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The Field.

Fall Ploughing.

These fine October days are all that can be desired for fall ploughing. Neither too warm nor too cold, exercise is pleasant so that both man and beast perform their labors with a sense of comfort and satisfaction. To toil in the exhausting heat of mid-summer, though an unavoidable necessity, is a disagreeable one, and we instinctively hail these calm, cool, delicious days that seem gently to hit the course of work, and make it no hardship that in the sweat of his brow man must eat bread.

Of spring, summer and autumn, it is difficult to say which is the busiest season to the really good farmer. During the brief period of seed time not a moment is to be lost. As a rule the earlier crops are got in the better they will be. Two or three days of dilatoriness in early spring may entail serious loss. So there is no rest for the farmer in seed-time. He is scarcely less driven during the period of growth and ripening. There is a little breathing spell "when seeding is done," but soon there are potatoes to plant, turnip ground to prepare, and then grass and grain to cut. Meantime the roots and corn must be hoed. No sooner is the hay and grain safely housed than fall wheat must be thought of, and when that is in the ground, there is the fall ploughing, which, with the harvesting of the roots, will keep things lively until Jack Frost appears on the scene, and locks up the land in icy fetters. By good management the work of spring, summer and autumn may be so evenly distributed, that while there is felt to be constant need of persevering diligence, there shall be no over-driving or unpleasant hurry. To be always pushing his work without its over pushing him, will be the aim of every wise and thrifty farmer.

We know of nothing that so tends to make the duties of the year move on with clock-work regularity in this country, as the accomplishment of a large amount of ploughing in the fall. Spring is late in this climate, and sometimes bursts upon us with great suddenness. The quick change from bracing cold to enervating heat, just after the comparative rest of winter, makes work very galling both to the farmer and his team. Often, too, though the weather is adapted to early spring ploughing, the land is not fit. The frost is not sufficiently out of it, or it is in a heavy, spongy, wet condition, and cannot be worked. These difficulties do not present themselves in the fall. The slow process of ploughing does not contrast painfully with the hurried rush of the season, as in spring, awakening anxiety lest the meek of time for sowing should be missed. Nature is settling down to repose instead of rousing up to most intense activity. The spring is virtually made longer by

every acre that is ploughed in the fall. Its hurry is lessened, while its possibilities are increased. If the spring is early enough, and long enough to admit of another ploughing, the crop will be so much the better for it; and if the season is brief and hurried, the crop can be put in on the "double-quick," with cultivator and harrow. On the principle, therefore, of "taking time by the forelock," every good farmer will get as large a breadth of ploughing done in the fall as he possibly can.

Another important consideration is the beneficial effect of the elements on the newly turned-up soil. It is a well settled fact, that simply exposing soil to the action of the atmosphere, tends to enrich it, as well as to improve its condition mechanically for cropping. Hence the agricultural proverb, that "tillage is manure." Simply to stir the soil at any season of the year, and let it in the air among its innumerable particles, is to do it good. But in addition to this beneficial influence, fall ploughing subjects the soil to the action of frost. Alternate freezing and thawing are of great use, especially to stiff soils. The more thoroughly they are disintegrated, crumbled and fined down, the better state are they in for producing crops. Winter is no doubt very valuable in its action in this respect. There is no disintegrator of soils to compare with frost in the completeness with which it does its work. It not only fines down the earthy particles, but unlocks and sets free the various nutritious elements that form the food of plants. Nor must the snow-fall be forgotten. This brings to the soil a certain proportion of ammonia, the most important ingredient in all manures. Fall ploughing facilitates the access of the snow to the soil by loosening it up, spreading out the utmost possible surface, and making myriads of interstices through which the ammonia-charged snow-water can trickle down into the well-stirred ground.

Finally, fall ploughing confers on land some of the advantages of drainage, giving the surface-water a better chance of setting into the ground, or of running off in the dead furrows and ditches, thus putting the land in order for seeding sooner, in some cases, than it could possibly be ploughed, had it been left untouched until spring. Even in the case of drained land, this advantage of fall ploughing is not to be undervalued; how much more when so much land, as far as drainage is concerned, remains in a state of nature. If undrained land were subsoiled as well as surface-ploughed, this advantage would be greatly augmented. Land thus thoroughly prepared in the fall, would be in first-rate order for seeding in the spring.

These considerations have only to be well pondered by common-sense minds, to induce the determination to keep the plough in active operation during all the workable time that may intervene between these mid-October days and the final closing in of winter.

A German Farm.

The farm of which we are about to speak is a fair average representation of German cultivation of the soil and the carrying on of mixed husbandry. It lies by the Oder in the vicinity of the walled town of Custrin, which received some of the first French prisoners during the late Franco-German struggle, and is about forty-five miles, east of Berlin, in the Province Brandenburg. The country is rolling but not hilly, and the soil is a productive sandy loam.

The farm consists of 160 acres, most of which is upland, but some of it is in the fertile valley of the Oder, and this latter has not been so long under cultivation. The upland was once a pine forest, and was first cultivated the year 1552. Mine host, Mr. Lendecke, whose pride is the thriftiness of his acres and stock, and the well being of all around him, is the tenth man that has owned these possessions. Although the land has been in cultivation 320 years, a judicious system of cropping, rotation and manuring has preserved its virgin fertility to a wonderful degree. The farm has 130 acres under cultivation, 15 acres in meadow and the rest is occupied partly by buildings, but most of it is raw land in the valley, which yields some pasturage and also some turf for burning. There are 40 head of cattle, 100 sheep, seven horses and some swine upon it. Fifteen of the cattle are being fattened for market.

The rotation extends over a period of eight years, and is as follows: 1. Potatoes, well manured; 2. Barley, 3. Clover; 4. Rape, well manured; 5. Wheat, 6. Rye and one-half potatoes or oats; 7. Peas and green fodder, well manured; 8. Rye.

The farm is thus in eight years well manured, (the manure being spread mostly in the winter season,) besides the good that is effected by the rotation, which yields a proportionate amount of articles for the market and for the necessities of the people. Another rotation that is used by many in the vicinity is also thought to be good. It is as follows: Potatoes, well manured; 2. Barley; 3. Beets, well manured; 4. Barley; 5. Oats, 6. Clover; 7. Rape; 8. Wheat.

Clover does well the first year, but not the second, hence is it ploughed under, after one harvest. Rape, which is grown principally for the oil, brings a round price in the market. Beets are grown to some extent for food for the stock, but mainly for the production of sugar.

The first thing that an American notices are the absence of fences and the almost universal manner of the farmers and laborers congregating and living together in small villages, with their not large farms extending out all around, and perhaps an avenue of poplars extending through the centre leading to another village or city. The dwelling is of brick, with tile roof, and is scarcely ever more than one and one-half stories high. It fronts on a street of the village, and is surrounded on the other three sides

by a similarly constructed building, save that it is much larger, which encloses also a yard with the dwelling. This latter building has several apartments for horses, cattle, sheep, swine, geese, grain, and sometimes for laborers. Geese, which are much reared in Germany, and whose flesh (*gansbraten*) constitute an article of much interest in the hotels and restaurants, are often herded by some urchin upon the stubble and other out-of-the-way places. The cows and sheep are also herded, but everything is under roof at night.

Hand labor is cheap and workmen are plenty, hence labor-saving machines and rapid working are little known. Most of the ploughs are inferior, being after the old style, with two small wheels to support the beam. Much of the ploughing is done with oxen, usually three together, drawing the plough by rope traces that are attached to a padded board or iron that passes across the head above the eyes. But few yokes are seen. Many of the fields are ploughed twice every year. Some are ploughed in August quite shallow, and again later in the autumn much deeper; but in the spring are only harrowed. Weeds are seldom seen.

Mr. Leidecke has ten laborers, who are paid yearly, besides their plain victuals, from \$25 to \$50, according as they rank. The cattle are mostly of the Holland breed, and are moderately good. The sheep are healthy and well adapted for mutton, having an intermingling of Southdown blood. The horses are universally well formed, powerful and well kept. But the swine are not to be praised.

The Germans do not have so many insects to contend with as the Americans, but they also do not have such beautiful fruit. And in general, though one may well speak laudably of German field culture, science, general information and stability, he cannot praise the practical workmanship of the laborer nor the beauty of the farm home.—*Cor. Prairie Farmer.*

The Time for Draining.

If there is a farmer whose fields in spring are always late in coming into condition for the plough, or whose pastures are covered with coarse grass or tussocks or sedges, he is the one who will especially be benefited by the drainage of his land. Late sown or planted crops are never out of danger until they are harvested, and the lost time in spring is never regained through the season. The coarse herbage of undrained meadows is unattractive, if not positively unwholesome to stock; certainly no cow fed upon such meadows can yield good butter, and no sheep pasture thereupon can escape or survive the danger of the most fatal disease the sensitive animals are subject to. Many a flock has dropped off one by one or by several at a time until they have totally disappeared from many an undrained farm. Much costly experience could be gathered to point this moral. No period of the year is more favorable than the present for draining. Work is not pressing, leisure is abundant, the weather is cool and suitable for outdoor work, and help is readily procured at reasonable wages. No investment sooner repays itself, and nothing in the shape of improvement so exemplifies the truth of the remark so often enforced, that it is better to cultivate a few acres well than many in an unskilful fashion. By far the best, and in the end the cheapest, method of draining is by tile placed at least four feet below the surface. The deeper the drain, up to certain limits, which may probably be placed at five to six feet, the larger the area that may be left between the drain. At four feet, drains may be placed thirty to forty feet apart, according to the nature of the soil. Where tile cannot easily be procured, stone may be used, and if properly used will make a lasting drain. The principal points in laying stone drains are to place the stone so as to leave a clear channel along the drain, and so that they will remain in the position in which they were originally placed, and also so closely packed together above the channel that the earth may not fall between them and choke the drain. If these points are attended to there is no reason why a stone drain should not last indefinitely, and as the material is imperishable, at least many times longer than a perishable tile drain. Where neither tile nor stone can be procured, board drains may be used, so as to pay for themselves handsomely before they decay. Hemlock is the best timber for this purpose, and will remain longer beneath the surface than any other timber except cedar or cypress. Narrow-inch boards placed in the bottom of the drain in the shape of an inverted V, (or thus "A") will remain sound many years, except at the outlet, and there a few stone may be used. But, whatever material may be used, no season should go by but some draining should be done wherever there are wet fields or spots requiring draining upon any farm.—*N. Y. T.*

Destruction of Forests.

The following is from a very important paper read by Dr. B. Hugh, at a recent meeting of the American Association for the Advancement of Science:—

The historic period is too short to permit the supposition that the transition from luxuriant fertility to barrenness and sterility which mark many lands where the earliest traces of man's civilization are found are due to cosmical influences. The real cause is found in the destruction of the forests which once clothed the surface, protecting it from the heat of the sun and from the winds. As man destroyed this shelter, the desert approached to destroy him and his works. In more temperate climates the effect is less marked, but still apparent in the failure of springs and wells, and the diminution of the volume of water for hydraulic and other purposes. Actual damage has been done, and is now being done. Can it be arrested? Can it be repaired? The ultimate sources of water-supply for the globe—the ocean surface—has probably not materially changed in the historic period, and consequently the average of the total rain-fall may be the same as it always has been. Meteorological observations extend over too limited a period of time to warrant any theory of alteration. The change mentioned must be due then to the altered modes by which the rain-fall returns to the ocean—to its distribution. A wooded country detains the moisture which falls upon it, giving time for its absorption and obstructing the formation of rills and streams, and hence giving time for evaporation and producing humidity of the atmosphere. The dampness of a house surrounded by a dense shade is well understood. Destruction of the forests reverses all these conditions. The rain-fall is rapidly gathered into swift streams, producing floods of great destructive power. There is, therefore, little time for absorption—springs and wells fail. The climate becomes arid as the earth becomes barren. The economical value of timber and the diminution of the supply were treated briefly. The need of timber for the manifold uses of civilized life, rather than considerations of climate or of water supply, has led, in several countries in Europe, to systems of management and regulation of national forests as a measure of public economy. Even in British India such a system has been adopted. To protect or cultivate our forests is to labor for the future. Hence the difficulty of creating a present interest in a remote result. The people must be made familiar with the facts: they must be shown that a tree is an investment of great value. In this work agricultural societies may do much. The Highland Agricultural Society, of Scotland, has offered fourteen prizes for approved reports upon the subject of tree culture and its various relations. Schools of forestry have long been in active operation on the Continent. The necessity for such schools is sure to arise in our own country.

Laws will be necessary to regulate, promote, and protect the growth of forests. What can a State do in this case without the invasion of private rights?

1. By withholding from sale lands returning to its possession from non-payment of taxes.
2. By exempting from taxation for a limited period, and by offering bounties for lands planted and enclosed for the growth of forest trees.
3. By offering rewards for the largest number of trees planted in a year.
4. By requiring railroad and turnpike companies to plant the sides of their roads with trees.
5. By imposing a tree-tax, payable by planting trees.
6. By fixing penalties for the destruction of trees by the wayside, or in public or private grounds.
7. By requiring the elements of forest culture to be taught in our public schools.—*N. Y. Times.*

Capital in Farming.

There is no mistake more common or more injurious than that of supposing the more land a man holds the greater must be his profits, for profits do not arise from the land itself, but from the manner of using it. The best soil may be made unproductive by bad management, and the worst may be rendered more profitable by the opposite course; but without sufficient capital no land can be properly cultivated. At the same time there is nothing to which capital can be applied with greater certainty of a fair return for a liberal expenditure when correctly employed, than in land.

In fact, assuming that the expenditure be directed with judgment, it will be found that the profits upon the outlay increase in more than a proportionate degree to its amount: thus, supposing that twenty five dollars to be the lowest and fifty the highest sum that can be employed in the common culture of the

same acre of land, it is more than probable that if twenty-five dollars would return at the rate of ten per cent., the fifty dollars would yield twenty per cent., or an intermediate sum in the same ratio. Admitting this to be true, and no experienced agriculturalist will doubt it, it follows that a capital of five thousand dollars expended in the cultivation of two hundred acres will only yield a profit of five hundred, while, if it were applied to one hundred acres it would produce one thousand dollars; therefore it is evident that his profit would be increased by diminishing the quantity of his land.

Many a man has been ruined by a large farm, who might have acquired a competency on one with half the number of acres. Most farmers are anxious for large plantations, and many are thus betrayed into the error of attempting to work a greater quantity of ground than they have the means of managing to advantage—some in the delusive hope of acquiring these means by future savings, others from the vanity of holding more land than their neighbors; hence arises a deficiency of stock, imperfect tillage, and scanty crops, with all the train of rent in arrear, wages ill-paid, and debts unsatisfied, and final ruin.

He who prudently commences with only such a number of acres as he has power of cultivating with proper effect, is certain of raising the full return from the soil; and his engagements being in accordance with his means, he enjoys present ease of mind, and lays the surest foundation for future prosperity.

It therefore behoves a man to weigh well the charges with his means, and never allow himself to be seduced by any ideal prospect of gain into the imprudence of entering upon a larger farm than his capital will enable him to manage with the spirit necessary to insure success.—Truly did Judge Buel say that "large farms are the curse of our country," and perhaps no one had better experience from which to draw such an expression.

If a farmer has one hundred acres it would be much better for him to put the price of another hundred on it than to buy one hundred more and make the same labor produce double the crops, and not have double labor for double crops as is usually the case with us.—*Germania Telegraph.*

WINTER AND SPRING WHEAT.—The distinction between winter and spring wheat is a difference in the time of sowing and not in variety. Any spring wheat can be changed into winter, or winter into spring, merely by gradually changing the time in which either is sown. By gradually sowing spring wheat earlier every season, in a few years it can be sown in the fall, and become winter wheat. Or just before the close of winter, sow winter and let it germinate slightly, then let it freeze up till spring, and next year it can be successfully sown in the spring. And as it is generally concluded that winter is better than spring wheat, it is a natural conclusion that the sooner wheat can be safely sown in the spring the nearer will it attain to the quality of winter wheat. The difference between red and white wheats, is not in variety, but is owing chiefly to the variety of soil on which it is grown. It is said that the hard wheats are all natives of warm climates, such as Italy, Sicily and Egypt. The soft wheats are from more northern climates, such as England, Russia, Belgium, Denmark and Sweden. There is, however, one exception to this general rule, as the celebrated Polish wheat is hard, and from this reason it has been contended that it was not a native of Poland, but was introduced there from some milder climate. The English also, wheat is so hard that it is impossible to ripen any wheat hard, but in many cases it requires artificial heat to harden it before it can be ground into flour. Different soils and climates materially change the nature and variety of wheat.—*Ag. Dept. Report.*

THE VALUE OF A TON OF MARL.—According to Prof Cook's analyses, a ton of the green sand marl of New Jersey, contains the following chemicals, which, at Philadelphia wholesale prices, make its valuation as below stated:—

Lime	106 lbs. at	\$ 0 40
Potash	96 " " 10c	10 08
Sulphuric acid	12 " " 2	0 24
Phosphoric acid	26 " " 40	10 40
		\$21.12

This is, of course, assuming that the ton of marl is perfectly dry. As it is usually purchased by farmers it contains quite a large per cent. of water, which must be considered in the estimate of value. These valuable chemical fertilizers can be set free in the marl by composting it with swamp muck or with lime, thus rendering them available for the needs of vegetation.—*Practical Farmer.*

Agricultural Chemistry.

The Chemistry of Clay Soils.

The term "clay soil" as applied in the following article, to a soil in which clay, or its basis, alumina, exists in excess of the proportion, mentioned in a former communication, required to constitute fertile ground. Much depends, of course, on the surface-features, whether the land be high or low; also, on the character of the subsoil, whether porous or close; for a soil containing say 85 to 95 per cent. of clay in the former case, might only be termed strong; while with the latter conditions present, it would be classed as very tough and heavy.

Clay soils are distinguished by the adhesiveness of their parts, a quality the very opposite of that possessed by sandy ones. Clay possesses the four following properties, by which it exerts a powerful influence on vegetation:—

1. It absorbs moisture and retains it strongly.
2. When thoroughly soaked, and afterwards dried, it cakes into a solid mass, and if quickly brought from a wet to a dry condition, it approaches the condition of unburnt bricks.
3. When exposed to heat it shrinks considerably.
4. It greatly retards putrefaction by excluding the action of the external air.

In the case of sandy soils, the importance of a due supply of water, and the best means of securing it, were discussed; now the ill-effects of excess are to be counteracted. From the second property the farmer learns the necessity of being cautious not to plough such land while wet. The third quality mentioned indicates the necessity of rendering the texture more open and friable by means of a mixture with less cohesive materials; and also by exposure to the crumbling and disintegrating effects of the atmosphere. These measures also correct the evil mentioned under the fourth head.

Before treating of the means best adapted for correcting the defects of heavy clay land, it will be well to glance at some of the chemical properties of alumina, the basis of clay. This earth is a compound of oxygen and a metal called *aluminum*; it is the principal ingredient of almost all rocks, except the purest kinds of limestone; it constitutes the great mass of ordinary clays, for these last are nothing but the product of the action of decomposing and disintegrating forces on the pre-existing rocks. In all these forms, the alumina as combined with silica, or silicic oxide, and sometimes with sulphuric or phosphoric acid. The ruby and sapphire are examples of almost pure alumina. It derives its name from the salt which it forms with sulphuric acid and potash, the alum of commerce. It is of a white color, adheres strongly to the tongue, and has a remarkable tendency to unite with the organic matters. When dried at a moderate temperature, it dissolves freely in acids and solutions of the fixed caustic alkalies; but when strongly heated, it dissolves much more slowly. Carbonate of potash, soda and ammonia precipitate it when in solution, and this precipitate is again dissolved by the caustic fixed alkalies, but not by ammonia.

It is evident from the above remarks that it is not so much a deficiency of ingredients as a peculiarly solid composition that is to be remedied in the case of clay lands. For it has been shown that the alumina exists as a silicate, and therefore it is the mode in which the requisite materials are combined, that has to be dealt with; it is, in other words, an excessive existence of two properties, namely: the attraction of cohesion in the particles of the clay, and the affinity for water.

Again, it follows that where a subsoil is composed of heavy clay, the organic acids derived from the decomposition of plants at the surface exist in excess,

on account of the absence of any neutralizing agent; such lands are often described as sour. Also from the excess of humidity it follows that the soil is cold; for the heat of the sun is spent in evaporating or dissipating the moisture. The principal means to be adopted in the treatment of such soil may be comprehended under the following heads:—

1. Supplying to the soil the deficient organic and earthy substances, (in this case principally calcareous matter).
2. Altering the depth, texture, and properties above mentioned, by mechanical means.
3. Changing its relation with respect to moisture.
4. Changing its relation with respect to temperature.

Under the first head is comprehended the application of manures, which may be either (1) animal and vegetable; (2) mineral; or (3) mixed.

1.—Vegetable and Animal Manures.

The main principles governing the application of these have been illustrated in the former article on sandy soil. Dr. Dana has given the term "geino" to all the decomposed organic matter of the soil of vegetable origin. It exists in two states—soluble, and insoluble; soluble in water, alkaline solutions, alcohol and acids. The latter variety becomes food by the action of air and moisture. Although the heavy soil requires a greater proportion of manure to fertilize them than freer soils; they retain the effects for a longer time.

2.—Mineral Manures.

Leached ashes. These, when applied in proper quantity, act beneficially on heavy soils. They should not be applied in too large quantities; and they should be intimately mixed with the soil. Chaplain says: "they possess the double property of amending a wet and clayey soil by dividing and drying it, and of promoting vegetation by the salts they contain." As a large portion of alkaline matter remains in the ashes, even after leaching, they benefit a wet, sour soil by neutralizing the acid, and assisting vegetable decomposition; while, at the same time, they loosen the soil and enable the roots of plants to reach full development.

Lime.

Common limestone, which is a carbonate of a metal called calcium, when burned, loses its carbonic acid, and becomes a caustic substance which absorbs water with production of heat, crumbling into powder at the same time, and beginning again to imbibe carbonic acid from the air. It thus becomes mild and less soluble in pure water.

Caustic, or quick-lime, as before remarked, dissolves vegetable fibre and renders it soluble, but forms compounds with the soluble portions of vegetable and animal substances which are soluble with difficulty, and only after the lapse of considerable time. Lime, when spread on a soil surface, is prevented in some measure by the grass and fibres of the roots from descending into the soil; while the rains from time to time dissolve it, and carry down an alkaline solution which neutralizes the sourness of the soil. Again, in every particle subjected to the action of the atmosphere, the carbonic acid gas of the latter converts the alkaline solution into a carbonate, and this being much less adhesive than clay when the land is ploughed, the soil pulverizes readily. But in order that the land may receive the benefit of a lime application, it should in all cases be freed from excessive moisture. The mode of doing this will be mentioned hereafter.

It has been recommended to employ a mixture of unslacked lime and earthy material, containing a certain proportion of decomposing organic matter (river and marsh-muck, &c.). The lime is used in the proportion of two bushels to the cubic yard, and about 50 yards of the mixture are applied to each acre. Lime acts beneficially in three ways: 1. As a neutralizer. 2. As a decomposer. 3. As a converter.

1. The first mode of action takes place in all soils where free acids exist.
2. The second mode takes place where metallic and earthy geates exist, long-formed and sun-baked, and scarcely acted on by rain or dew. Lime decomposes these, forming a soluble combination.
3. It acts in the last manner on the solid and insoluble geine, and vegetable fibre, converting it into soluble vegetable food.

Marl.

This valuable substance, consisting largely of silicates of potash and iron, has been used with highly beneficial effect in the State of New Jersey. It exists along the Gulf and Atlantic borders, forming a portion of the Cretaceous formation. As this formation is not present in Western Canada, our farmers are unable to obtain marl, or more properly, green sand; for the term is also used to denote a clay containing a large proportion of carbonate of lime, and this substance prevails in Canada.

3.—Mixed Manures.

This class consists of those derived partly from organic and partly from mineral substances.

Coal Ashes.

Where tenacious clayey soils adjoin cities and large towns, these may be profitably used.

Composts.

These consist of decomposing vegetable and animal substances mixed with earth. Lime acts beneficially on these mixtures by assisting the fermentation of vegetable and animal fibre. They should be thoroughly turned over several times, so as to mix the materials together. This is a method of increasing the amount of manure on a farm, which should not be neglected.

Under the second head are included all the various operations of cultivation, or tillage.

Fallowing.

The necessity for summer fallowing in these days, when the proper rotation of crops is pretty well understood, can hardly be said to prevail, except in cases where land has been thoroughly exhausted by repeated grain crops. But the farmer will find a most valuable means of pulverizing heavy clay soil in fall ploughing and cultivating, leaving the fresh surface in a position to receive the beneficial effects of the air during the winter. Of course there are some rainy seasons when this would be impracticable. In dry weather he must spare neither the plough nor the cultivator.

Burning.

Although this process is hurtful to calcareous and light lands, to perfect soils, and to lands rich in decomposed vegetable and animal substances; it has been proved to do good on poor, cold clays when broken up for the first time. It has also been recommended in the case of deep peaty soils where there is an excess of undecomposed vegetable fibre.

Ploughing, Harrowing, &c.

The extra amount of these operations demanded by a heavy soil, constitutes one great objection to such land. The land must not be worked when too wet, it cannot be worked when very dry; a medium, therefore, has to be chosen, and this, in some seasons, is with difficulty obtainable. It has of late been a matter of much dispute as to the respective advantages of deep and shallow ploughing. While it cannot be denied that the former kind of cultivation is calculated to work to the best advantage in soils where there is a good depth of fertile mould, it cannot be pursued in cases where the subsoil is tenacious, until the land has undergone a thorough course of under-draining and manuring.

Under the third head the operation of draining must be classed. As it is impossible to treat in detail such an important subject in a short article; it will only be remarked that a few ditches dug through the lowest parts of the farm, will be of little value in the kind of soils here described. The land must be thoroughly drained by an underground system of main and branch pipes, so that a sufficient outlet is provided for the excessive moisture. By this downward tendency of the water, a reservoir is provided, which, in seasons of drought, yields its moisture again to the soil above. At the same time that the excessive amount of water retained in clay subsoil is removed by draining, the temperature of the soil is improved; for as the heat of the sun is not exhausted in drying, the compact mass as before, it becomes diffused through the particles of soil, while the surplus water trickles slowly towards the drain.

Other more general means of improving the temperature of soils are discussed in works treating the wider subject of rural economy. These comprise the preservation of our forests, and the rearing of groves on bare hill-sides, as well as other kindred subjects.

C. M. S.

Owen Sound, Sept. 25th, 1873.

Implements of Husbandry.

Motive Powers—Steam and Horse Powers.

For general motive purposes on the farm, of course, there is no other contrivance that will equal for uniformity of operation and general utility a good

to 10 horse-power portable steam engine. It can be applied in a great number of ways around the barns and dwelling,—threshing, sawing, feed-chopping, straw-cutting, cleaning—in fact for almost every purpose, whilst its few and simple requirements—wood and water—are as nothing compared with the necessity of gathering in the neigh-

bors' horses, adjusting powers, driving and re-driving, hammering spiles, extracting and re-driving the &c., &c.; all of which and many more inconveniences are so inseparably connected with the process of threshing as done in the ordinary way, viz. by means of the common horse-power

The objection is urged that steam power, in proximity with barns and other wooden buildings, is dangerous on account of fire, but experience has shown that such is not the case, especially in these latter days when preventive appliances are so numerous and complete on and about the engine. But the portable engine is expensive, and this fact, we presume, constitutes the principal reason why so many are without it, rather having recourse to cheaper and less effective methods. True, the outlay is considerable for the ordinary purposes of a 100 acre farm, though even there the engine would soon redeem its price and prove a most profitable investment. Its cost varies, according to power and style, from \$300 to \$800 and over.

The accompanying cut represents an improved 10 h. p. portable engine fitted up with enlarged fire boxes, Judson's patent governor, and chimney furnished with spark-arrester

The heating apparatus is tubular, which, aided by waste-heat from the boiler, and exhaust steam, heats the water from 175 to 200 degrees, thereby causing a much more rapid generation of steam, with a less consumption of fuel than when cold water is pumped into the boiler.

The boiler is likewise furnished with a round bottomed fire box, forming underneath the ash-box as well as up its sides a three inch water space—thus affording a large heating-surface. This arrangement prevents an accumulation of sediment around the fire-box and ensures safety to the barn-yard, as the sparks cannot blow out.

The sediment passes along freely to the bottom of the fire box, and can be expelled by the blow on tap underneath the ash-pit—thus keeping the boiler clean much longer than by the usual system.

Another compact form of the portable engine, manufactured in sizes from 2 to 10 h. p., is represented in our second cut. It combines both

engine and boiler in one piece. All its parts are cylindrical, and will consequently sustain the greatest amount of pressure. The circulation of the water within the boiler keeps all sediment in suspension until it is blown off at the surface:—so that the boiler may be kept quite clean by simply blowing it off once a week.

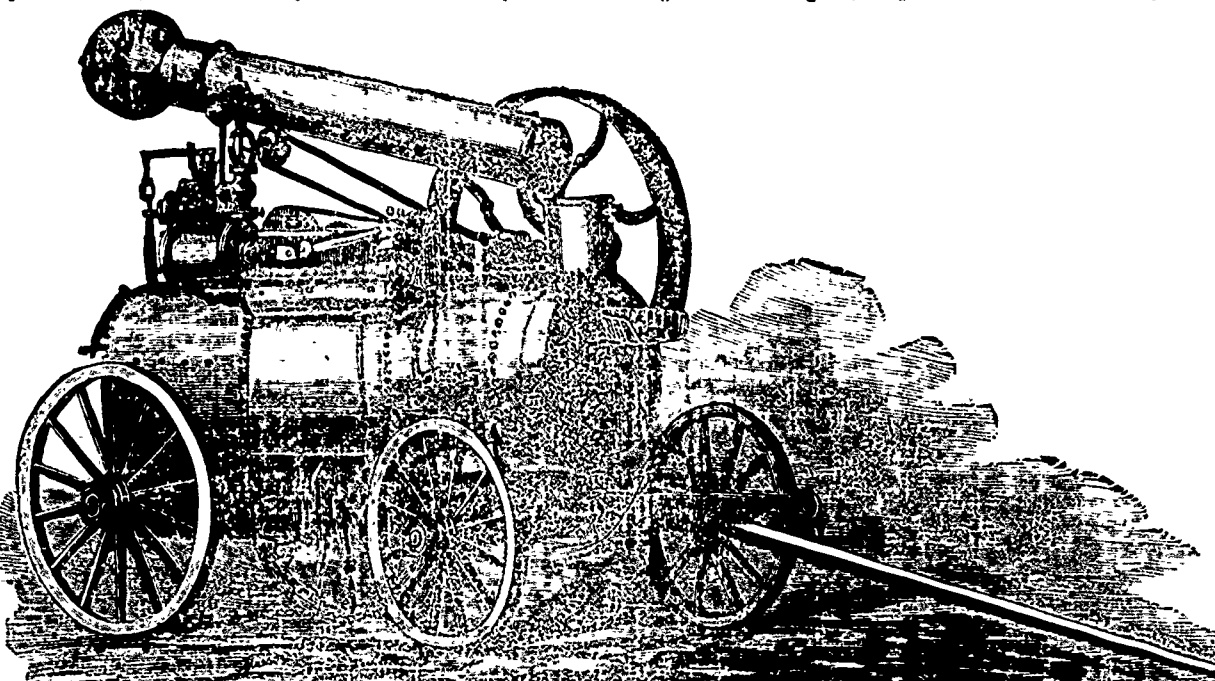
A most important advantage of these engines,

advantages of a first-class portable engine. Of horse-powers, the most serviceable in use are built on the principle of Pitt's power, which has undoubtedly proved itself the best article of its kind yet in the market. Others, of course, there are which have done and are still doing good service, and improvements upon this as upon all other agricultural implements are never ending, but still, amongst

them all Pitt's power and its modifications remain the standard ones amongst our farmers. They are so familiar that a description of them here might seem superfluous.

Another horse-power generally known as the "Planet," is now also becoming very popular. It is manufactured wholly of iron, and therefore less liable to speedy wear.

It is illus-



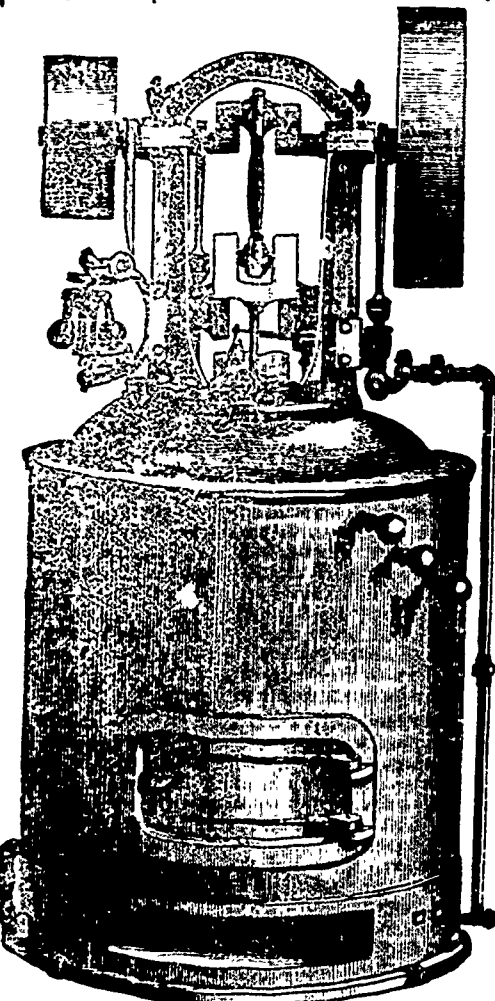
trated by our third cut. Either of these powers is generally adapted for 8 or 10 horses. Sometimes cheaper implements are sought after, such as may be used with from 1 to 4 horses. A very ingenious and useful contrivance for this purpose is manufactured by Samuelson, England, and very much used there. The gear is adapted for driving chaff-cutters, turnip-cutters, bruising mills, cake-breakers, &c. It is also provided with leading bars with universal joint outside the horse-walk, so that the first bar lies flat and forms no obstacle to the progress of the horse.

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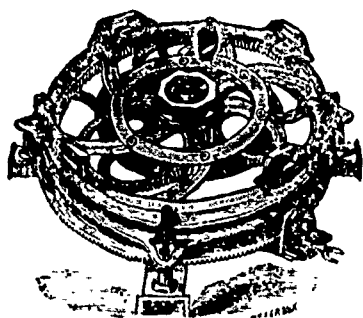
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The American horse-power is another that can be used in this way. Our 4th engraving represents it driven with one horse and driving a drag saw.

A. B. is the large drive-wheel, so constructed that it can be set up or taken down in a few minutes, by a man who has had no previous experience with the power. Cast-iron sockets, that clasp together the exterior ends of the wheel's arms, serve also to receive the heads of wrought-iron rods, which bind all its parts firmly together. Each of these sockets end outwardly in two neatly curved, thick and round headed forks, designed to receive and hold the strong chain which transmits the power of the horses to the jack. Through the beautiful device of a small iron wheel inserted near the bottom of each fork, the chain cannot slip, and is rolled in and out in such a manner as to prevent nearly all wear. There are six spaces between the pairs of arms, each ample for one horse, allowing, altogether, the use of six at a time, if so many horses are ever needed. Great strength in this wheel is combined with exceeding lightness for so large a structure. So well balanced and nicely pivoted is it on its supporting cast-iron centre post, that the slightest breeze will cause it to turn, when disconnected from other machinery. In every view this wheel, though simple in plan, is certainly a mechanical triumph. C. D. is the jack. The chain wheel E on the main shaft, is supplied with nine small, very hard cast-iron, adjustable and removable cogs. F. is a grooved wheel, used to prevent the chain from riding out of the cogs.



weighing over 4,700 lbs. We have little doubt that, as our agriculturists approach nearer and still nearer to perfection they will all yet see and appreciate the



THE PLANET HORSE-POWER.

G, G, G. are small grooved wheels for guiding the chain. H. and J. are the tightener and weighted pendulum, to take up the slack of the chain, and to cause it to run truly and without twist. The band wheel shaft, M., can be placed on the sills of the frame when it is desired to run a reel connected to it by a universal coupling. For running a drag saw, this shaft is removed, and the main shaft taken out of its boxes, and its ends reversed, bringing the large gear wheel on the outside of the frame.

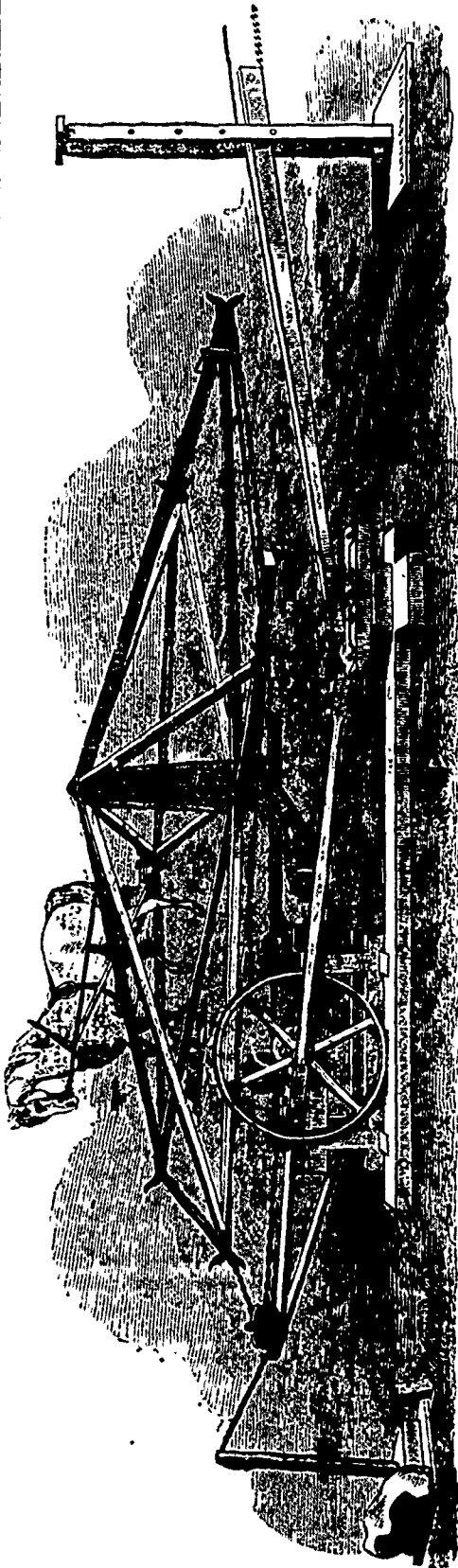
NEW CHURN. A Kentuckian has invented a churn which causes the butter to appear in a very short time. The dasher-shaft, to which is attached wide arms slightly inclined, revolves in a tube, the top of which is slightly above the surface of the milk. When set in motion, the milk runs over the top and comes into the tub again from the bottom, thus causing a continuous circulation and violent agitation.

TRIPLE HORSE CLEVIS. Fasten the clevis to the plow beam, at a point twice as far from the top of the clevis as from the bottom. The single tree must be fastened to the clevis at the top, and the double tree at the bottom. Any good blacksmith can make the clevis. The single horse will only draw his share of the load, and the double tree made wide enough to allow space for three single trees to work well (although only two are fastened to it), and the plow will take "wind" enough. Any one who uses this clevis, can never be made to use a triple tree again. — *Car. Genl.*

NEW WAY TO CATCH RATS. A new manner of catching rats is exciting great interest among the householders in New York. A barrel is filled half full of water. A layer of powdered cork is laid on its surface, and over this a layer of cornmeal is sifted. A chair and a box or two are placed unobtrusively in the neighborhood, whereby the rat gains the edge of the barrel. He sees nothing but the meal. He has no minute ideas which teach him to beware of the treacherous foundation on which that tempting surface rests. He sniffs, he leaps, and goes gently down through the meal and cork to his watery grave. If any of his friends see him disappear from the edge of the barrel they hasten after to get their share of the probable plunder, and in turn are taken in by horrible death. The plan seems effective as against the rats, but is calculated to destroy their confidence in human nature.

IMPLEMENTS AT STirling. The first show the Highland and Agricultural Society held at Stirling was in the year 1833, when only 22 implements were entered for exhibition. The next meeting was in 1864, twenty-one years afterwards, when 973 entries were made, and at the show this year the entries were 1400, which, though considerably under the number of articles of 1872, exhibited at Kelso, is indicative of the great extension which, during the last forty years, has taken place in the manufacture of agricultural implements and machinery. At Kelso last year the number of articles exhibited was 1777, being 377 more than at Stirling, but the falling off in the number of entries here is to some extent accounted for by the absence of the well-known stand of the late John Pingle, of Kelso, and a considerable decrease in the number of exhibitors from south of the Tweed, whose absence some patriotic contributor to the Wallace Monument will no doubt account for by suggesting that the vicinity of the field of Bannockburn exercised a deterrent influence upon English exhibitors. — *Farmer.*

SHEEP-SHEARING MACHINE.—One of the novelties exhibited at the late Northern Ohio Fair, was a machine for doing away with the arduous labor of shearing sheep. The *Ohio Farmer* says:—We witnessed its operation on live sheep at the Fair and endorse it unqualifiedly. The machine operates from an extended arm attached to an universal joint, which moves on the same principle as the human wrist. Two knives driven by an oscillating movement over a steel comb, clips the wool, leaving the fleece perfect and even. An ordinary operator will shear 125 a day, and do the work well. Crowds of farmers surrounded the machine and all were convinced that the inventor had reached their greatest want.



THE AMERICAN HORSE-POWER.

Entomological Department.

Spread of Noxious Insects.

The English white cabbage butterfly, *pietis rapae*, is gradually spreading westward and southward from its original landing place, Quebec. This year it is quite abundant at Port Hope, having reached the river Trent last season; no doubt it will invade the gardens at Toronto before the autumn is over. A friend tells us that it has travelled south as far as Norfolk in Virginia, and has there become very destructive indeed.

The Colorado Potato Beetle is now spread over almost the whole of Ontario, but thanks to the vigilance of our intelligent farmers and gardeners, it is being kept well in check and has not yet proved very destructive. It is easy to see how frightful its ravages would already have proved, had it been let alone. We are informed that tons of Paris Green have already been used in the warfare waged against it in the western portion of the Province! Amongst our neighbors it has proceeded on to southern Pennsylvania and Maryland—soon it will have reached the seaboard, and then, alas for poor Ireland! its turn must come next.

The "Hateful Grasshopper," as it was so appropriately termed by the late Mr. Walsh, is very destructive this year west of the Mississippi, from Texas to Minnesota, and westward to the Pacific coast. Texas has had an especially severe visitation. To quote the Entomological Record of the Washington Department of Agriculture:—"In Martin County, (Texas), spring wheat and barley were covered with grasshoppers. They appeared in the western and south western parts of the county, June 17, and twenty-four miles more easterly on the 21st. They appeared about noon, on days of sunshine, high in the air, seeming in the sunlight to be of a silvery hue, their wings light brown. At first scattering widely, the second day at noon they appear in immense numbers, filling the air even to the ground. Gardens are first attacked, onions and cabbages fall before their ravages in the beginning; then, all tender plants, even tobacco and wormwood; next, barley and wheat, the fields of which they strip in patches. About the fourth day, increased in numbers, they make a united attack on nearly all kinds of grain—seeming to leave corn and peas comparatively undisturbed. About the seventh or eighth day they begin to rise, and, if the sun is warm and the weather clear, leave finally about the eighth or ninth day about noon. Millions of these insects may at that time be seen flying in the air in the wind direction. They began to leave Martin County on June 29, and four or five days had elapsed before all had gone. They injured but did not destroy the wheat-crop, some pieces being left almost unharmed, while others were badly stripped. Vegetable-gardens are generally ruined. A tract of two thousand acres of beans, planted by a company consisting of three Englishmen, who broke the prairie, has been to the extent of nearly three-fourths devastated by grasshoppers."

TURPENTINE FOR THE TURNIP BEETLE.—A correspondent of *Bull's Magazine*, says:—"A friend of mine has for some years past been in the habit of moistening his turnips with turpentine (in the same manner as seed wheat is prepared to prevent smut) the night before sowing, as an antidote to the turnip fly—more properly, the turnip beetle (*Haltica nemorum*), with so much success, that he assures me that his turnip crops have since been exempt from the attacks of this voracious little insect, while on one or two occasions, the crops of his immediate neighbors whose seeds had not been so prepared—were more or less eaten up by them."

FARMERS READ THIS.—At a meeting of the farmers of S. S. No. 11 Presb. held on the 2nd inst., at the suggestion of Mr. John Dickie, a resolution was proposed and afterwards unanimously adopted to the effect that the farmers of that vicinity will make an effort to suppress in some degree, if possible, the ravages or rather the propagation of grasshoppers during the ensuing year. They propose, so far as possible, having recourse to the following means, viz.:—Each farmer to plough up his fields that have lain under grass or in sod for a few years, to clean up and cultivate any land that may be but partially cleared in the vicinity of all brush, &c., and to raise a flock of turkeys. Will those of other localities that have been troubled by these pests, follow suit? Try it, as the cost of the experiment will be small and may be productive of a great benefit. — *Mercury.*

Horticulture.

EDITOR—D. W. HEADLIE, CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Fruit at the Provincial Exhibition.

Peaches.

After such a winter as the last, it is surprising that we have any peaches at all. There must have been some favored spots where the cold was robbed of its intensity, for there was a very creditable display. It seems, too, that this year the Province of Ontario stands second only to the State of Delaware in peaches, that State having taken the FIRST PRIZE; and Ontario the SECOND PRIZE for Peaches at the Great International Exhibition of Fruit held in Boston. The Early Crawford is evidently a favorite variety with peach-growers. Hale's Early, which seemed to be at one time so promising as an early variety, was so badly before ripening that it will not be likely ever to be largely planted. Rivers' Early Beatrice, it is hoped, will fill the requirements of a very early peach for this climate.

Apples.

It is gratifying to be able to note the progress that is being made in the variety and quality of the apples, and the attention that is now paid to the correct naming of the different sorts. Fine samples of the leading varieties are now shown from many parts of the Province, that but a short time ago rarely contribute any fruit to the Exhibition. Some new and valuable varieties, too, are finding their way to the tables. All these things indicate an increased attention to fruit culture, and with that an increase in the home comforts, and the refinement of the people.

Among the varieties of apples not often seen at our Exhibitions, but which were to be found this season in several collections was the WAGENA. This variety was recently very widely disseminated by the Fruit-Growers' Association, and will prove to be a very valuable fruit in many sections. A plate of this fruit was shown by a gentleman from Michigan, who remarked to the writer that it was one of the most profitable varieties grown in that State. The tree comes into bearing quite young, and is very prolific. The fruit is nearly crimson in color on a yellow ground, of the "best" quality, and in use in January and February.

The BENONI is another very fine apple, not often seen among us. It ripens in the latter part of August, is somewhat below medium in size, very handsomely marbled and striped with crimson on a pale yellow ground, and of "very" good quality. The tree is quite hardy, and an abundant bearer.

There was also exhibited some fine samples of the MORNER apple, which deserves to receive yet more attention. We are not able to say how hardy the tree will yet prove to be, but there is no doubt that it will flourish wherever the R. I. Greening thrives, and possibly may endure a much greater degree of cold. It is very productive. The fruit is of full medium size, in color a rich red, splashed with deeper shades; the flesh is yellow, rich, and of a pleasant sub-acid aromatic flavor. In quality it ranks "best." The fruit is in use in December and January.

We noticed also the PIERMAN PIPPIN, which is one of the most valuable winter cooking apples grown. The tree is a vigorous grower, and an abundant and annual bearer. The fruit is full medium in size, of a rich yellow color, thickly dotted with russet. The flesh is yellow, rich and juicy, but tart for a dessert fruit until thoroughly ripe, but for pies, tarts, apple-puddings, and all culinary purposes it has few equals. Downing classes it in quality as "good to very good." It may be used in the

kitchen from October to April, but for dessert it should not be put on the table before March.

The six varieties of table apples for fall and early winter use which received the first prize comprise some of the most choice varieties ripening at that season; they were the Snow Apple, Melon, Benoni, Ribston Pippin, Pomme Royal and Gravenstein. These were shown by Mr. Charles Arnold, of Paris, whose long experience and good taste in these matters, enable him to make selections of the very highest quality. His six varieties of table apples for winter and spring use were well selected; the Loopus Fitzburgh, Northern Spy, Golden Russet, R. I. Greening Wagener and Swaar. Were we to express our preference we should want to put the Swazie Pomme Grise in the place of R. I. Greening, and transfer the Greening to the kitchen for cooking purposes.

A number of seedling apples were shown by Mr. Cowherd, of Newport, who has evidently given considerable attention to the production of new varieties. Considerable time will be required to test these fully, and no opinion of their merits can be formed by merely seeing them on the Exhibition tables. It is hoped that some of them will prove to be valuable for our climate.

Large Pears and How Raised.

Some of our readers have heard of the magnificent pears raised by Mr. Leighton, of Norfolk, Va. The method of culture, given by him in the *Horticulturist*, is another proof of the old saying that "from nothing nothing springs," and that pears cannot grow without food. His trees, which are dwarf, are planted 12 ft. apart each way—a little further would be better—in large holes, filled with top-soil mixed with a compost of muck, wood-mould and lime—the two first in about equal parts, and the lime one-twelfth. No crops are allowed to grow in the pear orchard before June, and the surface is kept clean. Strawberries Mr. L. finds to be the most exhausting. He remarks, "Persons who have not courage and disposition to spare the land and keep it thoroughly cultivated, should not embark in the business of pear culture." The holes in which the trees are set, and which are filled with earth and compost, are three feet deep—which is not in accordance with the theory that trees do best when the roots are near the surface. Mr. L. sums up as follows:

In short, the following are requisites for successful pear culture in Eastern Virginia:

1. Perfect drainage.
2. Stiffest clay soil.
3. Proper planting of the trees.
4. Clean culture.
5. Healthy trees (which can be had of responsible nurserymen direct, without the intervention of an agent, and imparting the satisfaction of having every tree true to name.)
6. Timely supply of proper food for growth of both wood and fruit.
7. Determination, patience, and sufficient of the sacrificing spirit to remove all fruit until the tree has sufficient wood to sustain it without checking the wood growth.
8. Judicious pruning (better none than too much).
9. Careful picking, packing, and handling of the packages.
10. The right kind of an agent to dispose of them.

—*Work'ng Farmer.*

Beware of Planting Trees or Shrubs in Vegetable Manure.

The *Horticulturist* gives this timely caution to planters of trees and shrubs:—"A mistaken opinion seems to be entertained by many, that any manure will do for trees and shrubs, and the amateur planter, thinking that wood mold, chip manure, and decaying sods from some cesspool will prove desirable, at once uses it freely in filling up the holes dug for the new trees. Perhaps no greater injury has ever been done in horticulture than the recommendation, by inexperienced writers, of chip manure as a dressing. Its danger arises mainly from its ready disposition to spread fungi, which inevitably rises in soils naturally a little moist and tenacious. And when once formed, it spreads with astonishing rapidity, totally preventing growth and finally killing the tree or shrub.

"An instance is on record of an English gardener, who planted two very fine pyramidal white Bigarreau cherries side by side. One grew very well, and answered his expectations; the other, after putting forth its leaves, made no growth; the foliage gradually acquired a sickly hue, despite the most careful attention, and at last it was taken up. It was discovered that the roots were covered with a layer of a delicate white fungus, which had spread to them from a piece of rotten wood buried in the soil. The roots were at once cleansed, and the old earth removed, and fresh loam replaced; but the tree had suffered too much, could not recover, and died a victim to the deadly effects of fungus. Chip manure is a sure hiding-place, besides fungus, of worms and insects by the score; and its only possible value can be either through its reduction in the fermentation of a lively compost heap, or in being burned to save the ashes. It is a wise policy never to apply it as a fertilizer to the roots of any tree, shrub, or vine."

When raw manures of any kind are applied to perennials they should be placed upon the surface, so that they can only reach the roots in a state of solution.—*Rural Home.*

Reading Pear.

This beautiful winter variety originated in the city of Reading, Berks county, and is deservedly popular wherever it has been tested. Mr. John Fehr, of Reading, who has fruited it for several years, states "that they delight in rich soil, and to be grown on high branches exposed to the sun; that they do well in sheltered situations, such as in town-yards, but do not succeed as well when fully exposed."

Fruit, rather large, varying in form from pyriform to obovate pyriform; color, yellow, thickly sprinkled with small dots, and occasionally with a bright red cheek on the sunny side; flesh, fine grained, very melting; flavor, not rich, but sprightly and vinous; very juicy. Commences to ripen in January and keeps well until March. Quality very good. The tree is of strong growth and is a regular and abundant bearer. Occasionally with high cultivation, and in favorable situations, the fruit grows to a very large size. Specimens the past winter, were exhibited in Philadelphia as large as the Vicar of Winkfield.—*Proceedings Fruit Growers' Society.*

ADVANTAGES OF HOEING.—Too many persons who use the hoe suppose that the chief benefit derived from it is to kill the weeds. That certainly is an important work, and one greatly neglected. Weeds are not only in the way of cultivating the crops which we plant, but they rob them of much of the nutriment which they need. Hoeing, then, is an essential service in respect to destroying the weeds. There are other advantages, however, which are commonly overlooked. Let us see: 1. The loosening of the soil in the operation of hoeing is beneficial to the plants, as much as the destruction of the weeds, or more so. 2. Moisture abounds in the atmosphere during the hottest months, and is absorbed and retained most abundantly by a soil which is in the most friable state. Professor Schluber found that 1,000 grains of stiff clay absorbed in 24 hours only 36 grains of moisture from the air; while garden mould absorbed 45 grains, and fine magnesia absorbed 76 grains. 3. Then, again, pulverising soil enables it better to retain the moisture absorbed. 4. The soil, in order to be healthy and active, must breathe. A light porous soil admits the air, and thus it is fed and greatly invigorated by the atmosphere. 5. The sun's rays heat a hard soil much more quickly than a loose one, and the hotter the soil is, so much greater will be the evaporation from it. So that the hard soil is deprived of its moisture much sooner than one of a loose texture. 6. The soil that has been kept loose near the surface by the action of the hoe, will receive and hold the rain water that falls, while a hard soil will allow most of it to run off into the valleys and streams as it falls.

KEEPING APPLES.—The Horticultural Editor of the *Country Gentleman*, after trying various ways, has come to the conclusion that the best way to keep winter apples, is on shelves in the centre of the fruit cellar. Shelves about five feet wide, far enough apart to admit of convenience in assorting, with passage way all around, so that the fruit can be reached from both sides. Would have the fruit shallow upon the shelves, that the decaying apples may be picked out without moving the sound, and those beginning to decay should be picked out and used first. The fruit cellar should be separated from the main one by brick walls, kept dry, and at a very low temperature. This is the counsel of long experience, and close and intelligent observation.

THE LAWN.

The Cutleaf Weeping Birch.

Longer acquaintance with this beautiful tree has only served to deepen the impressions made on first seeing it, and to establish the conviction that it is one of the most charming objects which can be grown on the lawn.

In habit of growth it is very different from the most of those which are designated as weeping or pendulous trees. It rises in a slender, and graceful, but erect form, lifting its head higher and higher, even above the surrounding trees, and throwing out its branches skyward, not earthward. But from these branches it sends forth long, sweeping, pensive sprays, so delicate and full of grace, so airy and lightsome that the eye rests on it with indescribable satisfaction.

Not only in the graceful form and general appearance of the whole tree is it beautiful; but when examined minutely, and in detail, every feature is pleasing. Each leaf is most handsomely cut, each branch has some grace special to itself, and the silver-white bark of the trunk and larger branches light up with peculiar beauty when flecked by the ever-shifting sunlight flashing through the leaves.

The Oak as a Lawn Tree.

There is no better or more certain method of obtaining a knowledge of things than by experience. Our opinions change in spite of all preconceived notions, and we are surprised at our own weakness in not being able to discern plants which experience has brought into view. The Oaks have long been celebrated for their beauty as well as usefulness, and they are worthy of all the praise bestowed; but their fitness for certain positions in ornamentation of suburban grounds, is a question that will bear discussion. In the present advanced state of Landscape Gardening, the lawn is really the foundation, while the trees, disposed in groups, belts or single specimens, fill up and give variety, expression, and tone to the picture. In grounds of considerable extent, a semi-wildness is not only admissible but desirable, and littering leaves and scattering clumps of wild grasses amid barren rocks or hillocks are not out of place, but in small grounds limited to a few tiny lots, or even an acre or two, the surface of which is smooth and without natural obstructions; cleanliness and neatness should be preserved, instead of making any attempt to produce an appearance of wild ruggedness. To have both combined, or contiguous, is certainly desirable and usually attainable, if one seeks a wild, rugged spot, and then tames a portion artificially; but there are objections to this combination, as I have learned by experience in my own grounds, which are of a mixed nature, for the leaves, nuts, flowers and other cast-off garments of the trees become scattered over lawns and flower-

beds to the disgust of the owner of a well-kept garden. Of course, it depends somewhat upon the kinds of trees adjacent to the garden, as some, like the Chestnut, which are constantly contributing something in the way of litter during the entire summer. First, the long catkins, like huge yellow worms, are scattered over walks, out-buildings, and lawns, followed by more or less early ripening leaves in July and August; then September brings down the prickly husks, which tumble about to the discomfort of feet incased in thin shoes, or the "sit-down" of the lounge in the shade.

A deciduous tree that will drop its leaves all at one time, is far preferable to one that keeps up a con-

tinual scattering through the season. There are several species of Oaks which belong to the latter class, and for this reason are well worthy the attention of all villa gardeners.—Country Gentleman, Eng.



THE CUTLEAF WEEPING BIRCH.

Palmacea—Palms.

The number of known species of palms are over a thousand. The most remarkable are the Betelnut palm (*areca catechu*), the fruit of which, divided into quarters, rolled in the pepper leaf, and sprinkled with lime, is in general used as a masticatory amongst the natives of the East Indies, much the same as tobacco is employed by us. This mixture gives a red tinge to the saliva, and seems to have some narcotic power. The Sago palm (*Sagueris Rumphii*)

grows in the south of China, Japan, and all over the East Indies. The pith of this palm, from which the Sago is obtained, is a chief means of nourishment for millions in warm climates, and is exported largely from Singapore, where it is manufactured. In our California climate it is both nutritive and easy of digestion. It is much used for puddings, and constitutes an excellent article of diet for invalids. The Oil palm (*Elais Guineensis*) is a native of the western coast of Africa. The oil is obtained from the fruit, which is about the size of an olive, and of a yellow color. The Cocoa-nut palm (*Cocos nucifera*), which grows by the sea-side in most tropical countries, is especially abundant throughout the South Sea Islands. It forms a fine shade. It makes a good thatch, and excellent baskets. The young leaflets make fans and bonnets; also clothing, goblets; likewise fire kindling, fish lines, and cords, a balsam for wounds from the juice of the nut, and oil for embalment of the dead. Posts can be made from the trunk, and charcoal to cook with; paddles for canoes, and clubs and spears for battle. Lastly, we direct attention to the Doum palm of Upper Egypt (*Hyphene Thebaica*). The fruit of this is much larger than the Date palm (*Phoenix dactylifera*), and is equally nutritious. The rind of the fruit is brown and mealy, and has both the taste and color of gingerbread; hence one of its common names is the gingerbread tree. The spongy, internal portion of the fruit of this palm forms an important article of food, and when this pulp is mixed with an infusion of dates, it constitutes a cooling drink, much prescribed by the Arabs in febrile affections as cooling and demulcent.—Rural Press.

A New Evergreen.

It is always a pleasure to record an addition to our list of really hardy new plants; and especially so, when they are very beautiful and desirable in all respects. We now urge the claims of a new evergreen from Japan, which as yet, has no common name, but which is called by botanists, *Retinopora obtusa*. For the past five years—two of which have been more trying to our hardy plants than any within the recollection of our oldest horticulturists—this lovely tree has succeeded equally as well as the Norway spruce. It grows rapidly and forms a very graceful tree, with drooping, silvery-green branchlets; and appears equally indifferent to the extremes of heat and cold. So far as we have been able to judge, it is not affected by any particular soil or situation, but succeeds well wherever placed. So many of the lower evergreens have been injured of late years that our horticulturists have been about ready to give up the whole family in despair, as too fickle for this climate; but we think a fair test with this charming plant will assure them that one, at least, will prove desirable.—N. Y. Tribune.

THE VEGETABLE GARDEN.

On the Best Varieties of Garden Vegetables.

Asparagus

Comes first on the list, and deserves a first-rate place in every garden, because it is the first to come in use in spring when vegetables are most needed. Conover's Colossal is a trifle larger than the common variety, but the latter is as good for home use, and large enough if well cultivated.

Beans.

The best early snap variety is the Early Rachel; Early Valentine next; and the best of all, but not so early, is the Dwarf Wax or Butter, a new variety and a real acquisition. The Large Lima is the best of the pole beans, but where it does not succeed the Speckled Cranberry or Horticultural is valuable both for snaps and shellings.

Beets.

The Early Bassano has proven more satisfactory in growth and quality, with me than any of the newer varieties; but some market gardeners prefer the Egyptian Blood Turnip, as being of a deeper and more uniform color. Lather of these for summer and fall, and the Eng. dark Blood for winter, are sufficient for family use.

Carrots

Will be more used in this country when our women learn to make as good soup and stew as they do in Europe, and also learn that the largest vegetables are not commonly the best. The Early Short-horn is the variety for table use; the larger kinds for horses and cows.

Cabbages.

Here again we may choose the smallest, and not the large sorts, for fine quality. Little Pixie is the smallest and best of all, Early Wicket and Early York are larger, also very good. The late Flat Dutch is a standard winter variety, finer than the Drumhead, but the best of all winter varieties is Drumhead Savoy.

Cauliflower

Is a species of cabbage, and one of the finest of all vegetables. It is easily grown where the soil is deep, rich and moist. The surest and best varieties are the Erfurt and Lenormand's.

Celery

Is also counted as one of the garden luxuries; but those who become accustomed to its use soon learn to regard it as among the indispensables. Turner's Dwarf White is the best for home use, and Goodwin's White Solid for market.

Corn

Discarding all thin or hard varieties as unworthy of garden culture, the Minnesota is the earliest variety of real sweet corn. Campbell's Sixty Days is nearly or quite as early and good; then Busell's Prolific, or Crosby's Early, followed by Stowell, complete the season.

Cucumbers.

The Early Frame is the best early; next the White Spine. Both of these are of better flavor and easier grown than the longer varieties, though not as handsome for market or for pickles. The long English varieties are only valuable for exhibitions.

Lettuce

Is good and wholesome in hot weather, if tender or well blanched. Carter's Giant Cos is a fine new variety for using when young, or transplanted for heading. The Drumhead or Cabbage varieties will stand heat or drouth a little better. Give rich ground, deep and moist, and water freely in dry weather.

Melons

The Prolific Nutmeg I have found the best and most productive. The old Nutmeg, when pure, is nearly as good. The White Japanese is a good amateur sort, and the Cassaba good for market and show.

Watermelons

None of the newer sorts are equal in quality and productiveness to the Mountain Sweet, Mountain Sprout and Black Spanish. Of these we prefer the first, for this climate.

Onions

Are very wholesome and nutritious, and would be more generally used but for their peculiar odor. This objection can be largely overcome by using the new Italian varieties. These require to be sown quite early on good soil.

Mr. Vick says the best way is to sow the seeds in a slight hot-bed and then transplant. They grow readily in this way and bottom well, and the labor is no greater than the old way, because the amount of weeding required is much less. There are quite large and of very mild flavor, but not as good keepers as our common varieties.

The Peas

Is not as generally found in farmers' gardens as it should be. For use late in the year and in spring it is very valuable, and needs no care for preservation, only to be left in the ground. We do not find the Student enough better than the Long Smooth, to compensate for its inferior shape.

Peas.

The new varieties of peas are quite numerous, and some of them real large accounts as to quality, but unfortunately many of the finest are poorly adapted to our climate. Beans very liable to mellow. Carter's First Crop is our earliest, then we plant McLean's Little Gem, for it is a gem in quality, as well as in productiveness, with a Good and Season suit it, they are very good. We have also approved of the very dwarf Little Gem. When planted enough. So we prefer Carter's Alpha and Long pole, then the Champion of England, and sow a row or two of common Marrowfat, as these the season should prove too late and dry for the earlier sorts. We need varieties that will not mellow.

Radishes.

Now first the Long Scarlet Short top, then the Olive-shaped Scarlet. The White Olive-shaped is also good, and good. For late use the Long White Napoli. All the rest we leave to the Spanish and Chinese.

Salsify.

Or oyster plant, is called a delicious vegetable, but in my family it never seemed to pay for growing.

Spinage

Of the fall or probably not so valuable for spring greens sown in September or October.

Squashes.

The Early Bush Crookneck is the best summer variety, then the Post and Autumn Snow, and for winter the Hubbard, make up our real complement. Sweet potatoes supplement the squashes.

Tomatoes

The introduction of the Trophy seemed to leave nothing more to be desired of tomatoes, excepting, possibly, earliness. But last season we found Hathaway's Excelsior more satisfactory as to time and manner of ripening, and is equal in form, color and quality in fact, to that of it.

Turnips.

The Early Strap leaf is best for fall use, White Globe or the Jersey Navet for winter, and the Russian or White Scotch for spring. The last needs to be sown in June, and may be transplanted like cabbage. -Mr. Bird and in Report, Ohio State Hort. Society.

Asparagus and its Culture.

To raise asparagus from seed, sow in rows, one foot apart in a finely pulverized soil, well enriched with old manure. Keep the bed perfectly clean and mellow, and the young plants will be large enough to set out after one season's growth, and will be much better than plants two or even three years old that have grown feebly from a want of proper care.

To obtain plants enough for an acre, five or six pounds of seed will be required, which will give 15,000 or 16,000 plants for this purpose. For setting out finally, the ground should be well ploughed and subsoiled, so as to give a deep bed of mellow earth, and well enriched with manure, worked in by ploughing and harrowing. In setting out the plants allow plenty of room; a common error is in planting too closely, especially if the beds are deeply dug. It is better to give more horizontal space, and the shoots will be large and fine. For extensive plantations, the rows should be about three feet apart, and the plants not nearer than nine inches in the row. Stretch a line, cut a trench beneath it six or eight inches deep, or deep enough to receive the plants, and set them nine inches apart, spreading out the roots evenly, and covering the crown about two inches below the surface. This work should be done as early in the spring as the ground can be got ready, and the plants will make a better and stronger growth than when planted later. Then, to save labor, and have a clean plantation, go over the whole surface with a rake every few days, and stir the whole surface well, which will break and destroy the young weeds as they are just peeping at the surface. If the rows are marked, this work may be done more rapidly with a horse and a light and fine tooth harrow (a smoothing harrow would be best), the teeth of which will not go down more than one inch. A common harrow will not answer at all. As the young sprouts approach the surface, which will be in two or three weeks, the cultivation must be confined between the rows, and any weeds in the row pulled out by hand. -Cultivator.

THE FRUIT GARDEN.

Grafting the Grape—A New Way.

Take a vine in the spring, before the sap starts, saw it off two or three feet above ground, then take melted rosin and tallow—simmering together—and apply hot to the stump of the vine to prevent its bleeding. Should the sap flow too freely, burn the top of the stump with a hot iron, and then apply the melted wax.

After the sap begins to circulate, as evinced by the swelling of the buds, with a gimlet near the size of the scions you wish to insert, bore one or more holes into the vine, just above the collar. Measure the depth of the gimlet hole, and whittle the scion so that when pressed in it will not quite reach the end of the hole, but will fit in tightly. Insert as many scions as the vine may require, and apply a little wax to their ends.

In the spring of 1872 we had a vine we thought of digging up and throwing away, but concluded to try an experiment in grafting. We put in one scion of two years old wood, and one of one year's growth. Both scions started, one got killed, the other grew vigorously, by the help of a ball of moist loam, and by rubbing off the buds or suckers, to encourage the new growing vine, at the height of two or three feet. In one week's time it grew over twenty-one inches, and during the season over twelve feet, besides the numerous side branches—a growth from one bud that ought to satisfy any one.

I tried cleft-grafting but never could succeed, because I could not confine the sap—it would all run to waste. By this new way I find that I can control the sap, and compel it to flow into the scion that is held so firmly in the stock. -Am. Rural Home.

Transplanting Strawberries in Summer or Fall.

We have more or less inquiries every season about transplanting strawberries in summer or autumn, the best time &c. &c. We would say that the best time of all to make new plantations is the month of April, or, in late seasons, the early part of May.

There is great difficulty in procuring plants for setting in August or September. Every grower of plants for market knows that to dig up any before the season of growth is over, will probably destroy many, unless a great deal of care is exercised. Every runner that issues from the original plant, will start leaves and strike root every few inches in its growth, and continue to do so, if not broken, until growth is arrested by cold weather. After new plants have formed along the runner, it soon ceases to depend upon the original plant, but draws its sustenance from the latest ones formed; hence, if we dig up the first roots, leaving two or three of those most recently rooted, the runner will continue to grow and strike roots, and none be destroyed by the digging. But this requires a good deal of care, and greatly augments the cost of digging, so that nurserymen must have much higher prices for their plants to compensate them for their extra labor. -Am. Rural Home.

GRAPE - The Rural Home says: "We have not seen such a promise of a large crop in our vine yard for several years as that now to be seen. The vines of every variety appear to be loaded."

HARDY RASPBERRIES.—At the June meeting of the Michigan State Pomological Society some very valuable facts were elicited in regard to the effect of the last very severe and trying winter upon different varieties of fruit trees and vines. We note that the Black Cap Raspberries and the Philadelphia Raspberries were entirely ununjured.

A New Raspberry - A J. Caywood, of Dough-keepsie, N. Y. whose name will fly all over the country, be associated with the Walter grape, now comes out with a seedling raspberry, grown from a cross of Antwerp and Franconia, and which he claims as superior to Antwerp. Time will tell if it prove as much better than good old established.

The autumn show of the Glasgow and West-Scotland Horticultural Society was held on Wednesday in the City Hall, Glasgow. The weather during the day was somewhat unsettled, but nevertheless the number of visitors was quite equal to that of former occasions. The autumn show of this society has hitherto invariably been the most important of the three annual exhibitions held under its auspices, and that of Wednesday was larger in respect of numbers than on any previous occasion, while the general excellence of the exhibits was undoubted.

THE FLOWER GARDEN.

The Reserve Garden.

It is but too frequently supposed, even by some who desire to be good flower-gardeners, that when their beds and borders are once filled in spring, they are complete for the season; this is an error, for how few even of our best bedding plants will continue in perfection for the long period of six or seven months. Numerous accidents may occur to flowering plants; some may die, some may be broken by high winds, others may become exhausted, etc. Therefore, from numberless reasons, too obvious to require mention, a reserve garden is necessary wherever it is desired to keep the ornamental portion of the flower lot or garden in the best condition.

The spot selected as a depot for such extra plants as are likely to be wanted to take the place of the others which have been destroyed or injured in some manner, should be some shaded place where the necessary operations may be carried on without trespassing on the finished appearance of the garden proper, as it may be impossible or unnecessary to maintain the order here that should distinguish the more open parts of the grounds.

It will be requisite to have the flowers in a portable condition at all times; to secure which implies the use of pots, which, under most circumstances, entails a great deal of labor in watering, cleaning and general attention; yet there appears no practicable way of avoiding this, unless wooden boxes be substituted, and the plants placed in them as they are to stand when finally stationed; the evaporation is then considerably less, and consequently less water will suffice.

A good stock of the most showy annuals are often of great service in the fall, and if sown as early as possible in the spring, will commence blooming, perhaps, about the time they are most likely to be wanted, or, at any rate, the next season. These and all other plants kept in pots must be plunged either in old tan or ashes, as it is far better for them to prevent the draft arising from exposure to the air, than to make good the deficiency by watering, though it be ever so well attended to, and they are pretty certain to require as much under the most favorable circumstances as it is usually convenient to give them. Above all things, observe that whatever is kept in this reserve spot, as a *corps de reserve*, with a view to its ulterior removal to the flower garden, be kept at sufficient distances from one another, to allow of a vigorous development; for, as in all other cases, crowding will inevitably spoil their appearance, the want of a full supply of pure air being quite as evident in the vegetable as in the animal kingdom.—*Rural Press*.

Olianthus Magnificus.

Those of our readers who have seen the singularly beautiful flowers of the Glory Pea, *Clanhus Dampieri*, will be very desirous to possess this newer variety, which seems to be of a more hardy character, and less liable to be infested with the red spider and other insect pests. It is described in *The Garden* as being a truly magnificent, and really charming variety. The flowers are large, of a deep, rich scarlet color, but without the black boss which makes the blooms of the *C. Dampieri* so attractive. They are produced in immense pendulous bunches, and continue in perfection a long time. The plant is of easy culture and rapid growth, requiring abundance of root room, but by no means particular as to soil, thriving in such a compost as is used for Pelargoniums or Fuschias. A plant, covering a large part of the back wall of a lean-to green-house, has been densely covered for the last three weeks, with hundreds of bunches of its large, rich, and singular flowers.

Color Arrangement.

A few simple rules in the arrangement of flower beds will materially enhance the effect produced. Among these are:—

1. Avoid placing rose-colored next to scarlet, orange, or violet.
2. Do not place orange next to yellow, or blue next to violet.
3. White relieves any color, but do not place it next to yellow.
4. Orange goes well with blue, and yellow with violet.
5. Rose color and purple always go well together.

Poultry Yard.

Poultry, Past and Present—The Law of Development.

"If long experience" says Mr Wright in the *Journal of Horticulture*, "in breeding, slowly acquired by countless breeders, has proved anything, it has proved that in breeding we cannot attain all objects at once. To think we can is a common mistake of all novices, but all old breeders know otherwise; and one of the most valuable remarks in Eaton's queer but fascinating book on the Almond Tumbler, is that in which he warns the young fancier, trying to breed for "all five properties" at once. We may get a fair average of many excellencies, but we can only get the highest excellence in one point at a time. The old Game breeders knew this well, and hence in breeding for the pit, they crossed all colors, their only object being to get birds that would fight the best. To this cause were owing the forty or fifty different colors known to the old Cockers; they came from various crosses and sub-crosses between different colors, the object being, not color but to keep up or increase the vigor, quickness and endurance of the race. The breeders succeeded to such a degree in developing the fighting power and disposition of their birds that not a few were useless from actual excess of it, turning so savagely on their own handlers as to give a advantage to the adversary. But this could not be done with what a fancier calls 'high breeding' as to feather and beauty of shape; and it will be clearly seen on careful reading, that many of the questions asked by friendly opponents to any views as to the old game fowls refer to the old standards, which in a show pen cannot be applied.

I am not going to maintain in that our modern Game fowls would fight as well as the old ones. *Cornish Duckwing* says they would not, and it must be so; for just as the old Cockers, in seeking fighting qualities, were obliged to sacrifice in other points, so in seeking the greatest beauty, we cannot retain also the greatest fighting power. To maintain otherwise would be to fall into the very same mistake. While fowls are fought as well as shown, there may be a high degree of both merits maintained, but once let fighting be entirely abandoned, and the very means by which the selection was made, that kept up the fighting of the stock is lost, and some of the fighting must be lost with it. But this does not imply Malay or other cross, it simply implies that what is no longer sought will diminish, for in breeding no quality can be kept up unless it be carefully and assiduously sought; hence our game fowls, unless they are to be fought, must by degrees change their type; and while their ancient blood will probably ever secure a high degree of courage, the strength and other qualities which made them conquer, cannot be kept up without the old tests. I have had occasion to pay much attention to the effects and signs of a Malay cross, and I can say that it is not at all easy to breed out all signs of it for several years. The short head alone is easily got rid of, but the peculiar eyebrow is very apt to linger, and there is the Malay hook, the scaling of the shank, and the peculiar gait, all to be considered. Any one of them may be got rid of almost at once; but it is very hard to stamp out all of them, and by one or other the taint may be observed for several years.

In the foregoing I have endeavoured to show by the example of the Game fowl, that if the attention of the breeders of a variety be mainly fixed upon one point or set of points, other points will and must lose, while those sought increase in perfection. It will be found on examination, that this law is general, and explains most of those changes of fashion which can be remarked in poultry breeding. But it will also be found on examination, that when perfection, or what is considered sufficient perfection, is once reached, other points can be attended to without much depreciation of the points already gained, provided only these last are not, as often happens, again comparatively lost sight of.

I have been singularly interested to observe how this simple law is to be clearly traced through the past history of many breeds, as shown by the copious notes which have been placed at my disposal by various breeders for the work on which I am now engaged. A good example is found in the Spangled Hamburgs. Mr. Beldon—than whom there can hardly be a better authority—believes that the original of this breed was a Yorkshire Pheasant, from which by careful breeding, was made the Lancashire Mooney. In this breed, as is well known, the spangling of the hens was the one point sought, and it was obtained in glorious perfection. But in fostering attention upon this, other points were lost sight of,

and accordingly the breed deteriorated in neatness of head, in ear lobe, and in the plumage of the cock, which, there can be little doubt became hen feathered through this close breeding to get well-spangled hens, as it is still found that heavily spangled cocks are the best for this purpose. After a while the neglected points were required by the judges, but were only obtained at first by such a sacrifice of the spangling in the hens that these could not be shown; the Mooney being required to be shown in this sex. By degrees however the pullets produced by the cross became better and better, till at length several Hamburg breeders possess strains which bred first rate silver-spangled cocks, while yet the pullets produced are little inferior to the old Silver Mooneys, which have consequently almost disappeared. Other instances could be named, but one adequate illustration is as good as many, and I am anxious to come to the practical application of what we have been considering.

"If I wished to put these into the fewest words, it would be those of the old proverb, "one thing at a time" a maxim which deserves writing in letters of gold, so little is it understood by young, and inexperienced fanciers. As a rule they will not believe in it till they have tried the other way, and just heavily by it, and many never learn it at all. But I never knew a good breeder of any breed, who did not act upon it, whether he thought he did or not. The young amateur, however gets on a different plan. Having made his birds and bred his first year's chickens, he finds he has in his yard some prevalent fault. He buys a cockerel at a good price to remedy this fault and breeds again. Probably this fault is somewhat better, but one other fault now appears, and he now perhaps buys another bird, or if not, mates up his own, almost entirely with a view to remedy that, when he finds to his dismay that either the first fault, or perhaps a third again appears to trouble him, and show that he is as far off perfection as ever; and so he goes on. It has been the experience of hundreds. Now the reason of all this is, that he has never bred for any point of perfection long enough to really fix it in his yard. He never stays to secure what ground he has already gained, but throws this away while trying to get some more. He has no fixed ideas which all good breeders have, and he gets the proverbial reward of every man who works without a purpose or a plan. He tries to remedy fault after fault, just as it appears the most glaring of the season to his eyes, and if there be any brief change of fashion in judging, as there occasionally is, he tries to meet them too. In brief, he fails simply because he does not understand it must be one thing at a time.

"Every breed has its ideal standard or model. The amateur must first get this well into his mind, or, if he thinks the understood ideal faulty, he is at liberty to form in his mind a better if he can. Few men think exactly alike on these things, and hence the difference we see in different strains. Now, having formed his ideal, he has to consider what class of points are at once the hardest to secure, and the most valuable when made permanent.

"In nearly all varieties, there are beyond question the points of color or feather. As a rule therefore, these should be the first points bred for, and breeding should for several years be mainly directed to securing them in the highest perfection, and in such a degree that the stock can be depended upon to breed birds satisfactory in this respect. While doing this, other points need not be altogether ignored, of course; but they should be kept somewhat subordinate, and only a general kind of attention be given to them to see that they do not become very bad, while the ground being more specially cultivated is made thoroughly secure. Then, when so much has been done, comparatively little care will be needed to preserve the points thus attained, and from the chickens bred from the strain thus far formed, such may be selected as present other points desired. Crossing, or at least a thoroughly alien cross should very rarely be ventured upon, nearly always doing much harm from a fancier's point of view, for the simple reason that you can never be sure the bird selected has been the product of a similar 'course' of breeding to your own yard, and if not, he will introduce an element of uncertainty, which is undesirable and often dangerous. But by steadily persevering with one stock, working steadily towards a definite object, and securing all ground really gained, a gradual but sure approach to excellence will be ensured, and every year will see something evidently gained. This then is what I mean by the law of development. You have simply to breed steadily towards any desired points, selecting those birds which show it best, and you infallibly get it if you keep on long enough, while doing this you can pay only subordinate attention to other points; but when done you can pay more to them also, since your first fixed strain will give you so many birds with the points you first sought, that you can select from them all you want to secure the next point."

White Dorkings.

This variety of the Dorking breed is quite distinct from all the others, and by many breeders considered the original from which the others were produced. In the opinion of some, the white is considered to surpass all others of the Dorking breed, combining as it does many of the graces and symmetry of the Hamburg with the size of the Dorking. An opinion prevails that it is naturally delicate and hard to raise, but those who have bred it extensively do not agree in this, but state that it is not more delicate to rear than others. White Dorkings must, however, be dryly and warmly housed at night. The color should be pure white, without any shade of yellow, or dark colored feathers of any description about the body. In producing this the greatest difficulty in breeding White Dorkings consists, as the constant tendency of the cocks to become yellow or dirty straw color in the upper plumage, which they share in common with nearly all white fowls, is very great. In choosing stock birds then, none but those which show the richest and clearest white should be mated, and a good stable, if possible, should be provided for birds intended for exhibition, during the hot summer months. The comb should be a rose; heretofore single-combed birds were permitted in the exhibition pen, but of late years the rose comb has taken precedence, so much so, that a pen with single-combed birds would no longer be distinguished. It should be broad at the front near the beak, gradually passing over the back of the head in the form of a triangle, the points of which should be slightly curved upwards, the whole surface should be evenly serrated; the color should be bright red. In all respects the comb of the hen should be the same as that of the cock, except of course, much smaller in size. The back should be level and almost straight from the neck to the root of the tail, which in the cock should be large, and with a full round sweep of sickled feathers, the tail should be broad, deep, and full, gracefully rounded, but not straight. The legs should be quite white, and the extra toe well defined, springing clearly from the leg, and turning up. The attitude should be erect and bold, the bird lively in its motion, and full of spirit. White Dorkings do not attain to the size and weight of the colored variety, but cocks have been produced which weighed from eight to ten pounds each, and hens from six and a half to eight pounds.

The size of White Dorkings might be considerably increased by careful breeding, and the introduction of new blood by carefully crossing. One cross spoken of very highly, is putting a large colored Dorking cock—the darker the better—to white hens, and crossing again with the whites, many white birds will be obtained much increased in size and weight. The reason given for choosing the darkest cock, is that in all changes of color, the transition from black to white is made with much greater ease than any other. Crossing White Dorkings with white game is very objectionable, although frequently done by breeders for increased size. Such crosses produce narrow, slim birds, with large yellow legs, the fifth toe imperfectly developed—and not unfrequently single combed. The game fowl does not possess a single quality adapting it to cross with the Dorking breed, and should therefore never be permitted in.

To raise White Dorkings successfully a dry soil is indispensable, and an extensive range is necessary. In a confined space their plumage becomes dirty, and they soon get out of health and condition. But if kept in a clean farm-yard they do very well. As an ornamental fowl they show to best advantage in a clean, well cut lawn, having an abundance of shade trees; if generously fed they are good layers, and will continue farther into the winter than the colored birds. Their eggs are peculiarly delicate, of good size, and nearly as large as the Spanish. Before

sending to a show-pen they ought always to be washed clean; and a good wash for this purpose is said to be some common soda dissolved in soft water, rubbed over them with white soap, afterwards rinsed thoroughly in tepid spring water.

Pigeons; Breeding for Color.

In a lecture delivered in London (England), before the Peristeric Society, by the President Mr. Tegetmeier he remarked: "These successes I have achieved by acting in accordance with certain fixed principles. What these principles are I now propose to lay before you. All breeders for color should remember that their efforts are influenced by four conditions, which are as follows:—1. The color of the original stock from which the variety is derived. 2. The law of analogous variation. 3. The law of atavism, or throwing back to remote ancestry. 4. The different degrees of facility with which colors interchange.

"1. The color of the original stock from which all the varieties of the pigeon are derived is its own. The wild rock pigeon is blue with two black bars across the wings, and one at the end of the tail, with a white crop or rump, and a white edge to the outer tail feathers; although in some parts of the world, India, the wild pigeon has a blue rump. To this color all varieties have a tendency to throw back, and there is not a single breed of pigeon that does not at times, however carefully bred, occasionally produce blue young ones marked exactly like the wild original, and if different breeds that have been bred of other colors for scores of generations, are crossed with one another they will invariably produce some blue young. On this point I will quote the following experiments from Mr. Parton's work on "Variations." That gentleman crossed a black bird with a red spot, and also a second black bird with a white fantail. These breeds all, as a rule, breed perfectly true. The mangles from these two crosses were mated together and produced blue pigeons marked precisely as the wild rock. The partial reversion to the original color of the blue rock is not an uncommon circumstance, and one of great annoyance to the pigeon fancier who desires other colors in his flock. The slaty blue tail in the otherwise brilliant Arabian, the ash blue grey in the rump of the almond tumbler, the blue tinge in the yellow dragon and red pouter are too well known for me to dwell on here.

"2. The second condition influencing breeding for color is the law of analogous variation, by which is meant the fact that all variations in color that are found in our domestic pigeons are similar to those which are to be found in the wild pigeon, and belong to the same family, and that no others are possible; consequently all attempts to produce such varieties are useless. Before I was acquainted with this fact I made several attempts to breed pigeons with feathers marked with black as in a bay lighthouse; but as no such feathers exist in any wild pigeon, I now know why I failed. I have surprised some fanciers to be told that the same is the pattern of their pet's all crest, a greater or less perfection in the numerous wild doves and pigeons known to naturalists.

"3. The third circumstance to which I wish to direct attention, is atavism, or the well known tendency of all varieties to throw back to the grand parents, or even to remote ancestors.

"4. The last circumstance is the different degrees of facility with which colors interchange. The most ready interchange is certainly that of black into white. All black birds, when a state of nature, are apt to throw white offspring, and even when the plumage is only partially black, the black portions change more readily than those that are of other colors; thus the black bars on our blue pigeons are often changed into white ones, as in several German breeds. The white bar, so often seen in the tail of the almond tumbler, is a relic of the black bar of the blue rock. A pale game cock, is a common black red, but with all his black feathers changed into white the red remaining unchanged.

"In breeding the different varieties of pigeons, it is found that yellow birds produce red, and red yellow with facility. Duns are mated with blacks to produce both colors. Duns mated with blues often produce silvers and duns in the same nest, and these latter mated with blacks, sometimes startle the fancier, who does not trace the descent, by producing

splendid blues. I now come to the practical bearing of these rules. The cause of variation of color being unknown, the fancier who wishes to breed birds of some particular color has to watch for its appearance, and having secured a specimen of the desired color, he may breed from it. But he should not despair if there is not one of its young like it in color; for on breeding from these the desired color is always certain to appear in the next or subsequent generations. As an illustration I may mention that in breeding my small pouters I took a small clear-legged white bird, and to get feathers on the legs crossed it with a yellow label. These bred me many birds, but the best shaped and longest legged was an ash red cock with a slaty tail. From this bird I have bred my best whites; the form being derived from the cock the color from the white. The dread of crossing colors, which many fanciers have, appears to me to be ill founded. Almost the only colors that fanciers now cross freely are duns, blacks, yellows and reds. Now my experience is that many other crosses are particularly advantageous, thus blue and grizzle dragons will produce first rate blues, blue and silver the best silvers. Blue itself is the worst color to throw into blacks, reds, or yellows, as it produces chequers with blacks; and birds with slaty tails, with reds and yellows. Soft duns may be crossed with almost any color; and nearly birds will also breed offspring of every variety of color if judiciously mated.

The Narragansett Turkey.

This is one of the largest and hardiest breeds of turkeys. It is raised in the greatest perfection in South-eastern Connecticut and Rhode Island, a region famous for fine poultry. Turkeys do remarkably well along the seaboard, and almost every farmer remote from the villages has his flock. It is not uncommon to find flocks of from one to two hundred birds, the product of about a dozen hens, under the skillful management of a poultry waman or boy. Of course, they do some damage to grain; but this evil is counterbalanced by the enormous destruction of insects secured. From June to September they subsist mainly upon grasshoppers, crickets, and other insects, doing no harm for the most part in the pastures and woodlands. They are fattened in October and November, and it is not uncommon for a lot of early chicks to reach the average weight of fourteen pounds, dressed, at the beginning of Christmas. The common run of turkeys sent to the New York market do not average more than eight or nine pounds. The Narragansett is a very large healthy bird, and has been bred for many generations. Most of the birds sold in the United States and Providence are bred under the name of Rhode Island turkeys, or Extra No. 1, are of this breed. The farmer is careful in the selection of their broods, and the young gobblers that will weigh twenty-two to twenty-eight pounds, and hens that will weigh from twelve to sixteen. Where the birds are fattened, gobblers will sometimes be sent to the market at thirty-four pounds. For making poultry for the table, the Narragansett has no superior. The prevailing colors are white and black, with a blue or ash white upon the wings, legs, giving the general impression of a gray bird. They are not uncommon in the breeding, but, with a little painstaking, will be bred to a feather. W. C. P., in Poultry World.

Gapes in Chickens.

The fatal disease caused by the presence of the gapes worm appears unusually prevalent. I have had it in my own runs, where it has attacked some September hantams; but I have found no difficulty in curing it by the means of carbolic acid. So potent are the fumes of this powerful remedy, and so destructive are they to parasite life, that their inhalation for even a few moments seems perfectly effectual in destroying the life of the worm. It is not even necessary to employ any special apparatus; a few drops of carbolic acid may be placed in a spoon and held over the flame of a candle until the vapor is seen to rise, when the head of a young chicken or pheasant (held in the other hand) may be placed in the vapor which the animal is forced to inhale. Care must be taken not to carry on the process until the fowl as well as the worms are killed. I find after exposure to the fumes for a few seconds, the birds may be regarded as cured, and may be seen running about quite well on the following day; if not, the treatment should be repeated. The medicinal carbolic acid is preferable to the watery liquid used for disinfecting sewers and drains.—Tegetmeier in London Field.

THE CANADA FARMER

IS PUBLISHED

ON THE 15th AND 30th OF EACH MONTH,

AT

One Dollar and Fifty Cents Per Annum,
FREE OF POSTAGE.

It is sent to Great Britain and Ireland by mail, for six shillings sterling, per annum.

No subscription received for a less term than one year, commencing from the month of January.

THE CANADA FARMER is stereotyped, so that copies of back numbers can always be had.

A limited number of advertisements are inserted at twenty cents per line for each insertion. There are twelve lines in one inch of space. Advertisements under ten lines are charged as ten line advertisements.

All letters and money orders are addressed to

THE GLOBE PRINTING CO.,

TORONTO.

Agents wanted in every town and village in the Dominion to canvass for subscribers. Liberal commission allowed. Send for circular stating terms.

The Canada Farmer.

TORONTO, CANADA, OCTOBER 15, 1873.

"The Farmer Payeth All."

The truth of the above fragment of a familiar ditty is now being demonstrated in the adjacent Republic, which has recently been passing through the fiery ordeal of a financial revolution, so severe and wide-spread, that it has scathed almost every sort of business except farming. While fortunes based on speculative transactions have suddenly vanished into thin air, fortunes that rest on broad acres are untouched, and solid as ever. The security enjoyed by the farmer at such times, ought to be regarded as a high recommendation of his calling, and prove a fruitful source of contentment and gratitude. But we took up the pen for the purpose of showing, that amid the confusion and wreck which have overtaken commercial men, the country at large is looking to the farming class for effectual relief. A contemporary, after detailing the business embarrassments which it perceives upon all sides—the suspended banks, the ruined speculators, the bankrupt railroads, and merchants and manufacturers without number, who are known to be upon the very verge of ruin—moralizes that the outlook is not altogether without hope, as the farmers are in position to send forward, within the next few months, so many million bushels of grain, so many million pounds of pork and beef, so many million pounds of hemp and tobacco, so many million hales of cotton, etc., the grand aggregate value of which amounts up to something over six hundred million dollars. This proves what is so often affirmed, that agriculture is the foundation interest, and that all other businesses are built on the farmer's occupation.

It seems pretty certain, too, that the farmer will have to "pay for all" in another way. There has been great shrinkage in values in every department of trade, and this has caused some depreciation in the price of farm products. The probability is that this will only be temporary, and agricultural journalists are advising their readers to sell sparingly, just enough to meet present urgent necessities, in the belief that so soon as the money market recovers itself, prices will be better.

The Cheese Trade and Fall Crop in New York.

The statistics of the shipping trade show that, up to the first of September, about 15,000,000 lbs. more of cheese have been exported this year than at the same date last year from the port of New York.

This large increase in the shipping trade has kept the market clear, and prices pretty well up; but it seems to be feared, by a good many dairymen and dealers, that there is a large quantity held back in the country that will by and by come forward and crowd the market. Fears are also entertained by some that an unusually large fall make will swell the amount of product to such an extent as to cause a depression in prices. We have recently passed through a considerable portion of the State of New York, and do not find any grounds for either of these causes of fear existing on our route. Along all the lines of railroad, the cheese that has become fit for market seemed to be pretty well cleared out. Further back from the thoroughfares, the factories contained more cheese, but seldom more than sixty days' make.

The anticipations for a large fall make are based on the prospects of an abundance of fall feed, which is excellent rather than abundant; and if it is the same in other shipping districts as it is in New York, no fears need be entertained of an over-abundant supply of fall-made cheese. The drought which extended over the whole State, but which was more severe in the central and northern than in the southern counties, reduced the pastures to a very short bite. The light showers which have been almost everywhere frequent have started up a fresh and tender growth of grass, from which an excellent quality of milk is being produced; but it is everywhere short, and is nowhere contributing to a large supply. It is producing a fine quality, rather than a large quantity, of cheese. The flow of milk is likely to be moderate all the fall. When cows shrink in their messes so late in the season as June or July, they rarely recover what they have lost, though afterwards plentifully supplied with feed. We have laid this down as a rule, and it has been well verified in our recent journey through the State.

The receipt of milk at the cheese and butter factories visited, varied from eight to seventeen lbs. per cow daily, and the factories which gave these extremes were almost the only ones that varied more than a very small fraction from averaging thirteen lbs. to the cow. Judging from what we saw, thirteen lbs. a day will be the average through the State for the month of September, giving just about one and a half lbs. of cheese per cow a day. This, certainly, will not exceed the usual make, if indeed it reaches it. It is a circumstance that will do much towards sustaining prices, as well as maintaining the reputation of American cheese, that the make this year is superior to that of several years past. For the last three years, in particular, the hot and dry weather of July and August has produced a large amount of tainted milk, from which nothing but faulty cheese could be made. The make of August, 1872, was particularly bad, and seriously affected the market. This year, in most of the factories, no signs of tainted milk could be seen in the July and August cheese. In a few factories only, the cheese from the 5th of August onward showed indications of taint, but not to such an extent as to effect any serious damage. The cheese of the season as a whole is unusually fine, and this fact has probably been one of the prominent causes of the very liberal exports that have been made.

We would direct attention to the advertisement of Messrs. Hall, Miller & Co. which appears in another column. The "Yorkshire Cattle Feeder" is held in high repute by all the leading stock-breeders throughout Europe and America, and we have no hesitation in recommending it as a first class article.

The \$40,000 Cow.

Everybody is not convinced that the Short-horn Cow, which brought such an enormous figure at the recent Utica sale, is "worth her weight in gold," though it is to be hoped her present owner is firm in the belief of it. We gave a brief resume in our last issue of the arguments by which the purchasers at the great sale justify the payment of the sums bid on that occasion, and it is perhaps only fair to let our readers hear something of the other side. The *National Live Stock Journal*, of Chicago, in an article headed "Extraordinary Prices," discusses this matter at some length, and strongly condemns the high figures which, under the influence of competition and excitement, many of the animals brought at the New York Mills sale. After showing that the payment of \$40,000 for a single cow by a man who can afford it, is a mischievous example, tempting others who cannot afford it to indulge in similar extravagant outlays; our contemporary remarks:—

"Nor is this all. When \$40,000 is paid for a cow, all the other cows in the country suffer by comparison. We may appreciate highly the merits of the Duchess tribe of Short-horns for instance, we may concede the great necessity for preserving this tribe as long as possible, we may indeed concede that successive draughts from this and other ancient blood is necessary to sustain the Short-horn herds of the country at their present standard, without seeing where or why a single Duchess cow is worth \$40,000 and over. The difference between a common Short-horn cow and the mongrel cows found in the dairies and in the open pastures of the country, is measured by a few dollars—a hundred or two at the utmost. The difference between a common Short-horn cow and a good Short-horn cow, perfect enough in all her parts to compete with a fair prospect of success with the pick of all the herds when brought together in the show ring, is measured by a few hundred dollars more. And the difference between the poorest Short-horn and the common cow of the country, and between the poorest Short-horn and the better class which can be purchased for a few hundred dollars, is much more marked than the difference between this better class of cows and the best Duchess in existence.

It is proper there should be a difference in values, for breeders should be encouraged in their desire to breed and own the best—this desire lies at the root of all improvement. But to say that any difference in individual merit of two cows can only be measured by \$40,000 is sheer nonsense. And when it is measured by this standard, what is the effect? The breeder who desires to have the best, or nearly the best, who devotes years of study and labor to bring his animals to a certain standard, finds them worth—*What?* Why, a few hundred dollars, at most a thousand or two. But that leaves him near the foot of the class, if \$40,000 is the head. If any one cow can be really worth \$40,000, a cow which is only worth \$600 must be a very poor cow indeed. And if the public are to be assured that there is one strain of blood of such pre-eminent value that its representatives are really worth from \$30,000 to \$40,000 each, they will have a very poor estimate of the purity and intrinsic merit of animals which can be purchased at a few hundred dollars, or even at a few thousands.

"These extravagant prices, therefore, disparage, and very unjustly, by their comparison, the sterling qualities of the thousands of Short-horn cattle which are scattered throughout the country.

"We do not conceive that anything we can say, or that others can say, will have the effect of preventing certain persons from paying extraordinary prices, even \$40,000, for animals which please their fancy. But the press can do much towards averting or modifying the effects of this extravagance. It can say these prices are not any criterion by which to judge of the actual and practical value; that these prices do not indicate, even, that they possess any merit above that possessed by cattle selling at moderate figures; but that these prices indicate that the family to which these high-priced animals belong is a small one, and that there is great emulation among a certain class of wealthy gentlemen in England to secure for their herds as many of these animals as possible. That \$40,000 has been paid for a Duchess is no indication that she is in any sense better than cows which can be bought for less than one-tenth part of that sum, or even the half or quarter of that."

The details respecting the Ontario Agricultural College, referred to in our last, are not yet quite ready for publication, and must be deferred another issue.

The Price of Pork.

It is thought by many who are competent to judge, that owing to the financial panic in the United States, the hog market will be depressed for some time to come. Pork-packing, it is argued, is a business that requires an enormous amount of capital, and a large proportion of it is obtained by means of bank accommodation. The banks have suffered an immense decline of deposits, and no small reduction of capital. Hence they must correspondingly limit their loans at any rate for the present. As the season advances, and confidence is in some degree restored, large amounts of money now hoarded up in private, will find their way into circulation again; the bank vaults will be replenished, and there will be funds to advance to grain-buyers, pork-packers and the like. If these views are correct, it would seem to be wise policy for farmers not to be in haste this year in getting their hogs to market, but to watch prices, and take care that they do not create a glut while they rule low, and a scarcity when they rule high.

Illinois, State Fair.

Owing to the conflict going on between the people and the railroads, in which the farmers lead the van, the usual concessions of reduced fare and freight were denied this year, and it was feared that this would lessen the collection of stock, machinery, implements, &c., as well as the attendance. Such however, did not prove to be the case. The Exhibition was the best ever held in the West, so far as the stock was concerned, while in the other departments it was fully up to the average mark. As to the attendance and financial results, a Chicago Exchange says:—"The fair was patronized as it deserved to be, and the receipts were nothing sufficient to liquidate all expenses, but to leave a surplus in the treasury almost sufficient to run another fair."

Recent Importations of Sheep, &c.

Messrs. John Small & Sons, Edmonton, have recently imported a Berkshire boar, six shearing rams, and six ewes, selected by Mr. H. P. from leading English breeders. We may remark that the ewes are the same that carried off the first prize at the recent Royal Agricultural Society's Show at Hull. Messrs. Wm. Whitlaw, Guelph, and Wm. Oliver, Ayr, have each received a very fine Leicester ram; that of the former from the flock of the Rev. Mr. Bosanquet, of Alnwick; and the latter, from the far-famed flock of Mr. Feeter, of Ellingham, Northumberland, England. We learn that the sire of the animal now owned by Mr. Oliver, has never yet been beaten.

Quebec Provincial Exhibition at Montreal.

From private sources we learn that the above show was in every respect a decided success, the number of entries being tally double that at any former exhibition.

The show of cattle, particularly Ayrshires, was simply magnificent, and would have done credit to "Auld Scotia" itself. The Hon. M. H. Cochrane, and Mr. Gibb, of Compton, were the principal exhibitors in this class, the latter gentleman taking first prize for "aged bull," "aged cow," and "best heifer" - thus sweeping everything before him. Some very fine Short-horns were exhibited by Mr. Dankin, and the Hon. M. H. Cochrane. The show of horses was exceedingly good.

The cable announcement in England that the Duchesses had averaged £4,000 each, was considered so incredible that the London Daily Telegraph went to the expense of sending a special message of inquiry to verify the fact before publication.

The cow 1st Duchess of Onclida, purchased by Lord Skelmersdale at the Great Sale, for \$30,000 gave birth September 30th, to the "11th Duchess of Onclida, a very showy and promising calf, and doing well. This brings Lord Skelmersdale's "average" down to about \$15,000 apiece for the two animals.

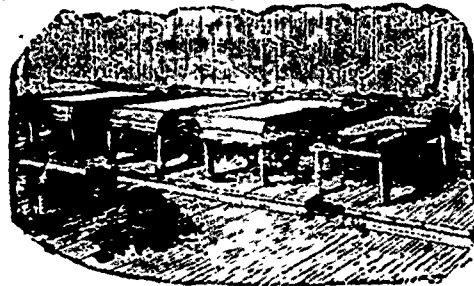
The Dairy.

EDITOR L. B. ARNOLD, of ROCHESTER, N. Y., SECRETARY OF THE AMERICAN DAIRYMEN'S ASSOCIATION.

Vessels for Setting Milk Factory Butter-making.

There are three varieties of vessels extensively used for containing milk while the cream is rising, and each has its advocates.

The small tin pan, holding eight to ten quarts, which, until a few years since, held sway almost without a rival, is still the one most largely in use. Its form is too familiar to need any description. It has answered the purpose well, and some of the finest butter known, is still made from milk set in these pans. They have some advantages over any other vessel in use. They cool the milk readily without the use of water. They are light and easy to handle and cleanse; their small size adapts them to situations where no other kind would suit; they are conveniently stored away when not in use, and are cheap and durable. An improvement in the manufacture of these pans has enhanced their value. They are now made without seams by pressing sheet-iron into the proper form and then tinning it heavily afterwards. Thus made they are more durable and very easy to clean, there being no crevices for sour milk to lodge in. They are better adapted to small dairies than large ones, as in a dairy of much size, the large number required, necessitates an immense amount of handling to cleanse and put in place, and to fill and empty.



(FIGURE 1.)

To obtain this large amount of labor, and, as many believe, to improve the quality of butter, deep pans are used in creameries, butter factories, and dairies, where pools of cool water can be had to set them in, to prevent the milk from remaining warm too long. They are made of sheets of tin 24x20 inches, and are usually 19 inches high, and nearly eight inches in diameter. The merits of this mode of setting milk will be hereafter considered.

Another form of vessel for setting milk, which has gained considerable reputation, is the large, square or rectangular pan. There are several varieties of these pans in use, as the Orange County pan, the Chenango pan, the Jennings pan, the Jewett pan, &c., some of which vary but little from each other. The main points, as well as the points of difference, will be understood by a brief description of the first and last named.

The Orange County pan was the first introduced, and consists of one large rectangular pan within another, with a space of half an inch or so between them to admit water. They are made of very heavy tin, and not more than six or eight inches deep, and of a size suited to the amount of milk they are desired to hold. The outer pan may rest upon a frame, or a table, as preferred, and the inner one hangs upon its edges, is movable and can be taken off at pleasure to wash or repair if there is occasion. A small stream of water is led by a pipe into one corner of the lower pan, and after filling the space between the two, is made to pass out at the opposite corner.

The Jewett pan (figure 1) is made with two bottoms, one half inch apart, with water-tight divisions extend-

ing nearly across the pan lengthwise and at alternate ends butting against the end of the pan, thus forming a channel that compels the water which is let into the space between the bottoms at one corner, to flow back and forth across the pan lengthwise, till it is let out at the other corner at the same end where it enters. The discharge pipe is raised above the bottom, so as to keep the water always shallow, and the inlet is higher than the discharge, to raise the water head. The excess and excess of water is regulated by faucets, and a faucet is placed at one end of the pan to draw off all the water between the bottoms when desired. The pan is one solid structure, there being no inside pan to fit out as in the Orange Co. article. It is designed to rest on a table made with a top of matched boards to keep the warm air of the room from the bottom of the pan.

In attempting to set forth the effects of the different methods of setting milk, we have a multitude of difficulties to encounter. Successful butter-making depends upon proper attention to a great many details, which are liable to be varied singly or in combination. It thus often becomes almost impossible for the operator to determine with precision how much this or that variation has affected his butter, and even whether the effect has been for good or for evil.

In reviewing the different processes of butter-making in factories, creameries and dairies, it seems most feasible to explain the influence of different practices by pointing out excellencies and defects as we go along. We will commence with butter factories using the large pans, and as we consider the Jewett pan the best of this class, will explain its operations in detail. This pan has within a few years come quite rapidly into use, especially in the vicinity of the place where it is manufactured, Malone, Franklin Co., N. Y. There are, within a circuit which would embrace this county and a portion of the adjacent Oneida Territory, 15 butter-factories which have the Jewett pans in successful operation. These butter-factories have become so popular as to sweep away all the cheese-factories within their circuit, there being but three small ones remaining within the territory they embrace. The butter from these factories has attracted attention far beyond their locality, and gained a favorable position in the large markets, and hence there is the more occasion for inspecting them carefully. For this purpose we recently visited several of those located near Malone, and made a thorough examination of their products and modes of operation.

The topography of their location is not very flattering to a butter-maker. The soil is light and often sandy; the face of the county quite flat, and some of it inclined to be wet - circumstances which are not very favorable for color and aroma, either in butter or cheese. But the pastures appeared to be old and well set with June grass, which was up high enough for a good bit for the native cows that everywhere grazed upon them.

The factories are quite similar in form and size. Compared with cheese-factories they are small, but are, though plain, very neat structures.

Our cut represents the West Rauger Factory, Franklin Co., N. Y. It is 30 feet long, 60 with the porch, by 30 feet wide, with posts about 18 feet high. The basement, which constitutes the cellar, is laid up with a thick wall of Potsdam sandstone, with an air-space in the middle, and the bottom of the cellar is neatly flagged with the same material, laid in cement. This prevents the development of any underground smell, and keeps the temperature uniform and at about 60 degrees. The air in this cellar was just as sweet and pure as that of any upper room. The superstructure is of wood, clapboarded on the outside and lathed and plastered within.

The lower floor contains a milk room 30x37 ft., a work room 22x13; and a churn room 8x13; with an engine

and wood room attached. The upper story is used as a dwelling by the manufacturer. The milk room contains 12 large pans measuring 130 inches in length by 51 wide and 7 deep, giving them a capacity of 200 gallons, sufficient to hold the milk of 100 cows for one milking. Through the middle of the milk room is a track for a hand-car, and the pans are arranged on either side of it. Six on a side, 20 inches apart with one end butting against the outer wall, as seen in the ground plan. Just above the ends of the pans a water pipe connected with a good spring, passes

wood &c., and for heating the milk-room when necessary. This with the churns and butter worker, and a few other small things, constitutes the apparatus, which, with the factory building, cost \$3,800 and is sufficient to accommodate the milk of 300 cows.

The milk is delivered at these factories twice a day, and each milking is placed in three pans, which at the time of our visit were not much over half full. As soon as a pan is filled the water is let on and the milk is cooled down as quickly as possible to 60 or 62 degrees. As the water which supplies these factories

This not only injures the taste of the butter but it very much increases the tendency to become rancid. Such butter loses its fresh flavor so rapidly that it very soon becomes stale, unless kept all the time below 50 degrees, and even then it has much of the animal flavor, and will soon depreciate. At the Jersey factory near Malone, the water had become scanty and warmed up to 60 degrees, and it required six hours and over to reduce the milk to 62 degrees. The butter made after the water failed was the best in the factory as the manufacturer could see when the fact was pointed out. The importance of distinguishing between animal odor and animal heat, and of getting rid of the odor instead of the heat, is a lesson which the butter makers of Franklin county as well as of other counties, very much need to learn. That the cowy odor in the milk could be condensed and retained in the milk and become a *plow* instead of an *odor* had been by them, as by many others, overlooked till we called their attention to it, and pointed to the flavor in the cream and butter. It is no fault of the pans that the cooling was so rapidly done. It is only necessary to regulate the supply of water to cool in any desired time.

(Continued.)

Cooked Food for Cows.

The *Live Stock Journal* says: - The following statement of Mr. Wm. Jarne of Springfield, Mass., has great force, having been continued for so long a period with a result so satisfactory. In a recent letter to us he says:

I still continue to steam the food for my stock, as I have done for more than fourteen years, and every year confirms more strongly my convictions of the great economy in food, as well as the comfort and thrifty growth of the cattle. For milk cows its advantages can not be too strongly urged. The saving is fully 33 per cent.

Effect upon Health.

I have seen some questions raised as to the effect of cooked food upon the health of the animals. I can only say, as to this point, that I have a number of cows, from seventeen years old and downwards, that have never been fed in any other way, except during the season of green feed, while they are now in perfect health and vigor. It is not, perhaps, too much to say that no more healthy stock of cows can be found than my herd of about fifty head, which has had this cooked diet for so many years. This system enables me to get as good yields of milk in winter as in summer, with the quality excellent.

Barn and Steaming Apparatus.

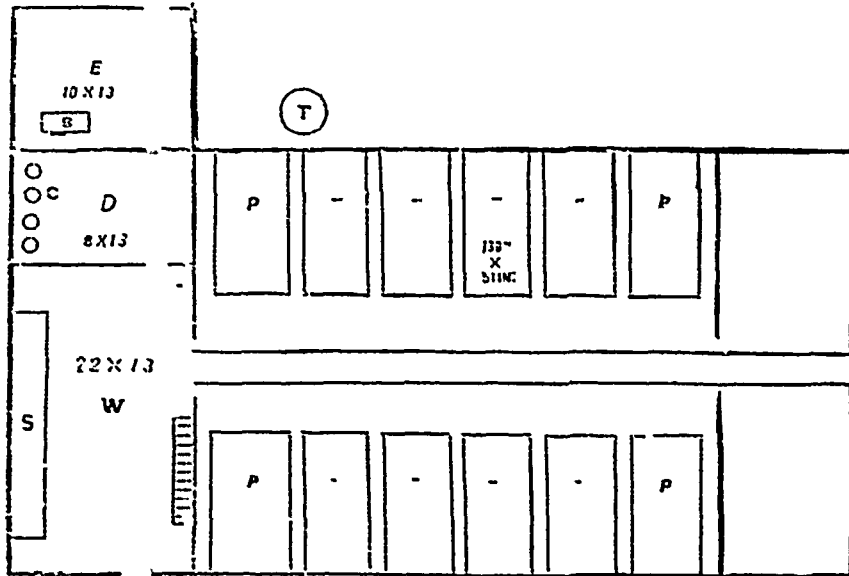
My barn is built on a side hill, and is three stories high in some parts. The floor of the principal story is on a level with the ground on the highest side, and is used for storing hay, grain, etc. The story below opens on the barn yard, and is used for stables; and the part under ground for a root cellar. Under this is a manure cellar eight feet deep. In the stable story is located my apparatus for steaming. My boiler is an upright tubular, of about the capacity of four horses, situated in the corner of this story, under the ground, in a room about ten feet square. The chimney is built of brick on the outside, and extends about six feet above the roof. The steam box in which the cooking is done is built of brick, and extends to the story above. It is lined with two-inch plank, tongued and grooved, six feet square inside, and eight feet deep, with a lid the whole size of the top, and opening on a level with the floor above. It has a door four feet square on one side near the bottom, out of which the feed is taken. The steam pipe runs directly from the boiler to the steam-box, extends around the four sides and across the middle, some six inches above the bottom. This pipe, inside the box, is perforated with small holes for the escape of the steam. A cask holding two hundred gallons is conveniently located at one side and over the steam-box, which, by a pipe, is kept full of water for wetting the feed and filling the boiler. The fodder is cut by horse power, shovelled into the steam-box, mixed with bran, or what ever is fed with it, and well wet. The fire is first started under the boiler, and then the fodder is cut while the steam is getting up. I only steam twice per week, finding that the feed will keep warm three days in winter; this saves much labor and fuel. My plan has usually been to feed steamed rations morning and evening, with dry hay at noon. This counteracts all tendency to looseness. I use about three tons of coal for the season's cooking. A change from cooked to dry food for a single day has sometimes caused a marked shrinkage in milk.



BUTTER FACTORY, WEST BANGOR, FRANKLIN CO., N.Y.

along the wall as shown in figure 1, that brings water at 48 degrees to supply the pans for cooling milk. A little below this is a waste pipe for carrying away the water as it is discharged from the pans. This apparatus with the steam pipes overhead, completes the furniture of this room. Nothing else is allowed in it, and being properly ventilated and kept perfectly neat and tidy, the air in it was as pure as the out-door breeze.

is usually at 50° or below, and as it runs 'four times the length of the pan before it is discharged, it carries off the heat very rapidly and the milk is reduced to the desired temperature in from two to three or four hours. The manufacturers all seem to labor under the impression that the animal heat (which they confound with animal odor) ought to be got out of the milk in the shortest time possible, and the Jewett pan does this to their satisfaction. It is a little too



GROUND PLAN.

- E Boiler and Engine, 8 horse power.
- C Churns.
- D Churn room.
- E Engine room and wood house.
- P P Jewett pans.
- S Sink, 3x12 feet.
- T Tank for sour milk.
- W Work room.

Upon a hand-car which passes through the centre of the room, is placed a platform scale with a weighing can on it. The milk is brought to the factory in what are called iron-clad cans, and as they arrive are elevated by a hoisting crane and dumped into the can on the scale. When it is full, the car, with all its burden, is rolled along the track between the pans, and the milk is spouted into the pans on either side as desired. The 12 pans in this factory with their fixtures cost \$700. An eight horse power boiler supplies an engine with steam for churning and sawing

good, as it enables them to cool the milk too rapidly. Excepting their allowing the milk to be brought to the factories in closely covered cans, and without previous airing, cooling the milk too soon was the first essential error we noticed connected with the use of these pans. It takes from six to twelve hours, at ordinary summer temperatures, for the animal odor to escape. The objection to such sudden cooling is, that it condenses the odor and retains it in the milk and cream. In nearly every factory we detected the cowey flavor in the butter.

Agricultural Intelligence.

New York State Fair.

(From the Countryman.)

Although the arrangements of the buildings of the Albany Agricultural Association... provided impractical for they were made for occupancy with less delay than not to have been expected...

The land occupied is about 50 acres... was purchased for \$57,000... The largest building... is 252 feet in length, by 122 feet in width... The principal buildings are completely surrounded by piazzas...

As to the exhibition itself, the exhibition... an aggregate of 2,020 entries... The following table presents a comparison for the several years...

Table with 5 columns: Year (1870, 1871, 1872, 1873, 1874) and various categories of exhibits like Short-horns, Jerseys, etc.

In general, and in most of its details, the exhibition may be fairly characterized as very good. In the miscellaneous departments, comprising those classes of goods which constitute the display in Manufacturers' Hall...

In Cattle, as will be observed from the foregoing table of entries, the number of Short horns present was very large. The leading exhibitors were Charles F. Wadsworth, Genesee; Thos. L. Harrison, Morley; and others...

In Swine there was larger competition than we have recently had of late. Two herds competed for the gold medal... The general character of the stock shown was good, with few very marked instances of extraordinary excellence...

The show of Jerseys was an extraordinary one, and in many cases close competition. No less than 100 herds were entered... The show of Dutch cattle, we have seldom had more than a few scattering specimens...

In the class for the special premium of \$100 on stallions for general purposes, over six years old, and not less than 15 1/2 hands, the successful horse was Country Gentleman, entered by Capt. Leander Clark...

The show of Horses was extensive and fine. In the grand cavalcade of Friday afternoon, a better opportunity was given for viewing the animals, than at any previous exhibition at Albany...

One of the leading prizes of the day—the special premium of a gold medal for the best stallion for general purposes, accompanied by not less than five of his progeny—was awarded to Aberdeen (the property of Leath Bynders, of Passaic, N. J.)...

Also showed a fine turn of speed over the "smooth place" in the track. His two-year-old colt Killarney, also showed an unusual turn of speed to a road

wagon, and handled himself so much like an old horse, that but few of the spectators realized that he is merely a baby Thoroughbred by Alexander's Abdallah, dam by Mambrino Chief (the property of Edwin Thorne, Millbrook, Dutchess Co.)...

The old blood mare Lady Patriot, attracted her share of attention, as did the fine foal by Thorne that followed at her side. In Draught heres the prize stallion was an important Perfection belonging to Mr. Howard of LeRoy...

Among the leading contributors to the carriage and roadster classes, aside from those already alluded to, to whose entries we cannot refer in detail, but who reserve the credit of a taking largely to the interest and value of the display, we may mention D. B. Haight, Dover Plains; Dean Sage, Albany; F. D. Curtis, Chateaufort; Robins Baitell, Norfolk; C. J. Edgar Payne, Tiaudlin; Hon. Ira Harris, Loudonville; S. D. Hungerford, Adams; and P. S. Forbes, Bathon-Hudson.

In Sheep, the show as a whole was valuable and interesting, though with limited competition in many of its divisions. Julian Winne, Bethlehem Centre; Messrs. Rutherford of Waddington; and Geo. Ingersoll, Charleston, led off in the show of Leicester. In Cotswolds, Mr. Thorne had a fine lot of imported rams, other exhibitors were C. K. Ward & Son, LeRoy; Jacob Albright, Etna; H. K. Burroughs, Bethany; and George Ingersoll, Charleston...

In Swine, the show was very creditable, though it has sometimes been more extensive. The premium list shows the names of the largest and most successful exhibitors. The Suffolks of T. L. Harrison, Morley, and the Essex of D. B. Haight, Dover Plains, were excellent of their kind. In Berkshire the show was large and good, including Mr. Haight's imported stock, a good display from one or two Canadian exhibitors, and many specimens of merit from other breeders.

Most of the Mowers and Reapers came from such old, well-known, and standard manufacturers as Bradley, of Syracuse; D. M. Osborne & Co.; the Cayuga Chief Company, and Dodge & Stevenson, of Auburn; Adriance, Platt & Co., of Poughkeepsie, and the Walter Wood Company, of Hoosick Falls. Besides these there were machines from E. K. Krum, of Chatham, who manufactures the Victor Mower; from Gregg & Co., of Trumansburgh; who had among others a pony machine with thills, selling at \$100; and the Hubbard "Meadow Lark," from the Rochester Agricultural Works; the "Warrior," from Little Falls; and machines from the Williams Company, of Syracuse—all of which appeared to be well made and good machines, Bickford & Huffman, of Macedon; Master & Co., of Springfield, Ohio; the Bristol Iron Works, Oswego; and Messrs. Brown, of Shortville, all exhibited excellent wheat drills, the first

named, as is well known, possessing a wide celebrity. The Ames Plow Company brought a very extensive assortment of agricultural machinery, consisting of ploughs, cultivators, mowers, hay tedders, drills, &c., and the Remington Works, of Ithaca, and Starbuck Bros., of Troy, fine specimens of their manufacture of ploughs, harrows, cultivators, &c. J. H. Hapgood exhibited his Eccentric Swivel Plough, with self-adjusting cutter and "handside mould-board," turning flat furrows on level land 13 inches or any greater width.

Several potato diggers were exhibited, which show a gradual improvement on those of former years, and we saw no reason to doubt the efficiency of every one. But nearly all were too high priced for the moderate farmer, who raises but a few acres of potatoes, and who cannot afford to pay a hundred dollars or so for a single operation in harvesting a single crop. With those farmers who cultivate the crop for large shipments, the case is of course different. There was one implement which formed a partial exception, and was so constructed that the same wood frame work could have a pair of plows attached for furrowing and cultivating the crop. For digging, the plows are laid aside, and a pronged digger attached, which will undoubtedly work well on rather light soil. The whole is offered for fifty dollars, by Putnam & Radley, manufacturers.

Three Hay-tedders were on the grounds, the older and well-known American and Ballard's, and the more recently constructed Perry's. The latter appears to be a very efficient tedder, but the price, like that of the others, is rather high for moderate farmers, being about ninety dollars.

Machinery Hall was well filled with the smaller farm implements and machines, and with nearly everything of a more expensive character in which the farmer is interested. A perfectly working seventy-five-horse-power engine kept up the busy hum of the running machines throughout the building, which is very substantially constructed to support the heavy shafting required.

Straw cutters were exhibited in this hall by the Rochester Agricultural Works, the kind they manufacture being known as the Empire feed cutter, which has a good reputation as an efficient machine of moderate cost, both for hand and horse power. These cut upwards. Burdick's hay-cutter, which cuts downwards (and is made at New-Haven, Conn.) appears to be a well made and efficient machine, with prices about the same as the last mentioned, or varying from \$18 for the smallest hand machine, to \$40 for those driven by horses or steam. Starbuck Bros. of Troy, exhibited a very neatly made two-horse engine intended for feeding boilers, but adapted to farm and domestic use, and costing about \$300, boiler and all, or \$140 for the engine alone. Emery's cotton gin was constantly at work, the operation of which we have frequently had occasion heretofore to notice. Scattergood's newer mangle gin, made by the Remington Company, performed work of great excellence. Bott's fence-making machine makes wire fence of 6 No. 10 wires, driving staples to secure them, into pickets a foot apart, at the rate of 20 ft per minute, and making a light and excellent fence.

Among the other machines shown in this building, were meat cutters, corn shellers, clothes wringers, washing machines, portable steam engines, fanning mills, emery wheels for saws; boring, sawing, planing and mortising machines; portable forges, portable grist mills, and Philip's spiral corn husker; the efficiency of which was shown to the spectators by its work. Dodge & Stevenson's (Auburn) new corn sheller, known as Cornell's patent double-tube machine, appears to be one of the best that we have seen. The running parts are of cast-iron, and the whole works rapidly and with ease. The smaller hand shellers are sold for \$22; the larger, for horse or steam power, for \$60.

Among the contents of the glass building devoted to Fruits and Flowers, we observed the exhibition of citrons, lemons, limes, bananas, and other sub-tropical productions from the plantation of A. J. Curtis of Florida; finely grown specimens of pears, apples and grapes; in a large collection from Ellwanger & Barry of Rochester—these occupied the south wing. The most striking objects of attraction in the central part where the rich and extensive collections of flowers from James Vick, and from Briggs & Bro. of Rochester; and the rare and beautiful exotics contributed by Louis Meand of Albany. In Mr. Vick's collection the gladioli were of surpassing brilliancy, freshness and beauty; the new coxcombs were very perfect of the kind; and the new seedlings of Drummond phlox, with their curious developments of colors, were objects of much interest. Briggs & Bro. exhibited a beautiful collection of annuals, including a large supply of asters, zinnias, margoldas and coxcombs. Their new purple-leaved coxcombs presented an exceedingly rich combination of dark colors in the

leaves. Ellwanger & Barry exhibited an extensive display of roses and dahlias. The north wing of the building contained an excellent collection of admirably grown pears from Vineland, New Jersey in which we particularly observed the fine specimens of Duch-ess, larger and better ripened than we can grow farther north, and with more perfectly developed flavor—shown by Philip Snyder. There were also in this wing several good collections of apples, pears and grapes.

The collections in this building, although not so extensive as we sometimes witness, were remarkable for their high excellence of quality and their general interest.

The Dairy department included a considerable number of choice samples of butter and cheese, and there was about the usual collection of grain, seeds and farm products, vegetables, &c. The exhibition of Poultry was large, and was admirably accommodated in the building devoted to the purpose, which was constantly thronged with spectators.

We conclude with the following extract from the *Albany Argus* of Monday Morning:

One thing can be safely asserted, and that is, that no fair ever held in this State gave such unqualified satisfaction. Every visitor, no matter what part of the State he or she may hail from, is enthusiastic over the arrangements, over the grounds, over the buildings, over the goods displayed in Manufacturers' Hall, over the stores, which comprise the grandest exhibition of the kind in the world; over the machinery, over the poultry, over the horses—the best exhibition of horses ever made by the State Society—over the cattle, sheep and swine; over the grand display of agricultural implements—a display that has never been surpassed anywhere, and that covers acres upon acres of ground, and over Floral Hall, which is simply a palace of beauty. That everybody is pleased, and we may say delighted, is a great triumph for the society, and a greater triumph for the Albanians who "stepped to the front" and nobly provided—at vast expense—the conveniences of which all are so proud.

Hamilton Central Fair.

The Central fair under the auspices of the Hamilton and Wentworth Agricultural Societies, was held on the Provincial Exhibition Ground, adjacent to the City of Hamilton, Sept. 30th and Oct. 1st, and 2nd. Superb weather was enjoyed, and the attendance of visitors was large. We subjoin the following particulars gathered by our reporters, and relating mainly to the departments coming within the scope of this journal. Taken on the spot, and while the Fair was in progress, these reports are naturally put in the present tense.

The entries in the different classes are as follows:

Class 1—Blood Horses.....	6
" 2—General Purpose Horses.....	81
" 3—Road or Carriage Horses.....	288
" 4—Heavy Draught Horses.....	28
" 5—Durham Cattle.....	86
" 6—Devon Cattle.....	11
" 7—Hereford Cattle.....	24
" 8—Ayrshire Cattle.....	17
" 9—Galloway Cattle.....	15
" 10—Grade Cattle.....	41
" 11—Fat Cattle.....	22
" 12—Oxswold Sheep.....	45
" 13—Leicester Sheep.....	83
" 14—Lincoln Sheep.....	40
" 15—Fleeces for long woolled Sheep.....	10
" 16—Southdown Sheep.....	60
" 17—Fleeces.....	14
" 18—Yorkshire and other large breed Pigs.....	21
" 19—Small Pigs.....	20
" 20—Large Berkshires Pigs.....	34
" 21—Poultry.....	14
" 22—Fruit.....	360
" 23—Grain.....	200
" 24—Seeds.....	27
" 25—Roses and other Field Crops.....	153
" 26—Fruit.....	765
" 27—Garden Vegetables.....	456
" 28—Paints and Colors.....	180
" 29—Dairy Products, &c.....	168
" 30—Agricultural Implements, Power.....	56
" 31—Agricultural Implements, Hand.....	50
" 32—Cabinet Ware and other Wood and Hair Manu- factures.....	47
" 33—Carriages, Waggon Sleighs, and parts thereof.....	41
" 34—Drawing, Architectural and Mechanical Engravings, Building Material, &c.....	25
" 35—Fine Arts, Oil Paintings, &c.....	192
" 36—Water Colors, &c.....	156
" 37—Groceries and Provisions.....	15
" 38—Ladies' Work.....	205
" 39—Domestic Manufactures.....	69
" 40—Machinery, Castings and Tools.....	39
" 41—Metal Work (Miscellaneous) including Stoves.....	73
" 42—Musical Instruments.....	6
" 43—Natural History.....	19
" 44—Paper, Printing, Bookbinding.....	11
" 45—Saddlery and Harness Makers' Work.....	28
" 46—Carpentry and Joinery Work, &c.....	11
" 47—Leather.....	11
" 48—Woolen, Flax, and Cotton Goods, Furs, and wearing Apparel.....	59
Total.....	4,257

The show seems scarcely to fulfil the expectations of a great many of those most interested in it. The number of entries is much below those for the City of Hamilton fair, and about 2,000 less than the two previous years, predicting they would amount to. In live stock, as will be seen from the above list, the show is comparatively small. This is to a certain extent owing to the fact that three herds of cattle belonging to Messrs. Craig, Miller, and Beattie, which were shown at the London and Guelph fairs, are not at this, having been sent to one herd this week in St. Louis, where they will no doubt carry off high honors. In the mechanical departments inside the Palace there is a pretty good show, though in some of them, too, a considerable falling off from the displays at the other great exhibitions is noticeable. In the fine arts department there is a good display as there is also in that of ladies' work. In fruit there is a splendid show, and in roots and vegetables there is a very good one for the season. In agricultural implements the display is a fair one.

The Live Stock.

In this department of the Exhibition the following is the classification adopted:—Blood Horses; General Purpose Horses; Road or Carriage Horses; Heavy Draught Horses; Durham cattle, Devons, Herefords, Ayrshires; Galloways, Grades, Fat Cattle; Cotswold Sheep, Leicesters, Lincolns; special for Long Woolled sheep;—Southdowns, fat sheep, Yorkshire and other large breed pigs, Suffolks, Improved Berkshire, Essex. Poultry:—Some of the classes specified in the Provincial prize list being omitted from this, it is natural enough that they should not be represented. All the classes above enumerated are well filled, and some of them crowded.

Horses.—The show of horses is very fine, especially in the road or carriage class, in which there are no fewer than 288 entries. A silver watch, value \$30, given by T. B. Steward, Hamilton, is the first prize to be competed for by the roadsters. A prize of \$10 is also offered by W. Hendrie, of Hamilton, for the best amateur rider under 18 years of age; a second prize of Scott's novels, complete value \$8; and a third prize in cash of \$1. We hope these prizes will be awarded for gracefulness and skill in horsemanship, and that they will not be the means of introducing into our agricultural shows, those "trials of speed," so called, which have caused so many of the United States fairs to degenerate into mere horse trots. It is a good feature in the display of horses now made, that so many of the animals are from the immediate vicinity of Hamilton. The interest awakened, and the competition excited in the surrounding region, are the chief pleas in justification of local fairs like the one now in progress. Considerable difficulty is felt by the reporter in regard to the horse department of all Exhibitions. Most of the animals, all the choicer ones indeed, are kept in locked stalls, and only as you are fortunate enough to find the proprietor or groom at hand can you glean any information about their equine pets. Many fine creatures well worthy of "honorable mention" are necessarily overlooked from this cause, and newspaper men unjustly accused of partiality. The only way of avoiding this, as things are now managed, is for the reporter to devote his whole time to the horse-ring, that he may chronicle the appearance and exploits of the various animals as they make their appearance before the judges. Even this entire devotion of attention to the horses would not meet the case, unless writing accommodation were provided at the judges' stand, and pains taken to impart correct information to the members of the press. As it is, what knowledge is gleaned is obtained under difficulties. For some reason or other, thorough-breds are well nigh without representation on the present occasion. General purpose horses number 81 entries. Heavy draught horses are not numerous. As already hinted, road or carriage horses are the main feature, and a very fine one indeed, of this Exhibition. Without meaning to be invidious in selection, we may name a few of the horses that attracted our notice:—Dr. Buck, of Palermo, shows a beautiful black mare; Henry Foster, of Eramosa, has a splendid black two-year old stallion; John Corbys, of Saltfleet, exhibits a fine pair of through-bred colts; John Tennant, of Beverley, a superior bay roadster; Philip Hendershot, of Binbrook, a fine span of general purpose horses; A. & J. Vansickle, a pair of cream-colored mares for carriage use; Hamilton Szezie, Saltfleet, a large pair of matched roans, descended from the Volcano stock, once very popular in this region, but now rarely met with. Robert Fortune, Ancaster, has a fine agricultural purpose stallion, and Donald McCaig, Puslinch, a similar animal. James Morton, Ancaster, shows a pair of powerful Clyde horses. Thomas Hodgkin, Toronto, shows a fine young "agricultural stallion," (really a Clyde); also an older imported animal of the same class, a

magnificent and powerful beast, "Old England." Thomas Gowland, Seneca, shows a very handsome two-year-old agricultural stallion. Arthur (Henry, Stony Creek, has a nice chestnut team of carriage horses. Douglas & White, of Halton, exhibit a fine; blood horse named "Terror," also "Sharp Catcher" and W. Martin, of Binbrook, a pretty pair of matched roans. We notice that prizes are offered for "pony 13 hands high and under, a class too much overlooked at shows. Canada is noted for its French and Indian ponies. They are a most useful class, and well deserve every encouragement that can be given them. Tough, fiery, and beautiful, there are many uses they can serve even better than large horses. Attracted by the inducements of the prize list, there are several very pretty ponies on the ground.

Cattle.

Owing to the absence of some leading breeders at United States fairs, and to other causes, prominent among them the despair of local farmers as to competition with the great herds of the country, the show of cattle is not so good as was expected. In Short Horns Mr. F. W. Stone, of Guelph, takes the lead. His two animals are all prize-takers. G. & W. Ware, of Paris, Ontario, take themselves both in thorough bred, and grades of this breed. J. McDougall, of East Flamboro, R. Reid, of Glanford, P. Grant & Sons, of Hamilton; Jacob Terryberry, of Glanford; H. E. Irving, of Jarvis; Joseph Alden, of Nelson; Thomas Martin, of Barton, and Abraham Germe, of Paris, are exhibitors in this class. William Hood, of Guelph, is "alone in his glory" with the Gallows, his grand total, Thomas Metten, also of Guelph, not showing. With fourteen animals, Mr. Hood was far in advance in taking the diploma. George Riddell, of Guelph, a very equally solitary grandeur with the "Lovers," his bull "Hartland," heads a herd of fine cattle and deservedly prize-winners. It is most satisfactory, however, to have competition, and to see the space filled. Well nigh the same tale must be told in regard to the Herefords. Mr. Stone, of Guelph, is only rivalled in one class by George Hood, of Guelph, who takes a prize for a three year-old Hereford bull, but as it was bred by Mr. Stone, it is in reality takes all the honors. A prize is hardly put in an appearance at all, there being only one or two specimens on the ground. Joseph Duffin, of Guelph, expected to show largely in this class, but owing to a death in his family is precluded from attending at the Fair. Grades are shown by Messrs. Watt, Geric, Little and others. Very few fat cattle are shown. George Hood, of Guelph, takes the lead with a fat cow of any age or breed, which is fully equal to say, is a Short Horn, or of the same breed. Other cattle exhibitors are to be mentioned for the absence of names, in many cases, of both entry and prize tickets, and the absence also of proprietors and attendants.

Sheep

This department of the show is rather deficient, the Southdowns, strange to say, being the best filled class, in proportion to the number of breeders and exhibitors. They are shown mainly by F. W. Stone, of Guelph; J. C. Douglas, of Dumfries; Thomas Wilkinson, of Glanford; and H. L. Irving of the Royal Hotel, Hamilton. "The host" of the Royal evidently means to rival F. W. Stone with first-class mutton. Cotswolds are not exhibited in large numbers, but there are some splendid representatives of this noble breed of sheep. F. W. Stone shows the most and best. J. B. Martin, of Cayuga, L. and F. Wilson, of Trafalgar, James Egan, also of Trafalgar; J. T. Houghton, of Nelson, and others, also showing in this class. Leicester and Cheviot are also showing in Cotswolds, and are of good quality. Adam Oliver, of Downie; W. Whitelaw, of Guelph; T. C. Douglas, of Dumfries; R. Grant & Sons, of Hamilton; and James Cowan, of Galt; being the chief exhibitors. A pretty fair display is made of Lincolns, L. and F. Wilson, of Trafalgar; John Johnson, of Nelson, and others having representatives of this large and useful class. George Hood, of Guelph shows a pen of fine fat Cotswolds. Much interest was centred in the special prizes offered by the wool-growers of \$25, \$15, and \$10, for long woolled rams. The first went to Adam Oliver, of Downie; the second to John Weatherstone, of Bronte, and the third to James Cowan, of Galt.

Pig

This part of the show is small but select, there being hardly an inferior pig on the ground. James Mann, of Trafalgar, has his beautiful Suffolks in strong force and they are not only the "observed of all observers," but universally admired, very few persons being inclined to dissent from the opinion ungraciously uttered by an evident connoisseur in swine, "Give me a good white hog." The Suffolk is a good white hog, and though smaller than the Yorkshires, disputes the palm with that breed for fineness, firm-

ness, and toothsoneness of meat. Messrs. Featherstone, of Toronto, and Edmundson, of Brantford, also show good Suffolks. Messrs. Main and Featherstone also exhibit some fine Yorkshires. Berkshires are shown by H. E. Irving, of the Royal, Hamilton; G. Roach, of Hamilton; and others. The Essex breed is not largely represented, Messrs. Roach and Featherstone being almost the only parties exhibiting in this class. The want of names on the entry tickets, though a good means of securing impartiality in judging, sadly interferes with the efforts of the reporter to give a "full, true, and particular account" of the animals on exhibition. We cannot, however, see any good end to be served by omitting names from the prize tickets. It is disappointing to the public as well as embarrassing to the reporter, for everybody wants to know "who beats," in all competitions.

Poultry

This is a well filled department, inasmuch as most of the exhibitors present at London, are here also. It must be remarked, however, that though the poultry men are here, many of their birds are absent, owing to sales effected at London. Messrs. Allen, Boyne, Sturdy, Thomas, Main, Jarvis, Smith, and Featherstone, are names now very familiar to our readers, and it is needless to describe again the birds already shown by them at Guelph and London, and unmortgaged in our columns. There is a conspicuous falling off from the two shows already held in the class of buff cochins, a special prize of \$20 for the best trio failing to find a pen worthy of winning it. The best trio shown scarcely deserved to be called third-rate birds. A number of new, and for the most part, local exhibitors, are showing poultry. Among these may be named: Miss E. F. Lyons, of West Flamboro'; S. Marshall, of Binbrook; James W. Young, of Barton; A. Thompson, of Flamboro'; George Mitchell, of Baltimore; H. Cooper, of Barton; H. Shearer, of Niagara; Thomas D. Watson, of Woodstock; James Sinnett, of Barton; George Elliot, of Hamilton, and H. Cooper, of Barton. The two last-named exhibitors have a large collection of pigeons, chiefly carriers, tumblers, fantails, pointers, trumpeters, and jacobins. Four-legged poultry in the shape of rabbits are shown by A. Thompson, of East Flamboro', and Anscott Williams, of Barton. A spaniel bitch and five pups are shown by George Mitchell, of Baltimore, and attract much notice.

Mr. H. M. Thomas's English pheasants and Guinea pigs are also here; some China geese are exhibited, but there being no special class for them they were shown among the white and common geese, where of course they stood no chance whatever, owing to their comparatively small size. We must accord the Committee on poultry much praise for their admirable arrangements of the birds. With scarcely an exception every coop was in its proper place, judges and reporters bring thus enabled to do their work with far greater ease and satisfaction than when the birds, like the American war news, are "mixed up."

Dairy Produce.

The display in this department is rather smaller than might have been expected. Only about 35 crocks, kegs and tubs of butter are shown, and only 25 baskets of roll butter, with about half a dozen fancy and about as many dairy made cheeses. In home-made bread there has been a keen competition. A few jars of nice clear strained honey, and four or five boxes of the same delicious commodity in the comb, are shown in the same department, together with a ham or two, a small quantity of maple sugar, some fine bright looking pickles in jars, a dozen and a half of jars of nice looking preserved fruit, and four or five dozen bottles of home-made wines.

Garden Vegetables.

The show in this department is one of great excellence. The onions, cauliflowers, carrots, and celery are very fine, while most of the cabbage, both red and green, of which there is a large display, is extremely good. Some of the heads are of almost enormous weight. A large quantity of savory cabbage is shown. The display of beets is not a very good one.

Grains and Seeds.

Of spring wheat only a few bags are shown, including some Erie and spring drop. Some of it has not been as well cleaned as it might have been, a great many broken grains being visible. Of white winter wheat a large quantity is shown, and almost without exception it is grain of the finest quality, full, plump, bright, and clear. In deciding on which ten bushels of this wheat should receive the first prize of a steel-tooth sulky horse-rake, given by Messrs. L. D. Sawyer & Co., of Hamilton, and the second prize, of a platform scale, presented by Messrs. E. Ware & Co., of the same place, the judges must have had a great deal of difficulty on account of the

great excellence of both the ten bushels chosen. The first prize has been gained by Mr. R. Macklem, of Ancaster, and the second by Mr. Robert Tuck, of Nelson.

The four and six-rowed bulky is also splendid grain, and the two-rowed is very fair.

Of rye three bags of very nice grain is shown. Of peas only three bags of large sorts are shown, which have received first, second, and third prizes respectively. Those taking the first and second prizes both contain very fine grain. Of small field peas only a few bags are shown. A very pretty pea called the blue Prussian, which took first prize at the Provincial Exhibition, has received the first here also.

The white oats exhibited are extremely fine, being plump and bright. The black oats are also very good.

Messrs. Haun & Hewitt, of Clinton, exhibit a small quantity of Bohemian oats, which are without huck or hull, and considerably smaller in the grain than other oats. They are said to weigh 52 pounds to the bushel, and to yield over fifty-fold, requiring only a bushel to sow an acre. They are also said to be well adapted to this climate, and to grow much more rapidly than the common oat; and it is stated that the straw is strong, and of good length and quality.

The beans exhibited are remarkably large, plump and white.

Besides the grains and seeds above mentioned, there are shown four bags of flax seed, several of good clean timothy and clover seed, a few of very good buckwheat, some mangold wurzel and carrot seed, a bundle of flax just as it was cut in the field, and some of the same scutched.

Fruit.

The show of fruit is large and good, especially in the apple classes. A special prize, offered by Wanzer & Co., consisting of one of their \$50 sewing machines, for the best lot of ten varieties, twelve each, awakened considerable emulation. Its award to the superintendent of the fruit department, for a manifestly inferior collection, has excited considerable feeling, and is openly denounced as "a put-up-job." The display of pears is very fine, as might be expected Hamilton and the Niagara district being the pear garden of Canada. Loud complaints are made about the judging in the pear classes also. Making all due allowance for the envious tendencies of human nature, there is too much ground for fault-finding in the present case. Local leanings and official influence crop out too plainly in some of the fruit awards to be overlooked by the impartial reporter. To avoid possible suspicion of partiality, the Hamilton gentleman, who is, confessedly, the M. P. of Canada, as to pear-growing, refrained from exhibiting altogether, an example of disinterestedness apparently lost upon sundry other dwellers in the Amantious City. Hamilton will probably have the fruit department of its "Great Central Fair" all to itself next time. The grape show is more meagre than we expected, considering the locality of the fair, still there are some fine specimens of both open air and hot-house varieties. The display of peaches is confined to about a dozen plates of rather inferior specimens, and the plums are about on a par with the peaches. A few fine quinces, Siberian crab-apples, and one basket of Lawton blackberries are on exhibition.

Flowers.

The floral display presents nothing particularly worthy of notice, except the collection of dahlias and gladioli, which are very good. Asters, pausies, verbenas, and Zinnias are quite inferior. A few roses of medium quality are shown. A large number of bouquets and designs in cut flowers are exhibited, conspicuous among them being a ghastly-looking lot of "everlastings," the pale and sombre varieties being too much in the ascendant. There are a few good green-house foliage and blooming plants, including a fine *vinea alba*, and a lot of superb coxcombs. It must be borne in mind that the season is unfavorable for flowers, and that they can hardly be expected to present themselves in holiday garb, when their "days are in the sere and yellow leaf."

Garden Vegetables.

Of these there is an excellent display, considering the character of the summer, which has not been the most propitious for many garden products. There are fine specimens of cabbage and cauliflower. The collection of onions is the best we ever recollect seeing in any similar exhibition. Celery is not quite up to the average shown on these occasions. The table squashes are very good. The radishes enormous for size and solid as well. The turnips rather small. Tomatoes hardly up to the mark. Potatoes not extra hot herbs inferior. Capsicums middling. Beets pretty fair.

Farming Implements.

In this department there is a very fine display, though not nearly as large a one as was made at the Provincial. Beginning at one end of it we notice a

wooden pump for which Mr. Andrew Murdoch, of Hamilton has taken the second prize. Mr. Jacob Grobb, of Greenville, shows a farm gate attachment by means of which a person can open the gate without getting out of his vehicle, and shut it with equal ease after passing through. Mr. Moses Bechtel, Blair, exhibits a specimen of wooden farm fencing on which he has received a first prize. He has also taken a first prize on a self-closing gate. We next come to a couple of stump extractors. Messrs. J. Lawrence & Son, Palermo, show a combined mower and reaper, with a self-acting rake; also a root-cutter, which consists simply of a large knife attached to the end of an ordinary root cutter box, and worked by means of a lever. Messrs. Lastwood & Co., Ingersoll, show a straw-cutter for horse power, a two-horse power sawing machine, and a two-horse power drag sawing machine, with cutting box attached, on which they have received an extra prize. Messrs. L. D. Sawyer & Co., of Hamilton, make a very large display and have received an extra prize on the assortment besides several firsts and extras on individual implements. Their display comprises a vibrator, a thrasher, a clover mill, two combined "Champion" reapers and mowers, a "Jackson" reaper, two single mowers, (Sprague's and Wood's), four grain drills, a sulky horse rake, a hand power cutting box, a drag sawing machine, and a hay tractor; the latter when in motion is a rather comical piece of machinery, alternately revolving two arms, with long fingers at the ends, which claw the ground for the hay. Mr. J. Watson, Ave. Agricultural works, is again on hand with a fine large display, but does not compete for prizes. He shows two non-poungis, a corn cultivator, a "Hummingbird" mower, a "Farmers' Friend" grain drill, a "Clipper" combined reaper and mower, three power straw cutters, three "Victor" chopping mills, four turnip cutters, a farmer's horse power, for two or four horses, a turnip sower, and a drag saw. Messrs. Wm. Russell & Co., Dundas, exhibit a grain and seed cleaner. Messrs. J. O. Wisner & Son, Brantford, show a grain drill. Messrs. W. R. Gray & Co., of Dundas, show a single horse hoe, and a two horse cultivator, both of wood. Mr. David Maxwell, Paris, shows a number of his well known root-cutters, and also a root-pulper. Messrs. Palmer Bros., Beausville, show an implement which was exhibited by them at London, viz: a rotary harrow. They also show a cider-mill for hand power. Messrs. Harris, Son & Co., Brantford, exhibit a Kirby mower, a Kirby combined reaper, and mower, a Burdock reaper, and other implements. Mr. John Forsyth, Dundas, is among those who make the largest displays. He shows a grain drill, a "Dominion harvester," two grain cleaners, and a horse rake, which is simply the old fashioned horse rake attached to an axle and a pair of wheels, and controlled by the driver from his seat in front of it by means of a lever. Mr. A. Whitclaw, Paris, has taken a first prize on a straw-cutter, for hand use. He also shows a combined straw-cutter and grain grinder for either horse or hand power, and a straw cutter for horse power alone. Messrs. B. Bell & Son, St. George, exhibit a number of ploughs, a light horse power, a new model of the "Buckeye" mower, a horse power straw cutter, a hand do, a two-horse wooden cultivator, a root cutter, and a horse hoe. Mr. John Amer, of Hamilton, shows a cheese press. Messrs. John H. Groat & Co., Grimsby, exhibit an iron plough, a cultivator, a Buckeye mower and reaper, with self-acting rake. Messrs. Capp Bros. & Co., Hamilton, exhibit a number of iron ploughs, and three agricultural furnaces. We next notice a double furrow plough, on which the name of the exhibitor does not appear. Mr. J. P. Billington, Dundas, exhibits three iron ploughs, two seed drills, a couple of straw cutters, a drag saw, and a horse power.

The Scotch Harvest.

Another unfavorable harvest, so far as weather is concerned, has apparently fallen to the lot of Scotch agriculturists. For at least three weeks there has not been an entirely dry day, and, though cutting is well advanced, it has been greatly interrupted by rain, and stacking is immensely in arrears. In Highland glens the grain crop is not nearly at maturity yet, and harvest cannot be general there before October. The wheat crop in East Lothian and some other southern counties is considerably under an average in bulk, and in many cases it is later than usual; but perhaps at no period of the year did the appearance of the wheat fields warrant any materially more satisfactory results. In Ross-shire, Inverness-shire, and Moray-shire, however, the yield of wheat is much better than in the south, and if the harvest weather were more suitable, a splendid return of good grain might be expected. Barley may be regarded as the principal of the grain crops. Taking Scotland as a whole, the quantities both of barley grain and straw, are above an average, and but for the bad weather in harvest the quality would have been superb.

The hay crop is all in the stackyard, mostly in good condition. The bulk is under an average, and prices are likely to rule high before another crop is attainable.

The potato crop does not, fortunately, manifest disease to any serious extent, though a little of it is to be found here and there, notably in gardens and in some of the earlier farms in the south; in short, a fair crop of potatoes is now all but secured for Scotland.

Turnips are the boasted crop of 1873 in Scotland. All along, the prospects of turnips have been exceedingly good. There is a splendid crop of roots all over the country—to all appearance quite double the produce of last year, which, however, was lamentably stunted. Of beans, peas, and tares there are good prospects, though for these also dry weather is much required.—*Field, 20th Sept.*

Great Ram Sale at Kelso.

The ram sales of Kelso, as influencing the markets of not only the whole of the United Kingdom, but the most of the British colonies where the breeding of sheep gains any degree of attention, are universally considered the most important, and, perhaps, the most extensive, in the country, and their results are looked for with much interest.

The sales commenced precisely at ten o'clock, and were finished about five, and the sheep were all driven off the field shortly afterwards. The number of lots catalogued for the sale was 66—being 52 Leicester and 14 half-breds, which made up a total of 1702. In the previous year the total was 1796, and in 1871 it was 1802. Messrs. Donkin had 435 of the Leicesters; Messrs. Fairbairn & Penny, 527; Mr. Oliver, 337; Mr. Atkinson, 47; and Mr. Brand, 50; making the total number of Leicesters 1396. The number of half-breds was 306, as against 293 last year, and were disposed of by the auctioneers as under:—Mr. Davidson, 176; Mr. Oliver, 85; and Mr. Atkinson, 45.

The top price as \$975, brought by a ram of the Merton flock. This celebrated flock has kept this honorable position since 1859, with the exception of the year 1869 when it was surpassed by the Mellen-dean rams. The above unprecedented figure was given by Mr. Clark, Oldhamstock. The ram was truly a beautiful animal, and was the object of much attraction during the show.—*N. B. Agriculturist.*

THE APPLE CROP.—In the tier of counties bordering the southern shore of Lake Ontario, the apple crop, as far as we have heard, is very light; but in the second tier, from 20 to 30 miles south of the lake, we understand that the crop is good. It is not easy to account for this condition of things.—*Am. Rural Home.*

GREAT LAMB SALE AT HAWICK AUCTION MART.—The fourth great sale of lambs was held at Hawick Auction Mart on Thursday, when between 12,000 and 13,000 lambs were sold, consisting chiefly of second and third lambs, with a few lots of half-bred ewes and gimmers. There was a fair attendance, but bidding was not so spirited as at previous sales, especially for lambs, but there appeared to be many inquiries for ewes, and buyers went away well supplied with this particular class of stock. For the best lambs there was no reduction from previous sales, but inferior classes were difficult to convert. Notwithstanding, the whole were disposed of except one or two small lots.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.—The total number of entries in all departments was about one-third greater than last year at Bolton, and nearly equalling the Liverpool Show in 1871. There were 194 entries of cattle, including 113 shorthorns and 17 of pure Welsh breed; 257 horses, including 42 hunters, 153 pens of sheep, and 114 pens of pigs, while the poultry show including 216 cages, the pigeon show 116 cages; the dogs numbered 193 entries, there were 123 specimens of grain and roots in competition, and 160 entries of cheese and butter.—*Farmer.*

The "Patrons of Husbandry," the Farmers' "Granges," in America are already making an impression upon the railways through the profits recently given of the strength and the objects of their organization. Their demand is "cheap transportation" to market for their produce. During the past fortnight there have been announcements made by several railways running through the Mississippi Valley or from that region towards the Atlantic seaboard of reductions in transportation rates, a course the reverse of the usual policy of raising charges as winter approaches.

A CALIFORNIAN BABY SHOW.—Reports reach us from the San Francisco Baby Show. The infant who carried off the prize as the handsomest bears the startling name of Bray, and if there had been a prize for the baby making the most unearthly noise we suppose that he would have taken that also. The loudest bawler did come in for a prize, so did the heaviest haired, the fattest dark-eyed baby, the fastest blue-eyed baby, the best dressed, and the sweetest smiling. It is touching to read, too, of gifts to the youngest mother, the oldest mother, and the handsomest mother. But why this neglect of the father? Are they nobodies? Are they nothing?—*New York Tribune.*

ONTARIO AGRICULTURAL COLLEGE.—This institution, located at Guelph, Ont., has lately shown a commendable enterprise in the construction of buildings and laying out its experimental farm for practical work. Prof. Henry McCandless, late of Cornell Agricultural College, has been appointed President, and will bring to the duties of his office much experience gained both in Great Britain and the United States. The Trustees of this College have certainly manifested better judgment than those of similar institutions in this country, in placing at its head a man practically educated for the work, and we trust that he will here have, what he did not with us, free scope in carrying out his plans, setting a good example to his American neighbors.—*Live Stock Journal.*

SHOW AND SALE OF RAMS AT PERTH.—At the annual show and sale of rams in connection with the live stock sales of Messrs. McDonald & Fraser, Perth, the number of Leicester rams submitted for sale was over 500 head, and included lots from some of the best flocks in the counties of Forfar, Perth, Fife, Kincairdine, and Kinross. The number would have been larger, but several pens which were entered in the catalogue were detained on their journey by the floods in the north, and the damage done to the railways. In Shropshire Down rams the number shewn was 120, and consisted of shearings, two-shear, and aged sheep. In addition, there was a fair turn-out of Leicester and Shropshire ewes and gimmers. Generally speaking, the stock was in good condition, while the quality, in many instances, was first-class. The average prices obtained for the best sheep were much the same as last year; secondary lots were lower.

EMIGRATION SCHEMES.—The *Farmer* (Eng.) winds up an able article under the above head, by remarking: "But why should English laboring men seek a home and employment in foreign lands when our colonies hold out such splendid inducements to them? Canada and Australia alone would absorb the whole of the surplus of the English labor market. They offer abundance of employment, both for mechanics and for agricultural hands. In both colonies land is cheap and highly productive, and the climate is exceptionally healthy. The colonies are the proper home for English emigrants. They want exactly what the mother country has a surplus of—labor; and they offer exactly what England no longer affords—cheap land. It should be no slight inducement, too, that emigrants to the colonies do not sever themselves from the land of their birth. They still preserve their heritage in the mother country and its glorious traditions. They are still subjects of the English Crown. They are still Englishmen. It is pitiable to find so much of the manhood of the country seeking homes in foreign lands, when the colonies are ready and eager to welcome them."

Live Stock in Great Britain.

Total Numbers of Live Stock in Great Britain upon June 25, as per Agricultural Returns, for the last seven years:

Year.	Cattle.	Sheep.	Pigs.
1867	4,990,661	23,919,161	2,956,379
1868	5,453,981	20,711,399	2,398,530
1869	5,313,471	20,628,144	1,939,432
1870	5,403,217	20,307,539	2,171,185
1871	5,307,759	21,119,569	2,490,602
1872	5,354,394	21,321,907	2,771,719
1873	5,361,949	22,427,655	2,560,250

The following is a summary of the returns comparing 1873 with 1872. These show in Great Britain—

	Cattle.	Sheep.	Pigs.
and in Ireland—	94,408	224,426	511,168
Totals ...	433,953	1,780,549	612,658

Breeder and Grazier.

A Suggestion to Feeders of Stock.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—I am aware that the suggestions of mere theorists are usually received with but small favor by men of practical knowledge, and am satisfied that it is not without good reason that they are so received; being, no doubt, very often to the practical man, obviously inoperative, and useless; and therefore not even worthy of being put to the test. It is consequently with diffidence that I make a suggestion for the consideration of men of larger experience than myself. It is a fact that many volatile odors are readily absorbed by animal substances, and retained with more or less persistency. The flesh of birds that feed upon fish is strongly impregnated with the flavor of their diet; the same is the case also with the flesh of animals fed upon turnips, cabbages, onions, &c.; their flesh, and in the case of milch cattle, their milk also is affected by the peculiar flavor of these various articles of food. The volatile nature of all these odors receives a homely illustration whenever the substances containing them are subjected to the operations of the cook; the whole house in that case being pervaded by the odor of the article which is being prepared by heat for the table, unless some means be taken to prevent it. This same fact receives an agreeable illustration from the art of the perfumer, who extracts and fixes some of the finest and most delicate perfumes by the use of animal fats. Now the suggestion I have to make is just this: Cannot our cattle-feeders turn this fact to practical useful account, as well as the perfumer, by putting animals that are ready to be slaughtered, for a week or more previous to killing them, upon some diet that will communicate an improved flavor to their flesh. It is usual, I know, in the case of animals fattened upon articles of an objectionable flavor, to change the food for a short time before slaughtering; thus affording time for the dissipation of the disagreeable flavor by the animal heat. But my suggestion goes a step further. I would, in addition to getting rid of what is unpleasant, seek to replace it with something else that is positively pleasing to the palate. The way which occurs to me of attempting to carry this idea into actual effect, would be to give the animal nothing for a week or more before it is killed but grain, and the very finest quality of hay; such in fact as has received special preparation to adapt it to this purpose; being made from clover and sweet-scented meadow grasses, cut early, while in full bloom, and well pressed as soon as sufficiently dry, so that their natural bouquet may be as perfectly, and fully preserved, and retained as possible.

W. O. E.

A Short-horn Cross.

"I have kept them pure, crossed the short horn cow with the Devon bull, and I crossed the Devon cow with the short-horn bull. In either way they have made a larger return, and paid for their meat much better than the pure Devon; but by far the greatest success has been to commence with the Devon or native cow and pure short-horn bull, and forever after using the short-horn bull. I have also used the Devon bull on the cross from the Devon cow and short-horn bull; but the progeny rapidly declined, and no trace of the short-horn remained. In these days of great consumption and high prices, it does not pay to stick to stock the breed of which requires four or five years to mature; but I am firmly of opinion that if pure short-horn bulls were used on the native cows and their crosses in the different districts of the United Kingdom for a few years, our beef supplies would be doubled. Many farmers have a great horror of crossing their stock, whilst others admit that the first cross is all that they could wish, but after that it is all "gone goose" with the next generation. Of such I would ask, Have you ever tried? and, if so, How? and, With what object in view?

My theory has always been—and practice and observation have fully borne me out—that we can make almost anything we like of our flocks and herds in a few years, by fully adhering to pure male animals of the kind we wish them to resemble. If beef is our object, use pure high-class short-horn bulls always; never by any chance or pretence use a cross-bred bull, even if he be the best animal you can procure, and if the cross were only once a dozen generations back. It is the use of cross-bred males on cross-bred females that has made so many people distrustful of any but the first. I wish to lay great stress on the using of pure-bred Short-horn bulls, by which I do not exclusively mean those fancy-priced beasts that figure so prominently in the agricultural periodicals, but ones selected from a good herd, where pedigree sires have been used for at least twenty years on cows of undoubted short-horn blood, and that have not been artificially forced. It is not difficult to purchase hundreds of such at reasonable prices."

The above is the testimony of an English breeder as given in a recent number of the *Mark Lane Express*. It is we believe a fair statement of the facts as they will be brought out by the experience of every observant stock raiser. But it is not needful that all should go to the trouble of demonstrating this for themselves. Impartial testimony is worth heeding, and that unanimously points to the Short-horn as the best animal for grading up with, and to the use invariably of pure-bred rather than cross-bred bulls.

Fattening Pigs.

The Michigan Farmer says:—One of the best pig breeders we know is W. Smith, the well-known master of the Marine Meat Market in Detroit. He has a taste for keeping the best hogs that are to be had. Few can excel him in the fineness of pure-bred Suffolks, Essex, Berkshires and Polands which he breeds. He has the faculty of making the most out of the pig that can be made. One of his points in fattening a pig is the use of the penstock to wash it clean, and the curry comb to keep its skin in a perfectly healthy condition; he is also particular to have it fed regularly every day, always at the same time to a minute. He changes the food from time to time, and when once the pig has started to get fat it is never allowed to go back.

One of the best kinds of food to start pigs with consists of peas or beans mixed with the offal of the dairy or the buttery, with a little fine corn-meal thrown in. Barley-meal is excellent, or crushed oats, but no food is equal to peas for a food to start on. Both peas and corn should be steeped in water, the hotter the better, and allowed to stand and soak up all they will. We notice this is the treatment that makes Smith so successful.

Some of his pigs when started will gain three pounds a day; and we have seen in his stalls Essex and Suffolk crosses that would dress 330 pounds at ten or eleven months old. But one of the fattening processes was a bath, with a flexible hose, at least twice a week. The hogs get so used to this that they like it, and seem to know when they are to enjoy this luxury, for they will come out and lie down as quick as the water begins to play upon them.

It is the quick fattening that pays, and hogs thus treated make as profitable a return, even with pork, at 5 to 6 cents, as any part of the farm produce.

Then again a hog should have a dry place to lie in, in fact, a good, well sheltered pen, with a dry plank under him, where he can sleep without disturbance, somewhat dark and shady, with no drafts of wind penetrating through it, rather low in the roof, so that the animal heat he generates will surround him with a temperature that is pleasant; and when accustomed to be fed regularly there is no animal mor punctual in its appearance at the trough. Then he should be fed all he will eat—not an ounce more. No food should remain in the trough after he gets through, and then it should be thoroughly cleaned out.

When put up to feed in this wise the hog does not need any exercise, nor does he require space for it. His whole comfort is in returning to his lair, and he has a good opportunity, undisturbed by outside affairs, to increase in weight, and to make an ample return to his owner for the food he has enjoyed. Occasionally a little sulphur, a little salt, a handful of ashes or a quart or so of charcoal may be put in his trough. But clean styes and such feeding as we have mentioned, is the true secret of fattening hogs quickly.

No good Farming without Stock-Keeping.

J. B. Lawes the great indefatigable experimental farmer of England, gives it as his decided opinion that the fattening of animals on the farm is the only legitimate and profitable farming. And although he uses a large quantity of chemical manures, he does it only as a supplement to increase the stimulus to his farm-yard manure. He says that for every twenty-five pounds of food devoured by an animal he leaves twenty pounds in excrement, and this is by a growing animal; if the animal is fully grown, it takes no part of the food to form his flesh and bones. Hence it is that the English farmer buys young three year old steers in the fall, to eat his cut hay and straw, oil meal, and roots in winter to fatten them for market in the spring; he well knows that the manure they make nearly pays their keeping.

John Johnston the father of tile draining in Western New York buys store sheep in the fall to fatten for spring market, feeding them through the winter on cut straw, clover hay, with Indian meal and Wurtzel beets; and he considers the quality of his manure is enough improved to pay for the meal and roots.

To put on fat to an animal requires neither mineral matter or nitrogen, only available carbon and the elements of water.

Thus to form 100 lbs. of muscular flesh and bone in a growing animal it takes
Water 77 lbs.
Fibrin, flesh and blood former 22 "
Phosphate of Lime $\frac{1}{2}$ of a lb.
Other mineral matter $\frac{1}{2}$ " " "

As stall manure supplies the nitrogenous fibrin, the potash and a good part of other mineral substances, if there is only enough of it to dispense with concentrated fertilizers, the money they cost is saved. Yet the best farmers do not neglect to supply themselves with bone material and other Commercial manures to quicken and eke out their farm-yard manures.

Joseph Harris of Morton Farm near Rochester, perhaps the best farmer in both theory and practice in this State, says: land never should be so exhausted of vegetable matter as to require a green crop to be ploughed in, he says feed your clover and apply the dung made from it to the field, be it meadow or fallow. But if clover is ploughed in, it should be first well limed, to promote its decomposition; and lime itself is a capital manure for the Clover crop.

Southern Cultivator.

How He Did It.

We know a farmer, now in comfortable circumstances, who beginning with a few cows and constantly increasing their number, paid all the expenses of running his farm, all the grain bills and brought up his farm to a splendid condition solely from the profits of his milk. His system of management was to buy good cows at the outset. He required that they should average each more than the can per day, season in and out, which many milk raisers are content with. His farm at the outset was run down and did not yield hay enough hardly to pay for the cutting.

Buying grain by the ton, and feeding it out to the cows; spreading the manure on the land and turning it over and sowing rye and oats and millet to be used successively for fodder; turning over more land and laying it down to grass; all this time selling his milk and buying grain and more cows, he now produces forty cans a day. He is obliged to sell hay because he makes more than he can possibly use; and his management is such that he actually more than pays for all the grain that he buys solely from hay sold off his farm.

He believes in soiling cows; in fact he says he can't afford to pasture them, believing that the increase of their manure will more than compensate for the extra labor employed in soiling.

Two smart men can do all his work and not be over driven at that. He sells his cows to the butcher when they have reached the minimum product of milk that he counts on; and the prices realized are, because of their fine condition, often greater than the original cost of the animal. We know another farmer who manages much the same way, depending on a liberal grain feed and soiling, and putting every dollar made on the land. He buys what would be termed poor stock, that is, cheap, thirty or forty dollar cows, and looks to less profit from his milk than from the increased value of the cows for beef, and the increase of his manure pile. However, he is now rich and his money has been made solely by the above management.—*Mass. Ploughman.*

The Common Colt-Breaker and the Trainer.

The difference of the system of the common colt-breaker and the trainer is this: The first, by punishment and brute force, breaks his colt of doing wrong; the latter teaches him to do right; he takes care to avoid his being placed in situations and under circumstances that might induce him to rebel. Let the common breaker get a colt that is nervous, timid, and apt to be frightened at anything he meets or sees, what would he do? He would take the horse purposely where he would be sure to meet constant objects to alarm him; and every time he starts the whip goes to work. Now, if this fellow had a head that was of any use to him, he would reflect a little, and this would show him the folly and brutish ignorance of his conduct. So because the colt is alarmed already by what he sees, he frightens him ten times more by voice and whip. Hence we so often find that after a horse has shied, say at a carriage, when the object has passed it takes a considerable time before he becomes pacified. All this arises from the dread of punishment which he has been accustomed to. Horses have good memories, and do not easily forget ill-usage.

We frequently see a man on his horse refusing to face an object, determine that he shall do it, and immediately force him up to it. The very exertion used to make him do this, increases his terror of it, and a fight ensues, when, should the man gain his point and get him up to the object, the moment his head is turned to leave it he bolts off as quickly as possible; he has not been reconciled to it, and will shy at it just as much (perhaps more) the next time he sees it; for now he recognizes it as an enemy, and has been taught to know by experience what he only feared before; namely, that it was a something that would (and as he found, did) cause him annoyance and injury. Had the man, as soon as he found his horse alarmed on seeing this object, stopped him, let him stand still, caressed and encouraged him, the horse would have looked at it, and, finding no attempt made to injure him, would have gradually approached it: then smelt of it (if a stationary object), and finally have walked away very coolly, collectedly, and calmly; and the next time he saw it, or a similar object, would care very little about it.

A little reflection would tell us that these would be the different results of the two different treatments; but, unfortunately for horses, reflection and consideration are not the predominant qualities of the generality of horse-breakers.

Now we will suppose a trainer had a colt which was easily alarmed by passing objects, other horses galloping near him, or persons coming up to him; how would he be treated? He would be sent away by himself, where it was certain no objects would approach close enough to alarm him; here he would be exercised, whether for three days or three weeks, till he had gained composure and confidence; he would then be brought a little nearer to the subjects of his alarm, where they might attract his observation, but could in no way annoy or frighten him. Day by day he would be brought still nearer to them, till they became so familiar to him that he would cease to notice them at all, or merely as indifferent objects. Assuredly this is a more reasonable mode of treatment than the one generally resorted to; and what is more, it never fails—the fault or infirmity is got over, and for ever.

There is one description of horse with which we might be tempted, perhaps, to oblige a common colt-breaker; namely, some brute which appeared so incorrigibly sulky and vicious that we might not wish men who were valuable for better purposes to undergo the trouble and risk of having anything to do with him; not but that we should be quite aware that a man with a better head would be more likely to succeed; but for the reasons we state, we would, perhaps, give the savage to one of these kill-or-cure gentry, and let the two brutes fight it out.—*Prairie Farmer.*

SCOURS IN SHEEP.—For ordinary cases of diarrhoea in sheep, change the food and give the sheep all they will eat of a mixture of equal parts of Glauber salts (sulphate of soda) and common salt. This may apparently increase the difficulty at first, but will usually effect a cure. Where there are only one or two sheep affected, and it is probably caused by weakness, give a pint of fresh milk made into a porridge with a tablespoonful of wheat flour once a day. If this does not effect a cure, give two ounces of Glauber or Epsom salts and 20 drops of laudanum, and in five hours give 10 drops more of laudanum. If the sheep is very weak, give half a pint of warm ale with a little ginger or gentian.—*Am. Agr.*

Periods of Gestation.

The French investigator, M. Leissier, in an examination of the time of 582 mares, found that the shortest period was 287 days, and the longest 419, making the extraordinary difference of 132 days, and of 89 days beyond the usual term of eleven months. The cow usually brings forth in about nine months, and the sheep in five. Swine usually farrow between the 120th and 140th day, being liable to variations, influenced, apparently, by their size, and by their particular breeds.

Blain's Encyclopedia gives the following table of gestation and incubation in various animals and birds:—

	Shortest period. Days.	Mean period. Days.	Longest period. Days.
Mare.....	322	347	419
Cow.....	240	283	321
Ewe.....	146	283	161
Sow.....	106	115	143
Goat.....	150	166	163
Dog.....	55	60	63
Cat.....	40	50	56
Rabbit.....	20	28	36
Turkey.....	24	26	30
Hen.....	19	21	24
Duck.....	28	30	33
Goose.....	27	30	33
Pigeon.....	16	18	20

A mysterious disease, which alarms the farmers in Connecticut, has appeared among the cows in some sections in that State. They dry up when first taken, droop for twenty-four hours or so, and then die. No one knows what the disease is, or how to treat it.

Poetry.

The First Frost.

BY W. P. CLAREL.

Alas for my poor floral pets,
This cold September morn!
My garden all its bloom forgets,
And languishes forlorn!

The "blushing honors" yesterday,
Hung thick on every stem;
"A frost, a nipping frost," to-day,
Has dimmed each brilliant gem.

Nor are my pretty flowers alone
Victims to this disaster;
Geranium,—fuchsia, zinnia,—gone,
Balsam and phlox and aster.

My grapes, in their pe clusters gay,
With many a ruddy hue;
Tomatoes,—corn in tall array,—
Melons are blasted too.

How changed and desolate the scene,
Beneath the frost-king's sway!
An Eden yesterday, I ween,
A wilderness to-day!

And such is life,—its beauty caught
With many a frosty nip;
Its forms with youth and vigor fraught,
Seized by death's cruel grip.

'Twill man in all his pride, alas!
Owns the destroyer's power;
Comes up to be cut down as grass,
And withers like the flower!

But frost and death that seem to slay,
Do but transmute and change;
And nature's many colors gay,
Transfer and re-arrange.

This chilly air that robs the flowers,
With beauty loads the breeze;
To form a thousand fairy bowers
Among the forest trees.

For many a long autumnal day,
The garden's brilliant hues,
Shall through the greenwood's side array,
Their loveliness diffuse.

The garden's narrow bounds expand,
And, round the landscape wide,
An Eden beautiful and grand,
Bursts forth,—October's pride!

And Earth, a little garden too,
Bedecked with transient flowers;
Yields up each bright and lovely hue,
To grace heaven's fadeless bowers.

Beyond the dark and dreary tomb,
The life we now deplore,
Shall flourish in immortal bloom,
To wither,—never more!

Miscellaneous.

The Buzzing of a Bee.

It is such a pleasant thing to live. There is the hive to furnish, there is the dear nest underground. They forget yesterday's rain, they fear not tomorrow's frost; the sun is so warm to-day on their little brown backs, and here is such store of honey. It is true, the humble bee is such the more dazzling—he has the prestige of size, moreover; but the other may find some favor in his new bronze and gold armour and his coarse velvet mantle. There are few creatures that can afford to labor in half such array as that, but when the work is so nice one's dress must correspond. It would never do to rumple round rose-leaves, black as a beetle, and expect not only to be heaped with delicacies, but to be entrusted with love-tokens. One cannot be so splendid as the moths and sphinxes, who have nothing to do all the summer but to lay eggs among the petals that their offspring may devour them; no, there is work to be done. But though one toils, one has a dignity to maintain; one remembers it readily when he has been made the insignia of royalty; when kings have worn his effigy one cannot forget that he has himself been called the Wings-d Monarch of the Flowers. See him now, as he hovers over the small white clover on which he alights, whose sweets are within reach of his little proboscis; or, lost in that great blue-bell, swings it with his motion and his melody; or burrows deep in the heart of a rose, never rolling there, as it has erroneously been said, but, collecting the pollen with his pincers, swims over the flower while brushing it into the baskets of his hinder legs, and then lights again for a fresh fare, till, laden and regaled, he loudly issues forth, dusty, with treasure; the Merovingian kings, who powdered their heads and their beards with gold, were no finer fellows than he. But a few months' wear and tear will suffice to tarnish him. By and by the little body will be battered and rusty, the wings will be ragged and worn. One day as he goes home heavily burdened, if no sailing blue-winged swallow have skimmed him up long ago, the flagging flight will fail, a breeze will be too much for him, a raindrop will dash him down; he will fall, and some garden-toad, the focal length of whose vision is exactly the distance to which he can dart his tongue, will see a tired bee blundering across the sky, and will make a morsel of him, honey-bag pollen, and all. Yet that is in the future, far outside the focal length of any bee's vision—that vision which finds creation so fair and himself the centre of it, each rose made for him to rifle, and welcome everywhere.—*Our Own Fireside.*

Oil of Vitriol for Weeds.

Take an old blacking bottle, with a wire round it to carry it by, and a stick to dip with. The stick should be notched round for an inch or two at the end, the better to hold the liquid. Just one drop quite in the heart of the plantain is sufficient to cause death, and the notched stick will contain at one dip enough to destroy three or four plants. If the acid is good the work of death can be both seen and heard, for the vitriol hisses, and it burns up the plantains in a moment. A row of plantain a foot wide sprang up on a lawn here where an iron fence formerly ran. The owner, seeing at a place he visited the good effect of vitriol, put the hint in practice. The plantains were killed in an hour, and have never appeared again. It is three years ago, and is impossible to recognize the line of the fence; it completely burns the roots out.

I have tried it on large dandelions with the same result. One of the young gentlemen here amused himself by hunting out the longest thistles he could find to experiment on; the vitriol completely killed them by eating the roots out. One drop will do. Care is required that it does not touch the skin, boots or clothes; it is not safe in the hands of children, but a man or woman with ten minutes practice can kill plantains much more quickly than any one can eat strawberries.—*Ex.*

Sir James Mackintosh once asked Dr. Parr to join him for a drive in his gig. The animal getting restive, "Gently Jemmy," said the doctor, "don't irritate him; always sooth your horse, Jemmy. You'll do better without me. Let me down, Jemmy." But once safe on ground, "Now, Jemmy," said the doctor, "touch him up; never let a horse get the better of you. Touch him up, conquer, do not spare him. And now I'll leave you to manage him; I'll walk back."

Wild Rice.

Among the indigenous grains of North America, wild rice or the *Zizania* of the Chippawa Indians, is the most important, as an article of food. It is in constant use by all the Indians of the great north-western lakes, lagoons and rivers between the Mississippi and Lake Superior.

This plant delights in mud and water five to twenty feet deep. When ripe the slightest wind shakes off the grains. After being gathered it is laid on scaffolds about four feet high, eight wide, and twenty to fifty long, covered with reeds and grass, and a slow fire is maintained beneath for thirty-six hours, so as to parch slightly the husk, that it may be removed easily. Its beard is tougher than that of rice.

To separate it from the chaff or husk, a hole is made in the ground a foot wide and one deep, and lined with skins; about a peck of rice is put in at a time; an Indian steps in, with a half jump, on one foot, then on the other, until the husk is removed. After being cleaned, the grain is stored in bags. It is darker than the Carolina rice. The hull adheres tightly, and is left on the grain, and gives the bread a dark color when cooked. The husk is easily removed, after being exposed to heat. In Dakota the men gather this grain, but all other grain the women collect. An acre of rice is nearly or quite equal to an acre of wheat in nutriment. It is very palatable when roasted and eaten dry.—*Rural Press.*

Friend Morris, of the *Practical Farmer*, perpetrates the following little joke:—"In press and will shortly appear—several times *Col. Star Cheeses*." For shame, Paschall!

CAT SHOW AT THE CRYSTAL PALACE.—On Saturday the fifth annual cat show at the Crystal Palace was thrown open to the public, and from the interest manifested on Saturday by the vast and fashionable assembly at the palace it may fairly claim to be considered exceedingly popular. Of the 300 specimens of the feline race exhibited there could scarcely have been one that did not receive a visit from its owner or some members of the family. The general arrangements of the show, which were carried out by Mr. F. W. Wilson, of the Natural History Department, were excellent; whilst the judges, Mr. Harrison Weir, Mr. J. Jenner Weir, and Mr. P. H. Jones, had without doubt made a careful selection of the animals entitled to prizes. That distinguished individual, the tortoiseshell tom cat belonging to Mrs. L. Smith, who made such a sensation last year, appears again without a rival, and carries off as a matter of course the first prize in his class. His owner values him at £20. The ladies are to the fore as exhibitors throughout, and have been very successful in carrying off prizes. There are altogether fifty-three classes, nine being entirely new since last year. There are two curiosities in the collection. The one is No. 142, where "Sue," a kitten of ten weeks, acts the part of mamma to a bull-terrier pup—Nell—whom she keeps watch and ward over with the greatest vigilance, notwithstanding that terrier tops the age of her foster-mother by a week. The other is a Siamese cat of a black fawn color, with a round head somewhat like that of a pug-dog.—*N. B. Agriculturist.*

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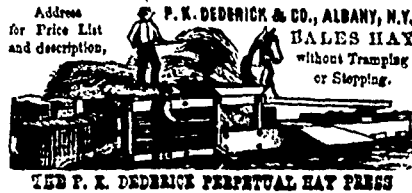
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THE CANADA FARMER is printed and published by the GLOBE PRINTING COMPANY, at 26 & 28 King Street East, TORONTO, CANADA, on the 15th and 25th of each month. Price one-dollar and fifty cents per annum, free of postage.

GEORGE BROWN, Managing Director.