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THE ONTARIO FARMER,

A MONTHLY JOURNAL OF

Agriculture, Horticulture, Country Life, Emigration, and the Mechanic Arts.

VOL. II.

HAMILTON, SEPTEMBER, 1870.

No. 9.

Editorial.

THE A. B. C. SEWAGE PROCESS.

What to do with the various forms of matter, included in the term "Sewage," has for many years puzzled the minds of scientific as well as practical men in many of the larger towns and cities of the old world; and it is a question that has lately been earnestly asked in several places of the new. Whether regarded in a purely economic or sanitary point of view, or both enjoined, it is a question of immense importance, one in which the average length and happiness of human life are deeply involved. It has been found practically that irrigation by town sewage over the surface of grass land is in certain localities a cheap and efficient way of using the material, and even to arable land it has in some instances been used with signal advantage. But in too many instances it has been found that extensive use of the ground thus irrigated have been rendered insalubrious, and the people residing in or near such localities have been peculiarly liable to ague and other forms of fever. The precipitation of the solid matter held in solution in sewage by chemical means has hitherto been an expensive and somewhat unsatisfactory process; the amount of water generally in all sewage having so large a proportion to solid matter possessing manurial value.

We have noticed just recently that a new and apparently most efficient and economical process has been devised, and practically carried out in a few places in England. At Hastings, a large and fashionable watering place on the Sussex Coast the improved method has been attended with signal success; the nature of the manure obtained promising to meet all current expenditure, and have a satisfactory profit in the capital invested; and thus securing the great sanitary object, improved health and consequently a prolonged average of life, with little if any extra expense to the inhabitants of cities. It would appear that the new process can be brought into working order without a very large outlay of capital, and within a very comparatively short period of time. The subjoined description of

the process is from Mr. Rock, a gentleman who has the management of the works at Hastings:—

"This process aims at extracting from the sewage, the fertilising matter which it contains, and reducing it to a dry and marketable manure, while the sewage water, when so treated, is so far purified as to admit of being discharged into a town river, or into the sea, without polluting it. This important change is effected by the addition to the sewage of what is known as the 'A. B. C.' compound, consisting of animal charcoal, blood, clay, alum, magnesia, and a few other chemicals, the alum, the blood, and the clay being the principal ingredients, and supplying, by their initials, the name which the process has received. This mixture being carefully prepared, its action upon ordinary sewage is most singular. It is itself of a darker colour than sewage, more muddy in appearance, and perfectly opaque. On being added to the sewage, however it is seen to break up the whole mass of it into flakes, which are said to assume a certain regularity of forms easily recognisable. The compound being well agitated, and then left to itself, a precipitation of the flakes immediately takes place, and in the space of about two minutes a stratum of black, muddy substance, is formed at the bottom of the vessel, which is afterwards converted into the manure sold by the company, while the supernatant fluid is bright, and almost free from colour and offensive smell. The sewage brought by the sewer is received into a deep chamber, 12 feet square, where it is acted upon by a powerful agitator. The flow of the sewage is then checked, and during this slight detention, the addition of the 'A. B. C.' takes place. It then flows onward into a reservoir of about half an acre in extent, where the process of precipitation takes place in consequence of the admixture of the 'A. B. C.' The precipitation could take place in an hour, but six hours on an average is allowed, because the tide must be allowed to fall to a certain level before the effluent water can be let off. The letting off of this water is a matter of great care and delicacy, and is conducted by means of an elaborate system of penstocks set in transverse walls in the reservoir, by means of which the depth of the deposit can be adjusted according to circumstances, and the water let off in any required degree of purity. The deposit is pumped up into a building, where it is conveyed into centrifugal drying machines, of which there are eight, six of which are constantly at work. There being at the rate of 1,600 revolutions a minute, the water held by the mud is almost all driven out of it. The expelled water is returned into the sewer, or employed in making 'A. B. C.' according to the state in which it is found to be. The nearly dried mass of solid matter is then sprinkled with sulphuric acid, and forced through a machine constructed like a brick machine, by which the acid is brought into imme-

diate contact with every portion of the mass, and fixes the ammonia it contains. The product is then dried on a heated iron floor, and thus a rich, nitrogenous manure is produced, closely resembling Peruvian guano in character and chemical composition."

BORROWING MONEY.

One of the truest and best of Benjamin Franklin's maxims is, "He who goes a borrowing goes a sorrowing," and Holy Writ declares, that, "the borrower is servant to the lender." There are cases in which it is advisable and necessary to borrow, but people should "think twice" before they "leap once" into debt, and especially it is undesirable, if it can possibly be avoided, to put a mortgage on our homestead for a loan. Sometimes this is unavoidable and it is done at the bidding of some inexorable necessity, with great reluctance and grief. One of the best things we have lately seen in the pictorial way was a picture in one of the illustrated journals entitled "SIGNING THE MORTGAGE." The artist had portrayed in the countenances of a middle-aged man and his wife, the tyranny of circumstances, the struggle with pecuniary difficulty, the inevitable resolve, the conflicting feelings with which the sorrow-stricken couple were proceeding to sign away their exclusive right and title of the dear old homestead. But there are some who remember their properties with mortgages in a very heedless, reckless way. It gives them no distress to do so; money they want and money they will have; they do not forecast the future and how next to impossible it will be to pay off the principal. Such easy-going borrowers will do well to "read, mark, learn, and inwardly digest" the following remarks of Henry Ward Beecher on this subject:—

"No blister draws sharper than interest does. Of all industries none is comparable to that of interest. It works all day and night, in fair weather and foul. It has no sound in its footsteps, but travels fast. It gnaws at a man's substance with invisible teeth. It binds industry with its film, as a fly is bound in a spider's web. Debts roll a man over and over, binding hand and foot, and letting him hang upon the fatal mesh until the long-legged interest devours him. There is but one thing on a farm like it, and that is the Canada thistle, which swamps new plants every time you break its roots, whose blossoms are prolific, and every flower the father of a million seeds. Every leaf is an awl, every branch a spear, and every plant like a platoon of bayonets, and a field of them like an armed host. The whole plant is a torment and a vegetable curse. And yet a farmer had better make his bed of Canada thistles than attempt to be at ease upon interest."

TRANSMISSION OF CUTTINGS TO FOREIGN PARTS.

The difficulties of transmitting heads and plants long distances, especially when they have to cross

the torrid zone, are well known to such as are practically conversant with the subject. We find some interesting and suggestive parts in the report of the Horticultural Society of Victoria, for 1860, that are well deserving of attention.

It appears that the Australian Society received from Chiswick, in the vicinity of London, in April, 1868, some cuttings of fruit trees taken in October, 1867. There being no storks in a condition for grafting when the cuttings were received (April), scions were preserved until the following August, when they were grafted. It will thus be seen that a period of more than nine months elapsed from the time they were cut from the trees; nevertheless, 66 apples, 72 pears, 24 figs, 5 vines, and 8 plums were saved of this consignment. The experiment is exceedingly interesting, as it proves conclusively that in the form of cuttings all the new varieties of fruit trees may be introduced with a reasonable prospect, if not absolute certainty, of success. The importance of this result will strike all who have experienced the losses and disappointments attending the importation of trees, especially from great distances. The introduction of new varieties is by this means rendered a very simple and inexpensive matter. A car of 6 cubic feet capacity will contain thousands of cuttings, the trees of which would require a space equal to many hundreds of tons measurement. Another advantage with the cuttings is, that the care may be hermetically sealed and stowed away like ordinary merchandize, whereas special instructions as to care (which is seldom exercised) have to be given, and as to the storage of the cars containing trees.

THE PASSION FOR NEW FRUITS.

It is a mistake to suppose that the desire for something new, but not therefore necessarily "improved" is a characteristic of horticulture exclusively confined to more recent times. Quintinie, in his *French Gardener*, published in 1696, makes some remarks, from which we learn that horticulturists nearly two centuries ago were troubled with the same mania for new things that they are at the present time. He says:—

"How happy would I have been if, during the many years that I was serving my apprenticeship in this art, under the conduct only of my own head, I had not with me able direction to guide me; for, above all things, I should not have needed one to cure me of a kind of mad fancy one has commonly for that which they call new fruit, though they try often from nothing else but some common sort disguised under some new names; which is an unhappiness caused partly by the ignorance of some persons and partly by the affectation of some fanatical, presumptuous pretenders."

Notwithstanding it is a fact that a much wider taste for, and correct scientific information of horti-

culture, have in modern times introduced some really new and more valuable varieties of fruit, too many persons know from sad experience that a great deal of what is called new is either not so, or, at heart not "improved." It has been hinted that Quintinie wrote the above "just after having been swindled by some pedlar who sold him a few dozen plants of Mexican everbearing Strawberries, Naomi, or Mammoth Cluster raspberries. His words certainly do sound very modern. Will some antiquarian tell us whether Palmyra of old had any prominent nurseryman?"

THE CROPS.

Taking "a conjunct view" to use an ecclesiastical phrase, of the various reports that have come under our eye, together with our own observations and inspections, we are inclined to think that "average" is the word that will best characterize them in a breath. As a whole they are scarcely so good as the model nature of the season would lead us to expect. With the exception of a dropping tendency in many sections during haying and harvest, the season has been most exemplary. We fear that indifferent farming is the key to this year's riddle to the incongruity between the weather and the crops. In reading over the crop returns along the line of the Great Western Railway, we find such statements as the following:

"Fall wheat is very fine but will yield only 15 or 20 bushels per acre." "Estimated yield, fall wheat 10 or 12 bushels per acre; spring wheat 10 to 14 bushels, &c." In various cases, good growth and fine promise are reported along with very meagre averages. The truth is our lands are starved for want of manure, and scratched over instead of being thoroughly tilled. Better farming will tell its tale both when the season is favorable and when it is unfavorable. On the whole we have to rejoice over a plenteous harvest, and while the staples are not deficient, we have an abundance of fruit especially apples, which are, after all among fruits, what wheat is among grains. The yield of honey is better than usual, but most bee-keepers commenced the year short of stocks owing to the losses last winter.

FRUIT GROWERS' ASSOCIATION OF WESTERN NEW YORK.

The summer meeting of the above named society was held June 22nd at Geneva, in connection with the Horticultural Society of that place. Unable to attend in person, we have read with interest the reports given by exchanges, from which we learn that owing to the prevalence of dry weather, the display of fruit was rather limited although it embraced a good many varieties of strawberries, cherries, currants and gooseberries. A seedling gooseberry about the size and shape of the well-known English "Whitesmith" was exhibited by Mr. Siner of Geneva, which has thus far been free from mildew. Should this on further trial prove a permanent characteristic,

the new berry will be hailed with a cordial welcome, by hosts of gardeners, both professional and amateur, who are weary of growing that little apology the "Houghton," though glad of it when all others fail. A strawberry of large size and showy appearance was on exhibition, which its originator proposes to name the "Panic," in token let us hope, of its effect on rival berries, rather than on eaters of it. There was a choice display of flowers and foliage plants; conspicuous among them the Golden banded Lily, the miniature Ampelopsis, and a very fine collection of double geraniums shown by Mr. Charlton of Rochester. Discussions were had on ornamental tree planting, different varieties of fruit, the benefit of thinning out fruit, the best method of warring against the curculio, and apple-tree borer, and other topics.

ORGANIC MATTER IN WATER.

It cannot be too widely known that impure water is among the most prolific causes of disease among men and domesticated animals. At a recent meeting of the London Chemical Society, Mr. Heisch read an excellent paper on this subject. He had been called to assist a large manufacturer of Canada, who suddenly found it impossible to make an article that would keep; after a day or two it became turbid, and its odor disagreeable. On examining the liquid under the microscope, it was found full of small spherical cells, with, in most cases, a very bright nucleus. After investigating all the materials employed, the water was detected to have this fault. On putting a few grains of the purest crystalline sugar into some of the water, it became turbid in a few hours, and contained the cells previously described.

On further inquiry it was found that a new digging had recently been made in the vicinity of the well, and some drainage was accordingly supposed to have found its way into the well. This induced the experimenter to try various samples of water in the same manner, and in every case when diarrhea or other mischief could be traced to the use of a certain water, when that water was treated with sugar, the same cells made their appearance, usually within 24 hours, if kept at 60° to 70°, and plenty of light was admitted to the bottle containing the fermenting liquid.

As sewage was thus ascertained to be the cause of bringing into activity these cellular germs, Mr. Heisch mixed a minute quantity of sewage with a sugar solution that was free of cells, and found the solution very soon to contain those germs. Experiments with other matter besides sewage were made, but no germs of this particular kind were obtained. Filtering the water through the finest Swedish papers appears to be ineffectual to remove the

germs, and boiling it for half an hour did not appear to affect their vitality. Filtration through a good bed of animal charcoal seems to be the only effectual mode of removing them; but it is necessary to air the charcoal from time to time, else it loses its purifying power.

The subject is being more thoroughly investigated by this able chemist, who thinks that wherever the described germs occur in water they are distinct evidence of sewage contamination.

GRAIN-BINDING BY MACHINERY.

The *Chicago Republican* gives an interesting account of the successful trial of a new machine for binding as well as cutting grain. It is the invention of Mr. S. D. Carpenter of Fond-du-Lac, Wisconsin, and was tested purposely in a very miscellaneous harvest field, where hills and hollows, rough and smooth places alike, were to be found. It was tried upon tangled as well as upstanding grain, also upon grain in various degrees of ripeness. In every instance it is reported to have done its work well, and it is estimated that in an ordinarily clear and level field, a span of horses will cut and bind 8 or 10 acres per day. We trust that further experiments will confirm these reports, and that we may soon have binding as well done in the harvest field by machinery as cutting is.

AGRICULTURAL EXHIBITIONS FOR 1870.

CANADA.

QUEBEC	.....	Montreal	.....	Sept. 13-16.
Peterborough (Hort)	.....	Peterborough	.....	Sept. 14.
MIDDLESEX, West	.....	Strathroy	.....	Sept. 21.
Galt (Hort.)	.....	Galt	.....	Sept. 22.
OTTAWA	.....	Ottawa	.....	Sept. 21-23.
Blandford and Wilmot.	.....	Hamburg	.....	Sept. 23.
Pilkington	.....	Elora	.....	Sept. 23.
Tuckersmith	.....	Seaforth	.....	Sept. 22-23.
Godrich (Hort)	.....	Godrich	.....	Sept. 23.
Hay	.....	Zurich	.....	Sept. 23.
Dereham	.....	Tilsonburgh	.....	Sept. 26-27.
Muskoka Union	.....	Bracebridge	.....	Sept. 27.
Eramosa	.....	Centre Inn	.....	Sept. 27.
Knox, North	.....	.....	.....	Sept. 27-28.
Minto	.....	Harriston	.....	Sept. 28.
Nottawasaga	.....	Nottawa	.....	Sept. 28.
Roxborough	.....	Moose Creek	.....	Sept. 28.
Williamsburgh	.....	Bouck's Hill	.....	Sept. 28.
E. MIDDLESEX & LONDON	.....	London	.....	Sept. 27-29.
HURON, North	.....	Clinton	.....	Sept. 27-28.
HURON, South	.....	Exeter	.....	Sept. 29-30.
Clifford	.....	Clifford	.....	Sept. 29.
Niagara	.....	Niagara	.....	Sept. 29.
Bluevale and Wingham	.....	.....	.....	Sept. 30.
VICTORIA, South	.....	Lindsay	.....	Sept. 29.
Uxbridge	.....	Uxbridge	.....	Sept. 29-30.
WELLINGTON, Centre	.....	Fergus	.....	Sept. 29-30.
Mara and Rama	.....	.....	.....	Sept. 29.
Fenelon	.....	Fenelon Falls	.....	Sept. 30.
PETERBOROUGH, West	.....	Peterborough	.....	Sept. 30 Oct. 1
Elma & Wallace	.....	Listowel	.....	Sept. 30.

Nassagaweya	.....	Haltonville	.....	Sept. 30.
Mariposa	.....	Oakwood	.....	Oct. 1.
HASTINGS, North	.....	Woodstock	.....	Oct. 3-4.
Oxford, North	.....	Woodstock	.....	Oct. 3-4.
PROVINCIAL	.....	Toronto	.....	Oct. 3-7.
Wellesly	.....	Wellesly	.....	Oct. 3.
NEW BRUNSWICK	.....	Fredericton	.....	Oct. 4-7.
Arran	.....	Tara	.....	Oct. 5.
Proton	.....	Cedarville	.....	Oct. 6.
BRUCE, North	.....	Paisley	.....	Oct. 7.
West Zorra	.....	.....	.....	Oct. 7.
NORTHUMBERLAND, East	.....	Warkworth	.....	Oct. 10-11.
BRUCE, South	.....	Walkerton	.....	Oct. 11-12.
Elma	.....	Elma	.....	Oct. 11.
Hibbert	.....	Hibbert	.....	Oct. 11.
Oxford, South	.....	Otterville	.....	Oct. 11-12.
PERTH, South	.....	St. Mary's	.....	Oct. 11-12.
Simcoe	.....	Simcoe	.....	Oct. 11.
WATERLOO, North	.....	Berlin	.....	Oct. 11-12.
WELLINGTON, North	.....	Arthur	.....	Oct. 11.
YORK, East	.....	Markham	.....	Oct. 11-12.
Barton and Glanford	.....	Glandford	.....	Oct. 11.
Puslinch	.....	Aberfoyle	.....	Oct. 11.
Oxford	.....	Duart	.....	Oct. 11.
Harwich	.....	Blenheim	.....	Oct. 11.
East Wawanosh	.....	.....	.....	Oct. 11.
West Williams	.....	Park Hill	.....	Oct. 11.
WELLAND	.....	Welland	.....	Oct. 11-12.
HARDIMAND	.....	Grafton	.....	Oct. 12.
PETERBOROUGH, East	.....	Norwood	.....	Oct. 10-11.
ONTARIO, South	.....	Whitby	.....	Oct. 11-12.
BRANT, North	.....	Paris	.....	Oct. 11-12.
VICTORIA, North	.....	Cambay	.....	Oct. 12.
Blyth	.....	.....	.....	Oct. 12.
HASTING	.....	Belleville	.....	Oct. 12-13.
WENTWORTH & HAMILTON	.....	Hamilton	.....	Oct. 12-13.
Derby	.....	Kilsyth	.....	Oct. 13.
Thorah	.....	Beaverton	.....	Oct. 13.
Grimsby	.....	Grimsby	.....	Oct. 13.
DURHAM, West	.....	Bowmanville	.....	Oct. 13-14.
NORFOLK	.....	Simcoe	.....	Oct. 13.
PERTH, North	.....	Stratford	.....	Oct. 13-14.
Kinloss	.....	Lucknow	.....	Oct. 13.
Artemisia	.....	Flesherton	.....	Oct. 13.
Kinloss	.....	.....	.....	Oct. 13.
Mono	.....	Orangeville	.....	Oct. 14.
South Monaghan	.....	Bloomfield	.....	Oct. 14.
NORTHUMBERLAND, West	.....	Coburg	.....	Oct. 13-19.
Darlington	.....	.....	.....	Oct. 27-28.
LINCOLN	.....	St. Catharines	.....	Oct. 18-19.

UNITED STATES.

Vermont	.....	Burlington	.....	Sept. 6-9.
New England	.....	Manchester N.H.	.....	Sept. 6-9.
American Institute	.....	New York City	.....	Sept. 9-No. 2
Ohio	.....	Springfield	.....	Sept. 12-16.
Iowa	.....	Keokuk	.....	Sept. 12-16.
Michigan	.....	Jackson	.....	Sept. 20.
Illinois	.....	Decatur	.....	Sept. 26-Oct. 1.
Wisconsin	.....	Milwaukee	.....	Sept. 27-30.
Woollen Exposition	.....	Cincinnati	.....	Sept. 21-Oct. 15.
New York	.....	Utica	.....	Sept. 27-30.
Northern Ohio	.....	Cleveland	.....	Oct. 4-7.
Kentucky	.....	Henderson	.....	Oct. 4-7.
North Carolina	.....	Raleigh	.....	Oct. 18-21.
Georgia	.....	Atlanta	.....	Oct. 19-26.

The last number of the *Nova Scotian Journal of Agriculture* gives a very favorable report of the crops in that Province. Most of them, especially the grain crops, are better than usual.

EDITORIAL GLEANINGS.

A movement is in successful progress for the establishment of a cheese factory in Grafton, which it is intended shall go into operation next spring.

The crops in Minnesota have suffered greatly from drought and it is reported will generally fall below the average. Corn, however, is an exception being a very large and satisfactory yield.

The Colorado potato beetle is not only giving trouble on our Western border but we are told by a friend who has been pestered with it in his own potato-patch, that it has been committing depredations in Paris, Ont.

SHEEP FAIR IN GALT.—There is to be henceforth, an annual sheep fair held in the town of Galt. The day appointed for this year's fair, is Oct. 14th. Galt is an excellent centre for a yearly sheep fair, and we have no doubt that if it is well managed the results will be most satisfactory.

The Wisconsin State Agricultural Society offers premiums of \$25 each on eight subjects, to wit:—Wheat growing in Wisconsin, Horses in Wisconsin, Cultivator of Timber in Wisconsin, Most Economical Use of Straw on the Farm, Practical Farming in the Prairie Districts—in the Oak Openings—in the Sandy Districts—in the Timbered Districts.

In addition to the ordinary and stereotyped prizes, the New York State Agricultural Society offer premiums at their forthcoming fair for essays and experiments; for the best specimen of farm book-keeping; the best examples of underdraining; of reclaiming swamp lands, of irrigation; the best experiments with wheat, liquid manure, feeding stock, etc. Besides these, special prizes are offered for tree planting, for crops, for the best vineyard, the best dairy, and the best managed farm. These are all objects of prime importance, and bringing them into prominence by public competition cannot fail to diffuse much valuable information, to stir up a rivalry of the most practical character, and to lead to the improved methods of husbandry.

WHEAT HARVEST OF SOUTH AUSTRALIA.—The Government returns of the wheat product of the season 1869-70 in South Australia show how deeply the farmer has had to suffer, though the gloomy prophecies of the present year have not been realized. The general average for the province is $3\frac{3}{4}$ bushels per acre, against 6,173,970 bushels; and the quantity of land reaped is 532,153 acres against 533,035, being a reduction of 900 acres. The quantity of flour available for export as compared with the surplus

following upon the harvest of 1868-69: local consumption will absorb something like 1,050,000 bushels, while seed for 540,000 acres will make away with about 810,000 bushels more. This will leave 1,200,000, or thereabouts, unappropriated, which, at 45 bushels to the ton, will leave 26,000 tons for exportation.

A commendable novelty in this year's prize list of the Royal Society of Great Britain has excited much interest, namely, the award of premiums for the best managed farms. The competition was confined to the County of Oxford, in which the show was held. The first prize, a silver cup, value £100, was awarded to Mrs. Millington, of Ash Grove Farm, Ardley, Bicester; the second, of £50, to John Treadwell of Upper Minchenod; besides commendations for other farms, and, one case the recommendation of a third prize. The farm of Mrs. Millington, we are told was by no means a model farm, in the general acceptance of the phrase, with extensive buildings, high-bred stock, and steam cultivation, and all the appliances of modern science, but was an ordinary tenant farm, judiciously managed in accordance with a tenant's limited capital, and with a primary view to profit.

PROVINCIAL EXHIBITION.—As will be seen by advertisement in this and preceding issues of the ONTARIO FARMER, the Provincial Exhibition will be held at Toronto, on Monday the 3rd of October, and continue each day to Friday the 7th. Entries for Horses, Cattle, Sheep, Swine, Poultry, Agricultural Implements, must be made on or before Saturday, September the 3rd. Entries for Grain, Field Roots and other farm products, machinery and manufactures generally, must be made on or before Saturday the 10th of September. The entries for Horticultural products, Ladies' Work, Fine Arts, &c., must be made on or before Saturday, Sept. 24th. All entries are required to be made with the Secretary, Hugh C. Thomson, Esq., Toronto. Prize lists and blank forms for making entries upon, can be obtained of the Secretaries of all Agricultural Societies, and Mechanics' Institutes throughout the Province.

John Stuart Mill says:—"Social reformers are always prone to believe that other countries are in advance of their own; but unhappily the difference is too frequently more apparent than real.

A Boston business man remarks of a native poet:—"He is one of those men who have soarings after the infinite and divings after the unfathomable; but who never pays cash.

The Farm.

STEAM CULTIVATION.

England, with fewer land owners than the State of New York, and with nearly all her farmers working leased land, has about eight hundred steam plows and cultivators in active use—cultivating not far from three hundred thousand acres; and the system of steam cultivation has there been an established success for a dozen years.

The story of the rise and progress of the improvement is really a wonderful one, and as I read of the impediments to its general adoption, through the long list of small fields, uneven surface, crooked fences, and crooked landlords, I long to see it gain a foothold on the prairies of our Western States, where every circumstance that could promote its efficient application seems ready-made to its hand. Thence, I am sure, by a reversal of the old rule, the course of its empire would eastward wend its way.

In the Journal of the Royal Agricultural Society for 1867, three hundred and thirty pages are devoted to the reports of the committees that had been detailed "to inquire into the results of steam cultivation" in use by one hundred and thirty-five farmers and stock companies of England. From the conclusions which they deduce from their investigation, I extract the following:

"In nearly all the cases reported, it will be seen that the expenses of cultivation are very much reduced, and yet that a larger amount of produce is said to have been realized.

"Not only are the operations themselves better done, quicker done, less expensively done, but all kindred and collateral movements have had imparted to them a speed and 'whirr' characteristic of steam; men acquire the habit of doing the day's work in the day, and of not leaving it for the morrow. The day's labor, too, on a steam farm, represents more work, with less distress to the physical power of the laborer, and better remuneration. Steam is working a revolution, slightly manifested as yet, so that we can speak only of tendencies in farm practice, and in the character of the rural population; they are being trained for the age of machinery in agriculture.

"Before steam can be as generally used for tillage as it is for thrashing, the fields below ten acres must be enlarged, and areas of thirty and forty acres become more the rule than the exception."

"In most cases, an increase of produce, in some instances as much as eight bushels per acre, has resulted from steam cultivation. We may state, as our general conclusion, that steam tackle, whether of Fowler, Howard, Smith, or other makers, is now so far perfected and settled in form and details, that it might be classed among old-established, standard farm machinery, and no longer among the novelties of the day."

"We find, as the result of experience, that which we already anticipated theoretically—namely, that the increased depth of surface, and the absence of pressure, greatly increase the absorbing powers of

the soil, and consequently assist the action of the drains."

Mr. Clarke, a member of one of the committees, in a lecture on steam cultivation, delivered before the Central Farmers' Club, in December last, said (with reference to a trial of steam apparatus at the recent show of the R. A. Society):

"Now some persons may think it astounding to talk about from fifty to seventy acres a day being cultivated. I admit that it is very astounding; but I also assert that I saw the thing done—and there are other persons also who saw the thing done. I may tell you, too, that the apparatus was not in a perfect state; it was one of the earliest trials made of that particular arrangement. I have not the slightest doubt that the makers of steam plows are prepared, though I have not their authority to say so, to do, in answer to a challenge, an extent of land in a day which would astonish every one present. I have not the slightest doubt myself, that seventy acres—I should not stare particularly if one hundred acres could be cultivated, provided the work was tolerably light."

In a discussion by the members of the Royal Agricultural Society, it was declared that the advantage of steam cultivation amounted, on average soils, to at least eight bushels per acre in the increased produce of the grain crops; that arable culture is by means of it annually becoming cheaper and better; that the drainage of clay soils is facilitated; that even when coals are twenty shillings (\$5) per ton, the power obtained from sixpence (12 cents) worth of them is equal to the day's labor of a horse—and that the system, wherever it is adopted, is improving all the classes interested in agriculture.
—*Handy-Book of Husbandry.*

HOW TO APPLY MANURES.

Under certain circumstances the best storage place for the manure of the stable is the field where it is to be used. If the land is so situated, and the soil contains a fair amount of clay, and is in such condition that the water of heavy rains will wash the soluble parts of the manure, not off from, but into the ground, the surface of the field is the best place for it. We can in no other way distribute the nutritive parts of the manure among the particles of soil so thoroughly, as by allowing them to be washed in among them by falling rains. The only loss sustained in this practice will be by a very slight evaporation of ammonia—very slight, because the formation of volatile ammonia will almost entirely cease when the manure is so spread as to become too cold for rapid decomposition. The soluble ammoniacal salts, and the soluble earthy parts, will be washed into the soil, of which the clay and decomposed organic matter have a very strong absorptive action, and which will hold all fertilizing matter that may coat its particles—very much as the fibre of cloth holds the coloring matter of dye-stuffs. To continue the comparison, the coating of the particles of soil is not a "fast color," but is removed by the water of the sap in the roots of plants, and is appropriated to their use.

The recommendation to spread stable manure directly upon the land as soon as it is made, or as soon as it can be hauled out, applies only to such soils as are in a condition to receive and retain its

sciuble parts. On steep hill-sides, very leachy lands and over-wet clays, the practice would often no doubt, result in loss.

When the ground is locked fast with frost, the manure would run away with the water, that, unable to gain entrance, would flow over the surface in times of heavy rain. In the case of thin, sandy soils, there is danger that it will be washed down too deeply to have its desired effect. On steeply-sloping land, of course, the water of heavy rains would flow off, over the surface, and some of the manure would go with it.

To state the case simply: Wherever and whenever the water of rains and melting snows can find its way into the soil, the best way to use the manure of the stable, is to spread it broadcast over the surface, except on very light sandy soils. Where the inclination is too steep; where from springs or want of drainage, the water would be kept out of the soil and would flow away over the surface of the ground, such use, would, probably, be about the worst.

Where the snow lies so deep as to prevent the freezing of the ground, and where, as it melts in Spring, it will all, or nearly all, soak into the soil, it is a good plan to spread the manure upon the snow; but it is a very bad plan to do this when from the frozen condition of the ground, or from its rapid inclination, the melting snow would run over the surface.

The principle upon which the advantage and disadvantage of the practice depends, is, that the manure will go with the water in which it is dissolved. If it goes into a soil containing a fair proportion of clay and organic matter, it will be distributed in the best places and in the most complete manner; if it runs away over the surface, it will be lost.

Coarse, unfermented manure, should be spread upon the land before ploughing, and turned well into the soil, where its decomposition will be more rapid than if harrowed into the dry surface, while its best mechanical effect will be more completely and more lastingly exerted.

In the case of thoroughly rotted manure, although there are good arguments in favor of ploughing it in, I am inclined to very strongly recommend that it be spread upon the furrow—after rolling, if the roller is used at all; if not, after once harrowing, and then be thoroughly worked into the surface with the cultivator, Share's harrow, or common harrow. So treated, it will lie where the earliest roots of the crop will feel its effect, and its constituents will be more deeply covered.—*Handy Book of Husbandry.*

A LESSON FOR FARMER BOYS.

THE first and main step toward obtaining a competency of ten, twenty, or fifty thousand dollars, is the securing of one thousand; the chief difficulty in getting the one thousand, is in obtaining the first hundred and keeping it. Hackneyed as this may appear, it is a fact that is ever new, and one that ever needs to be drummed into the ears of the struggling millions who work hard, and look with straining vision, but in vain, for the coming of plentiful days. And especially does this homely philosophy of wealth need to be emphasized at the present time, and impressed upon the young men of this present generation, since the prevalent tendency, now more than ever before, is for begin-

ners in married or business life to adopt such a scale of personal and family expenditure as must render thrift impossible. The youth of our time seem likely to forget that easy circumstances in middle or mature age are, as a rule, only to be purchased at the cost of rigid self-denial in earlier years. The son and daughter are ambitious to begin life where their parents have off—in other words, they wish to reap where they have not sown, or before they have sown, and the result is, lives of make-shift, anxiety and failure. Most of those who are really industrious, and yet find themselves at the noon of life with only their daily efforts between their families and want, could have been in more comfortable circumstances had they early learned the lesson that the key to a competency lies in the practice of rigid economy at the outset of life.

He who does not begin to save when he commences life for himself, will rarely begin at all, for where not even the nucleus of a modest fortune has been early acquired, family expenses will, after a time, grow as fast as the income, and the two keep abreast ever afterward.

Some of the ways in which even a very small sum, actually saved and put aside in early life, serves as a stepping-stone to future competence, are these:

The saving gives the young man the reputation among his neighbors and business associates of being careful, frugal, and prosperous. It gives him what is called a good business credit. It is accepted as an index of his business character, and instead of his being forced to seek employment, opportunities seek him. Besides, his little ready capital enables him to take advantage of business openings which, if wholly empty-handed, he could not aspire to. It enables him soon to become his own employer—a most important consideration. Money begets money. Capital has a natural tendency to increase itself, and a very little capital in the hands of a judicious person, and combined with the labor of strong and skillful hands, is a vast help. The day laborer or the mechanic who has a few hundred dollars in the bank, or invested in a good interest-bearing security, is a capitalist as well as a working-man, and is prepared to reap the advantages of his double capacity.

But mainly, the saving and keeping of the first hundred or the first thousand dollars, is the key to future success, from the fact that it builds up business character; it compels the formation of habits of economy, and fixes them for life; it puts the young worker on the right road, accustoms him to keeping out of debt, drills him in the homely science of keeping his financial matters snug, and builds up a granite determination to force expenses below income.—*N. E. Homestead.*

A THREE ACRE FARM.

Ten years ago, an Irishman—who for short, we will call St. Nick—bought three acres of land, for which he paid, with a one-story new house thereon, four hundred and fifty dollars—counting the tenement three hundred and seventy five, and the land the balance.

Hiring a pasture, he purchased a cow, and with serene faith began to work in his new bought soil. It was worn out; a poor pasture: it would not summer

a two year old steer, and the rent would have been considered exorbitant, if over four dollars a year.

He has since added two acres of rocky bush pasture, but with better soil than his first purchase, and in addition to the crops raised in both, he annually hires \$15 worth of pasturing, and buys \$25 worth of hay.

Last year with his first purchase and one acre of his last under cultivation, he raised (actual measure) of potatoes, one hundred and ten bushels; of corn, eighty five bushels of ears; of beans, three bushels and three pecks; of cabbages, seven hundred heads; besides twenty one bushels of oats, and a little over one ton and a half of clover hay.

He fattened two hogs, one of which sold for 14½ cents a pound, and weighed three hundred and four pounds, the other, salted for himself weighed three hundred and one pounds. His dairy now increased to two cows brought him a little over \$99 in cash for the butter sold, and \$21.43 for the two calves.

His dozen hens (average) bought nearly all the store supplies for a family of three, besides paying for their food. And, in addition to all this, he raised a calf which a neighbor gave him, that enters upon its second summer, worth at least \$18.

All this labor of a man quite advanced in years, and physically, incapable of doing much more than half a man's work.

He bought the house and land mostly on credit; has his debts now nearly paid; has doubled the value of both his purchases, and when his labor is over, will leave his wife and daughter quite a little estate worked out of this sterile, root-bound and rock-bound soil in ten years.

He commences this year with a light heart, at least fifty loads of manure, two cows and the calf, two wintered pigs, twenty hens, and the promise of raising more on his five acres than half of the poor farmers in the country will raise on fifty.—*Hearth and Home.*

MANAGEMENT OF WORK.

There is one fault among farmers which should be re-proved in strong terms. It is laying out more work than can be done by the force on the farm timely and properly. If work cannot be done as it should be, much better not meddle with it at all. This fault is the most observable in putting in the crops of the season; for some cultivated plants will not mature unless the seeds are sown or planted in the ground at a particular time, and some farmers, in excuse for their negligence, make an assumed trust in Providence for their tardiness in being weeks behind the proper time in getting in the seed. Indian corn may serve as an example of a crop's not being put in at the proper season, as well as oats, wheat, and other crops. If the sowing of them is delayed beyond the proper time, the grain will prove light, and the danger from blight or rust greatly increase.

Farm work cannot go on successfully, unless the farmer gives it his personal supervision, and as a rule in country parlance, will say to his workmen, "come boys," instead of "go boys!" or follow sage Benny's maxim of poor Richard that "He who by the plough would thrive, must either hold or drive." Workmen may be good and faithful, but they seldom

enter into all the plans of the farmer, and he must be the directing head himself or much effort will be mis-spent. There should be no hap-hazard work. Every movement should be the result of reflection and well-matured arrangement, directed to a certain and definite end. If this were so, there would be fewer failures in farming, which are generally the result of bad calculation and poor management—*Journal of the Farm.*

THE EARLY ROSE POTATO.

EDITOR ONTARIO FARMER.

DEAR SIR,—

As all the world is more or less excited over one thing or another, I have caught the contagion (in a slight form, over that most wonderful potato called the "Early Rose."

If you remember, you very kindly gave me one in the Spring of 1869, wishing me to try it in my garden. As it was considered so very choice, I determined to make the most of it, and therefore cut it into nine slices, each piece having an eye, and placed them singly in a line. Out of those nine lines, I actually dug *sixty pounds* of the finest potatoes I ever saw. Having had such good success last year, I determined to try them this, more especially as an early variety, and they have far more than fulfilled my most sanguine expectations. On the 27th April I planted a few lines, and on the 2nd July dug half-a-peck out of three lines, some of them being the largest ever seen in this part of the country (*Vide Daily Mercury*), and quite mealy for so early in the season. The remainder I planted on the 10th May, and on the 16th July, on digging one of the lines, was astonished to find two enormous ones roll out, that I had the curiosity to weigh, and found them of the respective weight of one and a quarter and one and a half pounds. I gave one to a friend, and he declared it to be the finest he had ever beheld, and so large that himself and wife eat all they wished, and left some for another day—(not on the principle of the boarding-house goose, however.)

I have found them, whether large or small, the finest flavored and whitest, soundest and mealiest, potato for an early variety, I ever knew; and as to their keeping qualities, too much cannot be said in their praise. I did not lose one pound out of the sixty last winter. They are the most prolific potato I ever saw, being ahead of the "Early Gooderich, and far surpassing it in flavor. In conclusion, I would recommend every one to give it a trial next year; for, as I heard a man say, "they lay as thick in a line as cobble stones in a well-paved street."

Yours truly,

G. A. OXNARD.

GUELPH, Aug. 8. 1870.

FARM GLEANINGS.

A farmer near Carrollton, Ill., has harvested 110 acres of wheat that averaged 35 bushels per acre.

There are 12,000 windmills in Holland at the present day, for the simple purpose of drainage.

The *Iowa Homestead* in an article on the "Wastes of the Farm," avers that the 150,000 agriculturists of that State "waste" 10,000,000 yearly.

A Wisconsin man cuts hay off of boggy land by strapping large wooden shoes on his horses' feet and having tires five inches wide on his wheels.

Burdocks, it is said, may be destroyed by cutting off close to the ground and applying a few drops of kerosene.

The *Mark Lane Express* says that farm wages in England are 10s. a week, the farmer finding small beer, estimated at 1s. per week. Plowmen get an extra shilling.

The New England *Homestead* says that the market-gardeners in the neighborhood of Springfield are sorrowing over the failure of their onion crop, caused by the onion maggot.

Miss J. Keith, of Battle Creek, Mich., recently threw 200 or 300 potato bugs into the stove, and, while toasting bread with the door open, was so poisoned for a time that her life was in danger.

Farmers will soon want to be measuring their bins and cribs. Here is a rule: Multiply the solid feet in the bin by 45 and divide by 56. The quotient will be the contents in bushels.

An exchange notes as the most "harrowing" sight it ever saw, the spectacle of a gentleman in a dress suit of black harrowing in a field with a tall plug hat on.

Here is a rule which we presume is reliable for determining how many bushels of shelled corn there are in a crib, of ears: Get the solid contents in feet, multiply by four and strike off the right hand figure.

A Knox county, Ohio, correspondent of the *Rural New Yorker* speaks in high terms of the hardness, earliness and other desirable qualities of the Early Bouton wheat, which has been tested in his vicinity for three years.

The Germantown *Telegraph* recommends the growing of chestnuts on soils, where but little else will grow, as a means of profit both in fruit and wood. It says the chestnut is rapid in its growth, and will, in from eight to ten years, begin to bear a crop of nuts.

A correspondent of the *Country Gentleman*, in an article on raising wheat, says:—"If the farmers of this state would try half as hard to raise their own bread as some of them do to raise fast horses to spoil their children with, we should soon hear the last of importing wheat from the 'West.'"

A correspondent of the *Country Gentleman*, formerly of England, thinks that cheap labor alone cannot explain the large profits of English farmers, and says they can only be accounted for by the great amount of live stock kept and fed, thus producing a great quantity of plant food, and producing in turn, heavy crops.

If the following is the result of reliable analysis, it shows the need of lime in the soil. In twenty-five-bushels of wheat there are nine pounds of lime,

and the same in fifty bushels of oats. There are thirty-five pounds in two tons of clover, one hundred and forty in twenty-five tons of turnips, and two hundred and seventy pounds in nine tons of potatoes.

The *Prairie Farmer* recommends sowing an acre or two of land to peas as food for hogs late in summer, and before the corn crop matures. When the peas are large enough to eat, turn in the hogs and let them do the harvesting at their leisure. Besides supplying food for the hogs, the soil will be in excellent tilth for the reception of the seed of winter wheat.

A farmer says that manure hauled directly from the stall to the field and plowed in, produces a much greater effect on the soil and lasts longer than the semi-decomposed manure of the farm yard.—One of our best Seneca Co. farmers, a Vermonter, who makes butter and some cheese from thirty cows, hauls his stable manure as fast as it is made through the winter to his fields, and he hires Irishmen in March to spread it on both plow and grass land.

Judge French, writing in the *County Gentleman*, criticises Dr. Loring's condemnation of green corn as fodder. He says if the doctor should live 100 years and make two speeches a day, he would not do good enough to counterbalance the evil which his opinion about corn fodder would do if it was generally accepted as correct. If there is anything settled in his neighborhood it is that corn fodder is most valuable for milch cows. His own experience of 20 years corresponds with the general opinion. The "wise men of the East" who denounce corn fodder and swamp muck as useless, create but a small ripple on the great ocean of public opinion.

Last spring I planted about half a peck of Jerusalem artichoke (*Helianthus tuberosus*). The seed was cut into small sets and planted in rows three feet apart on rich land. They were hoed once during the season, but otherwise required no attention. This spring we dug over 20 bushels—and fed enough to the stock to see that they eat it greedily. The balance of the seed will be planted for a crop this year, and the yield cannot fail to be very large, probably more than could be obtained from any other root with the same amount of labor.—2,500 bushels per acre not being unusual. An analysis of this root shows it to be about equal to potatoes, bushel for bushel; while the fact, that it remains uninjured in the ground all winter and can easily be dug in the spring, is a strong argument in favor of its use.

The *Northwestern Farmer* prints an address recently delivered by T. A. Bland (its editor) before a Farmers' Club in Indiana, in which, under the heading of "Manures," he gives his unqualified approval of clover as a fertilizer in the following words:

"One of the best means of enriching land is by a system of clovering. This is a vigorous grower. Among all the plants known, it extracts the rich gases from the atmosphere perhaps in large quantities. It is, therefore, the best green manure we have. Besides, it is tap-tooted, sending its roots deep into the subsoil, serving the office of the subsoiler to some extent when it has not been used, and greatly adding to the benefits to be derived from this implement where it has."

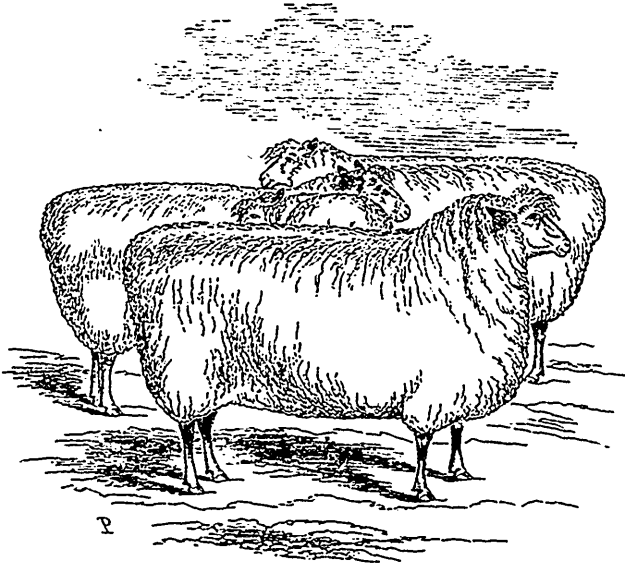
The Live Stock.

MR. MILLER'S COTSWOLDS.

Herewith we present a small but spirited engraving of a group of Cotswold Sheep, being part of a large importation made from England last summer, by Mr. John Miller, of Brougham, Ont., and shown by him with distinguished success at the Provincial Exhibition held in London last year. We are happy to know that Mr. Miller's judgment and energy as an importer and breeder of Cotswolds, are so well known and so widely appreciated, that he has found it necessary to make large importations during the

present season in order to keep pace with the demands of his customers. The North American Steamship which sailed from Liverpool on the 2nd of August, brought out four first-class Cotswold Rams and thirty-two Ewes, carefully selected from the stocks of Mr. Cole, Ashbrook; Mr. J. Gillet, Minster Lovell, Mr. J. Lane, Barton; Mr. Beale Brown, Mr. J. Godwin and Mr. Slatter. Among them were the second prize pen of Ewes at the Oxford meeting of the Royal Agricultural Society of England, and other prize sheep. More honours doubtless await Mr. Miller's flock at the approaching Provincial Show.

FIRST PRIZE IMPORTED COTSWOLDS AT THE PROVINCIAL SHOW OF 1869.



THE PROPERTY OF MR. JOHN MILLER, BROUGHAM, ONT.

HOW TO CHOOSE A FAMILY HORSE.

A writer in the *London Spectator* says it need scarcely be said that a carriage horse is not often pleasant for riding, though conversely it may be improved by it. Practically therefore, a horse is not likely to do more than one thing well. This extends even to its pace. The high action of a good trotter is often accompanied by a slow, rather mincing walk; but a horse that gallops well is pretty certain to cover the ground rapidly in walking — We agree with a "knowing hand" that a "man who is a tolerable horseman had better choose a high couraged horse." A badly bred horse may be often a strong, hardy animal, but it will "let down" if it is pushed, while the thorough-bred will go on till it drops.

A thorough-bred ought not to be chosen for pounding along turnpike roads, as its legs will not stand constant hammering. A cob had better be avoided, unless its history is known, as no horse is more likely to be tricky. For several reasons it is

better to buy a horse under seven years old. With such a one a reliable guaranty of age can be procured, whereas the horses that are just aged, that is to say, just eight when they come into market, occur in numbers that might baffle a Quetelet. Again, horses are so badly used and so overworked in England, that it is quite uncertain how much strength an eight or nine year horse may retain. As a rule, no animal that has been hacked at such places as Brighton or Oxford ought to be bought. After a year or two of such work the mouth is generally spoiled and the sinews or the leg gone.

Some persons consider color an indication of temper, and distrust a bright chestnut. We believe that the rule is sound, but the exceptions are numerous. The eyes and ears of a horse when it is first led out, when its mouth is handled, when a whip is shaken near it, and when it is backed, are much better criteria of anger no less than of fear, and are easily recognized. Irish horses, excellent as fencers, are apt to be of difficult temper. A horse sometimes overhangs its fore legs, so to speak. This is a dan-

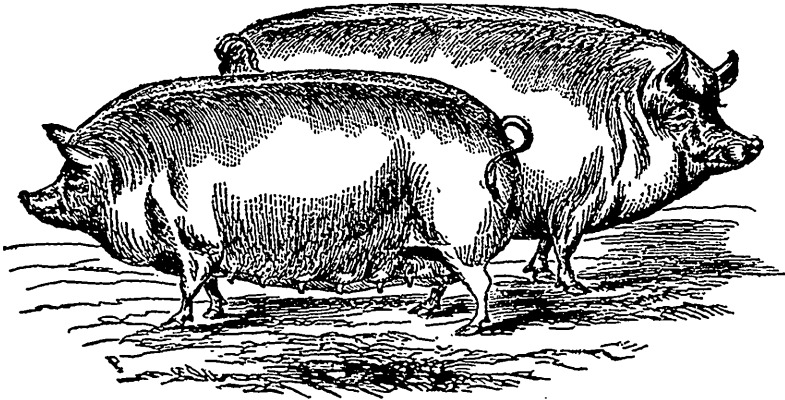
gerous fault, as the centre of gravity, being too far forward, the beast is likely to stumble. A horse with its belly "tucked in," as it is called, that is to say, going up backward, as in a griffin—a fault more common in carriage horses than in hacks—feeds and fattens badly, and will wear out rather sooner than another. Ladies and Cockneys are little apt to admire thin chested, spindle shanked horses. Of course this is a mistake.

MR MILLER'S RECENT SHORT HORN IMPORTATIONS.

We are glad to learn that Mr. John Miller, of Brougham, has made some splendid additions to his fine herd of Short Horns, by recent importations from Britain. Among them are the following choice animals:—"Gaiety," a roan heifer of pure Booth blood, bred by Mr. J. B. Booth, of Killerby;

"Madame Booth," from the same herd, her dam near of kin to the celebrated "Lady Fragrant," and Mr. Cochrane's 1500 guinea cow "Lady Grateful;" "Rose of Strathallan," a Highland Society prize cow; "Coquette," a red and white heifer, descended from Mr. J. Syme's noted Red Kirk, Annan, Stock; "Cherry Bloom," bred by Mr. Lawson, of Stapleton Grange, owner of a tribe of Short Horns scarcely less distinguished than that of the Brothers Collings; and "Starlight," a promising heifer, related to the Vesper Family, brought to this country by Mr. Cochrane. These and some other choice animals just imported by Mr. Miller, will greatly enhance the fame of his herd, and help much to enable Ontario to hold her own against the distinction Quebec is winning by the bold and brilliant importations of Mr. Cochrane.

PREMIUM SUFFOLK PIGS AT THE PROVINCIAL EXHIBITION OF 1869.



THE PROPERTY OF MR. JAMES MAIN OF TRAFALGAR, ONT.

MR. MAIN'S SUFFOLK PIGS,

Our artist has caught, better than we have ever seen in any other engraving of the breed, the "main" points of the Suffolks, and a play on Mr. Main's

name is quite admissible, for we know of no breeder who outdoes him in raising choice specimens of this particular variety.

THE NEW CATTLE PLAGUE.

Considerable alarm has been excited in some parts of the country over a so-called new "cattle plague, which, it has been alleged, has proved in some instances fatal. On investigation it proves to be one of the plagues of Egypt on a limited scale;—a *plague of flies*. For some reason or other these troublesome insects have been more than usually annoying and hurtful this year, and in not a few cases, irritation, inflammation, and sores have resulted from their attacks. Cattle thus troubled should have the parts affected washed with soap and water, a solution of carbolic-acid soap, or a tea

made by an infusion of common smart weed in hot water. Both as a preventive and curative measure it will be found useful. Keep cattle during the heat of the day in a somewhat darkened stable, only giving them free range of pasture during the night.

MR. COCHRANE'S RECENT PURCHASES IN BRITAIN.

(From Bell's Weekly Messenger.)

Mr. Cochrane's purchases in Yorkshire, were not confined to Wetherby and Warlaby. He dealt also at Killerby Hall, buying there Mr. John Booth's Lady of the Lake, a grand red and white cow of

November 1862, for which he gave 500 guineas; Queen of beauty, red and white of April 1868, and Fairy Gem, roan, calved in May 1869. This heifer is twin to Fairy Pearl, which continues in the Killerby herd. The price of Queen of Beauty and Fairy Gem was 500 guineas. The three animals selected by Mr. Cochrane from Mr. John Booth's stock are from his Hecuba family, a very prolific and fine tribe. Lady of the Lake was by Knight Errant (18154). Queen of Beauty by the same bull, from Queen of the Glen by Nalasco (17443); Fairy Gem was by K. C. B. (26492), the son of Knight Errant and Soldier's Dream by Windsor (14913). Mr. Cochrane also bought at Killerby the roan heifer Milliner by Brigade Major (21312) from Lady Percy, bred by Mr. Sergeantson of Camphill. At Braithwaite, he secured a roan bull and a three year old roan heifer of very great merit; the former, calved on the 2nd of September, 1869, Booth's Marksman, by Booth's Kin-man (256.8), from Vernal Star by The Suttler (23961); the latter, Rosa Louisa, by Royal Booth (22772), from Rosa Sybilla, by Baron Booth (21212), grandam Rose Wreath by Windsor (1491.), great grandam Rose Gariand by Baron Warlaby (7813). She is in calf to Regal Booth (27262), the Vesper bull sold a short time ago to Mr. Crosbie of Ardlett Abbey Tralec.

Besides the animals mentioned in the preceding article as sold to Mr. Cochrane, Mr. John Booth sold, to Mr. Miller of Canada, Gaiety, a roan heifer calved in August 1867, and got by Brigade Major, from Lady Georgina by Knight Errant; and Madam Booth, a roan calved in July 1867, and got by the same bull, from Vanity and Valasco. Mr. Beattie, moreover, purchased for exportation to Canada, Charns, a red and white heifer of April 1868, by Brigade Major, from Virtue to Valasco.

HUNTING WILD BEES.

The sequel to the going off of the bees in summer is the hunting of them in the fall. It is entirely worth the while to lose one of the later swarms, for the sake of the pleasure of looking for them after they shall have laid up their store of honey. Bee-hunting is the poetry of sport, and has a sufficient reward even if no tree be found. The rich, warm September days is the time chosen. The honey-yielding flowers are nearly all gone by this time, and the bees roam far and wide in quest of food. If the bee hunter has no previous intimation of the probable whereabouts of an escaped swarm, he begins operations in the vicinity of any large wood. His principal appliance is a small box with a glass lid, into which he nicely fits a piece of comb filled with honey. The first honey-bee he discovers leisurely probing some thistle-head in a remote field or on a hill, he gently sweeps into his box, watching its movements through the glass lid. The bee, at first alarmed, struggled to get out; but catching the smell of honey, forgets its captivity, and like a true Yankee determined to make the most of every mishap, falls to taking its fill. The box is then placed upon a stump or rock, the lid gently withdrawn, and the hunter steps back a pace or two to watch the bee take flight, which it does in about one minute—that is, as soon as filled with honey. Rising a few feet in the air, it circles around two or three times, takes its bearings, and strikes a bee-line for home. If it goes toward the woods or mountains, the chances are that it belongs

to a wild swarm, and the hunter eagerly waits for its return; if toward the settlement, or a farmhouse, another bee is procured and experimented with as before.

In case a bee cannot be readily found, the usual mode of proceeding is to heat a flat stone and burn upon it some refuse comb or honey. The scent will soon attract a bee, when it may be treated as above described. If the tree is anywhere within half a mile, the bee usually returns in about fifteen minutes, always accompanied by one or more of his fellows, to whom, by some mysterious language, he has communicated the secret of the box of honey. These fill themselves, and depart as before. Returning, they bring others, and these again bring others; and thus, in a short time a line of bees may be established. The hunter follows them into the woods and, keeping the direction, marks the trees for a long distance. In many cases he finds his prize without much farther trouble; but in as many cases he is obliged to cross-line them—that is, establish a second line at an angle with the first; where the two lines intersect each other, he may confidently expect his search to end. Changing his base of operations, therefore, to another field or hill half a mile or more distant, if the lay of the land permits, he seeks to line them as before, and thus determine the immediate locality of the tree. The tree is apt to be a large one, with top more or less decayed.

The finding of a wild swarm, however, is not so easy, and simple a matter as it may appear to be on paper. In the first place, the hunter is much more apt to get hold of a hive-bee than the representatives of a wild swarm. This consumes time. Or, if he captures one of the latter without delay, it is not an easy matter, in the majority of cases, to establish a reliable first-line. A bee is a small object to follow with the naked eye; and then, the wind may cause it to deflect from its course, and thus mis-lead the hunter at the out-set. The native bee-hunters of Australia attach some white cottony substance to the bee, which not only retards its flight but makes it a more conspicuous mark for the eye. I have heard of our bee-hunters sprinkling the bees with flour for the same purpose.

But the most novel and ingenious device I have ever heard of, is the sprinkling of them with sulphur. A young farmer in one of the interior districts of the State of New York, who takes an occasional spare day to look up bees, writes me he has tried it with marked effect. It seems to enrage the bees, and set them in a perfect uproar; so that not only may they be followed through the air more readily by the sound they make, but the whole swarm is presently humming at a fearful rate. He says he has heard the uproar when twenty rods from the tree. And, contrary to what one might expect, instead of being driven away from the hunter's box, the bees come thicker and faster. The swarm is thoroughly waked up, and presently in the wildest state of excitement.

To get a sufficient base for the triangle, in most localities, is another difficulty when two lines have to be established; or, worst of all, the tree may be a mile or two away.

It is fascinating sport, however—the great bright days, the slightly hills and remote fields, and the eager search through the woods, with sharp scrutiny of the old trees.

If the tree is much decayed, the comb is often fearfully broken up and much of the honey wasted by felling it, which course, however, has no alternative. The bees that have escaped the deluge of honey, come pouring out into the air, ready to make war upon anything. They are sometimes effectually disposed of with a match and a little rye-straw; but the safest and wisest plan is immediately to stop up all openings but one, leaving in this room enough to enter a pipe-stem; then give them a few puffs of tobacco smoke. This deadens them instantly, and renders them quite harmless.

Bee-trees are sometimes found by persons walking in the woods on a bright day of early spring, while the ground is yet covered with snow. The bees induced to come forth by the warmth and the sunshine, are blinded by the snow, and fall to the ground near their retreat.—*Putnam's Magazine.*

HEAVES.

Heaves, broken wind, and asthma or pursiness, are not distinct diseases, but a mere complexity of symptoms; they are collective names, embracing all those chronic and feverless diseases and defects of the respiratory organs, which produce difficulty of breathing, frequently attended with a short and dry hacking-cough, without showing any other prominent symptom. Consequently we have to distinguish different forms of heaves in regard to cause, pathologic, anatomical changes, and the manner in which the difficulty of breathing is exhibited.

One of the most frequent causes of heaves, or broken wind, is to be found in musty food, especially in musty timothy-hay; and as, east of the Mississippi river, wild land (and consequently prairie hay, too) is getting scarce, timothy hay is becoming almost (at least during Winter) the only rough provender fed to our horses; further, as in many cases the necessary care is not bestowed upon the harvesting and curing of the same, cases of heaves have become alarmingly frequent among the horses in the more thickly settled parts of the United States,

There are many more other causes producing so-called heaves, or broken wind, but we may safely say that, in this country, at least 90 per cent., of all cases have been effected by the feeding of musty and dusty hay; therefore we will for the present pay our attention solely to that form.

The symptoms, i. e., the difficulty of breathing and the attending cough, are so well known, that I think a description of the same is perfectly superfluous. Only one sign may be mentioned, which, though being also peculiar to many other forms of heaves, distinguishes the same from those difficulties of breathing, which are caused in the larynx by paralysis of the recurrent nerve. It is, that the difficulty always is caused by and observed at the act of expiration, and never by the inspiration, as it is in roaring; therefore, the *heaving of the flanks at each expiration*, which probably has given the name to the whole.

After the heaves have once been fully developed, a perfect cure (that means restoration of perfect health) is impossible; all we can do, is giving the suffering animal relief, and this we can do to some extent. In the beginning, i. e., in the early stages, a

rational treatment combined with a proper diet frequently will relieve the horse so much as to effect an almost perfect disappearance of the difficulty of breathing.

This palliative treatment, at least in severe cases, ought to be a twofold one, consisting of dietetical measures, and of medicines. The former are the most important. When the horse is kept in the stable, we have to give him a stall, which is not too warm, and admits plenty of fresh air; we have to feed him no hay whatever, except, perhaps, a little good prairie hay; we have to take care that his stomach is never overfilled, and that his bowels never become costive. Oats, branmasch, carrots, etc., and a little clean straw, must constitute his principle food. In Spring and Summer-time, grass is the best food that we can give, and the pasture the best place where we can keep a horse which suffers with the heaves.

Concerning medicines, a beneficial result has been experienced by giving each morning, mixed with the food (bran-mash), the following powder:—Arsenic, from five to 10 grains; ginger-root powder and licorice-root powder, of each, from one to two drams. The arsenic is recommended to be given in this way: five grains the first morning, six grains the second, increasing the dose one grain every morning till it has reached 10 grains, then to pause one day and to commence the next one with five grains again, and so on. Moderate exercise does no harm; on the contrary, it is considered beneficial.

H. J. DETMERS, V. S.

Champaign, Ill.

POULTRY KEEPING AS A BUSINESS.

An old man of Michigan recently asked the American Institute Farmers' Club for information upon poultry raising. He said:—"Failing health and declining years make it necessary for me to give up the more laborious pursuits of life, but some light exercise for mind and body is absolutely indispensable. Would the raising of poultry near or within 100 miles of a city market afford a profitable remuneration for the time and proper management required for the business? Being quite unacquainted with the rationale of this matter, I prefer to submit it to the Club, thinking that the experience of some one of its members might furnish a solution to the question. How much land, and what kind of soil, sandy, gravelly, or clay mixed, would be required for 100 fowls (hens and cocks)? should it be adjacent to a stream of water, or would a living spring do as well? What portions of the ground should be in trees, shrubs, and grass? How many could two aged persons care for, and what return might reasonable be expected from 100 fowls in chickens and eggs?"

Warren Leland replies to these inquiries, as follows, as appears by the reported proceedings in the *N. Y. Tribune*:

If this old gentleman will come up to my place, 25 miles north of New York, at Rye Station, I will show him how I manage my poultry yards. I have found that for every hundred fowls you must give up at least an acre. But rough land is as good as any. Hens naturally love the bush, and I lop young trees, but leave a shred by which they live a year or more. These forms hiding places and retreats for them. In such places they prefer to lay. I have great suc-

cess, and it depends on three or four rules, by observing which I believe this old gentleman in Michigan can make a good living by hens and turkeys.

1. I give my fowls great range. Eighteen acres belong to them exclusively. Then the brood have the range of another big lot, and the turkeys go half a mile or more from the house. The 18 acres of poultry yard is rough land, and of little use for tillage. It has a pond in it and many rocks, and bushes, and weeds, and sandy places, and ash heaps, and lime, and bones, and grass, and a place which I plow up to give them worms.

2. When a hen has commenced to sit, I take her box, throw out the straw and earth, let it be out in the sun and rain for a few days, give it a good coat of whitewash on both sides. In Winter, when it is very cold, I have an old stove in their house, and keep the warmth above freezing. There is also an open fireplace where I build a fire in cool wet days. They dry themselves, and when the fire goes out there is a bed of ashes for them to wallow in. Summer and Winter my hens have all the lime, ashes, and sand they want.

3. Another reason why I have such luck is because my poultry yard receives all the scraps from the Metropolitan hotel. Egg making is no easy work, and hens will not do much of it without high feed. They need just what a man who works requires—wheat, bread, and meat. Even when wheat costs two dollars, I believe in feeding it to hens. As to breeds I prefer the Brahmas, light and dark. I change roosters every Spring, and a man on the farm has no other duty than to take care of my poultry. I often have 3,000 Spring chickens.

COLIC IN HORSES.

Treatment of colic in horses is not always such as will lead to a cure, and there is no disorder of the horse that more frequently leads to loss of the animal than an attack of colic. Dr. J. A. Hopkins, in the *Turf, Field and Farm*, refers to some simple remedies which may be used by any one with effect, in sudden attacks of this disease. He says:

There are, of course, various forms of colic, and a protracted attack will often produce complications which require skillful treatment, and the presence of a veterinary surgeon. The remedies here offered are for the most frequent and easily distinguished cases of flatulent colic.

One simple remedy frequently very effectual is, two ounces or four table-spoonfuls of saleratus in a pint of strong ginger tea; another, a pint of warm salt water, with an enema of the same; the injections will often bring away large volumes of wind; another, one ounce of camphorated spirits in a pint of sweetened water. These may be attained in town or country at almost every house, when other prescriptions requiring preparations may not be easily got. I add these drenches, all of which I have used with good result:

1. Sulphuric ether, one ounce; laudanum, two ounces; compound decoction of aloes, five ounces. Mix and give every hour until relieved.

2. Spirits of turpentine, two ounces; laudanum, one and a half ounces; one pint of sweetened water. Mix and give every hour.

3. Aromatic spirits of ammonia, one and a half

ounces; laudanum two ounces; tincture of ginger, one and half ounces; one pint of warm ale. Mix and give every hour.

The above are what might properly be termed allopathic remedies. The usual homœopathic treatment for colic is two or three doses of aconite, followed by arsenicum. After attacks of colic, great care should always be taken of the horse, in order that a relapse does not occur, proper attention being given to the food and water, warm bran mash and water from which the chill has been taken only being allowed.

LIVE STOCK GLEANINGS.

An agricultural paper recommends the shearing of geese as better for geese, pickers and fethers.

It is said if hens are huddled together in a warm corner in winter, they will lay much better than if they spend the night on roosts.

FINELY chopped onions are still much recommended as a sanitary measure for fowls. Give once a week in their food.

It is said that a mare that refuses to own her colt, can be made to do so by rubbing some of her own milk on the colt's nose and allowing her to smell it.

William Torr, of Aylesby, Lincolnshire, England, recently received for 14 heifers and calves from his herd of short-horn cattle 2,000 guineas, which, is equivalent to \$10,164.

A man in Newark, Ohio, has a large native cow, which gives daily large quantities of milk. One day last month, she gave 65 pounds—26 in the morning, 22 at noon, and 17 at night.

A MAN in Weston, Mass., writes to the *Ploughman* that he has a grade Ayrshire heifer that, when a few days less than 13 months old, gave birth to a fine heifer calf.

Mrs. Sarah A. Grant, residing in Andover, Mass., died suddenly, recently, from the sting of a bee. Immediately after she was stung she lay down on a lounge, saying, "I am dead," and going into convulsions, died in about two hours afterwards.

A drunken soldier in Detroit amused himself one hot day by cutting off canine caudalities with a sickle. He was knocked down just as he had harvested his ninety-fourth tail—that of a three-hundred dollar pointer.

The toad, which is an efficient bug hunter in the garden, is said by the *Ohio Farmer* to eat honey with an equal relish, and bee keepers are advised to arrange the lighting boards of the hives in such a manner as not to be accessible to his toadship.

A correspondent of the *Maine Farmer* has a new use for cats. He says:—"My way to cure a sulky steer that lies down when you first yoke him, is to take a cat and let her put her paws on the end of the steer's nose, and, if necessary, hold her rather hard. My word for it, he will be on his feet quick."

The butter in England is chiefly eaten fresh, within a week, or at the farthest two weeks, of its being made, and very little salt is used, not a fourth of what is mixed with it in America. When it is patted down it is done in the same way as in this country, but it is then called salt butter, and is sold at little more than hog's lard sells for.

A correspondent of the *Country Gentleman* says:—"If any of your readers are troubled with lice on cattle, tell them to try brine. It is the cheapest and surest remedy that I ever used. My hogs I found covered with ticks this Summer, something I never heard of before. Salt water twice applied cleared them."

The *Clinton (Iowa) Herald*, relates that a lady of that city dropped an egg into a flour barrel, a few weeks ago, forgetting the incident altogether, until a few days ago, when she was surprised by the peeping of a chicken, which had hatched from that identical egg. The hot weather had done the business, and the chicken is alive and doing well. No patent has yet been applied for as we are aware.

An Ohio hog-grower says that the following treatment will make the biggest hog out of a pig in 12 months:—Take two parts of barley, two of corn, and one of oats. Grind them together; then cook, and feed cold. He says it is the cheapest food, and that any pig of good improved breed can be made in this manner to gain a pound a day until a year old.

Judge Graves, of Herkimer, N. Y., stated before the Little Fall N. Y., Farmers' Club, that he soiled a horse from early in July until the grass ceased to grow in the Fall, from one-eighth of an acre of land. The land was in good condition, and was seeded to orchard grass. Each morning while the dew was on he cut enough to last until the next morning. Besides the grass, he fed but one peck of oats a day.

It is said that a man or woman who can milk a cow in three minutes will get an eight more in quantity and in value than one who struggles through double that time. There is a sort of relaxation of the cow's nerves that a quick, strong milker always causes, which gives a sort of *abandon*, and, of course, completeness to the flow.

Short-horn cattle are valuable for their remarkable aptitude to fatten, the perfection of their forms and the smallness of their bony structure giving them advantages over all others as beef cattle. No animal of any other breed can so rapidly transform the stock of any section around him as these bulls of the improved short-horned species. One of the characteristics of this breed is also their remarkable docility and their indisposition to break through confinement.

It is worth something to know how to teach a horse to back. A correspondent of an agricultural paper says: "Tie a rope around his fore foot and pass the other end over his back. Draw up his foot by the rope, at the same time telling him to 'back,' and if he moves back, slacken gradually, which will bring his foot down so that he will naturally bring back the others to keep in position, then repeat the operation of drawing up and letting down his foot. Pat and caress him as often as the movement pleases you.

H. J. SELMERT, veterinary surgeon, gives in the *Western Rural* this recipe for curing foot-rot in cattle, which he says will never fail:

"At first, all loose horn—in general, every thing that has been destroyed—should be cut away; then for a day or two, poultices of flaxseed powder should be applied, and after that, when the sore is clean and of a white appearance, one part pure carbolic acid dissolved in one part of alcohol and one part of water, applied once or twice, by means of a little brush, will effect a healing in a few days."

The Rochester, N. Y., *Union* says:—"Horses, as a general thing, get too much licking and too little feed. If a man looses his hat while driving his horse, he licks the horse to pay for it. If he runs into another wagon through his own carelessness, he licks his horse to make it all right. If his horse slips or stumbles he gets licked for it, and if he don't do anything, he gets the same. A great many horses know 'asight' more than their drivers, and if they could change places with them, society at large would be the gainers, and so would horses."

The *Valley Farmer* advises the use of clover if a flow of milk is the aim. It says, if you wish rich milk, and well flavored butter, feed young timothy and white clover; if you aim at the best results both in quantity and quality of butter, feed on fresh pastures of white clover and timothy in Summer, and early cut timothy and wheat bran in Winter. The grass must be cut when heading out; or better, young afterneath well cured. Avoid roots and garden stuff in general, if you wish a good quality of butter—though it is now held that those fed while milking or immediately before, will remedy the evil.

The *Oneida Community Circular* of a recent date says:—"For the past month our horses have been fed wheat instead of corn. One bushel of wheat is mixed with two of oats, and the ground product fed with cut hay. The experiment was tried because corn was as high priced as wheat. Wheat has now risen fifteen cents per bushel, and consequently corn will be used again. The horses are, however, stronger and sleeker when fed on wheat. If barley does not command a good price next fall, the experiment will be made of feeding it to the horses, in imitation of the Arabic custom.

SHORT-HORN SALES IN ENGLAND.—Another important sale of Short-horns by auction, took place May 24th. This was the Farndish herd of Mr. W. S. Adcock. The average price realized for 46 head, comprising 12 bulls and 34 cows, was £49 3s 0d. The old bull of the herd, 12th Duke of Oxford, brought 145 guineas; Baron Geneva, 2556, made 79 guineas; a heifer, Lady Knightly 2nd, made 140 guineas, and Claribel, 100 guineas. The herd was principally made up of Bates and Knightly blood intermixed.

DISEASED ANIMALS.—The *Chamber of Agriculture Journal* says that during the month of June there was a startling increase in the number of animals imported in a state of disease, and slaughtered by order of the Customs at the ports of debarkation. From 20 in May, the figures have sprung to 203. Of that number 187 came from Cherbourg and were landed at Southampton; nine of the animals were sheep and the remainder were swine. Only three cattle were found to be diseased, and they came to Hartlepool from Hamburg.

SALE OF HER MAJESTY'S YEARLINGS.—The annual sale of the royal yearling foals was held at the Hampton Court Paddocks on the 11th of June, when Mr. Tattersall submitted seventy-four colts and fillies to public auction. There was a large and distinguished company present; the bidding was spirited, and high prices realized. The total sum of the sale amounted to 4,630 guineas, making an average of 193 guineas per head. The highest price secured was 950 guineas for a colt by Trumper out of Ayacanora, which was purchased by the Marquis of Anglesey. 650 guineas was the next price, given by Mr. T. Brown for a filly by the

same horse out of Hepatica. 520 and 510 guineas respectively were given for other colts, also purchased by the Marquis of Anglesey.

Poetry.

TWO HOMES.

Two homes among the mountains stood,
And both had goodly lands:
One looked upon the inland fields;
One watched the white beach-sands,

And caught from south and caught from north,
A view of misty hills,
And river-threaded valleys, flecked
With busy toiling mills.

One house stood forth as if it scorned
The shrinking orchard's shade;
And straight and trim from door to gate
The smooth brick walk was laid.

No flowers bloomed; the lawn was smooth
As velvet from the loom;
And down the lane some poplars stood
In stiff and stately gloom.

The robin at his peril sang
Among the cherry trees;
The very corn-fields seemed to hate
The free and easy breeze

The cows were of superior breed,
The horses strong and sleek:
The good wife—ever at her work—
A woman sad and meek.

The man himself, an honest man,
Whose children knew the birch;
Hard-working, sober, fair in deal,
And always prompt at church.

The other home, through bloom and bough
Played bo-peep with the sea;
Round columned porch the jasmine sweet
Crept green and fragrantly.

The birds came fearlessly to stay,
And white hands, deft and fairy,
To warbled song and step of health,
Made butter in the dairy.

The simple rooms were sweet and rich
With gleanings from the wood,
The hills, the sea, and every thing
Of beauty and of good.

The poet's book, the artist's gem,
Each for its own high sake;
And the glad music everywhere
Which happy children make.

One man his austere precepts held—
E'en higher than his gold—
Yet lived, beneath his thrift and calm,
Impoverished and cold.

The other shed an influence sweet;
One felt, nor knew the thrall;
For one loved God in church and creed,
And one loved GOD in ALL.

—MIGNONETTE, in *Hearth and Home*.

"A APEEL FOR ARE TO THE SEXTANT OF THE OLD MEETINHOUSE."

BY A. GAEFER.

O sextant of the meetinhouse, wich sweeps
And dusts, or is supposed to! and makes fros,
And lites the gass, and sometimes leaves a screw loose,
In which case it smells orful—worse than lampile;
And wrings the bel, and toles it when men dyes,
To the grief of survivin pardners, and sweeps pathies;
And for the survases gits \$100 per annum,
Wich them that thinks deer, let em try it;
Getin up befor starlite in all wethers, and
Kindlin fiers when the weather is as cold
As zero, and like as not green wood for kindlins;
I wouldn't be hired to do it for no some—
But o sextant! there are I kermoddity
Which's more than gold, which doant cost nothing,
Worth more than anything except the Sole of Mann!
I mean pewer Are, sextant, I mean pewer Are!
O it is plenty out o dores, so plenty it doant no
What on airth to do with itself, but frys about
Scatterin leaves and biowin off men's hatts;
In short its jest "free as are" out of dores.
But o sextant, in our church it's scarce as plety,
Scarce as bank bills when agents beg for misshuns,
Wich some say is purty often (taint nothing to me;
Wat I give aint nothing to nobody,) but o sextant,
U shet 500 men, wimmin, and children
Speshally the latter, up in a tite place;
Some has bad breths, none aint 2 swete,
Some is fevery, some is scoff'us, some has bad teath,
And some aint none, and some aint over clean;
But every 1 on em breathe in & out in
Say 50 times a minit, or 1 million and a half breths an our.
Now how long will a church ful of are last at that rate?
I ask you, say 15 minits, and then whats to be did?
Why then they must brothe it all over agin,
And then agin, and so on, till each has took it down
At least ten times, and let it up agin, and wat's more,
The same indivisible don't have the privilege
Of brethen his own are, and no ones else;
Each must take whatever comes to him.
O sextant, doant you know our lungs is bellusses,
To blow the fire of life, and keep it from
Going out? and how can bellusses blow without wind,
And aint wind are? i put it 2 your consens,
Are is the same to us as milk to babies,
Or water is to fish, or pendlums to clox—
Or roots and airbs unto an injun Doctor,
Or little pills unto an omeopath,
Or boys to gurls. Are is for us to brethe;
Wat signifies who preches if I cant brethe?
Wats Pol? Wats Pollus? to sinners who are ded?
Ded for want of brethe why, sextant, when we dyo
Its only cause we can't brethe no more—thats all
And now, o sextant, let us beg of you
2 let a little are into our church,
(Pewer are is certin proper for the pews,
And do it weck days and Sundays tew—
It aint much trouble—only make a hole
And the are will come in of itself;
(It lvs to come in where it can get warm.)
And o how it will rouse the people up,
And spirrit up the preacher, and stop the garps,
And yawns and figgits as effectooal
As wind on the dry Boans the Proffit tells of.

The Garden.

STRAWBERRIES.

As there is yet time to set out strawberry plants during the present fall, and thereby a partial crop of this delicious fruit can be secured next season, a few remarks and hints in regard to strawberry culture may not be inopportune.

The strawberry is not only a choice fruit but it has the high recommendation of coming very quickly into bearing. It should therefore be a favorite with that class of persons, a very large one, who are too impatient of results to plant orchards; and also of that other class, likewise a very numerous one, who being the occupants of rented places, cannot count on eating fruit from their plantations, if they have to wait a great while for it.

On no fruit has horticultural skill effected greater improvement than on this. A more complete contrast can scarcely be imagined than that which exists between a wild strawberry plucked from the woods, and a large, melting, Triumph De Grand gathered out of a well-kept garden. The best varieties require no special culture. They multiply so fast that they soon become abundant, and can be bought very cheaply of the nursery-man, or readily obtained of neighbours or friends "without money and without price." New sorts are grown from seed and considerable time, trouble and patience are involved in their production. Hundreds of thousands of seedlings are grown uselessly, and only here and there does one worthy of cultivation come into existence. When once a choice variety has been produced, its multiplication from runners may be relied on, and is therefore a very easy matter.

The young plants can be set out either in the spring or fall. Spring is preferable in several respects, but those who have missed the spring opportunity, will do well to take advantage of the autumn one.

Any ordinary garden soil will produce good strawberries. Where the land is very poor, manure must be added to it. This should always be well decomposed, and free from seeds. Leaf or forest-mould is best if it can be obtained, as there is danger of producing more leaves than fruit where the soil is over-enriched, which it may easily be by a too liberal application of dung. Strawberries are grown in rows, hills, or beds. When the latter mode is adopted, the plants become matted together so closely that neither plant nor fruit will attain such a large size as they will where they are allowed more room. Some plant in hills. This method produces fine fruit, but takes up considerable room. We prefer the row system. The ground should be spaded from ten to twelve inches deep. The rows may be from two and a half to three feet apart, and

the plants ten or twelve inches from each other in the rows. In setting out a plant after making a suitable hole, which is best done with the hand, the roots should be spread horizontally and with fine earth, leaving the crown just above the ground. When an increase of plants is not desired the runners should be kept pinched off, as by this means the fruit will be much larger and of a finer quality than it would otherwise be. Of course when a supply of plants is required, they must be allowed to run.

Valuable sorts may be increased much more quickly and safely by plunging small pots filled with good rich soil into the ground under the runners before they have rooted, putting a peg in each pot to keep the plant in place. They will soon strike root into the pots and may then be turned out in a ball and planted without any check to their growth. This plan is not only advisable for the surer multiplication of rare sorts, but if it is desired to secure a fair crop the following season it may be done in this way. Whatever method of culture is adopted, it is of the first importance to keep the ground free from weeds. It is astonishing how soon entanglement and confusion curse a strawberry bed, if the least toleration is given to weeds. The principle of Paddy's advice to his friends as they went to Donnybrook Fair "whenever you see a head hit it," should be applied to every weed that shows itself in a patch of strawberries. "Whenever you see a weed exterminate it," is not a bad rule for the whole garden. In cleaning among strawberries, care must be taken not to use the hoe near the plant-stools, as there are a multitude of fibrous roots which the hoe will bruise and cut if handled without proper care in this respect. It is a good plan to protect strawberries during the winter, in this climate, with a little straw, or clean coarse litter of any kind. There must however be no seeds among it. In the spring the litter may be used for mulching, or removed altogether. It is well to keep a clean mulch of some sort about the plants until after fruiting time, as it not only preserves the soil moist, but protects the berries from being spattered with dirt when it rains. We may add here that strawberries are thirsty plants, and are especially benefited by having plenty of moisture in fruiting time.

It is quite possible, nay even easy, with the proper facilities to have strawberries all the year round. Of course this is accomplished by means of "forcing," as it is termed, but this is a matter which would require considerable space to treat with any justice, and we apprehend that most of our readers will do well enough if they raise one good crop of strawberries per annum in the natural season for the fruit.

Many mistakes are made in the strawberry grow-

ing, the chief of which are planting worthless varieties, also planting kinds that flower imperfectly and need impregnation. Wilson's Albany Seedling is an excellent sort either to plant by itself or as a fertilizer of imperfect kinds. In this brief article on the general treatment of the strawberry, we cannot enter on the discussion of the comparative merits of the numerous varieties that compete for public favour; suffice it to say there are enough that have been tested by amateurs and professional cultivators to afford plenty of scope for selection. Wilson's Albany Seedling is perhaps, all things considered, the best single kind for general cultivation.

"IS THE TOMATO A FRUIT OR A VEGETABLE?"

A horticultural correspondent sends us the above enquiry; says it has been a lively theme of discussion among himself and friends; informs us that he took the fruit side of the question, arguing, among other considerations that when the produce was in the ground as in the case of potatoes, beets, &c., it was a vegetable, when *above* ground as in the case of apples, melons, strawberries &c., it was a fruit.

This is not so easy a point to settle satisfactorily as it might at first seem. Some would rank the tomato as a vegetable and give it a very inferior rank even then; while others would exalt it to a high place among the most luscious of fruit. In all horticultural publications with which we are acquainted, the tomato is classed among vegetables, and that we suppose is, strictly speaking, its proper place. The argument of our correspondent about below-ground and above-ground is not sound. Cabbages, cauliflower, pumpkins, &c, yield their products above ground, but certainly cannot be called fruit with any propriety.

CELERY CULTURE—STORING.

A correspondent desires information upon the best method of growing celery. Some growers claim to have especial and superior methods, and certainly we know some more uniformly successful than others; but, after all, we are not sure that their success is not in the main to be attributed to a good soil, plenty of manure, and the utmost pains in the culture, blanching and keeping of the crop.

Those who grow celery extensively raise their own plants; but those who require only a few hundred usually buy them ready grown. Plants should have been transplanted from the original seed bed, and allowed to obtain a vigorous growth before being taken up for final setting. Some clip off a portion of the top when transplanting to make them more stocky, and throw out more roots.

The soil for celery should be rich, as a whole, in addition to which, well decomposed manure is thoroughly incorporated with the soil in the bottom

of the trenches. If the tall or mammoth celery is to be grown, the trenches should be eight or twelve inches deep and twenty to twenty-four inches wide at the bottom. Formerly, trenches were made eighteen to twenty inches deep. They should be four feet apart from outside to outside. In the trench, set the plants about eight inches apart in the row, and in two rows, quincunx. They may be set, in quite warm and dry weather, by covering the trenches with boards until they are well established.

The largest and most successful growers at present, raise almost exclusively the dwarf varieties, as being more easy and less expensive to grow and winter, and possessing a superior nutty flavor. With this variety, no trench is necessary, except a furrow with the garden plow. Into this the compost is worked, and the plants set in rows six inches apart, care being taken to set them well. These rows should be three and a-half to four feet apart. In the deep trenches, as the plants grow, keep them free from weeds and too many suckers, and fill in as they grow, when the soil and plants are dry, but not to cover the heart of the plant. If they grow higher than the bank of the trench, plow between the rows and earth up, as being less labor and expense than deep trenches.

With the dwarf varieties the plowing and earthing up are the only methods of blanching, and these are preferred to trenches as less labor, the result being quite as satisfactory.

We recall to mind some acres of dwarf celery growing in a reclaimed swamp, in which water was present in each ditch, between the rows of celery, in September, and few cultivators have better success. Celery requires much moisture, though none in excess. While earthing up, if the weather and soil are dry, water occasionally and it will bleach white and nice.

Cultivators complain of the most difficulty in storing it for the winter and spring use. Severe frosts injure its keeping qualities; it should therefore be taken up before it has been injured. It keeps very well removed to a dry cellar with the roots next the wall, in alternate layer of celery and soil, covering the top layer with soil. It may also be kept safely if set in trenches in dry soil and earthed up, the soil packed firmly, roof fashion, to near the tops of the celery. Over this make a roof of two wide boards as protection from rain. Frost, if not too severe, makes it more tender. The German-town Telegraph gives another method as follows:—"Sink barrels into the earth, so that the tops are two or three inches below the surface, then fill them compactly full of celery, without any soil, but with close or tight covers upon them, so as to exclude moisture, and then a couple of inches of soil. By this mode, somewhat more troublesome than the other, it keeps well until late in the spring.—*Rural New Yorker.*

THE CULTURE OF THE MUSHROOM.

As the culture of mushrooms is attracting increased attention in this country, the following directions, found in the *English Mechanic* will be of use to those interested in the subject.

"Those who wish to succeed in their cultivation should first procure a quantity of horse droppings,

free from straw and stones, and pile them into a heap, which must be patted down firmly, and allowed to heat; when well warmed all through it should be shaken out, and again made into a heap, changing the sides into the middle. After two or three "heatings" the dung will become sweet, which may be known by placing a piece of glass on the heap, and if the water that condenses on it is clear, the material will be fit to form into a bed. The bed may be of almost any dimensions, but a rounded form is best, as giving a greater surface from which to gather the mushrooms; say some 2 feet broad by 2 feet thick, rounded off, others 18 inches or 2 feet thick sloping to nothing. It must be put together rather firmly, and should be neither too hot or too dry. In a few days the heap will in all probability heat violently, and when the temperature has fallen to 70° or 75° Fah., will be about the best time to put in the spawn. After the insertion of the spawn, which should be broken into pieces, the size of hen's eggs, and placed in holes about 9 in. apart, the surface of the bed should be patted together with a spade, and then covered with a layer of straw about 6 in. thick. In about ten or twelve days examine the bed, and if you do not see the thin white filaments of the mycelium spreading out from the lumps of spawn, it is certain that the heat is not sufficient, or the spawn is bad. If the former the whole bed had better be pulled to pieces and re-made; if the latter, procure fresh spawn, which should be placed in different holes to the first. But if the spawn has begun to run you may proceed to cover the bed with an inch or an inch and a half of good loam, which should be patted close and gently watered and the covering restored.

This form of bed will do for a cellar, outhouse, cupboard, or the open air, but if the latter it should be covered with straw, at least a foot in thickness. When the mushrooms are gathered a little earth should be placed in the holes whence they are taken. As to the kind of spawn to use, I think the French is undoubtedly the best, as what is generally bought at the seedsmen's is too hard and dry, whereas the French is in thin flakes, cut from heaps of mycelium. Droppings obtained from a mill tract, invariably contain spawn, and have only to be placed in small heaps to produce abundant crops of mushrooms. In the neighborhood of Paris these delicious fungi are grown in caves either underground, or excavated in the side of a hill, and even in the deserted slate and stone quarries, as at Frepillon, Méry-sur-Oise, where at one time no fewer than 21 miles of beds were in full bearing. Of course, in these comparatively warm subterranean caves a bed does not require any covering, but yields abundant crops for two, three, or even four months.

There is in fact, scarcely any kind of waste space where mushrooms might not be grown—in pots and old tubs under the stage of greenhouses, on the shelves in stables; indeed, in any situation where sufficient dung can be placed to heat, or merely enough for the spawn to spread if artificially warmed.

THE BEET AS AN ORNAMENTAL PLANT.

English gardeners now cultivate the beet as an ornamental foliaged plant, and class it with the very best varieties of the Coleus and other highly esteemed foliage plants. A correspondent of the English Journal of Horticulture says:

I am inclined to think that where Coleus will not bed out beet stands first among red leaved plants. As it is becoming fashionable, we may very soon look for great improvements in color; I dare say that three years hence we shall be in possession of varieties with leaves even brighter than the young and central ones of *Dracena purpurea*. On April 24, 1869, I sowed a packet of Royal Osborne beet, and placed the box in which it was sown on the top of a dung heap. It came up freely. When large enough to handle, I pricked the plants into pots, placing about six in a four-inch pot. Early in June I put them in ribbons in the bed; they grew rapidly, and were the admiration of all who saw them. In color (crimson-purple), in form, and in power of resisting both sun and rain, Royal Osborne beet is all that can be wished for. Iresine planted close to it, had to hide its diminished head. You might see your face in the gloss of the leaves. One bed was planted thus:—the center of *Cineraria maritima*, then a double row of beet, a double row of Flower of Spring Pelargonium, and an outer ring of Iresine. Everybody who saw it thought it beautiful.

One great merit beet has, is its durability. Coleus, Iresine, Orach, Perilla, vanish, disappear, but beet holds on till you want your ground for bulbs. When I took my plants up, Oct. 18th, they were as bright as ever. I stored them in sand, and I shall plant them out again in the beginning of April, and expect them to make a beautiful edging to a bed of tulips. They are now sending up a number of beautiful Magenta colored leaves at the crown, and would, I am sure, be beautiful for silver vases on a dinner table, with any one who had stove heat to force them for the purpose. There is, I know, a prejudice against the beet on account of its being edible. A great gardener, not far from this, is very loud in his condemnation of it. He says that if we have to go to the salad bowl for our flower garden, it is time to shut up altogether. I do not agree with him. If a thing is beautiful, it being useful also, is no demerit in my eyes.

CROPPING ORCHARDS.

I noticed recently in your journal communications on the bad policy of cropping orchards with grain. No doubt your correspondents are right so far, as half-way culture is practised. But under good cultivation, no such condition as stunted trees, or mouse-ear leaves of a velvety color will be seen. Ever since I came to this neighborhood, I have been a close observer of the different kinds of fruit raised here, which is a very profitable branch of agriculture. Not only has there been marked success in the raising of apples, but also in peaches, quinces, strawberries and grapes. Of the latter over sixty acres are planted out on an area of about four miles fronting on Lake Erie. But to return to the subject of apples, I will try to show that grain-growing in orchards is not all moonshine.

Thirteen years ago a neighbor of mine had about three acres of orchard containing old trees. He planted the remainder of the field, about three acres more, the old as well as the young trees being mostly R. I. Greenings. Every alternate year the orchard has been in Fall wheat, yielding from twenty-five to thirty-five bushels to the acre, the other years it would be put in with, sometimes barley,

peas, beans or corn, always yielding a heavy crop. As for the fruit crop it was spoken of far and wide, and all admit that Mr Stover always has a heavy crop of apples. But Mr. Stover has a valuable receipt which he supplies to both land and trees. Every fall all the manure made during the year is put in the orchard to be ploughed under. In the the Spring every tree is looked to, and all unnecessary wood, young shoots and sprouts from the roots removed. The trees are then washed with lime and wood ashes, the mixture applied with a splint broom, which effectually removes bark-lice and moss from the trees. And I doubt very much if your correspondents ever saw much thriffter trees, old and young, or that bore better crops of finer fruit.

I could mention other orchards, set out 13 years ago, and treated pretty much the same way with the same results.—*Cor. Canada Farmer.*

THE WILSON STRAWBERRY.

A. F. F., agricultural editor of the N. Y. Sun, and one of the liveliest speakers at the N. Y. Farmers' Club, vindicates the character of the Wilson strawberry from the very humorous aspersions which Henry Ward Beecher was pleased to cast on it in a letter to the N. Y. Ledger. Mr. Fuller says:—"The Wilson contains as large an amount of sugar as any variety that we are acquainted with, but it also contains a great deal more acid, possibly a little too much to suit the palate of every one, still we are inclined to believe that its acidity has been and continues to be, one of its greatest merits. For nine-tenths of our people crave acid fruits and vegetables in the Spring and Summer; early greens, lettuce, cabbage, cucumbers with vinegar are eagerly sought for by the masses at the first appearance of warm weather. Lemonade containing an abundance of both sugar and acid is a common drink among our people; but leave out the lemon and how many would partake of this beverage? We have sweet strawberries in abundance, but not one of them was ever popular, nor will be until the great American palate has been recreated on the saccharine principal. We have to recommend the Wilson strawberry, because ten years' experience has shown us that ninety-nine persons in a hundred are satisfied with it, and we do not know of any other variety that will give similar results. It is an undecided question whether an individual whose palate compels him to choose sweet fruits displays a more refined taste, than the one who selects the acid."

TO GROW POT ROSES.

The English *Gardeners' Magazine* says:—"Many elaborate directions for the preparation of Roses for pot-culture are given by various authorities, but they all resolve themselves into two principles—to get *strong* plants, and to place them properly in the strongest mass of soil in a given bulk. It has been already intimated that the rose upon its own roots is the only legitimate form for growing in pots. Let such, then, be obtained, healthy and well developed, with three or four leading shoots and abundance of fibrous roots; we have next only to procure the pots and compost."

Proper rose-pots are differently shaped to the ordinary kinds; they are widish at the bottom, so as to hold the greatest possible quantity of earth. Choose them large and clean, and then make ready

our favorites' food. The best method of draining the pots is to place an oyster shell over the hole in the bottom, and to fill up for two or three inches with knobs of charcoal and broken bones. These are much better than potsherds, inasmuch as they afford a certain amount of nutriment, as well as serving for filtering purposes. Over these should be arranged some lumps of half-rotted turf from a fat, loamy pasture, well saturated with liquid manure, the remaining compost being a mixture of heavy loam, somewhat rough, and well decomposed manure. Pot firmly, but not adhesively.

"It is surprising how the roots will multiply and spread in such a mixture, supplying abundant foliage above, and in due season a copious produce of well-developed blooms. The operation being completed, the plants may be consigned to a pit or the greenhouse, or if such accessories be not at command, they may be set on the bottom of coal ashes, and plunged in cocoa-nut refuse, with hoops placed over so as to allow of mats being used as a protection, when necessary, from the frost; this latter operation, however, is only necessary in case of tender kinds.

KEEPING GRAPES UNDER GROUND.

A correspondent of the Grape Culturist says:—"Many years ago, while in the nursery business, a customer wanted some vines of me, and while they were being dug up he asked me if I kept any grapes over winter. This was March. Of course he got a negative reply. Well, said he, when I come next week for trees I will bring you some along. The thing seemed but a joke to me at the time, but of course I thanked him for the kind offer. True to his promise, when he came a week or ten days thereafter, he brought me some. Not a few berries as might have been expected, but at least five pounds. They were Isabellas and Catawbas, perfectly plump, sweet and fresh, although most of the berries had dropped from the stems. With the exception of a very slight earthy taste, they were certainly excellent.

The question, of course, was asked, how do you keep them thus? The reply was, that in the fall as the cold will admit, they were gathered in a clear day when perfectly dry; a box about eight inches deep was taken; a layer of green leaves was taken from the vines and laid on the bottom; on these a layer of grapes, then a layer of leaves. Put the lid on tight and bury deep enough to escape the frosts of winter. Of course it must be where water cannot settle into the box.

The stems of those grapes were quite fresh when given to me. The man told me his father-in-law had kept them thus for years. Why I never tried it is now a mystery to me, but if spared until fall, will do so, I think.

To this, the editor of that journal adds:—"We have often dug up bunches of grapes on layers, late in the fall, when all the grapes on the vines had been frozen long ago, and found them plump, sweet and fresh. We do not doubt the method is a good one and worth a trial."

WEEDS IN WALKS.

Those who have made walks in lawns and pleasure grounds, have had no little trouble in keeping them

free from unsightly weeds. Many devices have been employed to overcome the difficulty, with varying success. The following, from the *Canada Farmer*, can be easily applied, and is well worth a trial:—"A most efficient agent for the destruction of weeds, and one not expensive, can be made by boiling four pounds of arsenic and eight pounds of soda in twelve gallons of water. To every gallon of this mixture three gallons of cold water should be added, and the liquid carefully sprinkled over the walks while it is yet warm. It is desirable to do this in fine weather, and when the walks are dry, so that the weeds and weed seeds may have full benefit of the application. Care must be taken not to let any of the liquid fall on the leaves or reach the roots of any plants it is not desired to kill. In twenty-four hours after the poison is put on the walks every weed will be killed; and if it be once thoroughly done, it will keep the walks clean through the whole season."

BUDDING THE ROSE.

From the *Villa Gardener*, a new Publication just issued in London, England, we copy the following paragraphs:

But two things are necessary to bud roses successfully. The stocks must be in the right state and so must the bud. Unless the bark of the rose will separate freely from its woody foundation, budding cannot be successfully performed. The answer, then, to the question is in general terms, at any time when the bark of the stock, and of the cion or bud, will rise; that is, separate freely from their respective wood. For it is essential that the bark of the stem should open freely to receive the bud, and that the bud with its accompanying bark should be deposited in its new home with the least possible bruise or injury. Some may take exception to this general principle as far as the bud is concerned. As long as the stock is right in regard to the free circulation of its bark from its wood, it is in a condition for budding.

If the bud and its bark will not leave the wood freely, some simply cut it off with a thin slice of wood, and insert it without the conditions recommended. Now there is no doubt that such buds will often grow; but the plan is not to be recommended, especially as the bud and bark budding is so much more simple, expeditious and successful. Again, the question when to bud may be answered pretty correctly by specifying the time from the middle of June to the middle of August inclusive, as the best budding season, though the operation may be performed at any time when stocks and buds are in the state already described.

COMPARATIVE VALUE OF STANDARD AND DWARF PEAR TREES.

Mr. Martin has had the best success with dwarf pears, and values them highly. While the standard pear will eventually become the more valuable, yet the dwarf produces fruit so soon that he advocates the planting of them. His dwarfs have produced four or five large crops, and promise to be fruitful for four or five years to come. High trained standards do not produce as good fruit as dwarfs, but as between low trained standards and dwarfs, he sees but little difference in the quality of the fruit. His to-

tal loss by blight for ten years, of both standard and dwarf, has been but two per cent., and the account stands in favor of the dwarfs. Root pruning of those on pear roots is resorted to, should they not be fruitfully inclined.

He plants ten feet by ten feet when dwarfs and standards are planted together, and ten feet by 15 feet when standards alone, and on thin soil, sometimes ten feet by ten feet and then trains low. He does not believe in the uncalled for practice of converting dwarfs into standards.—*T. T. Southwick, in Pilon's Journal of Horticulture.*

RUSTIC PICTURE FRAMES.

Rustic wood for this and other purposes is in great favor now-a-days. With a little care in selection of material, and skill in handling tools, we may frame our engravings and paintings at slight cost. Oak wood, denuded of the bark, presents a beautiful corrugated surface, out of which the knife easily removes the few fibers which adhere, and it is ready for varnishing as soon as it is seasoned. The "season cracks," should they occur, may be filled with dark-brown putty, and will even lighten the general effect.

Take a thin board, of the right size and shape, for the foundation or "mat;" saw out the inner oval or rectangular form to suit the picture. Nail on the edge a rustic frame made of the branches of hard, seasoned wood, and garnish the corners with some pretty device, such, for instance, as a cluster of acorns. Ivy may be trained to grow around these frames with beautiful effect.—*Scientific American.*

HOW SAGE GROWS BEST.

As every farmer's garden should have this useful herb, we give the following paragraph:

Sage grows best in a light, warm, rich soil. It may be grown from slips or cuttings, but in this country it is most commonly propagated from seed. Sow thinly in seed eighteen in a row apart, and from a half to three-fourths of an inch deep. Fresh rows may be formed by the plants so taken up. Sage should be gathered for drying before the flowers shoot out and if cultivated for the leaves, the flower stalks should be cut as soon as they appear. This increases the product, as the leaves start out more vigorously and grow larger.—*Mass. Ploug man.*

GARDEN GLEANINGS.

MICHAEL thinks the two hours he spent in watering his garden just before it was soaked by a thunder shower was a work of super-irrigation.

If you would avoid future pests among your fruit trees, collect, with a fine toothed rake, the wormy apples that fall, and feed them to the pigs.

A HORTICULTURIST thinks that he has found that charcoal, finely powdered, wonderfully improves the blooms on his plants, when he scatters it thickly in his flower pots. It is especially effective in giving richness to red colors.

TEAR a bit of coarse lace over a tumbler or fruit can full of soft water, press the cloth into the fluid and cover it with peas. The thread like roots will go down and the vines may be trained about a frame, making a pretty indoor ornament.

A FRENCH gardener finding a piece of woolen cloth, which had lodged on a tree, covered with caterpillars, acted upon the idea suggested, and placed woolen rags in several trees. Every morning he found them covered with caterpillars, which he easily removed.

Arthur Bryant, Sen., Princeton, Ill., an experienced orchardist, in a recent discussion in Iowa, stated that he preferred September and October for pruning apple trees and considered spring the worst time, for then the loss of sap lessens the vigor of the tree.

A gardener recommends, as many others have done, the hoeing of vegetables in the morning. He says he knows no particular reason for it unless it mixes something nutritive that is in the dew with the soil. May it not be, too, that loosed damp soil absorbs, sponge-like, nourishing gasses that lie low in the morning?

J. J. J. asks if the fruit on currant bushes that have been defoliated by currant worms is poisonous. We have repeatedly eaten such fruit. In order to divest yourself of all fears put the fruit after it is gathered in a colander and pour water over it copiously and then we should take the risk without a tremor; indeed we should take the risk without this precaution.—*Rural New Yorker*.

Some one has thus defined the various types of national character:—Put an Englishman into the garden of Eden and he would find fault with the whole "blasted" concern; put a Yankee in, and he would see where he could alter it to advantage; put an Irishman in, and he would want to boss the things; put a Dutchman in, and he would proceed at once to plant it with cabbages.

There is on the ground of Messrs. Graves, Selover & Willard, Geneva, N. Y., a beautiful variety of the Ash-leaved Maple (*Acer negundo*) having fine silver-variegated foliage. As the Ash-leaved Maple is very hardy, growing in the coldest parts of the Northwest, there is every reason to expect that this pretty tree will be perfectly adapted to our climate, and make a most desirable addition to our list of hardy trees with ornamental foliage, contrasting finely with the purple leaved beech and maple.

"Erastus," in the *Ohio Farmer*, does not see any advantage to be gained by planting evergreens in orchards as recommended by some writers. His objections are, briefly:—1. The result to the orchard is the same, virtually, as excessive or continued cropping. 2. He believes a better protection to the orchard will result from belts of timber about the orchard, and the soil of the orchard will not be exhausted. 3. He thinks (judging by his own experience) the effect upon the fruitfulness of trees is unfavorable.

A GOOD word was said for the woodpecker, in the *Farmer's Club* the other day, and his extinction in some parts of the Country was mentioned with regret, especially by orchard men. This bird is provided with such an acute sense of hearing that he can detect the noise made by a borer beneath the bark of a tree, and his sharp bill enables him to dig through the bark and thus to find his food. The loss of the woodpecker is considered equivalent to the loss of half the apple crop.

A CHEAP way to make "hanging baskets," which are pretty for bed-room window, is to take pieces of

hoop-skirts, make two circles—the size depends on how large the basket is to be—then five other pieces, all joined in the middle securely, for the bottom, and join each piece on to the two circles with pieces of wire twisted round. That off old brooms does very well. Fasten up with stout cord; put layer of moss in it, then fill with good soil, and it is ready for the plants.

EXPERIMENTS in France and Holland have shown that sunflowers, when planted on an extensive scale, will neutralize the pernicious effects of exhalations from marshes. This plan has been tried with great success in the fenny districts near Kochefort, France; and the authorities of Holland assert that intermittent fever has wholly disappeared from districts where the sunflowers has been planted. It is not yet determined what effect the flower produces on the atmosphere—whether it generates oxygen, like other plants of rapid growth, or whether like the *conif. oæ*, it emits ozone, and thus destroys the organic germs of miasms that produces fever.

A CORRESPONDENT of the *Germantown Telegraph* says:—"Half an acre of land in a well cultivated garden, will do as much toward subsisting a farmer's family as any three acres on the farm, besides which the advantage in the cultivation of it would gratify a diversity of tastes, and contribute much to secure the blessings of health, and the labor can be shared also by those too young or too old to toil in the heavier operations of the field, and occasionally by the female inmates of the house, or the plowman from the field by way of relaxation from leg-toil, without any material impediment to other labors. Every farmer will best promote his interest by bestowing on the garden a due share of attention."

THE *Western Pomologist* says: "We have cultivated pie plant extensively for market, and find the best time to transplant is in the fall after the first frost. If the stools are large and require a division do not dig them up, but divide them as they stand with a spade by cutting off or dividing through the centre of the plant, leaving the part in the ground undisturbed. By this method you have a good crop the next spring on those left in the ground, and the balance you can divide up and reset and they will bear a good crop the second year but not the first. We have plants now standing ten years, divided in the above manner (when they got too large) and each year produce a good crop. The ground cannot be too rich, but must not be wet or the plants die out."

WOMEN AS HORTICULTURISTS.—We, (*Hearth and Home*), clip the following from the *Bee Keepers' Journal*, which bears the initials of our esteemed contributor, Mrs. Tupper:

"We are pleased to notice that two young ladies of our acquaintance are engaged, most successfully, this spring, in grafting fruit-trees, not only for themselves, but for neighbors, and are obtaining all the work they can do in this line.

"Why did not some one before this late day discover that this work was an appropriate one for women? Try it, country girls, obtain information on the subject; see how successful nurserymen proceed, and with a little practice you can do it quickly and well.

"E. T. S."

Our Country.

PRINCE EDWARD AGRICULTURAL AND HORTICULTURAL SOCIETIES.

TO THE EDITOR OF THE ONTARIO FARMER.

Sir,—Having recently spent a few days in parts of the Counties of Northumberland, Hastings and Prince Edward, and enjoyed the pleasure and advantages of much personal intercourse with farmers and others, I wish to say a few words more especially with reference to my visit to Picton, when I arrived after a very pleasant sail on the picturesque Bay of Quinte, on the morning of Dominion Day, July, 1st.

The Directors of the County Agricultural, and the Picton Horticultural Societies had selected the day set apart for commemorating the formation of the Canadian Dominion, for a display of some of the various productions that belong to their respective spheres. The day throughout was delightfully fine and pleasant, and notwithstanding numerous attractions in other places, vast numbers of visitors from different points of the bay reached Picton before noon, and presented a scene of much gaiety and interest. A number of popular games were got up, but the principal points of attraction were Horticultural Show and the Agricultural grounds.

These grounds, situate close to the town, comprise about a dozen acres, recently purchased on very advantageous terms, conveniently laid out, and already planted with trees, and with a little more planting the whole will have quite a picturesque and park-like appearance, commanding beautiful views of the bay and surrounding country. There is a driving course of more than a third of a mile in length for the exhibition of horses. In the centre of the grounds a convenient and substantial Exhibition Building has been erected, two stories high, 75 feet in length, and 50 feet in width, with large wings, and ornamented with a spacious cupola, with sides of glass, "and," to quote the words of the Society's last report, "above all rises a fine flag staff, from which, on any public occasion, floats the noble flag of the Empire, a reminder that while absorbed in the duties and business of every day life, we as a Society feel proud to hold an Exhibition under the protection of England's beloved Queen." Although several societies have of late procured permanent grounds and buildings, I know of none for convenience and beauty, superior to those of Prince Edward. There were some good saddle and matched carriage horses exhibited, and likewise reapers and mowers from two or three Canadian firms, which are now getting into more general use. This county has long been celebrated for its light and useful horses, but for thoroughly

working the older and heavier lands, larger and more muscular animals are beginning to be required.

The show of the Horticultural Society was a brilliant success, when the unfavorable state of the season is considered. It was stated that more than four thousand admission tickets were sold during the day and evening. The flowers were generally fine and tastefully arranged, and numerous specimens of early fruits and vegetables indicated the attention and skill displayed in their cultivation. The Picton Society was brought into existence by the public aid afforded by the new Agricultural Statute, which seeks to encourage horticulture as well as agriculture, and also the mechanical and manufacturing arts. From all I could see on this interesting occasion, I feel, persuaded that Prince Edward has commenced a new era in the advancement of the agricultural and horticultural arts.

The taste displayed in and about Picton, in the planting of shade trees in the streets and along the roads is clearly indicative of progress and comfort. The maple seems to thrive luxuriantly and groves and clumps here and there gratify the eye, and afford a welcome shade. Mr. Robert Wurden, a leading farmer and horticulturist in this part took the initiative many years ago in this mode of improving rural taste. Others followed his example, and the consequence is that artificial plantations are now so far advanced, as wherever they exist, shelter against both heat and cold is effected, to the agreeable and beneficial modification of local climate, and the great improvement of rural scenery. I was in more than one place in this neighborhood, which pleasingly reminded me, in a small scale, it is true, of the shrubberies and plantations that give to the English landscape so large a share of its charms and beauty. May so needed and salutary an example become more generally followed in Canada, and thus remove the objection so commonly urged against our residences, public buildings, roads, &c., a monotonous baldness and expanse, arising from the absence of trees.

I may further remark that I saw in the township of Hallowell two of the greatest extremes in hop culture that could probably be found anywhere. In one plantation the ground had received no cultivation whatever; the poles had been put up and the vines tied to them without any previous pruning, and the ground covered with weeds from a foot to upwards of a yard in height. No wonder the plant what then was of it, looked dwarfed and sickly. The other plantation for deep and clean culture, the entire absence of weeds, the strength and healthy greenness of the vines indicated a style of management that one would rarely see exceeded in the best kept gardens of Kent or Surrey, in England.

And judging from present appearances, one plantation may produce two or three cwt. an acre the other a dozen or fifteen, and perhaps more. The old adage, "What is worth doing at all, is worth doing well," holds generally good, particularly in hop growing, a business that has not been profitable either in Canada or England for the last two or three years. If, however, a loss is inevitable, good management will always reduce the loss to a minimum.

I will only add that I had the pleasure of spending a day with Mr. J. B. Marks, formerly of Kingston, but who now resides, during the summer months, near Brighton. Some of your readers will remember Mr. Marks, when he took an active part in the early management of the Provincial Association of which he was once President, and may think that he has been removed in the course of nature from the scenes and duties of the present life. I found him, however, though having nearly completed his ninety-third year, with almost as clear a mind, and certainly with as generous a heart, as when he took a public part in Agricultural matters, evincing still a warm interest therein, as well as in old friends and associates. What a salutary lesson does old age teach to all, especially to the young, "When it is found in the way of righteousness."

Yours truly,

Bureau of Agriculture, }
Toronto, July, 12, 1870. }
GEO. BUCKLAND.

PHILOMENA WRIGHT.

Mr. Wright's spirit of enterprise was something remarkable. As early as 1797 he began his explorations in Canada. He made several visits of exploration, and carefully examined both sides of the St. Lawrence and Ottawa Rivers, from Quebec to Hull. In 1799 a thorough view of the land, front and rear, at the latter place, proving satisfactory, he decided there to make a settlement.

On the second day of February, 1800, Mr. Wright left his native town, Woburn, Massachusetts, bound for his new home in Canada. His company consisted of five families, including his own, 25 hired men, 14 horses and 9 oxen. Seven sleighs carried the human freight, besides tools and provisions required for the enterprise. This little army moved forward, and in eight days reached Montreal. After a short stay there, they proceeded westward, lodging at night with the *habitués* till they reached the foot of the Long Sault. Here they were obliged to cut their way through the bush to the Head. The depth of the snow rendered the task more difficult, and at night they had to camp as best they could. In due time the head was reached, after which the rest of the journey was performed on the ice, the travellers seeking the river banks only for camping purposes. 7th of March, the courageous little band arrived in Hull, and took possession of their future home by felling the first tree, in which all who

could use the axe took part. Mr. Wright made rapid strides in clearing and building. Land was cleared yearly by the hundred acres. In farming his success was remarkable. In 1813 he harvested three thousand bushels of wheat, then worth three dollars per bushel; the cost of this crop was only \$2,900. Threshing the produce of one acre, he found the yield forty bushels. Mr. Wright built mills, manufactured lumber, cultivated flax, and aimed to build up a place which he then imagined might rival Montreal. He was the first to take timber down the Ottawa to Quebec, in doing which he had to feel his way in descending the Long Sault, and in exploring the unused waters of the North Channel, which he successfully did.—From "*Scenes in the Life of a Canadian Pioneer*," in *New Dominion Monthly* for August.

THE COMMENCEMENT OF THE RIDEAU CANAL.

In 1827 Col. By passed up to commence the Rideau Canal. This costly work made no small stir on the hitherto quiet Ottawa. The embryo town, bearing the Colonel's name, grew apace. The construction and trade of the canal, the fast settling of the surrounding country, and the increasing extent of the lumber trade, united to push Bytown rapidly forward. An interesting incident connected with the first flight of locks ascending from the Ottawa, is the fact that the renowned Sir John Franklin laid the foundation stone. Sir John, happening to pass on one of his overland trips northward, was assigned the honor. Lady Franklin, when in Ottawa, in 1861, was shown the stone her lamented husband had laid so long before.

During the progress of the canal, the demand for farm produce was great, and prices ranged high.—The settlers along the river felt the benefit Clarence improved rapidly; settlers came in fast; and those previously located improved in circumstances. The blessing of a day school was added to the Sabbath school. A church, receiving frequent additions, watched over by Mr. Edwards, was exerting a beneficial influence on the whole community.

The necessity for manual labor, on the part of Mr. Edwards, being lessened, he devoted his time more fully to ministerial work. Not having been hitherto formally designated to the charge of a church, he was, in 1831, ordained. About that time an Act was passed in Upper Canada, to enable other than Episcopal and Presbyterian ministers to marry. Mr. Edwards took advantage of the law, and supplied a want long felt. Previously, candidates for wedlock had to make long journeys, or content themselves with the services of a magistrate.

Many amusing anecdotes might be told of the doings of some J. P.'s, in early days, in the back woods, both in their style of tying matrimonial knots, and administering justice. Nice points of law were not studied; in fact some of their worshipers were a law unto themselves. One of these, an old officer, who had served under Wellington and loved dispatch, would put up a notice on a Saturday, stating "This is the first, second and third time of calling," and marry the couple on the following Monday. Any case in the whole calendar, civil or criminal, he would take hold of—breaches of promise, or cases

of debt, just as readily as breaches of the peace.—
From "Scenes in the Life of a Canadian Pioneer," in
New Dominion Monthly for August.

NAILS FOR OUT DOOR WORK.

Every farmer who has had to do with the repairs of out buildings, finding it needful to constantly replenish his stock of nails, which are used in various unmentionable ways, has many times noticed the havoc that rust makes with the wood through which the nail is driven. Three years in some states of the wood, will suffice to either rust the nail-hole large enough to make whatever is fastened with the nail insecure, or, perhaps, to impair the vitality of the nail itself.

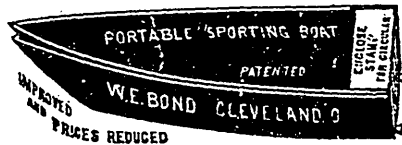
Various plans have been devised to remedy this waste, which costs the country no small sum each year.

A recent article in the *Technologist* talks so sensibly upon this matter that we copy it entire:

"Every one is familiar with the fact that a piece of rusty iron wrapped in cotton or linen-cloth soon destroys the texture of the fabric. A rusting nail, for example, if laid upon a few rags, will soon produce large holes in them, or it will, at least, render every point that it touches so rotten that the cloth will readily fall to pieces at these points and holes will be produced by the slightest hard usage. Why this is so is not our purpose to investigate. We merely state a well-known fact, and draw from it the conclusion that iron, during the process of rusting, tends to destroy any vegetable fibre with which it may be in contact. This explains, to a certain extent, the rapid destruction of the wood that surrounds the nails used in out-door work, whereby the nail is soon left in a hole much larger than itself, and all power of adhesion is lost. Part of this effect is, no doubt, due to the action of water and air, which creep along the surface of the nail by capillary attraction, and tend to produce rotteness in the wood as well as oxidation in the iron. But when we compare an old nail-hole with a similar hole that has been exposed during an equal time but filled with a wooden pin instead of an iron nail, we find that the wood surrounding the wooden pin has suffered least, and we may, therefore, fairly attribute a destructive action to the rusting of the iron. It might, at first sight, be supposed that, as the oxide of iron is more bulky than the pure iron, the hole would be filled more tightly and the nail held more firmly to its place. But, although this effect is produced in the first instance, yet the destruction of the woody fibre and the pulverization of the oxide soon overbalance it, and the nail becomes loose. Of course, the iron itself being also destroyed, its strength is diminished, and we have, therefore, a double incentive for preventing or diminishing the action that we have described. The only way to prevent this action is to cover the nail with some substance that will prevent oxidation. This might be done by tinning, as is common with carpet-tacks, which are now extensively tinned for the purpose of preventing them from rusting and thus rotting holes in the carpets. Coating them with oil or tallow would be efficient if the act of driving did not remove the protecting matter entirely from a large portion of the surface. But, even then, it will be found that the oil or fat is stripped off the point and gather-

ed about the head in such a way as to prevent the entrance of air and moisture into the hole. The most efficient way to coat nails with grease is to heat them to a point sufficient to cause the grease to smoke, and then pour the grease over them, stirring them about in a pot or other vessel. When the nails are hot, the melted grease will attach itself to them more firmly than it would have done if they were cold—indeed, so firmly that it will require actual abrasion of the metal to separate it. In erecting fences, laying plank or board sidewalks, and the like, it becomes an important matter to secure the nails against the influence that we have mentioned, and yet the work must be done rapidly and cheaply. Nails may be readily prepared, as described, or they may simply be dipped in oil or paint at the moment when they are driven in. And we have found, by experience, that in cases where it is not advisable to paint the whole fence, it is, nevertheless, a good plan to go over the work and touch the head of every nail with a brush dipped in oil or paint prepared so as to be of the same color as old wood."

Arts and Manufactures.



A CONVENIENT PORTABLE BOAT.

Now that duck-shooting is on, we have pleasure in commending to the notice of such of our readers as are wont to visit the marshes, an exceedingly handy boat invented and manufactured by Mr. E. Bond, of Cleveland, Ohio, of which we have had some trial the present season, and which everybody who has seen it pronounces "just the thing." It is made in two water-tight halves, the one fitting into the other, as represented in the above engraving, and is fastened securely together by a very simple but very strong arrangement easily and quickly adjusted. This boat is made in several sizes from 11 to 16 feet in length. Ours is 14 feet long, weighs only seventy pounds, and is readily carried on a trunk rack behind the buggy. It occupies so little room that it can be readily sent by express or taken as extra freight to any desired point on a sporting expedition. For fishing excursions to lakes or streams where it is doubtful if a boat can be had, it is very convenient. In short it supplies a lack often felt by sportsmen and fishermen. We append the manufactory prices, given of course in American currency:

Extreme Lengths.	Extreme Widths.		
	38 in	38 in	40 in
11 feet	\$25 00		
12 "		\$37 00	
18 "		29 00	
14 "			\$31 00
15 "			38 00
16 "			35 00

Orders accompanied by the money or satisfactory references, to be addressed to W. E. BOND, Cleveland, Ohio.

THE FRENCH "MITRAILLEUSE."

To destroy your enemy in the shortest time, in the easiest manner, and at the least possible expense, is the first maxim of war. The stone that whistled from David's sling, the bullet of the "Zundnadelgewehr," and the volley of the "machine gun" had all the same object. Since the days of Roger Bacon the aim of all improvements in fire-arms has been to carry the greatest possible number of deaths to the greatest possible distance. Grape, canister or case, and shrapnel all contain bullets, and all means for multiplying deaths. The field gun mows down its hundreds by showers of case at close quarters, or at longer distances rains bullets from the bursting shrapnel. The mitrailleuse, or machine gun, on the contrary, sends a large number of small projectiles independently, and with precision, to a considerable distance. We may divide arms on the latter principle into two classes, first, those which discharge their bullets from a single barrel, fed by a many-chambered breech; and, secondly, those in which each cartridge has its corresponding barrel, the charging and discharging of which is direct and more or less simple. It is obvious that for rough usage and continuous firing it is better that a large number of rounds should be fired from a considerable number of barrels so placed as to support each other, and add strength to the whole machine. The French mitrailleuse, as well as the Belgian Montigny, belongs to the second class, and the following brief description is equally applicable to both arms: The machine gun consists of a cluster of barrels either bound together or bored out of the solid, and mounted on the same principle as an ordinary field gun. At a few hundred yards, indeed, it would be difficult to distinguish between these weapons, so far as outward appearance goes. To the barrel is attached a massive breech action capable of being opened and closed by a lever. In the Montigny arm the cartridges are carried in steel plates perforated with holes corresponding in number and position to the holes in the barrel. This steel plate, in fact, forms, the "vent piece" of the system. The central fire cartridge being dropped into the holes in the steel plate, stand out at right angles from it, and the plates, thus ready charged, are so carried in limber and axletree boxes specially fitted for their reception. When the gun comes into action the breech is drawn back, a steel plate full of cartridges is dropped into its corresponding slot, and the breech block thrust forward and secured. The gun is now on full cock, and contains from thirty to forty cartridges, which are fired by a "barrel organ" handle, either one by one as the handle works round click-click, or in a volley by a rapid turn of the wrist. When the gun is empty the breech block is again withdrawn, the steel plate carrying the empty cartridge cases lifted out, and a fresh plate dropped in, if necessary. The advantage possessed by the machine gun over infantry fire is that it is never in a funk. Bullets may rain around, bursting shells may fill the air, still the thirty-seven barrels of the mitrailleuse shoot like one man; and at 800 or 1,000 yards will pour volley after volley of deadly concentrated fire into a circle of from ten

feet to twelve feet in diameter. No boring or fixing of fuses is required, and the whole operation is performed so rapidly that two steady, cool men could maintain a fire of ten discharges per minute. On the other hand, the mitrailleuse could not well compete with the field gun, and it is with this weapon it will assuredly be met. Its bullets would have comparatively slight effect at the ranges at which field artillery projectiles are perhaps most effective, while its size would offer a very fair mark to the gunner. The foreign press are welcome to write *funfaronades* about the sudden death of wretched horses at incredible distances. This is peace practice. The horses came from the knacker's yard, not from the banks of the Elbe, and there were no Uhlans sitting on them. We are also tempted on such occasion to take the square root of the reported distance as the actual range. The future of the mitrailleuse, however, depends on coming facts. The day's experiments are over; there are hundreds of machine guns trundling towards the Rhine. The drum-like roll of their volleys may ere long be heard in the vineyard of Rudesheim or on the edge of the Black Forest; and the "thub" of the bullets may come from something softer than a wooden target. Yes, the machine gun is *en route* for the Rhine; the experiments will now be on a gigantic scale; and Mr. Cardwell may adjourn his special committee until after Christmas, at any rate. By that time the voice of war will have given the verdict; by that time the Chassepot, the Zundnadelgewehr, the shrapnel, and the volley guns will each be credited with a ghastly account, and we shall each know which engine destroys human life in the shortest time, the easiest manner, and at the least possible expense.—*London Globe*.

ART GLEANINGS.

Dissolve glue in whisky and it will be ready for use at all times.

A Vermont lady says she removes rust from table cutlery by soaking it in kerosene oil.

To kill flies, soak quassia in sugared water. Paper saturated with this will attract and poison flies.

Lemonade can be cheaply manufactured at home from citric acid and water flavored with essence of lemon.

A company in Massachusetts makes a horse shoe that can be removed from the foot as readily as our own boot or shoe, and has adjustable corks that can be fitted in when the old ones are worn out.

An English clergyman has invented a new kind of artificial stone by mixing broken granite with hydraulic cement and steeping the whole when set in a solution of silica.

Put cut nails into the fire when there are barely coals enough to heat them to redness, let them remain until the fire has gone out, and they will be as tough as copper wire.

An Ohio editor is getting particular about what he eats. Hear him: "The woman who made the butter which we bought last week is respectfully requested to use more judgment in proportioning the ingredients. The last batch had too much hair in it for butter, and not enough for a waterfall. There is no sense in making yourself baldheaded if butter is sixty-five cents a pound."

Hearth and Home.

FARMING FOR BOYS.

CHAPTER XIII.

HOW THE PETS SUCCEEDED.—GOING TO THE FAIR.—A
YOUNG HORSE-RACE.—TRYING FOR A PREMIUM.

It must be supposed that, during all this period, from spring to fall, the boys had neglected giving their pigs and pigeons whatever care they needed. The pigeons had long been released from their prison in the loft, and now went and came as they pleased. They flew away over the farm, picking up the seeds of weeds, and, so far as could be discovered, were doing no injury to the crops. Not one of the neighbors had complained of them. Even Farmer Spangler could find no fault, though he had so stubbornly resisted their introduction on the premises. On the contrary, he began to think they were very convenient things to have about; for as they had hatched out and reared several pairs of squabs. Uncle Benny had been shrewd enough to have the boys present a couple of them to Mrs. Spangler, who served them up in a pie for her husband's dinner.

This little stroke of the old man had a prodigious effect on Spangler's opinions as to the value of pigeons on a farm, as many of his seemed to be formed on his stomach instead of in his brain.—Moreover, he was particularly fond of pot-pie. Uncle Benny being aware of his weakness, and knowing also that the most direct way to a man's good opinion is in the direction of his stomach, he thought the offering of one or two pairs of squabs on the altar of Spangler's appetite would be about the cheapest form of conciliation he could adopt. But Uncle Benny is not the first person who has discovered the power of a good dinner in carrying a favorite point.

The boys kept their pigeon-loft as clean as possible, and stored up a considerable quantity of manure that was almost equal to guano. The floor was constantly supplied with gravel, lumps of clay, or common soil, or salt. These were not needed for the older birds, which ranged over the farm, as they could find all such materials for themselves, except the salt. But such articles are indispensable to the health of a pigeon, hence it is better to provide them where they can be handy. In a pigeon-loft there are always some young birds called *squakers*. These are such as have outgrown the condition of *squabs*, and, having all their feathers, have left the nest to run about the loft, without as yet having courage enough to use their wings out of doors. Such must be carefully looked after until able to fly out and shift for themselves.

Pigeons living a reasonable distance from the

ocean, or from salt marshes, obtain salt by drinking freely of the briny water. They have been known to swallow snails for the sake of the materials contained in the shells. In chalky countries they pick up the chalk as it lies on the ground. They are also very fond of certain fragrant matters, such as lavender, which they often break off, and carry to their nests. When these necessaries are not provided for them, they can be easily enticed off to some other home where such luxuries are kept on hand.

It is a well-known trick of pigeon fanciers to draw to their premises their neighbors' birds by keeping a good supply of what they call "salt cat." This is made by taking a barrel full of loam, and converting it into mud by mixing up old brine in which meat has been pickled. Then a gallon of coarse sand, a peck of salt, and a little saltpetre. If some cummin seed or lavender is worked in, it will be better; in fact, anything to give the compound a pretty strong smell, so much the more will it be relished. Then keep it under cover, and no birds can be enticed away to other roosts. Various preparations of "salt cat" are in use, some of which are very far from being as fragrant as an orange blossom or a rose. On the contrary, experience has proved that the worse they smell the better the birds like them.

So far the boys found it the easiest thing in the world to raise pigeons, as the rearing of the young gave them no trouble. Plenty to eat and drink, with constant cleanliness, was all that was needed. At six months old the new broods began to go in pairs, each laying a couple of eggs. In eighteen days after the laying of the second egg, the young were hatched. Thus their flock went on increasing, until it made a very respectable show when its members came down from their perches to take part in the several distributions of corn among the poultry; but they would have to wait another year before having any to sell.

It was not quite so encouraging with Nancy and the pigs. The whole brood, excepting three that died, increased prodigiously in size, as they were taken care of, Bill continuing to curry them daily. To perform this now extensive duty more easily, he mounted an old curry-comb on the end of a long stick; and, taking both hands to it, he was able to do a great amount of currying in a very short time. It was laughable to witness the movements of the pigs the moment Bill showed himself and his currying-stick alongside of the pen. They ran, grunting, to where he stood, lay down on their sides, and waited patiently for him to begin operations. It was much easier to tire out Bill than it was to tire out them, for they never had too much of it. Every one who saw the pigs, even their neighbors the

Allens, declared they had never seen such silken-coated animals as these, all occasioned by clean keep and regular currying. Uncle Benny one day told the boys that, if Bill continued to push them forward at that rate, he didn't know but he should think of taking them to the country fair, and enter them as candidates for the premium.

But the pen in which the boys had begun this operation of pig-raising was now found to be too small. So, as they had considerable money laid by from the blackberries, Uncle Benny told them they must use a portion of it in putting up a new pen. It was partly for this purpose that he had urged them to save it. It is true that he had given way to their importunities so far as to buy something for each,—one wanted a cap, another a whip, and the third would have a parcel of books. He insisted on being the general cash-keeper, but required each one to have a regular account of how much he was entitled to, and how it was laid out. Thus, in addition to teaching them the importance of economy, he taught them the first lessons in book-keeping.

A quantity of boards being purchased, the boys quickly constructed a new and much larger pen. The old man had consented to their joining funds and buying a very complete set of tools; and, by help of these and his instructions, they succeeded in getting up as handsome a pen as any of the neighboring farmers could boast of, even before it had been well whitewashed. There was a covered sleeping-place provided, so that in wet weather the pigs could keep themselves dry; and a door, through which Bill could get in without climbing over the fence. Then the old hoghead was removed, the ugly patchwork fence taken down, and a thorough clearing up made of the ground. This resulted in a great collection of manure, which was added to a very respectable pile from the same prolific manufactory.

"Nothing like pigs!" exclaimed Uncle Benny to the boys, as he surveyed the huge compost heap. "They earn their living without knowing it. I must have some of this on our blackberries,—at least one row must be supplied with it, just to show you the difference between high culture and only half culture."

It turned out that Uncle Benny's remark about taking some of the pigs to the fair had some meaning in it, for he now made up his mind that he would do so. He looked over the printed list of premiums for different animals, and found that whoever should exhibit the four best pigs of a certain age should have a premium of three dollars. Now, the amount was very small, and really not worth the trouble and cost of taking four pigs some ten miles to the fair, even if one succeeded in securing it. But the old man explained to the boys that

there would be a great deal of honor gained by taking the premium. That was much more than the money. Besides, a premium animal always attracted great notice from those who attended, and it generally sold at a high price. Many persons went to such gatherings on purpose to buy fine animals; and, even if they failed of securing the premium, they still might get a good price for the pigs.

Well, as it had already been determined that the boys should go that fall to the fair, it was resolved to compete for the premium. So the four best pigs were put in a pen by themselves, and then began a course of high feeding that had never been practised on Spangler's farm. Uncle Benny bought from the Trenton butcher, about once a week, a barrelful of bones having considerable meat left on them, sheeps' heads and cows' heels, with now and then a pluck; and, in fact, whatever offal the butcher made. These he had boiled up into soup, with a sprinkling of corn-meal and mill-feed, and served it out warm, three times a day; giving just as much as the pigs wanted, but no more. It was amazing what an effect this meat-soup diet produced. The pigs grew so rapidly as to confound Farmer Spangler, who had always been a poor sort of provider. They became fairly round with fat; and, when the proper time arrived, they were put into a wagon and taken to the fair, where the committee placed them in a pen by themselves, with this label, written in large letters, directly in front:—

CHESTER-COUNTY WHITES.

FOUR PIGS FROM THE SAME LITTER,—FIVE MONTHS OLD.
RAISED BY JOSEPH AND WILLIAM SPANGLER, AND ANTHONY KING.

When thus disposed of, Uncle Benny and the boys strolled leisurely around the enclosure to see what other folks had brought. They naturally looked into the pig department first, but could find nothing that came anywhere up to theirs, though a large number had been entered for the prize. Uncle Benny declared that he began to think there might be a chance for their getting it. Then they wandered all over the grounds, examining the multitude of animals, of implements, vegetables, fruits, and other useful and ornamental things that were on exhibition. Uncle Benny pointed out to them the useful novelties, as well as the improved agricultural implements and explained how they operated, and why they were better than those they had at home.

The older boys were deeply interested in all they saw; but Bill Spangler broke away every half-hour, to run off and see the pigs. Every time he came back he reported to Uncle Benny that there was a considerable crowd gathered round the pen, some of whom were inquiring where Mr. Spangler and Mr. King could be found. These repeated announce-

ments excited even Uncle Benny's curiosity; so he gradually edged round toward the pen, and, sure enough, there was a real crowd of people admiring the pigs! In the centre of the group he observed two or three fussy, important-looking men, with paper and pencil in their hands. These were the judges, who were just then going the rounds of the fair to decide as to who were to have the different premiums, but that important announcement would not be made until the next morning.

In the course of their wanderings over the fair grounds they came suddenly to a great open space,—a huge circle, surrounded by a low fence. On the outside of this fence an immense number of men and women were collected, all crowding upon each other to get a view of at least a dozen persons, in light sulkies, who were trotting horses at the top of their speed around the circle. It was a fine gravel road, made expressly for fast driving.

The boys looked on with the utmost enjoyment. They had never seen such fast driving before, except when a horse was running away. Then they were in continual fear lest one sulky would run into another and cause a smash-up, they came so near together. Every now and then there was a shout and a hurrah from the spectators; and at the same time the women waved their handkerchiefs as if somebody had done something wonderful. Bill Spangler suddenly turned round to the old man, and inquired,—

"Why, Uncle Benny, ain't this a horse-race?"

"Well," replied Uncle Benny, "this is what the society calls 'a trial of speed.' Don't call it a horse-race, or some of the managers might hear you. I know these fairs would be dull things if no fast horses were to be exhibited, and I am afraid they are becoming mere excuses for horse-racing. But everybody seems to expect it. Look at the number of people who stand round this fence, gaping for hours together at nothing more than a parcel of trotting-horses, driven as fast as they can be made to go. At least one half of the spectators are women; and, taken altogether, there are three times as many people now round this fence, enjoying the races, as there are on the rest of the ground. I think the managers should change the name of their shows, and call them the annual county horse-race."

But the boys soon tired of a display that had so little to interest them; and, as it was drawing toward sundown, they turned away, and started for home. It had been a somewhat tiresome day, as very hot and dusty, as fair-days generally are. Still, they had enjoyed it greatly, as boys, when bent on pleasure, do not seem to care whether it rains or snows, or whether the day be fair or hot or dusty,—all is about the same to them.

The next morning they returned, and found a crowd even greater than on the preceding day. The first place they visited was the pig department; for, as their treasures was there, so did their hearts yearn toward it. As they approached the pen where their pets had been deposited they found quite a number of persons gathered in front of it, some of whom were reading a paper which had been stuck on the post, and which read thus:—

FIRST PREMIUM,—CHESTER WHITES.

The boys hardly knew what to make of it, but Uncle Benny explained to them that they had really taken the first premium. Their surprise and gratification knew no bounds, while Uncle Benny himself did not fail to experience a degree of pleasure which fully rewarded him for all the care and trouble he had given to the undertaking from the beginning.

"Where is Mr. Spangler, the owner of these pigs?" inquired a well-dressed gentleman in the crowd. "I want to see him."

"Here he is," replied Uncle Benny, taking Bill Spangler by the arm, and bringing him forward, very much to his confusion.

"What, my lad did you raise these fine pigs?" inquired the gentleman.

"Well, I helped to, sir," replied Bill.

"I want to buy them, and will give you ten dollars apiece," added the gentleman.

Bill was more confused than ever, and turned to Uncle Benny for relief, as the other boys had nothing to say, none of them being used to making bargains.

"You can have them, sir," said Uncle Benny.

"And cheap enough, my boys," added a voice in the crowd, which they recognized as that of their neighbor, Mr. Allen. "You deserve great praise for what you have done. I never saw finer pigs in my life. Do equally well another year, and you will get your names up."

The gentleman counted out forty dollars into Uncle Benny's hand, which he folded up, and put into his pocket. But if the taking of the premium had surprised the boys, the getting of so large a price really astonished them. But the old man afterwards explained to them that anything on which a great amount of care had been bestowed was generally sure to bring with it a good reward. He had no doubt it would be so with their cornfield, their blackberry patch, and, in fact, with everything else to which they might devote their utmost care and attention. It was the pains-taking boy or girl who went ahead, while the lazy and the slattern fell behind.

When the party reached home, and told Farmer Spangler that their pigs had taken the prize, and been sold for forty dollars, he was even more aston-

ished than themselves. Uncle Benny was afterwards satisfied that from that very day he could see a change in Spangler's conduct and disposition.— The success of the boys had been so decided that he could not help acknowledging it, and on every proper occasion showed a much greater willingness to take the old man's advice as to how things ought to be done on the farm.

But this was not the last of these surprises. The

next day several persons called at Farmer Spangler's to buy pigs. They had seen the four prize ones at the fair, and wanted to have the same breed. So it continued for a week or two,—people were continually coming who wanted to buy. The whole stock could have been disposed of, even Nancy herself, but Uncle Benny declined selling. He told the boys that, now their name was up, they must go in for raising more.

Music.

"NOW I LAY ME DOWN TO SLEEP."

Words by Miss HATTIE A. FOX.

Music by ARTHUR D. WALBRIDGE.

Moderato.

"Now I lay me down to sleep,"
Tan-gled ring-lets, all smooth now,

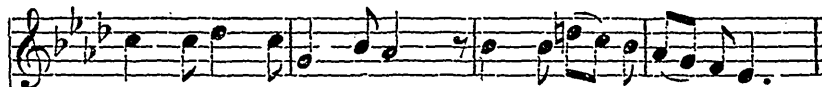
And the blue eyes, dark and deep,
Looped back from the wax-en brow;



Let their snow - y cur - tains down, Edged with frin - ges gold - en brown.
 Lit - tle hands, so dim - pled white, Clasp'd to - geth - er, cold to - night.



"All day long, the an - gels fair, I've been watching o - ver there;
 Where the mos - sy, dai - sied sod, Brought sweet mes - sa - ges from God,



Heaven's not far, 'tis just in sight, Now they're call - ing me, good night;
 Two pale lips, with kiss - es press'd, There we left her to her rest,



Kiss me, moth - er, do not weep, Now I lay me down to sleep."
And the dews of ev - 'ning weep, Where we laid her down to sleep.

AIR.

"O - ver there, just o - ver there, I shall say my morn - ing pray'r;
O - ver there, just o - ver there, List the an - gel's morn - ing pray'r;

ALTO.

TENOR.

"O - ver there, just o - ver there, I shall say my morn - ing pray'r;
O - ver there, just o - ver there, List the an - gel's morn - ing pray'r;

BASS.

Kiss me, moth - er, do not weep, Now I lay me down to sleep."
Lisp - ings low thro' fan - cy creep, Now I lay me down to sleep.

Kiss me, moth - er, do not weep, Now I lay me down to sleep."
Lisp - ings low thro' fan - cy creep, Now I lay me down to sleep.