than this invisible process. President Dwight and Professor Darby have both estimated the quantity of water precipitated over the Falls of Niagara at more than eleven million tons per hour. Yet all the water passing over the cataract in twenty days would amount only to that ascending from the Mediterranean in one day. More recent estimates make the mean evaporation from the whole earth as equal to a column of thirty-five inches from every inch of its surface in a year, which gives ninety-four thousand and fifty cubic miles as the quantity annually circulating through the atmosphere. Thus we see the magnificent scale on which the great machine works.

Dr. Farraday has shown that a single drop of water contains as much electricity as an ordinary flash of lightning—enough at least to destroy the life of an elephant. Thus the little dewdrop, from which the poet has derived such sweet images, may suggest to us ideas of a more sublime nature.

TO PRESERVE EGGS.

I have often heard it remarked, and observed it myself, that eggs that remain in the nest will hatch much better than *those taken out and returned*, when the hen begins to sit. I know of no other reason why this should be, except the fact that the hen turns her eggs over, every time she goes to her nest. I think, if your correspondent C., will turn his eggs every day, and keep them in a cool, dry place, he may calculate on them a much greater length of time. *I have kept them* a month in this way, and preserved their vitality; and I don't know but the same rule would hold good for a longer time. Turning the eggs prevents the yolk from settling. A YANKEE.

—[*Boston Cultivator.*

Remarks.—Dr. Bennett informs us, if eggs are kept in a cool and dry place, their vitality might be calculated upon for many weeks, and even months.—*B. C.*

FEMALE IMPROVEMENT.

Mrs. Kirkland, in insisting upon the duty of females to improve their minds while young, asks the following "home question:"

"Who are the women that sow dissension in society—the tale bearers—the whisperers of scandal? The really well-informed and accomplished? Those who enjoy the best books, love to read aloud to their friends luxuriate in high toned poetry—covet the conversation of instructed people, and are able to bear a part in it themselves? It is not necessary to answer this question. It is undeniable, that even sincere piety encounters a most formidable obstacle in the emptiness which has led to a habit of gossip and detraction, while an utter distaste to whatever is low or false, protects even the more women of the world from this class of faults. On whom does this life of care and trial fall soonest? On her who has made its every day frivolities her object, or on the student of nature, of character, of books, whose thoughts have something on which to rest, little

dependent on fortune, and not at all on fashion? Who torments us by a petty, prying curiosity so much, as one whose rational curiosity has never been exercised upon objects of real interest? Who that knows how to value books, will be likely to run mad after dress and vulgar show."

HOME.

Thou, whose every hour,
Is spent in home's sweet bower,
Where love, like golden fruit o'erhanging grows—
Where friends to thy soul sweet,
United, circling meet—
As lapping leaves that form the entire rose—
Thank thy God well! soon from this joy thy day
Passes away.

Thou at whose household fire
Still sits thy aged sire—
An angel guest; with love as those of old—
Make thy young children's care,
That crown of hoary hair,
Which the calm heavens love as they behold!
Soon, soon the glory of that sunset ray
Passes away.

Thou from whose household nooks
Peep forth gay, gleaming looks.
Those 'fairy-heads' shot up from opening flowers,
With wondrous perfume filled—
The fresh, the undistilled,
This overflowing bliss that childhood showers—
Praise Him who gave, at whose word their stay
Passes away.

Thou, with another heart
United, though apart,
As two close stars, that, mingling, shine but one—
Whose pleasant pathway lies
'Neath tender watchful eyes,
Where love shines clearer than the morning sun—
Praise God for life that in such soft array
Passes away.

More—more—thou hast yet more!
These, thy heart's treasured store,
Transferred to heaven, may win immortal birth—
With radiant seraphs there,
May tune ambrosial air
To every glorying hymn of praise—while earth,
Like lingering music from some harper gray,
Passes away.

HOW DO YOU SPEND YOUR EVENINGS?

Young man, how do you spend your evenings?—Answer this question, and we can tell you, almost to a certainty, what will be your future character. In our view, more depends upon the manner in which young men pass this season, as it regards their course and conduct in years to come, than upon anything else. We have been an observer of men and things for the last twenty years, and can point to many a youth, who has caused weeping and sorrow in his family, disgraced his name, and is now an outcast in the world, or has sunk to a dishonored grave, who commenced his career of vice, when he broke away from wholesome restraint and spent his evenings in the company of the abandoned. On the contrary, we know many estimable young men—the pride and hope of their friends—who are working their way to favor and wealth, who spend their leisure evenings in some useful pursuit.

Young man, listen to us, and take heed to our words—not that we wish to deprive you of a single pleasure, or debar you from any innocent amusement. We entreat you to be particular *where* and *how* you pass your evening hours. If you lounge about the bar-room, partaking of the vulgar conversation that is introduced, and join the ribbald song, or stand at the corner of the streets, using profane and indecent language, you will soon habituate yourself to low blackguardism and vile conversation, that no young man who respects himself will be found in your company.

IRRESOLUTION.—In matters of great importance, and which must be done, there is no surer argument of a weak mind than irresolution; to be undetermined where the case is so plain, and the necessity so urgent; to be always intending to lead a new life, but never to find time to set about it; this is as if a man put off eating and drinking, and sleeping, from one day and night to another, till he is starved and destroyed.—*Tillotson.*

WHAT IS DIRT?

Old Dr. Cooper, of South Carolina, used to say to his students, "Don't be afraid of a little dirt, young gentlemen. What is dirt? Why nothing at all offensive, when chemically viewed. Rub a little alkali upon that 'dirty grease spot' on your coat, and it undergoes a chemical change and becomes soap. Now rub it with a little water and it disappears: it is neither grease, soap, water nor dirt. 'That is not a very odious pile of dirt,' you observe there. Well, scatter a little gypsum over it and it is no longer dirty. Everything you call dirt, is worthy your notice as students of chemistry. Analize it! Analize it! It will separate into very clean elements.

"Dirt makes corn, corn makes bread and meat, and that a very sweet young lady that I saw one of you kissing last night. So, after all you were kissing dirt—particularly if she whitens her skin with chalk or fuller's earth, There is no telling, young gentlemen, what is dirt. Though I must say that rubbing such stuff upon the beautiful skin of a young lady is a dirty practice. 'Pearl powder,' I think is made of bismuth—nothing but dirt."

The memory ought to be a store-room. Many make theirs a lumber-room.

NEWLY CONSTRUCTED OVEN.—Mr. John Case, of Burlington, N. J., has in operation an oven, which is said to be of a new construction—the fire being in a separate chamber, while a valve in the chimney draws the smoke, gas, &c., entirely out of the oven before the bread is introduced, and the oven is kept constantly hot, by which mode, bread, dinners, pies, or cakes can be baked at any hour when they may be wanted.

RECIPES FOR HOUSEWIVES.

CREAM TARTER SPONGE CAKE.—1 cup of sugar, 1 cup of flour, 4 eggs, 1 teaspoon of cream tarter; half-teaspoon of saleratus, dissolved in milk. Flavor with lemon; grate in the rine, or if extract, 1 teaspoon.

SNOW BALL CAKE.—Half cup of butter, 1 cup of loaf sugar, the whites of three eggs; stir thick as cup cake. Teaspoon of saleratus. Bake in small tins.

CREAM CAKE.—1 cup of cream, 1 cup of sugar, 1 egg, 1 teaspoon saleratus, 1 of salt. Thick as pan-cakes.

FRIED CAKE.—1 cup of sugar, 2 of milk, 2 eggs, half cup of butter, saleratus and flour.

Editors' Notices &c.

To the Editors of the Agriculturist.

SIRS—

Every person with whom I have conversed has expressed a most ardent desire to have Canada fairly and nobly represented in the great Exhibition to be held in London in May, 1851. This I believe is the general feeling in Canada. To carry out this noble object it will be necessary to raise a fund to bear the expenses of transporting such articles as may be considered, by competent judges, worthy of such distinction.

I would propose, as one means of raising the necessary funds, small subscriptions to be placed at the disposal of the Agricultural Association; and will be one of one hundred subscribers to raise £100 for that purpose. From conversations with some members of the Agricultural Association, I have no doubt but they will, at their next Anniversary, give, in premiums, &c., as liberally as their funds will justify, for the purpose of facilitating this great object. I would also respectfully suggest that application be made to the Government by the Association for a grant for the same purpose.

If this proposal should meet with your approval, please give it a place in your paper.

Yours, J. HULBURT.

Toronto, April 24, 1850.

[We quite agree with our Correspondent that this matter should be taken up with spirit by the people of Canada. Not a moment, however, should be lost, as the Exhibition is to come off in May, 1850. We would suggest the propriety of having a public meeting in Toronto, when a fund, no doubt, could be raised for promoting the objects which Mr. Hulburt mentions. The Provincial Association, we are assured, will be as liberal as their funds will admit, in awarding *discretionary* premiums to such deserving articles, as may be sent to the Exhibition at Niagara, in September next. His Excellency, the Governor General, we observe, has signified his intention to offer £100 sterling, to be distributed in prizes to such Canadian productions of distinguished merit, as may be exhibited in England. We think more unity of effort is required throughout the Province in reference to this object, and that some plan of united action should be adopted, by which all parties might be made acquainted with each others proceeding. Application to Government might, with propriety, be made for aid, in carrying out objects, in which the character and interest of the country are deeply involved.—ED. AGRICULTURIST.]

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—At the special request of Prince Albert, the Council have determined to hold the Annual Exhibition next year in London, in conjunction with the Grand Exhibition of the Industry of all Nations, which is fixed to take place some time in May.

GRAND PLOUGHING MATCH.—This important trial of skill is to come off on May 3rd, near Thornhill. The competition is for a purse of £100, which will be contested by 20 ploughmen of the township of Scarborough, with an equal number from the township of Vaughan. We shall give particulars of the result in our next.

MR. THOMAS RYALL, of Galt, has undertaken to procure a list of subscribers in accordance with our published terms, so as to secure one of the prizes we offer. Any person subscribing to Mr. Ryall may, we think, rely upon his name being transmitted to us and the paper being sent.

COUNTY OF YORK AGRICULTURAL SHOW.—The Spring Exhibition of this Society will be held in this City, on Wednesday, May 8th. A larger gathering than usual is anticipated.

COLD IN HORSES.—At this season of the year, colds and coughs are very frequent among horses. The throat is sometimes so sore, as to prevent the animal from eating, and very commonly a considerable time must elapse before recovery takes place, sufficiently to allow him to be put to work. I have found the greatest benefit in themselves from steaming or fumigating the head, this seems to allay the irritation of the disease, and to bring on a discharge which very soon relieves, or, as farriers sometimes say, "draws away the complaint." The fumigation I conduct as follows;—A good sized pail is half filled with bran, chopped hay, or almost any material which will take up a considerable quantity of fluid, and boiling hot water is stirred among it till the pail is three parts full. The pail is then to be placed in the bottom of a good sized sack, such as is commonly used for grain, and the mouth of the sack is to be drawn over the animal's head, and gathered pretty closely round the throat, just behind the jaws and ears. If the horse will hold down his head, so that the pail may stand on the floor, it will be all the better, but, if he will not do this quietly, the pail may be raised on any convenient object. Some animals are a little shy, in allowing their heads to be put in the bag for the first time, but with coaxing and good usage, they may nearly in every case be brought to submit, and from the relief which the steaming seems to afford, will afterwards readily allow repetition of the remedy. This plan of steaming the head is much better than merely holding a box of scalded bran under the nose, or simply putting the same in the manger. When the steaming is concluded, the head should be wiped with a dry cloth, and if convenient, subsequently covered with a hood.—*Com.*

MARKETS, &c.—The last advices from England indicate a trifling improvement in wheat and flour, which has given a little more firmness to prices here. The state of the back country roads has prevented large arrivals, yet a considerable business has been done for several days past at somewhat improved rates. Stocks both of wheat and flour in the western States are said to be very low, and a large portion of Southern demand will have to be supplied from the Northern and Eastern ports. We think, therefore, the chances are good of a brisk demand for Canadian wheat from the States, and if the Reciprocity bill should pass into law, of which there is reason of entertaining sanguine hopes, this branch of trade would soon become one of great importance, possessing a capability of progressive increase. We learn from reliable private information received per last mail that many of the large exporters of grain to England will sustain heavy losses in consequence of depreciated prices, and that reaction may now be reasonably looked for. If, however, the growing crops in the British Isles and on the Continent should progress favorably, prices, under a system of free importation, cannot advance much. It appears that the British corn dealers have imported comparatively little on their own responsibility, the greater part having been imported either by speculators intending to pay in British manufactured goods, or by foreign merchants.

The wheat plant in Canada, like the season, is very backward, and we are glad to learn that the recent severe frosts have not injured it, to anything like the extent that was apprehended. In most parts of the States, wheat is said to look promising—particularly in the west, when it so signally failed last year. The weather has now become more genial although vegetation has as yet made scarce any visible progress. Ploughing, sowing, and the other normal agricultural operations are proceeding with great activity, and the energies of the farmer must be fully brought out. Notwithstanding the season opens late, the crops may prove abundant.

The following are city quotations,

Flour, 19s. *a* 21s. per bbl. of 196lbs.; Wheat, 4s. *a* 4s. 6d. per bushel of 60lbs.; Spring Wheat, 3s. 9d. *a* 4s. per bushel of 60lbs.; Rye, 2s. per 60lbs.; Barley, 2s. *a* 2s. 2d. per bushel of 48lbs.; Peas, 2s. 3d. *a* 2s. 9d. per bushel of 60lbs.; Oats, 1s. 3d. *a* 1s. 4d. per bushel of 34lbs.; Hay, 55s. *a* 65s. per ton, Straw, 25s. *a* 38s. per ton; Butter, fresh, 10d. *a* 1s. per lb.. Butter, in tubs, 5d. *a* 7d. per lb.; Eggs, 5d *a* 7d. per doz.; Grass Seed, 8s. 6d. *a* 10s. per bushel of 48lbs., Flax Seed, 9s. *a* 10s. per bushel, Clover Seed, 20s. *a* 25s. per bushel.