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FARMER'S ADVOCATE

PERSEVERE & SUCCEED

VOL. XI.

LONDON, ONT., AUGUST, 1876.

NO. 8

The Farmer's Advocate!

PUBLISHED MONTHLY BY WILLIAM WELD.
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TO ADVERTISERS:

Our rates for single insertion are 20c. per line—\$2.40 per
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eight words).

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"Special List" at \$1 per line per annum.

Condensed farmers' advertisements of agricultural imple-
ments, seeds, stock or farms for sale, or farms to let, not to
exceed four lines, 50c., prepaid.

Advertising accounts rendered quarterly.
Advertisements, to secure insertion and required space,
should be in by 20th of each month.

Letters enclosing remittances, &c., only acknowledged when
specially requested. Our correspondence is very heavy, and
must be abridged as much as possible.

Visit to the Centennial Exhibition.

In our last issue we informed you that we had
been unwell. Our doctor recommended a journey
as a restorer of health. The dose being a pleasing
one, and one of duty, and the trip having been
previously contemplated to enable us to speak
from personal observation, we determined to take
his prescription. A rare opportunity was offered
us to accompany the Press Association. Our
better-half, who also aids us in placing this journal
in your hands, and, like most farmers' wives,
never had taken a long pleasure trip, accompanied
us, and was, as you may expect, highly delighted
with the journey. Our party took tickets from the
Erie Railroad Company, via the Erie and
Lehigh Valley Railroads, to Philadelphia, thence
to New York and return by the same railway, on
a different route. The party consisted of about
60 members of the Press Association and 12 ladies.
We reached Buffalo by Canadian railroads and
boat. Mr. Gould, the obliging manager of the
Erie Railroad, accompanied us, and made every-
thing as pleasant as possible. We left Buffalo
about 11 o'clock on Friday night. In the morning
we found ourselves speeding our way through the
most enchanting scenery we have seen in the
U. States. A river flowing by our side, a narrow
plain on each side, the distant hills covered with
trees, and fields of grain and pasture extending a
great distance and ascending to a great attitude
above us. This beautiful scenery alone is worth
the journey. The train at different places is
almost running into the mountains; at others it is
winding along the curves in the form of a snake.
Small islands in the river attract the attention.
The continued changing scenery is so grand and
pleasing that one almost wants four sets of eyes to
see it. The view as the cars approach the
summit of the Alleghany Mountains is extremely
grand. The crops along the line are most places
looking well. Some fields near Philadelphia and

some at the Buffalo end of the line, were not very
luxuriant. We arrived at Philadelphia about 6
o'clock on Saturday evening. The party princi-
pally stayed at one hotel, although some found
much cheaper accommodation. In the city good,
comfortable board can be had from \$5 per week to
\$5 per day. On Monday, Tuesday and Wednes-
day we went to the exhibition. To attempt to
describe it would be utter folly, suffice to say that
we were most agreeably surprised. No description
that we have read, no illustrations given, are at
all capable of conveying to the mind the grandeur
of this exhibition.

The beauties of works in silk, gold and wool, linen,
cotton, China ware, engravings, paintings, tapestry,
etc., etc., enchanted our companion so much that
we could scarcely move her from the enchanting
scenes, and left her to admire them while we paid
more attention to machinery and the rougher pro-
ductions of the soil and machine shop.

We met several that have been to the other
world's fairs, all admit that, as a whole, this ex-
hibition is the largest and best that has ever taken
place. The arrangements are most complete; the
order and conveniences for the public comfort
were never better arranged. A person can see
anything and everything he desires, and that of
the most improved description. The different
halls and buildings are of such a size that nothing
but the sight of them can convey a proper idea of
them. All the space is well filled with articles.
There is ample room for all that may go there;
we saw no crowd at any point, although we were
there during the days that one would expect to
find it crowded. We did not see a drunken per-
son while in Philadelphia, nor did we hear of a
theft, no doubt there were such cases to be found.
Canada makes a good display, and the Americans
have given her good positions.

It is interesting to pass through the departments
of Britain and the British possessions from all parts
of the world, and to find all our sister colonies
competing for honors and fame at this great
American exhibition. The different nations of the
earth are nearly all well represented here. To
describe fully the display of any one of the
colonies, or any one of the foreign States, would
fill our journal for years.

The British colonies make grand display. The
Colonial Governments have appropriated public
moneys for such a purpose. Great Britain made
no public grant for the exhibit, therefore England's
glory is not displayed. Only a few private per-
sons exhibit at their own expense. For instance,
the world-renowned steam plows that are only
made in England, and are used in America, are
not to be seen at this exhibition. We hear the
reasons stated thus:—America will not admit our
manufactures to her markets, but they will copy
and steal our improvements; therefore we will not
exhibit at her exhibition.

Nova Scotia exhibited good corn and horse
beans. We were surprised to see such produce

from that part of our country. Prince Edward
Island sent excellent samples of wheat, oats and
barley. Mr. John Harvey & Co., of Hamilton,
exhibited 83 samples of Canadian wools, but good
as this display is Australia exhibitors far surpass
us in fineness of quality. A great deal of the
Australian wool appeared nearly as fine as silk.

The oats exhibited by New Brunswick were of
quite a superior quality, while her display of the
mineral productions of the colony told of her
great undeveloped resources. The mineral depart-
ment of all the Canadian provinces was something
marvellous.

Our apparently insignificant sister colony, British
Columbia, astonished us by the display of wheat,
which was far finer than any wheat we had ever seen
before. We thought Australian or Californian
wheat would have surpassed that of other coun-
tries, but we award the palm to British Columbia.
Perhaps our award may not be borne out. We
were also much surprised when shown a specimen
of wild tea and wild hops from Manitoba. The
hops had a fine smell and the tea a good flavor.
They may both indicate future wealth from our
vast uncultivated domains.

Mr. McDougall, the Canadian Commissioner at
Philadelphia, kindly invited the Press Association
to a repast on the evening of the 3rd of July.
About sixty ladies and gentlemen partook of re-
freshments at his residence, after which toasts
were drunk and short speeches made. Mr.
Perault, the Secretary of the Quebec Advisory
Board, and the Honorable Oliver Mowat, the
Premier of Ontario, and Mrs. Mowat, were pres-
ent. Mrs. Mowat particularly merits the thanks
of the ladies for her kind and lady-like attention
to them. The evening passed very pleasantly to all.

The New York Press Association treated the
Canadian Press Association in a most cordial and
friendly manner.

We shall speak of what we have seen occasionally
in future numbers. For the present we must say
to our readers, or those of you that can spare \$40
or \$50, by all means go and see for yourselves;
take a ticket by the Erie R.R. via Lehigh Valley
route, and you can return by New York at a very
small additional expense. You will find it the
best expended money that you have ever spent.
Do not be selfish, take your wife, or your daughter
or sister with you; they richly deserve a holiday.
If you have no such relation take some other per-
son's sister with you. We do not advise people to
run into debt to go there; but there are hundreds
of our readers that have thousands saved
that some thankless heir may fool away. To such
we say go; see, learn. It is without doubt
the most useful and the most beneficial
school that has ever been opened, in which all may
learn. It is a duty you owe to yourself, to your
family, to expend as well as to hoard. Go to this
grand, pleasing, ennobling school if you can afford
it. This year you have the opportunity, and
you never will have such another. We have been
so much pleased with it that we hope to go again
if we can afford it and spare the time. We would
if we could afford it, take every one of our family
there.

The Farmers Aids in Contending with Destructive Insects.

The great and increasing hordes of voracious insects that the farmer has to contend with for the products of the soil are unfortunately too well known to us. During the entire year the utmost vigilance on his part is often powerless to secure the fruits of his labors from vermin. Happily, however, he is not left to wage the war alone. So valuable has been the assistance given him by birds that the legislatures of every country have wisely enacted laws, imposing penalties for their destruction. We already begin to feel the beneficial effects of the protection extended here to our feathered friends. Again, we hear more frequently their cheerful song; we see them lighting upon forest trees, and we find insects sensibly decreasing.

We must remember that all insects are not of injury to us. On the contrary, some of them are highly beneficial, and aid in the extermination of those with which we are forced to contend for the means of subsistence. The locust, grass-hopper and potato beetle have each their parasite, that adhering to them draw from them the nourishment for themselves, thereby taking away their life.

Neither parasitic animals nor birds are more serviceable as aids than bats. We can have no conception of the numbers of insects and vermin they free us from. Their whole summer is an incessant campaign against them. As we see them on wing on a June evening we hardly think that they are then aiding us as they are.

It is our interest as well as our duty to protect these serviceable little creatures, and one protection they need is a due care not to disturb them in their winter quarters. The old nursery rhymes enumerates the bat among those animals whose winter is one unbroken sleep. And this enumeration is correct. When in that sleep they can bear any degree of cold without being injured, but if disturbed from that state extreme cold is fatal to them. Last winter a number of dead trees were felled in the Thier Garten of Berlin. They were, for the most part, hollow, and the abode of bats in their winter sleep, awaiting the return of spring to renew their campaign against insect-vermin. The consequence of their being driven from the old trees was that they perished. Another instance is told us by the same authority. In a forest belonging to the crown, in accordance with an order issued some time previously to fell some oak trees for naval purposes, they were felled in the depth of winter, and thousands upon thousands of bats that had there made their winter quarters died from disturbance and exposure. The final result was the entire destruction of the whole forest, for in the second year after the death of the bats the damage done by caterpillars had become so great as to render the cutting down of the whole plantation necessary. As long as the bats were undisturbed in their winter quarters they pursued their usual industrial pursuit in spring and summer and the ravages by caterpillars was so insignificant as to be unnoticed; but the bats perished, the caterpillars multiplied, and the forest was destroyed.

Canadian Horses in England.

In a previous number of the FARMER'S ADVOCATE we spoke of the breeding of horses for export to England as likely to prove to Canadian farmers a profitable agricultural pursuit were they to embark in it. We pointed out its eventual success from two arguments:—First, From the increasing sources of supply of breadstuffs to European markets, it is very unlikely that wheat will in the future bring such high prices [as it had hitherto

brought, and we should, therefore, have a greater diversity in our farm products; and second, There is a constantly increasing demand for good horses in England, and throughout all Europe. We subsequently published a communication from one of our contributors on the same subject. It is a subject well deserving the attention of our agricultural readers. If grain brings so low a price as to leave little or no profit to the producer, why not turn the attention to some other branch of agricultural enterprise. Any one seeing the very superior horses driven by the farmers of Canada needs not to be told that the country is well adapted to the raising of horses suitable for every purpose. We have no doubt that horses bred and fed in the Dominion would be found superior to any other American horses for general purpose. Climate, feeding, training, are all in their favor. The following communication, from a London correspondent of the *Globe*, tells us what reception a first speculation of the kind has met in England:—

"A number of Canadian horses purchased in the neighborhood of Toronto and Montreal have been brought over to England with perfect safety and with a very profitable and encouraging result. I went down to Worcester Park, a charming suburban village in Surrey, a few miles from London, where the stables are situate in which the horses are located. They were all in what I call capital condition, a little 'above themselves' perhaps, but not so fat as horses are generally made in England by the dealers before sale. The importation was a private speculation, and the importer intends to sail for Canada to purchase another lot in three weeks' time. Almost all this first lot have found purchasers very readily here, although the market for horses is falling a good deal from prices of last three or four years. The animals were suitable to all purposes, and were all warranted sound and quiet to ride or drive. The average cost price in Canada was \$120, and the selling average here has been £55, or \$275. The price there is hardly a criterion of what a horse would fetch here, but of this lot only a dozen remained unsold when I visited Worcester Park yesterday, though many of the sold lots still remained at the stables. One fine upstanding bay horse that was bought for \$102 near Toronto, had been sold yesterday to a gentleman for a brougham horse for £63. He was, in horsedealer's slang, the 'pick of the basket,' and made the top price. He looked very much like taking to the timber business if properly schooled for a hunter. All the sales had been made to private buyers.

"The horses were shipped from New York, owing to the Dominion line boat from Montreal breaking down; they came in the Wyoming, of the Guion line, without a scratch, in a patent apparatus, which economizes room on shipboard and secures safety to the animals. The cost was \$50 a head from Montreal to London, including every expense.

"It is the opinion of many judges who have seen this lot of horses that Canadian bred animals are better suited to the English market than Kentucky horses. As they are the first lot of American horses ever landed in London, they have been visited by many persons interested. The Glasgow tramway cars have been partly horsed by American bred cattle, but none of these horses are yet employed by the General Omnibus Company, who are ready to buy to any extent if the right sort are offered them at the right price. The company have for three or four years past been paying £35 per head for horses of a rough and useful wear and tear stamp. Such was the interest felt in this consignment that the Agricultural Hall management wished to have them on view at their great establishment. Owing to the horse show, however, this was impracticable till most of the lots had found purchasers. It is, however, very likely that the next arrivals will be shown there.

Paraffine as an Insect Destroyer.

There is not a crop of the farm or garden that is not subject to the attack of some enemy. The old-time farmer had had no such struggle to maintain possession of the fruits of his labors. He cultivated his soil, sowed his seed, and harvested his grain, and pitted or stored his roots, without the incessant contest he is now engaged in with

winged and creeping plunderers. One great object now with agriculturists is to discover the best measures for the defensive warfare that the farmer is forced to wage. We learn from our British exchanges that paraffine is used as a bug destroyer and, it is said, very successfully. A writer in a British journal says that his onion crop was every year attacked by maggots and his turnips by the fly. He now, as soon as the vermins make their appearance, waters between the rows two ounces of paraffine oil to six gallons of water. The maggot and fly instantly disappear. This year's crops, he says, have been excellent in quality and quantity. He has also used paraffine as a protection of his seed peas and beans, and has been equally successful. His garden had suffered from rats and mice and was forced betimes to sow peas and beans two or three times. He now steeps them, preparatory to sowing, in paraffine; the consequence is that not one has been touched, and he had an enormous crop. The *Farmer* (England), remarking on paraffine as a protective against vermin and insects and a fertilizer, expresses a doubt of its value as a fertilizer and says:—"The heavy crops that have followed its application must be attributed solely to any virtue it may have in ridding the young plants of the minute little creatures that prey upon them in the early stages of their growth."

We think it would be well were some of our Canadian agriculturists to try the experiment on a small scale; the cost would be a mere trifle, and if it succeeds, even only as a bug destroyer, it would prove very useful to the country. It might, notwithstanding the adverse opinion of good authority as that of the *Farmer*, be of service to the growing crops, by stimulating their early growth, and this of itself is no slight advantage.

The Yields of Our Food Staples that We Get and the Yields that We Might Get.

Under this heading the *Ohio Farmer* points out the great loss, not only to the producers themselves, but to the whole country, arising from the ordinary farming of America. The subject is equally deserving our attention in Canada, and we reproduce the calculations from which he reasons with his readers, though the average yield of all the crops is much below ours. He takes his figures from official documents.

"The wheat crop of the United States is estimated to average from 12 to 15 bushels per acre, while the possible yield has been shown to be over 70 bushels.

"The yield of hay for the whole country is not much over one ton per acre, on a general average, against a possible yield of five tons and over, as shown by various successful farmers.

"The average product of potatoes is not far from 75 bushels per acre, with occasional yields that prove a possibility of eight or nine hundred bushels.

"There are some root crops that produce on an average less than 200 bushels per acre, which, according to authentic records, have occasionally yielded over sixteen hundred bushels.

In the case of Indian corn, the great staple of the country, the average product is not more than 35 bushels per acre, though crops of 150 bushels and over have been well attested.

PROFITABLE YIELDS IN REACH OF ALL.

"Now the great fact we wish to emphasize here is this: Somewhere between the extreme figures given above there is a paying yield which, though not startling in amount, is far better than the present average, and entirely possible to ordinary farmers. But what is still more important, the same facts are equally true in regard to the cost of production.

"The corn crop of this country costs the producer, on an average, over 50 cents a bushel in the Eastern States, and under 25 cents in the West. Yet cases of cost have been reported from Western prairies even lower than 7 cents a bushel,

and a corn crop of some notoriety was announced last season in New England at a cost of 12½ cents a bushel. Whether or not these extreme figures can be shown to be possible, it is certain they are beyond the range of ordinary experience. On the other hand, the present average cost of 50 or 60 cents per bushel in the Eastern States is entirely too high, and there is, beyond any doubt, a lower rate of cost that is clearly within the reach of ordinary farmers.

“AN IMPORTANT QUESTION.

“Here, then, arises the question that most of all interests the tiller of the soil in America. If there is an attainable yield per acre, and an attainable cost per bushel, so much better than the present average of the country, what are the figures that represent these possibilities, and how may they be realized by practical farmers?”

There are circumstances over which the farmer can exercise little if any control that may reduce the yield much lower than it would otherwise be, but, making every allowance for unfavorable seasons and losses that cannot be provided against, none will deny that the yields of the crops of the majority of farmers is low in consequence of inferior cultivation, bad seed—in short, from the owners own fault, and that might be prevented. There are some farmers whose fields never give a yield so low as that which we find the average of the country to be; why should not this be the case with all? We hold that no farmer should sow or plant a crop that he has not reasonable grounds to expect would return him a good yield. How often do we know 25 to 30 bushels of wheat per acre (sometimes 35 or 40). Barley in Canada produces, in favorable seasons, 50 bushels; oats, 60 to 70; turnips and mangolds, 600 to 1,000 bushels; potatoes, 200 bushels. These yields are only from land in good heart and well tilled; but why should a man spend his labor and capital on any other? If the land be wet, drain it; if poor, enrich it; if neglected, improve it. Light crops never pay. A heavy crop is almost sure to be a remunerative one. If it even so happens that, from additional labor and fertilizers necessary to force such a yield, the cost equals or exceeds the return, still there is sure to be a future profit from the improved condition of the land.

August on the Farm.

What of August on the farm? What of the labors of the month? Any work for idle hands to do? Any pleasures in country life those sultry days? Yes, there is work for every hand. Let us look at the fields—some shorn of the grain crops and hay, some ripe unto the harvest, and the fields of roots giving promise of abundance. Only a few short, bright weeks have slipped by since we were welcoming the merry month of May, and now we hail August with her golden sheaves and boughs laden with mellow fruit. The bright promise of spring has matured into the enjoyment of the fruits of the field and orchard. In looking before us to the work on the farm, we would not pass unnoticed the beauties of the country and the pleasures of country life.

Let us see what work lies before us and do it heartily. A good will and high spirits have a powerful effect in lightening labor. The heavy burden of heaving the anchor is relieved by the inspiring “Cherily ho!” To do the cheerful song and the hearty burst of laughter make our field labors unfelt, though the perspiration tinkles from every pore.

Work to be done? Aye, plenty of it. The wheat harvest may be nearly secured, and this, the principal of our breadstuffs, be out of danger from the storm, but the harvest is not all over. The oat crop now demands our care. We, in Canada, hardly appreciate this crop at its full value. Oats, fairly treated, pay a good profit. We are sure of a steady demand for the grain at remunerative

prices; and we need not say it is indispensable for home consumption. For our horses no food equally good is grown. Barley, corn, carrots, wheat-bran have each their especial place in feed for horses, but none of them can take the place of oats. Would we have our horses possessed of vigor, endurance and high spirits, the secret lies in the oat bin. And for man there is no more healthful, strengthening food than oatmeal porridge. Oats should be cut before it is fully ripe, and before the straw has become mere unnutritious fibre—so nearly ripe, however, that there will be little loss by shrinkage. From the joints of the straw, as much as from the grain, we judge of the proper time to cut it. Well saved oat straw is better for stock feeding than ill-saved hay.

Root crops need less culture this month than they have been getting; however, as long as we can, without injury to roots or tops, it is well to use the horse-hoe between the drills. Disturbing the earth assists vegetation, and keeps the ground free from weeds.

Our contending for the mastery with weeds is not yet over for the season. All weeds that have gone to seed, though it be not ripe, should be burned, or by some means thoroughly rotted. The seed would, most likely, ripen on the stem, and the consequence would be a productive crop, whatever might be its worth.

The digging of early potatoes will leave bare ground early in the month. It may be turned to good account by sowing white turnips—Globe, Norfolk or Stone. They may not grow to a large size, but they will be found useful—tops and roots for fall feed before housing the cattle. They will also, if not needed for horned stock, serve the sheep when on the after grass and stubbles. Rape, for fall feeding for sheep, is also very valuable. Every headland and corner should be made pay its quota to the farm account. Preparing the ground for fall wheat will give employment for every spare hour. The farmer can waste no time; he must at every season “take time by the forelock.” In selecting ground for fall wheat, the very important item; shelter must be taken into consideration. The blowing off the snow from unsheltered fields, and the repeated freezing and thawing the wheat ridges, need to be guarded against.

In making preparations for the fall crop, nothing is more absolutely necessary, if we are to have a remunerative crop, than good, pure, well-cleaned seed. As we sow, so must we reap. If our seed wheat be mixed with the seed of weeds, so must be our crop. If it be of inferior quality or degenerated, we must expect light returns and low prices.

The live stock of the farm must be carefully attended to. The temperature of the “dogdays” has its effect on pasture and water—let us see that our cattle are not stinted in either. Soiling is the best, almost the only resource which pastures are bare, and any labor arising from it is sure to be repaid by the condition of the stock and the returns from the dairy.

In this month the borers are laying their eggs. Every means that can be used for their extermination should be thoroughly pursued. Their ravages are every year becoming more extended. It is not only the apple tree that they bore into and, if not exterminated, kill; locust trees suffer greatly from their attacks, and no tree of soft wood is safe from them.

Growing Flax for Export.

The *American Agriculturist*, while favorable to the growing of flax for home manufacture and home consumption, dissuades farmers from growing it expecting to realize a profit by selling the

fibre in the markets. The reasoning, that to raise raw material to send abroad and to buy the same or similar commodities for use where the article is in its raw state was, must be a losing business, needs no proof. Here in Canada flax can be grown profitably and manufactured into linen for our own use. While a diversity in crops is advisable, judged from an agricultural view, it must also from the employment it gives be beneficial to the country. The following is the article referred to:—

“Some statements about the growth of flax for export, that are calculated to mislead, have recently been widely published. It would be a costly mistake if farmers should be led to raise flax with the expectation of finding a foreign market for the fibre that should be profitable at once, both because we cannot expect to compete with those producers who are nearer to the manufactories, and because it is certain that to raise raw material here to send abroad, and to buy manufactured linens abroad for use here, is a losing business. By and by we shall manufacture all the flax we can produce, but before that time comes we must have the fibre, else manufacturers will not be induced to build mills to spin and weave it. Farmers may therefore grow flax fibre for shipment to foreign countries if they will, but the returns will be but small at first. This is inevitable. To commence the business, will lead to a loss at first, but doubtless the comparatively small loss for a few years would be an ultimate gain, not only for farmers, but for the artisans who would work in the mills, and for all who would use the linen goods, both fine and coarse, which would be manufactured. As it has been with the cotton business, so it is likely to be with the flax and linen business.”

On the Migrations of Vegetable Life.

While we are free to admit the debt the Western Hemisphere owes to Europe for the various species of plants introduced and naturalized here, it cannot be denied that with plants necessary to civilized life, weeds, not a few that we would have willingly done without, have been also brought from “over the seas.” There are few of the weeds of Europe, of the British Isles especially, that are not now to be met with in the fields of America.

A discourse on “The Migrations of Vegetable Life,” by M. Drouyn De Shays, affords us a good though brief, review of this subject. We take a few short extracts from a translation of it in the *Farmer*, England.

“We have often spoken of acclimatization as practised directly and intentionally with the object of enriching a country with the various species that it is desirable to see naturalized there. But side by side with this voluntary interference of man, there are constantly at work, as means of propagation, all the natural agents of transport, such as air, water, glaciers and animals. Man himself enters into the same category, because indirectly, and without giving a thought to it, he is taking part in the same results.

“Air certainly plays the most important part in the dissemination of plants. A vast number of light seeds seem to have been furnished with tufts or membranous wings, only for the purpose of rendering them more likely to be carried away by its movements. To this end the light point of many plants is crowned by a tuft of extended filaments, forming an actual parachute, which rises at the slightest puff of wind. Thus separated from the mother plant, the seed can make very long journeys by the aid of its aerial boat.”

By this admirable provision the work designed in the beginning is carried out; so that wherever man may put his foot, whether it be on the coral islands but lately formed in Southern seas, or on the mountain side, the formation, it may be, of volcanic agency, he finds vegetable life in sufficient variety at least to supply all that he absolutely needs. The appointed agents, air and water, are

incessantly conveying plants and seeds to distant lands; and there is a continued though indirect and involuntary interchange of the germs of future vegetable life.

Serviceable as this migration of vegetable life undoubtedly is, it is the producing cause of more labor for the tiller of the soil. It is not alone the germs of valuable plants that are conveyed by this agency. The seeds of weeds are carried as well as those of such plants as after a few years use we consider indispensable to our comfort. There is in consequence of the migration a greater profusion of vegetable life, and there is a greater profusion of weeds. While the fruits of the pine, fir, elm and maple are provided with wings that carry their seed over a great extent of country, the seeds of thistles, wild mustard, docks and dandelion are wafted far and wide by the air, and sown broadcast over the land.

How strongly does this view of the migration of vegetable life enforce the remonstrance of every agricultural writer against permitting weeds to occupy the soil—exterminate the weeds, never permit them to bear seed if you would spare yourself and others the far greater labor of exterminating their progeny.

Hints to Dairymen—No. 7.

Written for the Farmer's Advocate by J. Seabury.

In looking back over the cheese trade for the past two months we find that it has been rather a peculiar one, and is bearing out the remarks that I made in a previous article, viz., "that we would see a quiet, steady trade." There is no speculative feeling among the dealers either on this side of the Atlantic or the other. It has been a "hand to mouth" business so far, and is likely to be so for some time to come. They say: "Your make is very heavy; we have had no satisfaction in handling early cheese, except for immediate use. Our trade is extremely dull, with thousands out of employment, and others on half time, with the prospects of heavy strikes."

Although the demand has been steady it has not been as heavy as I would like to have seen, for there is no doubt that cheese is accumulating on the factory shelves, and those who have not been fortunate in getting off their May and June cheese will now have some difficulty in moving them, except on consignment, and even that is better than keeping them here. The shipments from New York and Montreal for the past three weeks have been nearly one hundred thousand boxes per week. This will seem enormous to those who are not posted in the trade, but England's millions of hungry mouths could easily manage that, and more had they the money to buy it, and it was the right sort of goods. The cable is now 48 shillings, but, in my opinion, it will come to 45. The price paid last week was 8c for finest goods, and as low as 7½c by some buyers.

Butter continues in fair demand at 16c to 17c, according to quality. The make of butter is also very large, and the fact of cheese being dull and slow of sale will make it still larger.

An editorial in the June number of the FARMER'S ADVOCATE, entitled "A Great Dairy Enterprise," throws out the idea of establishing a cheese and butter factory on a gigantic scale in the city of London. The idea of the promoters of this project seems to be to make use of the various lines of railway centering in London for the purpose of conveying the milk from the stations along the various lines to London, and there be made up on the most scientific principles. The promoters of this scheme will have a good deal of opposition to contend with from the owners of the large factories

which are now established at all the best dairy sections along the lines, all of which are in a flourishing condition and the patrons well satisfied with the returns. Another objection would be the consumption of the buttermilk and whey, as I do not think it would pay to return it to the patrons. It would necessitate the keeping of a great number of hogs in the vicinity, which it is doubtful if they would pay, and when kept together in large numbers give rise to very unpleasant odors. Then there would be the extra rail carriage over the expense of the present system, for the milk would have to be gathered in to way stations along the railway lines by teams. This extra rail carriage would be as much or more than the first cost for collecting at the way station, for it would have to be conveyed by special train. The question then arises, would that extra expense be more than covered by the extra price which the cheese and butter would command. The experience of all the very large factories has been that when they get beyond a reasonable amount of milk there was more advantage to all parties to divide. It is not like some other branches of manufacture that can be carried on to any extent, for when it gets beyond a certain size it becomes unwieldy and troublesome to manage. I for one would certainly like to see the same succeed, and more improbable things than this have ultimately been a success.

I think that if some of our enterprising factory-men would try the experiment of making cheese and butter in the same factory, making butter the early and latter part of the season, say from the 1st of April to the end of May or 15th of June, as the case may be, then turn to making cheese and continue up to the end of September, and making butter the balance of the season, and keep the factory running until Christmas, thus keeping the business up nine months in the year instead of six, which is about the average time. Inducing the dairymen to take better care of their stock, keeping nothing but the best milkers, and go at it as if they were determined to make money out of it, and keep their cows milking nine months in the year instead of six. My idea would be for each dairyman to have his cows come in during the month of March, so as to be ready to commence sending his milk or cream to the factory about the 1st of April. Then I would not deliver the milk, but only the cream, at the factory while making butter. Of course, there would have to be rules and by-laws drawn up for the guidance of all the patrons, so that the milk would be all treated in precisely the same way—the kind of vessels the milk should be set in, the time of setting, the depth to be set, and also the temperature at which to be cooled down. I would then have a light spring wagon, with the necessary apparatus for skimming, and a competent person to go round and skim the milk. A man with all the necessary conveniences would get over a large territory every day. This cream to be delivered at the factory and made up on the most approved method of butter-making. In that way the dairyman would have an article of butter that, I am quite confident, would sell for more than the extra cost of making over the old or present way; besides, it would relieve them of all the trouble except setting the milk and cleaning and scalding the vats or pans, as well as the whole responsibility in the making. For instance, compare the quality of cheese made in the country eight years ago with that made now. If there was no better article made now than there was then it would not bring 5c per pound to-day. This improvement in quality and price is entirely due to the associated plan of making and to men making it a study and profession. One very great saving in this method would be the heavy cost which is incurred in drawing the

milk during the months of April, May, October and November, when the roads are heavy and bad. Another thing in favor of this way is that it would stop all the complaining which we hear about calves and pigs being starved while sending milk to the factory. Each dairyman would have his skim milk at home to feed his calves, and they would be well up and ready to do well with a little dry bran or oil cake by the time the factory changed to making cheese. Another advantage would be that butter manufactured in this way would go directly into the shipper's hands, thereby saving ½ to 1 cent per lb., which the merchant generally gets for handling. I should like very much to see the plan tried, for I feel confident that it might be made a success.

A "Farmer's Wife" writes to the editor of the ADVOCATE, asking the cause of her cream being so hard to churn and the butter soft and oily. I have known this difficulty to arise from a badly ventilated milk room or cellar. If "Farmer's Wife" will keep her milk-room well ventilated and as cool as she can, and everything sweet and clean, allowing no bad odors about the room, her butter should come in a reasonable time. But if her milk-room has not the proper means for ventilation let her remove her milk to some other place for a few days, and give the room a thorough overhauling, cleaning and sweetening, and will be surprised at the result.

Orchard and Garden.—No. 6.

HINTS FOR AUGUST, BY H. ORTI.

Many of the hints for last month will be found applicable for the present one; the season has been very favorable for the growth of all kinds of stock, and everything at the present period of writing wears a luxuriant aspect. Weeds have been and are very troublesome, and have materially increased the cost of cultivation; but don't give up the warfare, keep at them.

Strawberries.—This is a good time, and the early part of September, to plant this favorite fruit, for those who intend to have a crop next year. In making a strawberry bed, a warm, dry spot of ground should be chosen, with, if possible, a good loamy or gravelly subsoil. A moist, wet situation is very unfavorable. It is best to subsoil, and if the soil is poor let it be well enriched with rotted manure. When planting do not let the plants become dry, and see that they don't wither afterwards; a shade of evergreen branches or boards for a few days will prove beneficial. Put the plants in rows two feet apart and one foot apart in row; this will be convenient for cleaning and the propagation of young plants.

Raspberries.—As soon as the fruit has become a thing of the past the canes that have borne it should be cut out; also, thin out all weak, straggling suckers of this season's growth, this will tend to strengthen the stronger and lay the foundation for a good crop of fruit the next season. The black-cap class of raspberries are easily propagated this month by bending the shorts of this season's growth and covering their points or tips with from three to four inches of soil. Each tip will make a strong plant fit to be removed to a permanent situation the next spring.

Blackberries require the same treatment nearly as the raspberry. As they are apt to sucker more than is desirable due attention must be paid to keep them within bounds. A border by the fence will be the best place for them.

If you intend planting an orchard this fall or next spring, it pays well to prepare early, and as soon as your harvest is secured drain the site thoroughly, under and over; this is the most essential thing in the whole performance. You will be only wasting your time, land and money, if you

don't drain naturally cultivated rotted soil latter end to transport this season permit or will soon and the cold warm, it great damp m therefore when no through

Hedge require a summer been trimmed When a to wear hard back or late growth with even that the diameter to all borders

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don't drain it before planting, unless the ground is naturally dry and rolling. The land if long in cultivation will require a good, liberal coat of well-rotted stable manure and frequent plowings. The latter end of this month is one of the best seasons to transplant evergreens. The young growth of this season has got pretty well ripened, so as to permit of but very little evaporation. New roots will soon push out, as the ground is now warm, and the tree will become well established before the cold weather. As the weather will be very warm, it is not safe to bring the trees from any great distance unless very carefully protected by damp moss or some other packing. It is well, therefore, to make ready in anticipation of rain, when no time may be lost in pushing the work through.

Hedges that are in a strong growing condition require trimming twice a year. In the spring and summer when a strong growth is required it has been trimmed and now it should receive its final trimming either during this month or September. When a hedge gets thin at the bottom and begins to wear a scraggy appearance, it should be cut hard back, top and sides, when the growth is over or late in the fall; this will induce a vigorous growth the succeeding season. To be successful with evergreen hedges it must not be forgotten that they should have a growth of four feet in diameter at the base, and, in fact, this will apply to all hedges, unless excepting small ones for borders of walks.

Many plants may now be grown for the decoration of the windows when all is bleak and cold outside. Geraniums may be struck freely from cuttings placed in boxes of sand. A frame in a shady position, set on some light sandy soil, affords one of the best places possible for striking all kinds of half ripened wood.

Herbaceous plants may now be divided and replanted successfully, and is a good time to renew all old beds or borders, by trenching and manuring, thus giving the plants a new lease of life and health. Plants divided and transplanted now will become well rooted and flower strongly the next season. Seeds of perennials, biennials and hardy annuals, may be sown during this month and will furnish, by proper mulching during the winter to prevent upheaval in spring, nice beds of plants wherewith to transplant from when convenience offers.

The Crops.

Since our last issue the weather has been unusually hot, and the season has been distinguished by copious rains as well as by heat. Moisture and heat have raised an immense crop of hay, the greater part of which is in good order; we presume it is the largest hay crop ever secured in Canada. The extreme heat has matured the winter wheat and barley too quickly; the yield will not be near as large as it otherwise would have been; in fact, the rapid maturity has shortened the fall wheat crop in many places to one-half what it would have been if we had but our usual amount of heat. A large proportion of the wheat is rusted, and the grain is generally small and shrunken. We were in hopes, from what we heard of some new varieties of wheat raised in the vicinity of Paris, to be able to introduce to the attention of our readers some variety that might be of more value to them; we went to several farms and saw many varieties. The Soules wheat and the Golden Medal or Arnold's wheat were the two varieties that will yield the least return, as the grains were very small and shrunken. The Gold Medal wheat had been put in choice land, there was abundance of straw for a good crop. The Deihl and Treadwell wheat appeared to have suffered nearly as bad as

the two former varieties, the straw of each variety showed the effects of rust, but the rust on the straw was not as bad as we have seen it; the Midge Proof or Michigan Amber appeared a little better than either of the aforementioned varieties; the Scott wheat was but a poor sample, but it appeared less affected by the rust than either of the former varieties. We only saw one acre of Clawson wheat, it was on a 40 acre field owned by Mr. Sovereign, thirty-nine acres of which was Soules' wheat; the Soules wheat would yield about 10 bushels per acre of small, shrunken, inferior wheat; the Clawson wheat was a good crop and would yield about 25 bushels per acre, the straw was not entirely free from rust. This small piece of wheat was the only piece that would pay expenses. We saw thousands of acres in this locality, some standing in the shock, some uncut. The heads showed most unmistakable signs of the results to follow the threshing machine, as they all stood straight up; the only piece that bent the head with the weight of grain was the Clawson. On our own farm we only sowed the Scott and the Clawson wheats, we believed, and still believe, they are the two safest wheats to sow; we examined them the day before they were cut, they were both rusted to some extent, the Scott wheat was not rusted as much as the Clawson and was better filled; the land our wheat is grown on is a stiff clay, the Paris soil is of a light, loamy or sandy soil. Mr. John Gownlock, a good farmer, in West Middlesex, says the Midge Proof is the best wheat there. Mr. R. Walker, a good farmer, in East Middlesex, considers the Deihl is the best variety. In Elgin the Deihl is yet preferred. In Kent the Scott wheat is king. In North Middlesex many prefer the Treadwell.

BARLEY.—The dry, hot weather has caused the barley to ripen too quickly, consequently the yield will not be as large as anticipated.

PEAS AND OATS.—Both promise a large return.

SPRING WHEAT.—A blight or insect did a great injury to the spring wheat after it was well up and threatened to destroy the crop, but it has taken a fresh start and promises a fair return. We are sorry to find the midge working on it, and we fear a loss from this pest.

POTATOES.—The bugs have been more numerous than last year, it has been a great trouble to keep them from destroying the crop; large quantities of Paris green has been used. Machines are used in some places in preference to Paris green.

TURNIPS AND CORN.—Are both promising good returns.

FRUIT.—There is a great abundance of fruit of all kinds, except plums, which in most localities are very scarce. The apple crop is very large; in our travels we saw many apple trees badly affected with the blight, especially in the vicinity of Niagara.

Is the Quality of our Potatoes Degrading?

The *Ohio Farmer* states that Col. B. C. Richmond says one cause for the poor quality of potatoes last year was that planters permitted the bugs to prey on the vines to a considerable extent during the latter part of the season, before the tubers were mature, and holds than another reason for the poor quality lies in the new varieties recently introduced, which, while they produce well, are not of first rate quality like the Pinkeye, and Neshannock. He believes that the quality of our potatoes is deteriorating, and that the day may not be far distant when they will cease to be generally used as food.

The same remark of the quality of potatoes degrading we have heard from many, and their is some reason for thinking that the causes given in the extract above are the true ones. Potatoes have not latterly been of so good a quality as

those we had some time since. We have been of the opinion that their quality was deteriorated in consequence of the attacks of the bug, but whether directly by the bug or by the means used for their destruction are uncertain. Even when hand-picking was the means resorted to the necessary tramping of the ground is injurious. Of this any one may convince himself by tramping, day after day, a few hills of potatoes; he will find the potatoes, injured, not only by the yield being decreased, but also from the ground being so compacted as to be impervious to light and air, both necessary elements for the production of good potatoes. Whether the poor quality is owing to the inferiority of the new sorts introduced, as the writer says, has not yet been sufficiently tested. A few more seasons will tell their real value. A long experience in potato culture has convinced us that those varieties that give the largest yield are not of the first quality. The very heavy croppers we planted acres of for feeding cattle. Each of these new varieties differ very much in its quality. This is the case with the Early Rose, for instance; with some the quality is very good, with others the reverse according to soil, manure, cultivation, time of taking from the ground and care. The same, we believe, holds true of other new varieties. Breese's Peerless is condemned by many, yet, after three years' planting, we have them good for the table, though not so mealy as some of the older varieties. As grown by us they are very productive, well flavored and uncommonly white fleshed.

The opinion entertained in England of the American new varieties is that they excel English potatoes in produce, but fall far below them in quality.

The Indians—Canada and the United States.

A subscription is about to be taken in Canada at which many of our leading statesmen are at the head, for the purpose of erecting a suitable monument to one or more of the ancient Indian inhabitants of our Dominion. The Hon. D. Christie is Chairman of the committee, and Mr. C. A. Jones, of Brantford, is the Secretary, to whom communications and subscriptions may be sent.

In the States the hue and cry is "Extermination of the aborigines." After having taken their hunting grounds, ill treated their men and women, the poor Indian is to be shot, hunted and killed without mercy or pity; without having their rights adjusted, or the wrongs they have suffered at the hands of the whites redressed. It is wrong. The poor natives should have every leniency shown to them. Every editor should try and stay the butchery.

Amid the different methods of conveying contagion, says a writer in the *London Sanitary Record*, the feet of flies and their probosces must not be underestimated, especially during those portions of the year when flies are usually most numerous. The sublime indifference to consequences, says this journal, exhibited by flies in passing from the surface of the most odious substances to that of material for human consumption is complete. But even if the flies themselves are uninjured by contact with putrefying matter, the next article of food they rest upon may be influenced by the previous contact, and may be thus either induced to undergo putrefactive changes more readily, or may become a carrier of material of an eminently septic character. And not only this, but flies pass quickly from surfaces on one organism to another, and it must, therefore, be considered as highly probable that the communication of septic poisons by their agency is not by any means rare.

Sidney Smith once said that clergymen might be divided into three classes—Nimrods, Ramrods and Fishingrods. It was not a bad epigram, but it has been beaten by an American, who says that railways are built upon three gauges—Broad Gauge, Narrow Gauge and Mortgage.

Stock and Dairy.

Animal Parasites.

At a recent meeting of the Stowmarket, (England) Farmers' Club, a paper upon animal parasites was read, from which we extract the following. Doubtless the greater part of our yearly losses of stock is caused by diseases which result from parasites, to say nothing of the danger of using the flesh of affected animals for food:

"In carnivorous animals the tapeworms possess rows of hooks in the head, as well as suckers. In herbivorous animals, such as oxen and sheep, they possess suckers only. With this difference, which was simply an adaptation to different conditions under which food passed into the alimentary canal, the life history of all tapeworms is similar. The head is in reality an animal, for it is possessed of suckers or hooks, and has begun to bud into one of the well-known joints. The budding process takes place next to the head, so that each joint is thus pushed a step further along to the intestine. This continues until the whole of the intestines might become completely charged with those joints. The joints are connected by a kind of canal down each side. The interior of each joint is filled with a large branch ovary. When the joints are detached, the skin decomposes and the ovary is thus liberated. A tapeworm has often been known to extend to sixty feet in length, especially among those of the ox, and possessed more than 1,100 joints, and as each one of these tapeworms developed many millions of eggs it was not surprising that the eggs were found almost everywhere, being blown about by the wind. In this dried up condition they possess an amazing vitality, remaining uninjured perhaps for years. Should a pig, an omnivorous feeder, partake of food in which some of these eggs were contained, they would be conveyed into its stomach, where they would be converted into larvæ, and would after a short time bore their way through the pig's stomach and get into its muscles. There they would be quiescent, and assume a condition like the chrysalis; this condition is called encysted. Pork killed in this condition is said to be mealed, and should it be cooked without the larvæ being destroyed, and partaken of by man, the encysted larvæ would then develop in man into the tapeworm. The tapeworm of dogs is of a very peculiar kind, and for a long time it was a matter of wonder how the creature got into the stomach of the dog. Now the secret was out. Sometimes when dogs affected by these worms went near sheep, the sheep also suffered from them. When in the stomach of the sheep they bored their way through until they finally got into the brain, where they became encysted, and in this condition they caused the disease among sheep well-known as staggers. Man himself sometimes suffers from the encysted larvæ, which produces a disease called hydatids. Sheep were also affected by another parasite belonging to a different order from that of tapeworm called flukes. These creatures possess a different internal organization, and attach themselves by means of suckers alone. Each worm was hermaphroditic and their presence produced the well-known sheep rot. The eggs of the sheep fluke were blown about until they sometimes found their way into the water, where they swim about like microscopic organisms, and even become parasitic upon fresh-water mollusca. It is undoubtedly because of sheep drinking the water in which the larvæ are present that they become affected by them. Lambs and sheep are also affected, especially the former, by round worms called *nematodes*, especially by one form called *strongylus*, and the disease which the presence of this form gives rise to is called hoose or husk. It is generally to be met with in the bronchial tubes or throats of young lambs. It also gets into the interior of the heart or lungs, where it becomes encysted, and produces tubercular disease. When the *nematode* forms become encysted in man they produce a disease resembling rheumatic fever called *trichinosis*. When they are encysted in some animals, as in pigs, they are called *trichine*. In some instances these intestinal worms were not considered injurious; for instance, the Abyssinians never considered themselves healthy unless suffering from tapeworms. The dung of cows is frequently full of tape-like forms, although the cows do not seem to be suffering from any ailment. Some sheep are affected by parasites, yet nevertheless they yield prime mutton. It would seem from what is already known of the life history of these parasites that the danger arises from their excessive development."

International Live Stock Exhibition.

The Bureau of Agriculture, International Exhibition, is receiving applications for the assignment of stalls for the display of horses, neat cattle, swine and sheep. The live stock show will be made in serial order, commencing with horses, Sept. 1st to 14th; dogs, Sept. 4th to 8th; neat cattle, Sept. 21st to Oct. 4th; sheep and swine, Oct. 10th to 18th; poultry, Oct. 27th to Nov. 6th. No charge will be made as entry fee, nor for the use of stalls, which will be of first-class character in all respects.

The stock yard is of sufficient area to allow the construction of 700 box stalls for horses, each 14 feet square, these to be afterwards divided for cattle, by longitudinal partitions, into 1,400 stalls, each 7x14, all of ample elevation and security. The stock yard is immediately alongside of the tracks of the Pennsylvania Railroad, which, by its connections, is able to transport animals from almost any part of the Union direct to the exhibition grounds.

The stock yard will be thoroughly well watered, and lighted by gas, and under the constant charge of a company of Centennial guards. All the prominent transportation companies agree to return, free of freight, animals sent for exhibition upon which full rates were paid in the first instance. Exhibitors, or their agents, will be required to assume the entire charge of horses, neat cattle, sheep and swine, and be alone responsible, although the Commission will do all in its power to provide for the comfort and safety of the animals. Attendants upon stock may sleep in the stalls, or can find ample room at the numerous hotels and taverns in the immediate vicinity. Hay and straw will be furnished by the Centennial Commission free of charge. Roots and grains will be sold at depots upon the ground in the stock yard. The prices charged will be simply those of actual cost, the attendants upon stock drawing the daily supplies upon coupon tickets, which will be sold from the office and furnished to the attendants by their employers. Each breed of well established character in the various families of live stock will constitute a distinct class, under which awards will be made as provided for in classifications.

Though it is not proposed by the officers of the Bureau of Agriculture to have competition between immature animals, still young animals may be stabled with their dams, that the transmission of valuable qualities may be shown. In this view, breeders are particularly requested to make exhibition of succeeding generations of animals in direct genealogy. Single animals and herds, entered for competition in any class, must be the bonafide property of the individual in whose name they are entered. This rule does not, however, prevent State Centennial Boards and Associations from entering for display flocks and herds made up from the stock of various owners.

Every animal in its class, as to breed, sex and age, possessing points of excellence, will be reported upon more or less fully, according to its inherent and comparative merit. Exhibitors, whose stock receives the commendation of the judges, will be presented with a diploma, specifying the typical features of each animal, and supplementary to the diploma, will be presented the uniform bronze medal of the Commission. Of more value than either the diploma or medal, will be the special report over the signatures of the judges, presented to each exhibitor of meritorious animals, stating fully the reasons why they awarded him a diploma and medal; thus a feature will be developed never before attempted. The judges on each class will also make a general report upon the characteristics of each breed, especial reference being made to animals exhibited of superlative merit. These reports will be embodied with the reports of judges on other groups, and be highly valuable for reference in the future. Numbers alone will distinguish animals in the show yard preceding the inspection by the judges, afterward full opportunity will be given to exhibitors to display their cards and trophies. Animals may be sold at private or public sale during the exhibition, and within the yard; but no animal will be allowed to be removed prior to the evening of the closing day. Special premiums from societies and individuals must be awarded through the hands of the Centennial Commission. During the season of the display of cattle opportunity will be given, if desired, to exhibit the butter characteristics of the various milking breeds. Churns can be readily had and a room secured for the exhibition of the process of butter making and the qualities produced.

During the play of sheep a room will be provided for the exhibition of fleeces, to which it is trusted breeders will not fail to contribute. Classification lists and entry forms will be forwarded on application to the Bureau of Agriculture, Centennial Commission. Entries will close on the first day of August.

Jersey Cattle.

Mr. Chas. Aldrich, of Hamilton county, Iowa, gives, in the *Hamilton Freeman*, some valuable items relative to this variety of stock, which is at present attracting so much attention:

In the English Channel, near the coast of France, there are three islands, viz.: Alderney, Jersey and Guernsey. On these islands, for over one thousand years, without admixture of other stock, these cattle have been bred with the view solely of developing high qualities in the production of milk and butter. So well have the Channel Islanders succeeded, that in this direction these cattle have no superiors in the world. What the shorthorns are in the direction of beef, these cattle are in the production of rich, golden butter, both as to quality and quantity. Though bred on all three islands, the cattle at present go by the general name of Jerseys; formerly they were called Alderneys; and parties are now engaged in the effort to get up a herd book which shall include only the Guernsey stock. But the cattle are essentially one breed. In older regions, Jersey butter commands very high prices. For instance, Mr. C. S. Sargent, of Brookline, Mass., markets his in Boston, getting \$1.25 per pound throughout the entire year. A Mr. Burnett (son of the Cocoaaine man), who lives near Boston, gets the same price. Col. Geo. E. Waring, jr., of Newport, R. I., who is the secretary of the American Jersey Cattle Club, and keeps the registry of all the pedigrees, is also a butter maker, but has only been able to realize \$1 per pound, though he hopes to equal his neighbors in quality and price before long.

Scab in Sheep.

The following is from the transactions of the Highland Agricultural Society of Scotland:

It is clearly ascertained by scientific men that the scab in sheep, like the itch in the human being, is connected with and propagated by certain minute insects belonging to the class of acari, which inhabit pimples or pustules. But the question naturally arises, how came it first into existence? This problem is very difficult of solution, and puzzles the most eminent physiologists. But, as I have already said, I have never known it to break out spontaneously among a flock of sheep, properly managed, during thirty years' experience as a shepherd in pastoral districts. Various and conflicting opinions exist as to what extent the disease is infectious. Some affirm that it requires sheep to come in contact with the disease before it can be communicated, while others maintain that the disease is propagated by the mere travelling on the road, such as a public drove road, from large markets or fairs. I, however, do not think the disease is so catching as the latter advocates affirm. For example, I acted as shepherd for sixteen years, on various farms where the drove road from Falkirk to the south passes through the sheep pastures, and every year some of the lots of sheep were more or less affected with scab, and during all that period not a single sheep of which I had charge caught the disease.

The cure of scab lies in the destruction of the insect, but the important question is, what is the best composition or infusion for that purpose? The remedies that are commonly employed, are numerous, but the most effectual, with the least danger of injuring the animal, that I have ever seen employed is the common spirits of tar; and, if properly applied, will penetrate and destroy the insect concealed in the pustules, or buried beneath the skin. The quantity applied may vary according to the age of the sheep, but for hill, or ordinary breeding stock, one bottle of spirits of tar, mixed with twelve times the quantity of water, is sufficient for twelve sheep; or one common wine glass of the spirits of tar, mixed with twelve times the amount of water, is sufficient for one. If mixing for a hundred, six gallons of water with six pounds of common soda ought to be warmed to the boiling pitch, then add the spirits of tar.

Chemistry.

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Chemistry of the Fattening Process.

A lean cow or ox is in a very different condition, chemically considered, from fat animals of the same kind. In the first place, the poor animal consists of about two-thirds water, the fat one of only half, that is, in total weight. A fat animal is in a dry condition, a poor animal is like some of our bog meadows, very wet. When the fattening process begins, water commences to disappear, and fat, or suet, takes its place; and the increase in bulk during the process is largely of adipose matter. It is a curious circumstance that during fattening, the proteids, or nitrogenous compounds, increase only about seven per cent., and the bone material or inorganic substances only one and one-half per cent.

The cost to a farmer of fattening an ox is much greater at the close of the process than at the commencement, that is, increase in bulk or dry weight at that period is much more costly. If it costs three cents a pound for bulk, for the first month after a poor animal is put in the fattening stall, it will cost six cents the last month. If then a farmer consults his money interests, he will not carry the increase of fat beyond a certain point, provided he can turn his partly fattened animals to fair advantage. Farmers have perhaps learned this fact from experience and observation, and hence comparatively lean beef abounds in our markets. Whilst this is of advantage to the farmer, it is very disadvantageous to consumers of the beef, for the flesh of a fat animal in every case is much richer in fixed, nourishing material than that of the lean, and it is never good economy to purchase lean beef. It is better to purchase the poorest parts of a fat animal than the best of a lean one. The best piece of a fat ox, the loin, contains from 21 to 28 per cent. more fixed material than the corresponding piece in a lean one, and curiously enough the worst piece in a lean one, the neck is the richest in nourishing material. The flesh of the neck improves very little in fattening, hence, economy considered, it is the best portion to purchase, as its value is in a measure a fixed one.—*Boston Journal of Chemistry.*

Australian Wool at the Centennial Exhibition.

Australia and the Cape of Good Hope—those great sources of the world's wool supply—are largely represented at the Philadelphia show. And the opportunity for American wool growers to form definite opinions concerning these foreign wools—the demand for which is increasing amongst us, is about as good as the present generation are likely to have. None of our predecessors, either as growers or manufacturers of wool, ever had such an opportunity as we now have to decide whether we should persevere in the effort to produce fine wools, equal to those shown by our friends from the Pacific, or rather to direct our attention to the fullest in producing a heavier if a less fine fleece, than the best these Australians show us. For if the exhibits are a fair criterion of the produce of the Cape and Australian colonies, as we believe they are, then the latter in so far as distinctness of type, character, and equality are concerned, are unmistakably distinct from the Cape wools.

The latter approach closer to the American and European wools. But the Australian are all over distinct. After looking over the decidedly magnificent assortments in the courts of Queensland, New South Wales, Victoria, South Australia and New Zealand (all these countries are separately represented, let us recollect) then we begin to see what is meant by the term pure Australian merino wool.

The exhibits of South Australia and New Zealand are shown in the bale, and although admirable in their way, and, perhaps, as valuable as the Queensland and New South Wales wools, they do not offer the same facilities for becoming acquainted with the real nature of the exhibits, and the animals from which they have been shorn.

We are looking at the subject from a breeder's point of view, mainly, but still taking quality, in a buyer's sense, into consideration, and we cannot but thank these Australian wool-growers for sending their fleeces entire. We have thus opportunity to examine their products, with even more effectiveness than if they were on the backs of the sheep. We can see the length and quality of the staple on the shoulders, back, belly and loins; can judge of the animal by the weight of the fleece; can judge of the climate by the evenness of the staple, and its grazing capabilities by the length of the wool and its general appearance.

In the Queensland court all these particulars, so valuable to the grower, are given with a distinctness that shows careful, practical common-sense in the preparation of the exhibits; and, fortunately, these Queens' and wools are a precise counterpart, in type, of the Australian wools generally.

All the fleece wool in this court is in glass cases, and is put up in admirable order for inspection. To take the list *seriatim*, there is:—

Fleece clothing wool, from ewes fed on indigenous grasses in paddocks. Eleven month growth, shown in the grease. Pure Australian Merino.

Fleece washed clothing wool, fed on indigenous grasses only. This is a sample of the highest priced clothing clip grown in Queensland. The maximum price per lb. was forty-one and a half-pence, and the general average thirty-three and a half at the London sales 1874.

Ram's fleece clothing wool, shown in the grease; from a three-year old ram.

Ewe's fleece combing wool. Sheep bred within their own blood for 21 years. Fed in paddocks entirely on indigenous grasses. Shown in the grease.

Young ram's fleece, fine combing wool. Finest combing wool grown in Queensland. Sheep improved by Tasmanian Merinos; bred pure for more than 50 years. Shown in the grease. Fed as above.—*From a contribution to the Prairie Farmer.*

The Cattle Show Season.

A cattle show is a fine sight on a fair day. Many thousands will be present during the next few months at these annual exhibitions. The chief complaint will be that there is so much to be seen, and so little time to see it in. A day at the Royal Agricultural Society, for instance, is something like an hour at the Royal Academy, and anyone who has been at Burlington House this, or any other year, knows what that mean.

The local cattle show, in its way, is an important institution, stimulating the breeders of the district to improve their stock, each in gentle rivalry trying to outvie his neighbor. It is at the cattle show, when his horse, cow, pig, or sheep stands alongside his brother-farmer's animals, that he finds out the failings and virtues of his own stock, and then goes homewards with a determination to go on improving its type and general character. Though, perhaps, beaten, he is not quite vanquished while he lives to fight another day.

To the healthy influence of competition at cattle shows, we must greatly attribute the present fine, improved character of our flocks and herds. In the exhibited animals the breeder sees what points to avoid or to cultivate. If he determines on making a mark himself, he does not fail to procure the blood of some winning strains. He cannot well do it without. Other laborers, however, have been in the field, and he enters upon their harvest. It would be folly to attempt to perfect an old unpedigreed strain of shorthorns, whilst the work is already to hand in a far advanced stage, from which the breeder may at once take his starting-point without loss of time. It is this consideration which puts a somewhat fictitious value, apparently, on the strains of cattle, horses, and sheep which have a special character and the power of transmitting their best qualities to their descendants. It is not the value of the individual animal as a food producer or as a breeder of ordinary stock for sale to the grazier or butcher, but its potentiality for good for generations to come that makes it a much-coveted prize. The many years of skill and science also spent in developing the strain, the costly experience gained in the face of many difficulties, all go to render highly-bred animals valuable. Were it otherwise, fancy prices would be ridiculous. The cost of producing stock is necessarily included in their market price—following a common law of commerce. Thus prices that sometimes appear sensational are frequently but a natural result of time and treasure sunk in forming the special type, which, if broken, would take a generation to repair.

To all, and especially to the farmer, these exhibitions of stock and farm implements are educational. It is therefore satisfactory to find them ever increasing in popularity. The influence they exert on modern agriculture must be great. They are deserving of every support, and we trust the present show season will be as pleasant and successful as that of any preceding year.—*Abridged from the Farmer (England).*

Philadelphia Print Butter.

Great care, uniformity and system characterize all the processes for making the famous and costly Philadelphia print butter. The milking is done quietly and rapidly, the same milk-maid always attending to the same cow. The spring-house is usually of stone, on a side hill, the floor covered with running water, and therefore always cool and free from odors. Deep tin pans, painted on the outside, with bails for handling, are filled to the depth of three inches, placed on an oak floor, surrounded with cool, clear water of a temperature of 58°. The cream is taken off in twenty-four hours, kept in deep vessels holding two gallons, and stirred whenever a new skimming is added. A barrel churn is used, the churning lasting an hour, when a little cold milk is added to unite the butter together. The buttermilk drawn off, ice cold water is added twice, a few turns given to the churn each time, and the last water is scarcely colored with milk. A gentle rocking of the churn soon collects the butter, which is left two hours to drain off the remaining water through a small hole made for the purpose. The butter is worked by a corrugated wooded roller revolving on a shaft supported over the centre of the table, which also revolves under the roller. The roller does not quite touch the table, so there is no crushing of the particles, but a separation which permits the water or milk to flow away.

A cloth wrung dry in cold spring water is repeatedly pressed upon the butter until not a particle of moisture is seen upon it as it comes from the roller, and the butter begins to adhere to the cloth. This is called "wiping" the butter. An ounce of salt to three pounds of butter is then thoroughly worked in by the aid of the same machine. It is then weighed in pound prints, deposited in trays, and set in water to harden. The next morning it is wrapped in damp cloths, each pound by itself, put in a tin case upon wooded shelves, with two compartments of pounded ice to keep it cool, and surrounded by a cedar tub, it is sent to market and sold at a dollar a pound.—*Ohio Farmer.*

Soiling Cows.

At a recent meeting of the Central New York Farmers' Club, Mr. A. L. Fish read a paper from which we select the following on soiling cows:—

The economy of soiling cows is based upon the general adaptation of land for that purpose. Strong land with good surface for tilling will feed double the amount of stock that the same will by grazing. But extra labor in growing and feeding cultivated crops the whole season absorbs the increase of products above the ordinary mode of grazing. When pasture lands are accessible for manuring and tillage it is good economy to till as much of the pasture land as can be manured with thirty loads of barnyard manure to the acre, planted early to soiling corn and well tilled. It will then mature in season to feed after the flush of feed is past, to keep up a good flow of milk till fall feed in after growth, pumpkins, apples, roots, etc., are at hand. If the crop is not all thus needed, the balance, well cured, is equivalent to hay at all seasons, and a wholesome change of feed. Such an amount of soiling I have always found to be a profitable improvement in the soil by eradicating foul weeds and changing the grasses in the sward. When pastures are so distant as to make hauling manure too expensive, I have done well by enclosing the desired area nearest at hand. After manuring and raising the crop, feed it out on a similar plot next adjoining, which would manure the latter for the next year's crop without necessitating the transfer of yard manure.

A judicious feeder of cows should always keep himself supplied with nitrogenous food for cows when it falls short in quantity or quality of grasses.

Experiments in fattening animals are invariably in favor of the most perfect quiet, and a mild, even temperature. A mixed, cooked diet is also found to be the most fattening to most animals, the horse being an exception to the rule. Cooked food is prepared for quicker digestion and assimilation, consequently the animal will use and appropriate more in a given time, by which a saving is made in the amount of food requisite to keep it in condition a longer time than would be required for slow digestion. Grains and properties containing the most oils are deemed the most fattening. Plenty of water is as essential to the fattening animal as to the cow in milk, especially to the swine.

Malignant Anthrax in Cattle and Sheep.

B. T. Benn, Goochland, Va., reports a very fatal disease in cattle and sheep entirely new to the locality, and occurring to the end of September, after two months of heavy rains, followed by an interval of hot, dry weather. The pasture was an upland, naturally dry, but with a clay subsoil, and most of the stock had access to a creek with a bottom of rich clay, which had been overflowed in spring, in July, and three or four times in August. The first victims were two working oxen, noticed ill on Tuesday, and dead on Thursday. Others were found dead without any recognition of previous illness. Those in which sickness was observed had loss of appetite, dullness, great weakness and debility, watery eyes and bloody urine. The sheep had soft swelling between the bones of the lower jaw. After death, the bladder was found over distended with a bloody fluid, the kidneys black, and all the fat of the body had an orange-yellow hue. The swelling beneath the jaws of the sheep presented a red, bruised appearance. The disease subsided after a few frosty nights. There had been no Texan or other southern cattle in the

veloped in the same way, and that the best precaution would be the thorough drainage of the clay soils. Even this may prove insufficient for a year or two at first, until the clay becomes sufficiently pervious and the full effect of the drainage is obtained. Meanwhile these bottoms might be used for hay, or at least not pastured in the fall after a hot summer, and especially after inundations. Another important point is, that the disease, once developed, is communicable by inoculation to all our domestic animals, and even to man himself, and that suspicion attaches even to the grass grown upon the graves of the dead. It would be well, therefore, to fence these around, and allow no stock to have access to them for some years.—*Prof. Laws, in N. Y. Tribune.*

Threshing by Steam.

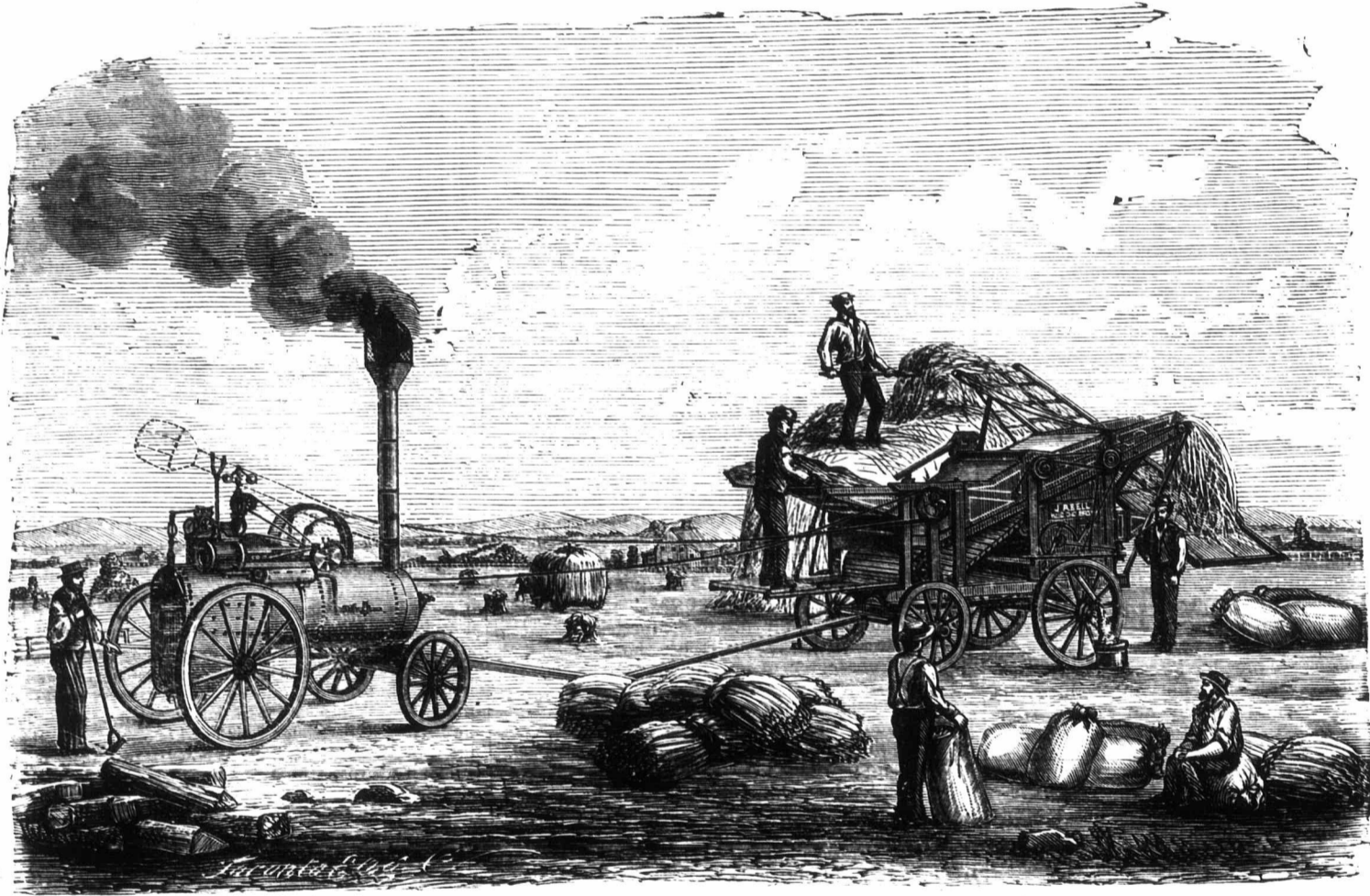
Threshing has now commenced in some parts. Many a day have we worked at it. No work did we dislike to put our horses at more than threshing. The steam power is now supplanting them for threshing. It is a pleasure to see the steam horse at work, the machine runs so smooth and steady—no jerks and stoppages. The grain is

Another Remedy Proposed for the Fruit Blight.

A correspondent of the *Country Gentleman*, enquiring into the nature and origin of the pear blight, arrives at the conclusion that the disease is caused by the peculiar state of the atmosphere producing atmospheric food in such abundance and activity beyond the limit of the supply of mineral food that healthy assimilation fails to take place, vegetable matter cannot be organized; both of which show in the form of a constitutional disturbance or disease, which we call blight, its various forms being due to the greater or less intensity with which the atmospheric foods have been supplied in the one case, and the insufficient supply of mineral supply in the other.

Premising that experience is the best proof of the soundness of reasoning from theory, and of testing the true value of remedies proposed in diseases as yet little known, we give the following extract from the communication referred to:—

Now, remembering that carbonic acid, ammonia, water, nitrous and nitric acid and ozone, or active oxygen, are each and all especially abundant and active during hot, wet, thunderous and sultry



STEAM THRESHING MACHINE AND ENGINE.

district. Is the disease likely to reappear in the spring, and what can be done to prevent it?

This is an occurrence like that which caused so much excitement in the Genesee Valley, N. Y., early in September. The malignant anthrax, or bloody murrain, appears above all on rich soils, with impervious subsoils, from which the water must escape by evaporation, carrying with it the dangerous emanations from the decomposing organic matter. The rich deposit of animal and vegetable remains left on the bottom lands, after the overflowing of a river, is especially dangerous, if there is no natural nor artificial drainage. The other conditions which favor its appearance are such as contribute to organic decay. A period of hot, dry weather increasing the decomposition in the surface soil, and setting it up at an unusual depth, is especially dangerous. A close, muggy atmosphere, without the circulation of winds, favors the concentration and settling of the deleterious exhalations, and the generation of the disease, by chilling the system of the animal. Frost, on the other hand, checks it by locking up the organic matter in the soil and checking decomposition. It follows that in similar states of the weather, in future years, the disease may be de-

threshed cleaner and can be done when horses could work outside. The first steam threshing machine we saw at work was near Chatham, some years ago. In that part of the country the horse-powers are at a discount, and may be purchased cheap, as farmers will not have their threshing done by horse power after having once found the advantage of steam power, but in many sections the steam thresher is not known. We give you the above illustration of one at work. The machines are made by John Abel, of Woodbridge. He makes the thresher and engine, and turns out very efficient machinery. We noticed one of Mr. Abel's threshing machines at the Centennial. It was considered equal in every way to any American machine, except in paint, gilt and polish. The Americans have some of their implements so highly finished that they should be kept till the next Centennial. The cost of the ornamentation, we should judge, would be in some instances ten times more than the cost of the machine ready for use.

There were over 50,000 paying visitors to the Philadelphia Exhibition the day after the 4th, or more than in any day before.

weather, and the most powerful of which are created and intensified by electricity, let us assume that atmospheric food, being supplied or forced upon the pear tree beyond the limit of its supply of mineral food, healthy assimilation fails to take place—healthy "vegetable matter cannot be organized;" both of which show themselves in the form of a constitutional disturbance or disease, which we call "blight," its various forms being due to the greater or less intensity with which the atmospheric foods have been supplied in the one case, and the insufficient supply of mineral matter in the other, and see how the assumption is justified, or is borne out by our observation.

The reasonable and logical remedy then for pear blight would be to throw off the soil so as to expose the roots, to loosen the soil below, and with it mix a certain proportion of wood and coal ashes, old mortar, and a small per cent of superphosphate of lime, and then restore the earth first thrown off. Or better, perhaps, trench around the trees, one or two spade breadths wide, so far out as the limbs extend, and down so deep that the spreading roots will be cut off, and then fill in the trench with coal and wood ashes, and such non-nitrogenous mineral manures as convenient.

Value of Sheep for Enriching Land.

Some fifty years ago Anderson said: "One thousand sheep folded on an acre of ground one day, would manure it sufficiently to feed one thousand and one sheep; so that, by this process, land which, the first year, can feed only one thousand sheep, may, the next year, as a result of their own droppings, feed thirteen hundred and sixty-five."

Sprengel allowed that the manure of fourteen hundred sheep, for one day, is equal to manuring highly one acre of land, which is about four sheep per year. Mechi, a still more recent authority, estimates that fifteen hundred sheep, folded on an acre of land for twenty-four hours, or one hundred sheep for fifteen days, would manure the land sufficiently to carry it through four years' rotation. In the United States, much less attention has

been paid to this item of profit to be derived from the flock. Only upon the poorer lands, and then only from the exceptionally few close observing and calculating men, do we meet with any notice of it at all. Not so in England and France, where the necessities imposed by density of population, and consequent enhanced value of land, compel recognition of every minutia of profit by the cultivator of the soil. There the feeding and grazing of sheep enters into the system of rotation with invariable regularity. Without the sheep of England to-day her agriculture would be a failure. Their value to English agriculture is to be found in their manure. Though not of themselves profitable, they make it possible for other branches of agricultural industry to become so. Professor Coleman, of the Agricultural College at Cirencester, once said:

"It is not difficult to show that sheep alone, apart from their influence on the corn crops, will not pay a living profit after all the expenses of growing the crops are considered."

M. Thiers says: "The agricultural industry of France cannot dispense with sheep."

Science has lately made the gum washed from fleeces at the factories contribute to the fertilization of soils. Mr. Hayes tells us that the French chemists, M. M. Maumone and Rogeler, have established very recently at the great seats of the woolen manufacture in France, as at Rheims and Elbeuf, factories for putting the new industry which they have created into practical operation. They induce the woolen manufacturers to preserve and sell to them the solutions of yolk obtained by the washing of the raw fleeces in cold water, and pay such a price as encourages the manufacturers to wash their wool methodically, so as to enrich and improve the same water with the yolk of a number of fleeces. These scourings the chemists carry to their factory and there boil them down to a dry, carbonaceous residuum. The alkaline salts remain in the charred residuum, and are extracted by lixiviation with water. The most important of the alkalies obtained is potash, which is recovered in a state of great purity. It is computed that if the fleeces of all the sheep of France, estimated at 47,000,000, were subjected to the new treatment, France would derive from this source alone all the potash she requires in the arts; enough to make about 12,000 tons of commercial carbonate of potash, convertible into 17,500 tons of saltpetre, which would charge 1,870,000 cartridges.

Insects of some kind are injuring the growing wheat in Southern Minnesota. The cedar timber in Southern Tennessee is also suffering from defoliation by worms.

THE CENTENNIAL.—Mr. Landreth, Chief of the Bureau of Agriculture, announces that special displays of dairy products will be held during the first week respectively of August and September. The August exhibition will comprise only cheese; the September exhibition butter as well as cheese, the cooler weather then permitting a display. The exhibition of the present month having been such a full success, it is anticipated that equal energy will be displayed to assure the exhibitions of the next two months. Awards will be made at these times in accordance with the rules of the Commission.

A subscription is being taken up to present Mr. Simon Beattie with a testimonial for his services in importing stock. Mr. Beattie is about to leave Canada, and reside in Scotland.

Foot Disease in Sheep.

Veterinary surgeon Felizet, draws attention to the continued success attending the employment of caustic lime for the foot disease in sheep. It is very laborious to touch the feet of a numerous flock of sheep with the usual astragant, solution of copperas, white vitriol, calcined alum, or spirits of turpentine. Instead form a species of enclosed "run," fifteen yards long by two wide. Make a well-trodden floor; raise a border with puddled clay round the enclosure, so as to secure the uniform depth of nine inches towards the middle of the run; pour into this bath four barrels of water, and distribute over the bottom 2 cwt. of quick lime, covering all with a dozen bundles of the refuse fodder from the racks so as to form a carpet. Drive the sheep into this foot bath 100 at a time, and compel them to well pass and repass from one end to the other. The spread fodder prevents the feet sinking too profoundly, and acts as a brush at the same time for forcing the caustic solution to enter the nails. The bath must be made entirely new once a week, as the lime absorbing carbonic acid loses its causticity. It is a common practice to wet the straw intended for thatching purposes with a solution of quick lime; the straw becomes thus more durable, incombustible, along with possessing sanitary advantages.

Fistula of the Withers.

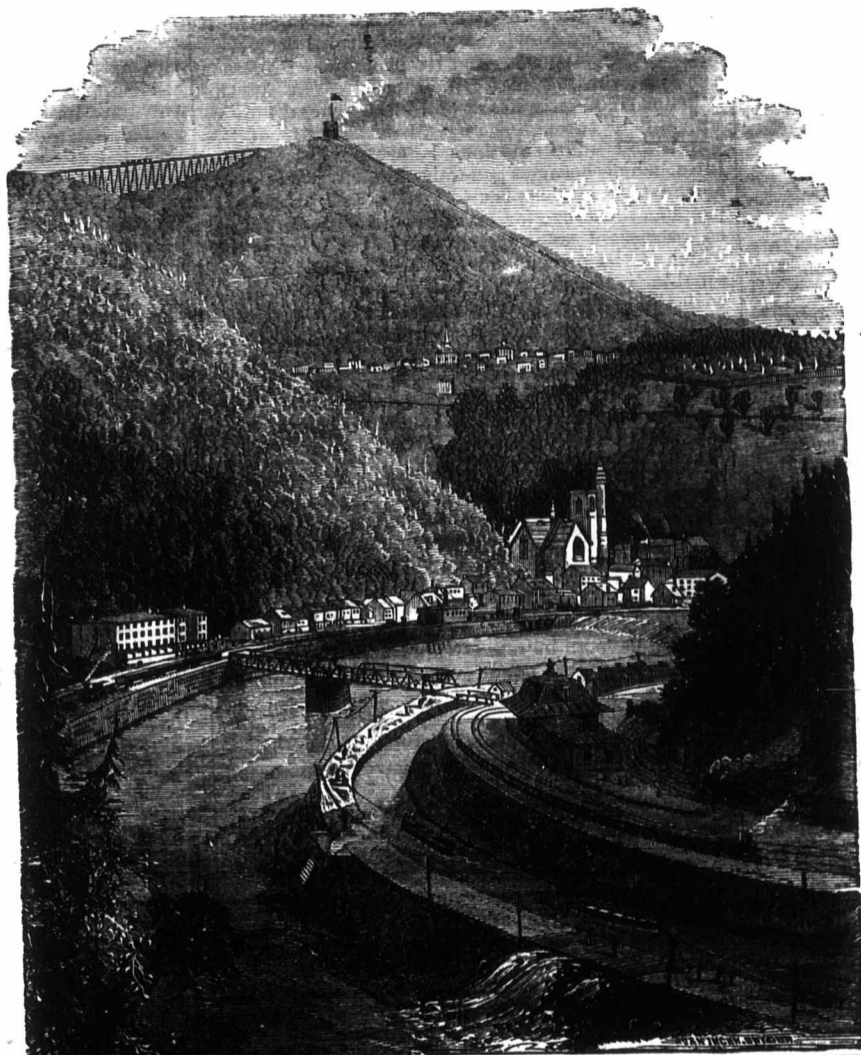
Lawrence W. Cogley inquires what to do with a young horse which has suffered for four months with fistula of the withers, that alternately heals up and breaks out again. The case will demand rather violent surgery, and it would be well to place him in the hands of an efficient veterinarian. The course to pursue is to lay open freely wherever a fluctuating sensation on pressure shows the presence of matter. Examine the wound thoroughly, and if any disease (bare exposed and rough) bone exists on any of the spinous processes, this must be removed. It will be best done with bone forceps, but may be effected with a chisel in careful hands. It should be removed until a healthy pink surface is exposed. No less important is it to secure a free dependent opening, from which the matter may run as soon as formed. To this end probe the sac to find its very lowest point, and, making a free opening into this with the knife,

draw a tape through from the upper to the lower orifice, and tie a large knot to each end to prevent it from slipping out. Then inject daily with the following: Tincture of muriate of iron, one ounce; carbolic acid, one drachm; water, one pint. If this seems, after a time, to lose its effect, replace it by a liquid containing a drachm of chloride of zinc in place of the tincture of iron. New sacs of matter forming must be opened at once, and treated as above.

A five-year old stallion, Governor Sprague, a descendant of the Hambletonian stock, was sold at Dexter Park, Chicago, to Mr. J. J. Case, of Racine, Wis., for the sum of twenty-seven thousand, five hundred dollars. He is entered to run at the Centennial Stallion Race, at Philadelphia, in the early part of September.

The foreign commissioners at the Centennial are about to pay a visit to Canada. It should be borne in mind that the finest agricultural country is west of Hamilton, Toronto or Guelph, and the finest scenery and minerals are east and north.

The advertisements of the National Art Company that have appeared in this paper are in no way connected with it. Some have written to us regarding non-receipt of pictures, but, as far as we can learn, those that have sent proper addresses have received them.



Mauch Chunk.

SCENE IN THE LEHIGH VALLEY.—MOUNT PISCATAWAY IN THE DISTANCE.

The views along the Lehigh Valley are so beautiful that it is worth the journey to all lovers of

beautiful scenery. The accompanying illustration gives but a very faint idea of the reality while passing along the Valleys, viewing the Mountains in the distance, covered with farms and foliage. The scenery is beautifully grand, but when on the top of some of those high altitudes, tearing along at railway speed, the sight is terrifically grand, and will send a thrill of fear through many a person, even although they have strong nerves. One might pleausrably spend a day in descending coal mines and ascending mountains. The village or town is very pretty. Nestled on a mountain gorge, with rocks in some places ascending hundreds of feet above the houses. In some places the rocks overhanging the railroad. Space prevents us from encroaching on other departments. Pages could be written on this wonderful, pleasing, picturesque locality. If you go to the Centennial, be sure and see Mauch Chunk and you will be satisfied with the result.

Agriculture.

Crushed Oats of England.

The crushed oats of England is certainly the most admirable feed for horses that can be. With us this article is practically unknown. They use, in New York and vicinity, what purports to be one-third sound corn and two-thirds sound oats ground together. Were it truly this, it would be excellent feed, but it is notorious that, not only is second quality of corn used, but the siftings of corn-meal, consisting of the bran, and often of bits of cob with some good meal, coarsely ground, are used instead of mixing the grain and grinding it, as should be done. Then, too, the oats are the lightest and poorest that come to market, and often full of dirt and grit from having been lodged while growing, or from lying too long in the swath before binding up. From whatever cause oats become unmarketable, it does not prevent their being used for "ground feed."

In England oats are crushed by hand in machines not larger than a root slicer. One large, smooth-faced wheel, with a face about three inches wide, revolves in close proximity to a smaller one, six inches in diameter, and about the same face as the larger one. A hopper permits the discharge of the oats between these two wheels, which, rolling together, crush each grain as flat as a water. As they drop from the crusher, the plump oats are nearly circular; those less plump elliptical, and the few false kernels in the samples I examined were flattened and broken, but showed no white flour, and no definite form. In one ordinary sample, which weighed 44 pounds to the bushel, almost every oat was flattened into a white, floury disk, nearly or quite as large as an old-fashioned silver 3-cent piece. Oats thus crushed may be fed as they are, and not one will pass the digestive organs unacted upon, as so often happens with whole oats; they may be mixed with cut or chaffed hay, wet, or with steamed fodder of any kind. They go decidedly further. Those who figure most closely, are the most positive in their approval of them from motives of economy solely, and uniformly assert their superiority to ground oats, even though they were to grind them themselves.

Oat-crushers will certainly find their way to popularity among us, for with our light weight oats they are more important than where the heavy oats of Europe can be obtained—oats weighing 40 to 47 pounds to the bushel are not uncommon there, while here 32 pounds is a legal bushel by weight, and the measured bushel oftener falls below than it goes above that weight. Many city dealers sell 90 lb. bags for 3 bushels.—*American Agriculturist.*

What to do with Non-Heading Cabbages.

Last autumn I was mourning over an unusual number of half developed cabbages, which were only fit to be fed to the cows, and mentioned the fact to a Dutchess Co. farmer, who is in business in New York, and has lately bought a farm near us, asking if his crop had turned out badly. His answer was, that he had no more soft heads than he wanted, or to the effect that he would feel disappointed if he had not a considerable number. Now we, neither of us, raise cabbages for market, but for our own consumption mainly, and I was utterly at a loss to know what he could do with a quarter of his crop that failed to make heads.

He told me that he dug a wide trench, so deep that after some top soil was thrown in he could set the cabbages out in the trench as close as they could stand, and their heads would not come up level with the top of the ground. When planted, he covers the trench with boards and some brush, corn-stalks, salt-hay, and earth on the top, keeping it open at the ends or elsewhere until cold weather, and then covering it in close. He said they would all have firm, solid heads in the spring.

In the spring we enjoyed the best cabbages we ever ate. They are rather small to be marketable, say 4½ to 6 inches in diameter, solid and sound, crisp and tender, as delicate as cauliflowers, and what is more remarkable, I never know when they are going to have cabbage for dinner until I see it upon the table. The great objection I have to this most wholesome and delicious vegetable is, that it usually fills the house with its perfectly detestable odor, so to have cabbage without this drawback is worth all the trouble it costs. If these winter-headed cabbages could once become known in the market, I am confident their merits would command for them a ready sale all through

the spring. The cabbages in market at this season are pretty poor. They are very apt to be slightly decayed, will keep but a little while, as they wilt at once, and soon after rot. I wish now that I had enough to test the market with, but I have not, and write this partly in the hope that somebody else will do it next year. While on this subject I would like to mention a delicious kind of cabbage, which I saw for the first time in the Island of Jersey this winter. It is a non-heading variety, growing like a kale, but with perfectly smooth leaves, and is known as Couve Troughouda, or Portugal Cabbage.

Artificial Manure For the Crop.

One of the most instructive experiments on the artificial fertilizing of corn that has come to our knowledge is one made last season by Professor Cook, of the New Jersey Agricultural College, on the College farm, and related by him at the annual meeting of the New Jersey State Horticultural Society. The New Jersey Agricultural Society is a working institution, and its principal, Professor Cook, a working man; neither the one or the other is frequently heard of by the general public, unless it be through some valuable results of the quiet and unostentatious labors of the College farm, which becomes generally known by fortunate accident, as this has been. In a talk upon fertilizers at the above meeting, Professor Cook detailed a series of experiments with the corn crop, which at the present moment are of great and seasonable interest. The experiments were made with the greatest care, and as the Professor is disinterested, having no patent upon the fertilizers or the formulas used, the results may therefore be taken as in every way trustworthy. They are as follows: Upon unfertilized soil the yield was equal to 85 bushels of corn and three-fourth tons of stalks per acre, valued at \$97.46.

An application of 100 pounds muriate of potash, costing \$2.75 per acre, gave an increased value of \$23.55. An additional application of 300 pounds sulphate of ammonia and 300 pounds of superphosphate of lime, costing \$16.65 per acre, gave an increased value of \$12.08. An application of 400 pounds of sulphate of ammonia and 300 pounds of superphosphate, with the potash, costing \$26.65 per acre, gave an increased value of \$13.67. An application of 200 pounds sulphate of ammonia and 500 pounds superphosphates, with the potash, costing \$19.25 per acre, gave an increase in value of \$19.31. An application of sixteen tons of barnyard manure alone, costing \$40, gave an increased value of \$7.28.

The deductions from these results may be made as follows:

1. The soil originally was in what would be considered an excellent condition.
2. That muriate of potash applied at the rate of 100 pounds per acre upon soil of an excellent character is very effective, and may be profitably used.
3. That any other fertilizer than potash salts can be used only at a loss upon a corn crop grown upon soil in good condition.
4. That even barnyard manure may be used in excess, and therefore unprofitably, when the soil has been brought by previous good culture and fertilizing up to a certain standard of productiveness.
5. That the direct application of barnyard manure to the corn crop is not so effective as previous applications well incorporated with the soil.
6. That a decaying clover sod (as we assume with good reason was used in this case) furnishes abundant ammonia for a full crop of corn.
7. That a previously manured clover sod is the best of all preparations for a corn crop.—*Michigan Farmer.*

Change of Seed.

If there is any one thing that contributes more than another to success or failure in farming, it seems to me it is the changing or not changing of seed. By continued sowing of the same seeds in the same climate and on the same soil, a serious deterioration seems to take place, and the yield becomes less and less, and the quality of the grain poorer and poorer. Then, again, most farmers fail to select the best, even of their own crops, for seed, or to keep their seed grain free from weed seeds and other kinds of grain, so that even to get clean seed it is necessary for them to buy seed grain that has been carefully raised, so as to be free from all foreign admixtures.

It is of great importance that farmers should frequently exchange seeds from one neighborhood

to another, and from one section of country to another, and even from one part to another of the same farm. It is well known how much larger the yield and better the quality all grains of northern origin produce in a few years, after being freshly brought from their native region. It is sufficiently so to fully account for the extraordinary productiveness of Norway oats and the many new varieties of potatoes.

To illustrate the point, a few years ago the writer got some seed wheat from far north, and the product the first year was twenty bushels to the acre and the quality excellent. A neighbor, an old Frenchman, also had wheat that year, and while growing and when ready to cut, it looked as well as that from the northern seed; upon threshing, the yield was only seven or eight bushels per acre, and this in a region of country where the average crop is perhaps twelve to fifteen bushels per acre. I said to my neighbor, why don't you change your seed? He replied in his broken English, "Oh, he very good seed. Had him twenty years"—and so he had, and that was what was the matter.

Again, in buying to change seed, one should try to secure improved seed and varieties, and thus accomplish a double object, or "kill two birds with one stone." There is serious loss in raising wheat, oats or barley that will give a small yield of inferior grain when a change of seed will change the yield for the better; or in raising eight, twelve or fourteen rowed corn, with shallow grains, when by getting improved varieties one can have twenty to thirty rows of kernels and a depth of fully three-fourths of an inch. Farmers, change and improve your seed.—N. W. B., in *Rural World.*

Selected Seed Wheat.

It has been well understood by farmers and millers generally that to produce a large yield and a good and uniform quality, seed grains should be frequently changed from one kind of soil to another, just as rotation of crops is found indispensable to preserve the producing qualities of land. Still farmers in this country have been negligent in the matter. When they get a good kind of seed they hang to it, growing it from year to year, never dreaming that every year of use robs it of some of its superior merits, and that it will gradually run out. To remedy this growing evil, the Waterloo District Millers' Association at its meeting in Waterloo on Wednesday, decided to purchase the best lots of seed wheat that could be found and offer it to farmers at as low figures as possible, to induce them to make a change that has long been felt necessary. Accordingly, a committee was appointed, consisting of Mr. William Snider, of Waterloo, President of the Association, and Mr. Goldie, who will go to Rochester next week to see what can be done to test further the wheat-growing interests of this country.

A New Enemy of the Corn Crop.

A new enemy to the growing crop of corn has been discovered this spring, which is committing considerable destruction in some sections of the country. It is a peculiar black worm which can scarcely be crushed on the loose earth, as it is encased in a suit of armor difficult to break. They operate in the corn hills by eating off the young plants. As many as ten or twelve worms are found in one hill. The cut-worm has hitherto been a great annoyance, but this new pest is said to be even more destructive. In some townships farmers are busy replanting cornfields that have been thus devastated. Paris green has been found to be as efficacious in exterminating these worms as it is in destroying the potato bug. Powdered white hellebore is said to be very efficacious.—*Reading (Pa.) Times.*

Draining Pays.

So says a correspondent writing from Springfield, Vt., and who, for several years past, has been engaged in draining a once worthless, but now valuable meadow. The meadow was divided by a crooked stream which rendered it too wet for cultivation, but by digging a straight ditch through it, three feet wide and three feet deep, with permanent walls to support the banks, and running other drains into this, the land has been improved until it now produces immense crops of hay and grain. Seventy-five bushels of corn, and from seventy-five to one hundred bushels of oats to the acre, have been raised on the land since the drains were completed. The expense of draining the land has been paid for several times over already. We wish other farmers owning such waste lands could be made to believe that "draining pays."—

East Indian Wheat.

In a late number of the FARMER'S ADVOCATE we referred to the importation of wheat from India to Great Britain, and the effect it would have on the prices in the English markets. From the first announcement of the arrival in English ports of wheat from Calcutta, we have been of the opinion that prices as high as we have heretofore seen would, for the future, be unknown, unless some unforeseen casualty would occur to force the markets up for a brief period. On this subject Mr. H. Kains, Jackson, in a communication to the London Evening List, writes as follows:—

The new source of grain supply in East India is brought prominently under notice by the contract in one bottom for a large cargo of wheat, 1,400 tons, the first ever despatched to this kingdom. This freight comes via the Cape of Good Hope; but the number of part wheat cargoes arrived and under contract via the canal is a matter for attention. It may be said, indeed, that the British conquest of India was incomplete until the Suez Canal opened the empire to British navigation and commerce. The new route also promises to give Southern France a new branch of trade, in supplying Marseilles, as a port of call, the produce of British India. It is believed that upwards of 50,000 quarters of Indian wheat has already been bought for Marseilles, which is thus relieved from entire dependence in Southern Russia and Turkey. A project of a ship canal from the Mediterranean to Bordeaux, to serve for vessels that have passed the Suez Canal, is now submitted; such a work would save 700 miles of the English voyage, supply wheat to that portion of France where it is required, and draw off floods, such as destroyed much of last year's harvest in the Garonne valley. The Indian northwest provinces have their harvest in February and March, and this year the first bill of lading was out by the 10th of April, and the cargo actually arrived last week. The date of these Indian supplies is about as important as their price and quality; arriving in the early summer, with Australian, they cannot fail to have an important bearing on the British markets, as a counterpoise to American and Russian demands. As to price, all corn is now regarded as a product of rent, farm capital and labor, the latter more and more becoming a chief item. And it is exactly on account of the lowness of Indian wages that Indian wheat must always compete in cheapness with the product of European and American labor.

Renovation of Soils.

The U. S. Agricultural Dept. has been collecting information relative to the renovation or improvement of soils considered worn out, and says: Many examples are given of the renovation of worn and apparently worthless soils, and the increase of fertility in fresh but unpromising lands. Fields that have been cultivated exhaustively for twenty, and even forty years have been restored to original productiveness, not by guanos and superphosphates, at from \$60 to \$80 per ton, but by inexpensive local resources, the cheapest and most reliable of which is found in clovering. In one case in Butler Co., Pa., a section of thin, gravelly land, on which it was thought no one could secure a decent living, came into the possession of German emigrants at nominal rates. They cleared off the brush, plowed, cultivated, turned under green crops, saved every fertilizing material available, never duplicated a crop for five or six years' rotation, and that tract is now a garden, and from worthlessness has advanced to the value of \$100 per acre, and is yearly becoming more productive.

Rape as a Honey Plant.

K. O. Krusche, Berlin, Wis., writes the *American Bee Journal*:—"As a honey-producing plant, the rape is scarcely second to the linden, producing a beautiful golden honey of good flavor, and is in blossom when nearly everything else is out of blossom, commencing about August 15th, and continuing a couple of weeks. As a farm crop it is as good if not better than wheat. The time for sowing it is from the middle to the end of June. This gives time to prepare the soil after other crops are in; or if wheat or corn should fail in coming up, rape can be sown in their places. It is harvested from the middle to the last of September, after all other grain is harvested. It does not impoverish the soil, but benefits it. From five to eight bushels more per acre of wheat are raised on ground which had rape the previous year. It lets no weeds grow after it is fairly started, growing very dense, and its leaves completely shade the ground, therefore it does not suffer from drouth like other grains.

Tillage and Heat.

Every farmer will admit the advantage of tillage of the top soil, but we never hear of the tillage of the under or subsoil, and that is why the subsoil is poor, dense, unerated, and unaltered. But draining an the steam plow are correcting this error. As a more perfect intermixer of the soil, we prefer the steam plow to the steam cultivator, but care must be taken not to bury the cultivated soil under a mass of poor subsoil. The cultivator afterwards crosses the plowed land. Some prefer plowing to the surface the bare soil, and then, after a time, plowing it down again. I am firmly of opinion that the double plow—that is one under and following the other—is the safe and true principle. Thus the subsoil and upper soil become gradually intermixed. This has been my practice for 30 years. Liebig is eloquent and impressive on the benefits derived from tillage.

The attraction by soil for the heated portion of the sun's rays is very great, and has a most important influence on vegetation. The want of sunshine, and consequent low temperature during the last three weeks of July, 1875 had a fatal effect on our crops. On a fallow the portion of the air in contact with it becomes heated and expanded, and struggles upward through the superincumbent cooler air in visible wavy lines. During sunshine on a cool day I have felt the heat from the soil through the thin soles of my boots. The earth is from 24 deg. to 81 deg warmer than air in the shade.

Deep or Shallow Culture.

Mr. Mechi has been in the habit of cultivating wheat after the mangel, kohlrabi, cabbage and turnips. For the preliminary crop he subsoils deeply and manures heavily, but for the subsequent wheat crop he breaks the ground only with a single plowing with one pair of horses. He finds that deep culture just before wheat sowing enlarges the straw product at the expense of the grain. The heavy foliation of the plant is often very deceptive in regard to its yield, while light-looking fields generally produce largely in quantity and of a very superior quality. He quotes Liebig in support of his views as follows:—"But in proportion as the conditions for the formation of the straw became favorable, so did the quality of the seed deteriorate as the quality diminished." He cites the practice of some successful farmers, who, on finding their crops too rank, trod them with men and horses. Salt stiffens the straw and checks a rank vegetation, but it should be used in moderation. He always scattered it in connection with guano.

How to Stack Grain.

The following plain, practical directions, which we take from the *Rural World*, are evidently from the pen of one who has had no little experience in stacking grain. There is really much art in stacking properly. Many quarters of grain are rendered comparatively worthless from being stacked by inexperienced or careless hands. We always considered a good practical knowledge of securing grain in stack to be no little acquisition to a farm laborer. We never found rails necessary under the stack, always taking care to build on the driest part of the field. Having first a round stack of sheaves partly standing, but the tops bending inwards against each other, we then pursued the work as directed beneath. In the farm yard when the grain was to remain some time—part of it till approaching seed time, we had good foundations of stone laid.

"Now that the season for stacking grain is at hand, we wish to invite the special attention of our readers to the importance of doing this work in the best manner. For a foundation for a small stack, four large rails are laid down at an equal distance apart, and across these are laid twelve more rails. The main points to be observed in stacking are:—

"First—Keep your centres full, thereby giving your outside courses a steep pitch.

"Second—Always have the tops of your sheaves point to the centre.

"Third—To keep a symmetrical form of stack. Where it is desirable to build ricks, they should always be built with their length running east and west, as the east sides of stacks and shocks are always more liable to be damaged by rain than any other parts.

"We notice that a great deal more is said about raising grain than of taking proper care of it after it is raised. Stacking grain is often so carelessly done that, after the stack settles, the bundles lie

in a horizontal position, instead of at right angles—like the roof of a house—and the result is, that more grain becomes wet and spoiled than would have paid the expense of threshing the entire crop. A writer in the Lancaster (Penn.) *Farmer*, in speaking of stacking grain, says that in finishing off a stack always reserve some small sheaves; also have a sharp stick some five or six feet in length, which is to be thrust down into the centre of the stack, and around this bend some of the grain so as to form a cap. The next morning after building the stack, when the dew is on it, rake it off. Pull the butts where there are unsightly holes, and beat down protuberances. Stacks built in this way will stand for months in the wettest seasons and sustain no injury.

"Long stacks or ricks are built on two or more squares of rails placed together. Where there is a large quantity of grain to stack, ricks economical. The chief objection to this kind of stack is, the long row of heads exposed to the weather on top unless you thatch or cover with boards.

"Inexperienced stackers are apt to build too high and run their stacks up to a spire-like point. This is unnecessary and unsightly, and the tops are liable to blow off. It is the pitch of the sheaf and not the pitch of the stack that makes it water-proof. An egg shape is the best form for a stack."

Intensive and Extensive Agriculture.

The sewerage farm of four hundred acres, near Leamington, is the most typical in its details of any of which we can speak. The owner has a contract with the city for the sewerage for thirty years, to be delivered on the farm at a cost of \$2,250 per year. It is pumped by two sixty horse power engines through fifteen inch tiling a distance of two miles, up an elevation of 137 feet, and the annual cost to the city to get rid of its sewerage is about \$5,500. Making an actual expenditure of \$250, only.

The principal crops are Italian rye grass, mangold wurzels, cabbage, wheat, beans, etc. Eight crops of Italian rye grass are grown in one season, and each crop is irrigated twice. Three crops of cabbage are grown in one season, and each crop is irrigated twice. Fifty tons of mangold wurzels are produced in one season, per acre, the beets averaging usually twelve or fifteen pounds each. The other crops are not irrigated but are grown after rye grass, beets, etc., wheat usually averaging sixty bushels to the acre. It should be remembered that before this system was begun over half of the land was waste and valueless sand, but this was tile-drained six feet deep and sixty feet apart, while the other 200 acres was tile-drained four feet deep and forty feet apart, the whole being a grand system of filtration, which leaves the fertilizing material in the soil. The grass is sold in the green or uncured state to the city, stables, etc.; and a dairy of 100 cows is kept, which furnish milk for the city. Thus the sanitary condition of the city is benefited; there is created near it a cheaper source for hay, milk, etc.

A farmer near Edinburgh, Scotland, on one of the Duke of Buccleuch's estates, says that unless he expends annually for seed, cultivators, harvesting and rents the sum of \$75 per acre, he can realize no profit. He grows wheat, barley, oats and potatoes, and keeps only enough live stock to perform the labor of the farm. He purchases the stable manure of Edinburgh, and keeps three carts drawing all the time. He is obliged to produce the greatest possible quantity of wheat, barley, oats and potatoes yearly, or financially fail and give up his beautifully situated home.

Thus every tract of land in England and Scotland is farmed as intensively as the circumstances will permit. The above system can not be pursued upon the oolitic soil, but here sheep farming is at home. The soil is the most healthy for the sheep, although it may be quite unproductive. Yet it is manured and stamped by the sheep until a crop of barley can be grown, then again until a crop of roots can be grown, which latter are fed with oil cake to the sheep in pens on the land, and the soil is thus manured and packed so as to produce a better crop of barley, and now it is quite productive, as well as healthy for England's finest sheep.

However, it is seemingly useless to bring these imperative examples before our average farmer, for while you are speaking to him of the husbanding of his manures, of the proper succession of crops, or application of fertilizers, he scarcely listens to comprehend, but occupies himself conjuring up some financial query which he suspects will stop your, to him, fanciful ideas. Hence, before you are through, he says, "all very well. Will it pay?"

European Agriculture.

In an address delivered by Charles Seymours before the Wisconsin State Board of Agriculture, recently, we find the following remarks:

"British agriculture is almost perfection. Taking the farmers of Great Britain as our instructors, we may derive some valuable hints from their experience. Of the fifty millions of acres under cultivation in the United Kingdom of Great Britain, less than twelve millions of acres are devoted to 'white crops,' or cereals, while over twenty-six millions of acres are kept in permanent pasturage; six millions of acres under clover and rotation grasses, and six millions of acres devoted to turnips and other vegetables. England, Wales, Scotland and Ireland have about two and three-fourths millions of horses, ten millions of cattle, and over thirty millions of sheep. Repetition of white or grain crops is not permitted. Instead of the old process of restoring or resting land by keeping it fallow every fourth year, which was equivalent to the permanent withdrawal of one quarter of the tillable land from cultivation, the turnip crop with its broad leaves that shield the soil from the rays of the sun, and with its nutritious roots that are fed, before ripening, to cattle and sheep, is resorted to as the most effectual method of benefitting both land and stock, as biennial plants derive their chief nourishment from the air, and do not exhaust the soil if used before they ripen.

"Forty-two in every one hundred acres in England, and sixty-four in every one hundred acres in Ireland, are pastures. England imports only five per cent. of meats consumed. The capacity of land when kept to its utmost productiveness in densely populated countries of Europe is demonstrated in the ability of many tillers of English soil, besides paying heavy rents, to support a large

family on the products of six acres of land; and in Germany two acres of land have yielded a similar amount of subsistence; while in France, where the long and narrow ribbon-like farms are cultivated almost like gardens, the capacity of land has reached western credulity. The French farmers seem to enjoy great benefits from the culture of the sugar beet and one farm that is owned by Monsieur de Candaine, located on the Tou-

raine, valued at 2,000,000 of francs, or about four hundred thousand dollars, with sugar, lichen and woollen factories thereon, seems to market annually one thousand head of fat cattle. The annual income of this farm is five hundred thousand francs, or about one hundred thousand dollars. Doubtless, upon investigation, it would be found that beets and oil cake contributed largely to the production of the marketable cattle, while the cattle and sheep contributed to the production of the materials used in the factories, and that grass instead of grain was the commanding crop of that valuable farm.

Twitch Grass.

I have a grass upon my farm that I believe is common everywhere; and the more common, the more dislike. It is not a native of the country. It is said we owe it among us to the well intended agricultural forethought of the government.

The larger growth is in the ground. The long, large, creeping roots freely branching are much jointed; and every joint, or I may say, every inch of the branches may send out a shoot. It is from these joints the bud that is to give leaf and seed starts. Carry the hoe to the garden, and cut up the roots by surface culture, and a multitude of individuals are given an independent existence. If I cut away a thousand plants and leave a hundred, these will soon become a thousand. It is something to know this, and it is more to act upon it.

I find the best way to be rid of this grass is the most thorough way, where it pays to fight it vigorously, as in a garden—upon the farm, where it competes with farm crops, a more prolonged fighting may be allowable. But wherever there is much of hand labor, we must rid ourselves speedily

of this grass, and the thorough and efficient course to this is to make the land abundantly mellow, as deep as the roots extend, using such implements as will not break the roots, and then to fork out the plant, root and blade, or pull them out by hand. Never break a twitch grass from the stem. Let the whole plant come out together, so that no fragment may be left to grow and again fill the soil. Go over the land a few times, and wherever a blade shows itself, extract the whole plant, and you conquer, or at least let me say I conquer when I will, and in no other way so cheaply. The time is best when the soil is dry, for then it is most light and mellow; and when the sun shines hot, so that the spread out plants quickly wither and lose their life. Then they need not be raked up and taken off at once, for their life is gone from them, and neither the damp day or a summer shower succeeding will set them to growing. But cheapness there is none where twitch grass is. It is an expensive enemy to battle with, at best. I will note, however, a very cheap way of getting the grass distributed over the farm, and it is a way other kinds of grass, not desirable, can be increased. To save the purchase of seed to put upon bare spots, where the grass seems winter killed, sweep the barn floor until enough of seed is collected for the purpose. I have not done this; but from the distribution of the grass upon my farm at the time I came to it, I can but believe this economy had been practiced. Now I think of it, there are many things I have not done, but they are not always such happy escapes from blunders.

Wood Ashes as a Potash Fertilizer.

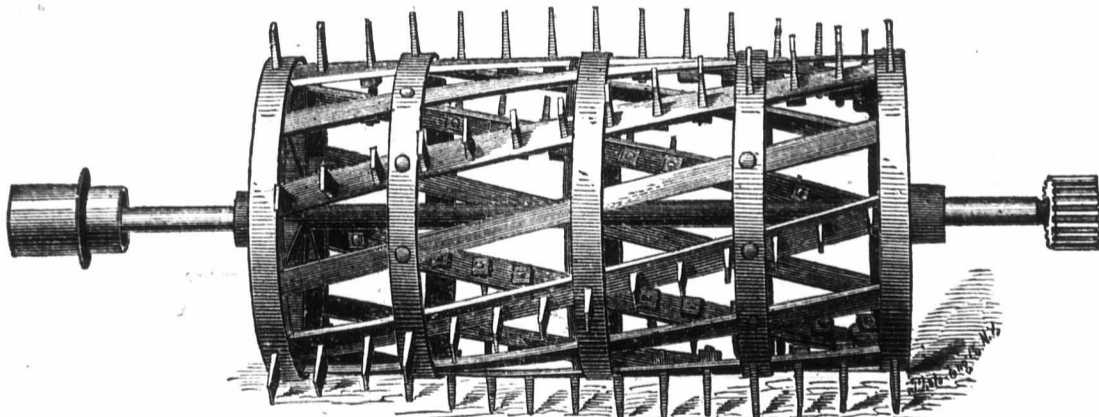
From a very elaborate and thorough investigation of the composition of wood ashes from household fire, by Prof. Storer, it appears that these contain, unleached and dry, about eight and one-

half per cent. of potash, somewhat more than the lowest grades of German potash salts. Either leached or unleached, the dry ashes contain about two per cent. of phosphoric acid, of which none occurs in the German salts. In Storer's field experiments, wood ashes (unleached), applied in large quantities, brought larger yields of barley, beans and rutabagas than farm-yard manure, city stable manure, or any single potash salt, or sulphate, carbonate, or even nitrate.

In commenting upon these results, Storer says: Wood ashes are more serviceable than any single potash salt, not only because they contain some phosphoric acid, lime, magnesia, and the less valuable elements of plant food, but because, considering them merely as a potassic manure, they contain a mixture of potash salts. It may be regarded as well nigh certain that a given amount of potash, applied in the form of appropriate mixtures of sulphate, carbonate, silicate and chloride of potassium, will, generally speaking, do more good than when applied in the form of either one of these compounds. But in wood ashes we find a mixture of these salts ready at hand; not the best mixtures, perhaps, but one ready formed, and in this country, at least, very easily obtained.

Patent Threshing Machine Cylinder.

We give the accompanying cut of a new patent cylinder. Messrs Brown & Muir, of Woodbridge, have a list of certificates from parties using the cylinder, claiming its superiority over all other cylinders. They claim that feeding it done much more evenly, consequently better work, and that straw will never wind round the cylinder. The spiral or screw form of placing the teeth appears to us to have an advantage over the old plan of placing them straight across. Mechanics will be best able to judge of this plan.



NEW PATENT THRESHING MACHINE CYLINDER.

The Horse.

The General Purpose Horse.

A great deal has been said and written about breeding the general-purpose horse; but, in the discussion of the question as to the course of breeding required to produce such a class of horses, it occurs to us that one very important point is overlooked; and that is, the fact that the prevailing, ruling type of all our trotting, running and common stock, is too small for the general-purpose horse, at least it is far below the standard which is generally accepted as desirable in that particular. It is true that an occasional trotting stallion has been produced, like Geo. M. Patchen, or Rhode Island, that possessed the requisite size; but such products from the ordinary trotting crosses are the exception and not the rule, and as the prevailing type—the preponderance of blood—is that of a horse very much smaller, it inevitably follows that such horses cannot be depended upon to transmit their accidentally-acquired proportions and weight with any degree of certainty.

There are several families of trotters, notably the Patchens and the Mambrino Chiefs, and many thoroughbreds that, judged solely by their height, are big enough to come up to the generally accepted standard; but the prevailing tendency in the conformation of these horses from sixteen to seventeen hands in height, is not just what is generally regarded as desirable in the general-purpose horse. They are too high for their weight; there is too much daylight under them; they are not "blocky" and compact and solid enough for the general purpose horse, as ordinarily defined. The popular idea seems to require, in the general-purpose horse, the general characteristics of the Morgan,

increased in weight by about fifty per cent., with its present proportion of height to weight unchanged. Few of the sixteen or seventeen hand thoroughbreds or trotters that we have seen approximate this conformation. They come more nearly up to the accepted standard of the carriage and coach horse; they are tall, high-headed, rangy and stylish enough, but they are deficient in that form which is well expressed in that form

which is well expressed in the use of the term "blocky," and which, more than any other, is desired in the general-purpose horse.

This conformation prevails so generally among our "big" thoroughbreds and trotters, that it appears to us an uncertain business to attempt to produce the general-purpose horse from sires chosen from among them and the common mares of our country. In the hands of a careful, intelligent breeder, by judicious selection of both sire and dam, good results may be obtained and ultimately, by selection, the desired form and size may be produced with some degree of uniformity; but, in a large majority of cases, experience has shown that the produce from such sires and dams falls very much below the desired weight and form.

It is evident, therefore, that the breeding of the general purpose horse by this process must, for a long time to come, be an uncertain business, if the size and form heretofore alluded to be accepted as the true standard. The important object to be gained appears to be an increase of weight. As before remarked, many of our thoroughbreds and trotters are high enough, but to say that a horse is 16½ hands, and a man is six feet, gives but a very imperfect idea of his actual size. It is out of this general feeling that an increase mainly in weight is desired, that has grown the practice of publishing the weight of stallions advertised for sale—a practice that has been ridiculed by professional horsemen, but which, in spite of the ridicule, is constantly growing in favor, because it gives a much better idea of the size of the horse than the simple statement that he is so many hands high; and the general compliance with this custom is proof that the desire for general increased weight in our horses is widespread.

We look hopefully to the influx of foreign blood which has taken place within the last ten years.

Health—How to Preserve It.

It is with great pleasure we now announce to our readers that another highly useful, interesting and important department is now added to this journal under the above heading. If you read the hints that will be given you, and attend to them, they will undoubtedly add to your health, wealth and happiness. There will be no quack advertisements in these articles, but we guarantee to our readers that the best counsel, advice and hints will be furnished from the writer, whose authority and knowledge on the questions to be treated is unsurpassed by any allopathic or homeopathic doctor or physician in Canada.

Water.

Written for the Farmer's Advocate, by H. W.

Throughout Canada, as a general thing, there is a plentiful supply of the best of water, still those who have good wells do not always pay as much attention to the purity of the water used for drinking and household purposes as is necessary. From a sanitary point of view too much care cannot be taken to ensure its purity, as an article so extensively employed must if impure exert a very pernicious influence on the health of those using it. Water is one of the most common ways through which the poisonous metals, such as lead, etc., enter the system, and the specific poisons of disease may be readily conveyed through a neighborhood solely by persons using water from some well which has been contaminated. Decaying vegetable or animal matter may find its way into wells and render the water very unwholesome. Impurities are often present in water from the little care taken of wells—it may be from the mouth of the well being on a level, or lower than the ground around, and every shower of rain washes into the well any decomposing matter around it; or perhaps some drain in the vicinity becomes filled up and this water may find its way into the well. If the soil between the drain and well be porous, it would act as a filter at first and remove any of the impurities, but as the soil becomes saturated this purifying power is lost, and health would not likely be long preserved if such water was continually used. In cities and large towns it is very difficult to keep water in wells pure, but there can be no excuse for the farmer who by carelessness allows his well to become contaminated with poisonous substances, which will certainly produce disease, when with a little care he might have prevented it.

Water containing vegetable impurities, either dissolved or held in suspension, is decidedly unwholesome. In the spring, using such water would be very likely to bring on an attack of ague, or some other miasmatic diseases, and during the hot summer months it is one important cause of the prevalence of diarrhoea. If decomposing animal matter finds its way into wells, we have one great cause for the number of cases of typhoid fever, dysentery, and many other diseases, which are so common in this country.

Although there may be some doubt as to typhoid fever being directly transmitted from person to person, it has been abundantly proved that one great cause for its prevalence is impurities in drinking water, which excite a decided predisposition to the disease, and if a person whose health has been impaired by using such water was placed in a situation where the disease was prevalent, the chances are much stronger in favor of his taking it.

Every autumn, in localities where typhoid is very common, there are always some families who escape, although they may be surrounded by it; and there can be no doubt they escape it by paying more attention to the sanitary arrangements of their homes—one of which is a plentiful supply of pure water. Too much care cannot be taken of wells to make sure the water they contain is wholesome. No farmer should be without a good one, as no investment can be more profitable than one that would be as great a preserver of health as this; and those who have them should see they are kept in thorough repair, the mouth raised some distance above the ground so that no surface water can find its way in, the cover should always be kept in good order, and above all to be satisfied that if any drain runs near the well that in the event of its becoming obstructed the contents will find an outlet in some opposite direction. A little attention to this subject would well repay any

farmer, and if it was only a matter of present feeling and comfort he should not neglect any little thing that would tend to render the water he uses more pure and wholesome.

Correspondence.

We profess to publish the only really independent paper in Canada, unbiassed by party or party politics. We have on our list of subscribers Reformers and Conservatives in perhaps equal numbers, and we think it strange that, on the question of Free Trade or Protection, we have not had any communication in favor of Free Trade. This is seen on reference to the numbers of our journal, in which are to be found all the communications we have received on the subject. Our columns are still open to our subscribers who may desire to write on the Free Trade question. It is of importance to us farmers as much as to any other class. Our subscriber's letter from Mandaamin we insert.

FREE TRADE FOR FARMERS.—You still invite farmers to express their opinions on the question of Free Trade against Protection and home industry. I have hitherto left it to better men, and now merely wish to advert to one or two fallacies asserted by certain editors and not contradicted. Great error arises from regarding the question in a purely abstract form, a mere theory. Many seem to think they may adopt Free Trade or Protection or Prohibition as a maxim, and by deciding for one or other save themselves all further trouble in the study of political economy. This is a great fallacy. The necessity of an intimate knowledge of commercial interests must always remain, and must be carefully observed. Maxims are short roads to error for the ignorant idle. The question cannot be separated from the consideration of revenue. Direct taxation is abhorred, while custom duties are paid with singular cheerfulness. Now, suppose a Canadian drover pays to the American Custom House \$1,000 duty on cattle which he imports to the States, he sells at the market price in the States—neither more nor less—so the consumers say they do not pay any duty and are content. Editors of a certain class say the drover did not pay the duty, for he got a better price after all costs than in Canada, and so nobody seems to have paid it, and the United States Government got the money. The drover may have a shrewd idea that he really did pay the money and otherwise would have had \$1,000 more profit, and could have paid a higher price to us. Surely if this is so pleasant a way of raising revenue, Canada ought to have more of it. It seems remarkably good for the States. The same class of writers are incessantly urging that all taxes on imports are paid, with additional costs in consequence, by the treasurer. Of course there is much spurious fallacy in the way they urge it. The consumer is taught to believe that he is made to pay where nothing was due. Now the consumers are simply the people, and the people of a country must pay the necessary revenue anyhow. If they pay it in import duties they have not to pay it again, and it is probably the most convenient way of paying it. In the case of the drover it appears the consumers in the States do not pay the tax, but, as the drover paid it, the consumers of the United States had \$1,000 less taxes to pay. Similarly, if Americans import to the country and pay duty, we pay no more for the goods imported than to our own merchants, and have less taxes to pay, by the amount paid by Americans. The great art of statesmanship is to manage these great interests of the country skillfully. A Government may be negligent or ill-versed in these matters or even traitorous and corrupt, and by allowing most unfair advantage may gather serious depression on a country; a more energetic and skillful government may restore the same country to prosperity. What is the use of a government but to see that the people have fair play in their foreign as well as home trade? Our finest farms have been exhausted because we are forced to grow consecutively, year after year, such grain only as we can export. Every village raises the value of land in its neighborhood. Agriculture improves and is more profitable, by reason of its home market for the kinds of produce which we cannot export. Agriculture can never thrive without neighboring manufactures. It is so plain that we marvel any one fails to see it. More industries, more villages and towns over the country we must have, and if protection will encourage their growth let it be liberally granted till they can stand alone.

Americans may squelch more of our infant industries than sugar refining if allowed to do so. With our railways at their service more than our own, with a most unjust discrimination in freight against us, they can send into our markets corn and cattle to lower our prices below cost, we may as well move west at once, for our importing corn cheaper than we can raise it is not an adequate remedy; the corn and cattle must be raised together for economy. They can flood us with inferior paper money and depreciated silver—and all feel the annoyance requiring strenuous effort to relieve us. But why shall men of all parties be so eager for reciprocity on a fair basis, while some strange editors persuade us that free trade, pure and simple, is best for us, whether other countries charge us duties or not. This simply means that Canadians are to pay double taxes; first for their own revenue and next for foreign revenue. Such a proposition is surely monstrously absurd, even if the writers were well paid for publishing it. These writers show a consistent and constant tendency to bring us under the States at any cost. We must read such papers with distrust and see both sides. Depend on it, Americans will never concede to any fair treaty while they are allowed the run of our country free, and exclude us from theirs. We need not use the plain word, retaliation, but, in justice to Canadians, our tariff should be stiffly re-adjusted, with a view to American customs. It is surely absurd to say protection has ruined American industries. No ruined state ever paid off enormous debt, as America has done and is doing; in fact she prospers amazingly under protection, though she could never stand alone better than we can. I am no party, unfair man, but simply a working farmer, writing to farmers to caution against Free Trade bosh, contrary to the experience of our senses. A moderate protection has raised our wool and other manufactures to an excellence of which we are proud—we see it and believe.

West Lambton, July, 1876.

I.

HOW TO COMBAT THE CABBAGE WORM.—As the season has come to combat the cabbage worm, I wish to give your readers the result of a successful application I discovered last year in my experiments to destroy these pests. I made a mixture of buckwheat flour and cayenne pepper in the proportion of about one-eighth of the latter, and with a fine, small sieve, sifted lightly the mixture on the cabbage early in the morning, after a heavy dew. The flour thus adheres to the cabbage, holding the pepper, which would otherwise be carried off by rain and wind. I found the first application effective, and as a precaution, used it once after the heads were well developed, and I raised a hundred cabbage, the sight of which would make a Dutchman's mouth water. Care should be taken to mix well and apply lightly and evenly.

WM. MEAD PATTISON.

Clarenceville, Que., July 12th, 1876.

[Thanks to our subscriber, Mr. P., for his communication. Every experiment in the contest with the hosts of vermin that now, more than ever, are laying waste our gardens and farms, should be made known. The ingredients used by Mr. P. are what is needed, the cayenne pepper to destroy the worms, and the glutinous substance to make the pepper adhere to the plant.—Ed.]

SIR,—In some parts of this township the grasshoppers are making a clean sweep of it, and the potato bug is doing a big business. I find it a hard task to keep them off my seedling potatoes, the leaves are so tender. I think I have got some good varieties; they are from one to four years old.

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[One good dressing of Paris Green mixed in water, one teaspoonful to one gallon, will effectually keep the bugs off your potatoes—seedlings as well as older varieties. There is still room for a new variety of potatoes, if good, especially if a late keeping sort. There is a general complaint that the new varieties of potatoes soon become degenerate, and lose the qualities for which they were esteemed when first introduced. Whether this tendency to degeneracy proceed, as is contended by some, from a failure of the original vital force of the plant, or a want of hardiness merely of the varieties propagated, the fact is patent to all that after a very few seasons these new varieties are cast aside and their place occupied by others. It was not so with the old varieties.—Ed.]

European Agriculture.

In an address delivered by Charles Seymours before the Wisconsin State Board of Agriculture, recently, we find the following remarks:

"British agriculture is almost perfection. Taking the farmers of Great Britain as our instructors, we may derive some valuable hints from their experience. Of the fifty millions of acres under cultivation in the United Kingdom of Great Britain, less than twelve millions of acres are devoted to 'white crops,' or cereals, while over twenty-six millions of acres are kept in permanent pasturage; six millions of acres under clover and rotation grasses, and six millions of acres devoted to turnips and other vegetables. England, Wales, Scotland and Ireland have about two and three-fourths millions of horses, ten millions of cattle, and over thirty millions of sheep. Repetition of white or grain crops is not permitted. Instead of the old process of restoring or resting land by keeping it fallow every fourth year, which was equivalent to the permanent withdrawal of one quarter of the tillable land from cultivation, the turnip crop with its broad leaves that shield the soil from the rays of the sun, and with its nutritious roots that are fed, before ripening, to cattle and sheep, is resorted to as the most effectual method of benefiting both land and stock, as biennial plants derive their chief nourishment from the air, and do not exhaust the soil if used before they ripen.

"Forty-two in every one hundred acres in England, and sixty-four in every one hundred acres in Ireland, are pastures. England imports only five per cent. of meats consumed. The capacity of land when kept to its utmost productiveness in densely populated countries of Europe is demonstrated in the ability of many tillers of English soil, besides paying heavy rents, to support a large

family on the products of six acres of land; and in Germany two acres of land have yielded a similar amount of subsistence; while in France, where the long and narrow ribbon-like farms are cultivated almost like gardens, the capacity of land has reached western credulity. The French farmers seem to enjoy great benefits from the culture of the sugar beet and one farm that is owned by Monsieur Candaine, located on the Tou-

raine, valued at 2,000,000 of francs, or about four hundred thousand dollars, with sugar, linen and woolen factories thereon, seems to market annually one thousand head of fat cattle. The annual income of this farm is five hundred thousand francs, or about one hundred thousand dollars. Doubtless, upon investigation, it would be found that beets and oil cake contributed largely to the production of the marketable cattle, while the cattle and sheep contributed to the production of the materials used in the factories, and that grass instead of grain was the commanding crop of that valuable farm.

Twitch Grass.

I have a grass upon my farm that I believe is common everywhere; and the more common, the more dislike. It is not a native of the country. It is said we owe it among us to the well intended agricultural forethought of the government.

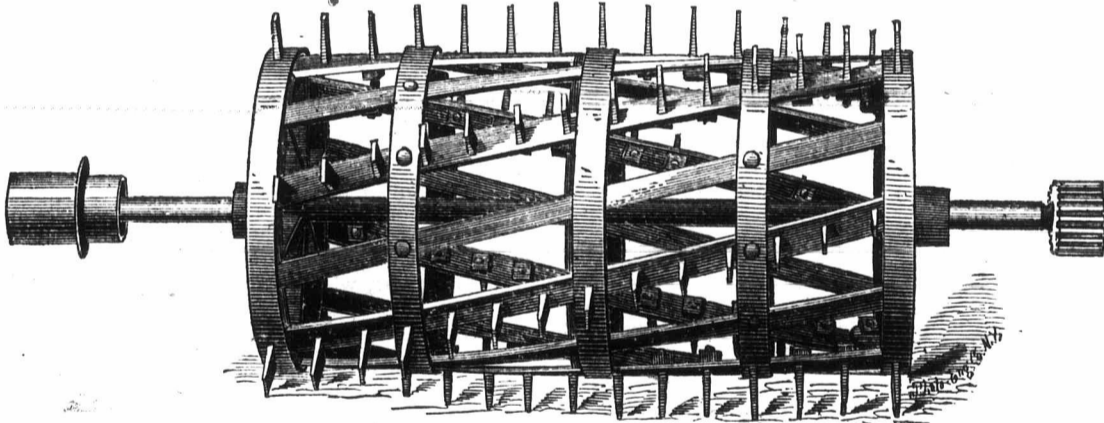
The larger growth is in the ground. The long, large, creeping roots freely branching are much jointed; and every joint, or I may say, every inch of the branches may send out a shoot. It is from these joints the bud that is to give leaf and seed starts. Carry the hoe to the garden, and cut up the roots by surface culture, and a multitude of individuals are given an independent existence. If I cut away a thousand plants and leave a hundred, these will soon become a thousand. It is something to know this, and it is more to act upon it.

I find the best way to be rid of this grass is the most thorough way, where it pays to fight it vigorously, as in a garden—upon the farm, where it competes with farm crops, a more prolonged fighting may be allowable. But wherever there is much of hand labor, we must rid ourselves speedily

of this grass, and the thorough and efficient course to this is to make the land abundantly mellow, as deep as the roots extend, using such implements as will not break the roots, and then to fork out the plant, root and blade, or pull them out by hand. Never break a twitch grass from the stem. Let the whole plant come out together, so that no fragment may be left to grow and again fill the soil. Go over the land a few times, and wherever a blade shows itself, extract the whole plant, and you conquer, or at least let me say I conquer when I will, and in no other way so cheaply. The time is best when the soil is dry, for then it is most light and mellow; and when the sun shines hot, so that the spread out plants quickly wither and lose their life. Then they need not be raked up and taken off at once, for their life is gone from them, and neither the damp day or a summer shower succeeding will set them to growing. But cheapness there is none where twitch grass is. It is an expensive enemy to battle with, at best. I will note, however, a very cheap way of getting the grass distributed over the farm, and it is a way other kinds of grass, not desirable, can be increased. To save the purchase of seed to put upon bare spots, where the grass seems winter killed, sweep the barn floor until enough of seed is collected for the purpose. I have not done this; but from the distribution of the grass upon my farm at the time I came to it, I can but believe this economy had been practiced. Now I think of it, there are many things I have not done, but they are not always such happy escapes from blunders.

Wood Ashes as a Potash Fertilizer.

From a very elaborate and thorough investigation of the composition of wood ashes from household fire, by Prof. Storer, it appears that these contain, unleached and dry, about eight and one-



NEW PATENT THRESHING MACHINE CYLINDER.

half per cent. of potash, somewhat more than the lowest grades of German potash salts. Either leached or unleached, the dry ashes contain about two per cent. of phosphoric acid, of which none occurs in the German salts. In Storer's field experiments, wood ashes (unleached), applied in large quantities, brought larger yields of barley, beans and rutabagas than farm-yard manure, city stable manure, or any single potash salt, or sulphate, carbonate, or even nitrate.

In commenting upon these results, Storer says: Wood ashes are more serviceable than any single potash salt, not only because they contain some phosphoric acid, lime, magnesia, and the less valuable elements of plant food, but because, considering them merely as a potassic manure, they contain a mixture of potash salts. It may be regarded as well nigh certain that a given amount of potash, applied in the form of appropriate mixtures of sulphate, carbonate, silicate and chloride of potassium, will, generally speaking, do more good than when applied in the form of either one of these compounds. But in wood ashes we find a mixture of these salts ready at hand; not the best mixtures, perhaps, but one ready formed, and in this country, at least, very easily obtained.

Patent Threshing Machine Cylinder.

We give the accompanying cut of a new patent cylinder. Messrs Brown & Muir, of Woodbridge, have a list of certificates from parties using the cylinder, claiming its superiority over all other cylinders. They claim that feeding it done much more evenly, consequently better work, and that straw will never wind round the cylinder. The spiral or screw form of placing the teeth appears to us to have an advantage over the old plan of placing them straight across. Mechanics will be best able to judge of this plan.

The Horse.

The General Purpose Horse.

A great deal has been said and written about breeding the general-purpose horse; but, in the discussion of the question as to the course of breeding required to produce such a class of horses, it occurs to us that one very important point is overlooked; and that is, the fact that the prevailing, ruling type of all our trotting, running and common stock, is too small for the general-purpose horse, at least it is far below the standard which is generally accepted as desirable in that particular. It is true that an occasional trotting stallion has been produced, like Geo. M. Patchen, or Rhode Island, that possessed the requisite size; but such products from the ordinary trotting crosses are the exception and not the rule, and as the prevailing type—the preponderance of blood—is that of a horse very much smaller, it inevitably follows that such horses cannot be depended upon to transmit their accidentally-acquired proportions and weight with any degree of certainty.

There are several families of trotters, notably the Patchens and the Mambrino Chiefs, and many thoroughbreds that, judged solely by their height, are big enough to come up to the generally accepted standard; but the prevailing tendency in the conformation of these horses from sixteen to seventeen hands in height, is not just what is generally regarded as desirable in the general-purpose horse. They are too high for their weight; there is too much daylight under them; they are not "blocky" and compact and solid enough for the general purpose horse, as ordinarily defined. The popular idea seems to require, in the general-purpose horse, the general characteristics of the Morgan,

increased in weight by about fifty per cent., with its present proportion of height to weight unchanged. Few of the sixteen or seventeen hand thoroughbreds or trotters that we have seen approximate this conformation. They come more nearly up to the accepted standard of the carriage and coach horse; they are tall, high-headed, rangy and stylish enough, but they are deficient in that form which is well expressed in that form

which is well expressed in the use of the term "blocky," and which, more than any other, is desired in the general-purpose horse.

This conformation prevails so generally among our "big" thoroughbreds and trotters, that it appears to us an uncertain business to attempt to produce the general-purpose horse from sires chosen from among them and the common mares of our country. In the hands of a careful, intelligent breeder, by judicious selection of both sire and dam, good results may be obtained and ultimately, by selection, the desired form and size may be produced with some degree of uniformity; but, in a large majority of cases, experience has shown that the produce from such sires and dams falls very much below the desired weight and form.

It is evident, therefore, that the breeding of the general purpose horse by this process must, for a long time to come, be an uncertain business, if the size and form heretofore alluded to be accepted as the true standard. The important object to be gained appears to be an increase of weight. As before remarked, many of our thoroughbreds and trotters are high enough, but to say that a horse is 16½ hands, and a man is six feet, gives but a very imperfect idea of his actual size. It is out of this general feeling that an increase mainly in weight is desired, that has grown the practice of publishing the weight of stallions advertised for sale—a practice that has been ridiculed by professional horsemen, but which, in spite of the ridicule, is constantly growing in favor, because it gives a much better idea of the size of the horse than the simple statement that he is so many hands high; and the general compliance with this custom is proof that the desire for general increased weight in our horses is widespread.

We look hopefully to the influx of foreign blood which has taken place within the last ten years.

Health—How to Preserve It.

It is with great pleasure we now announce to our readers that another highly useful, interesting and important department is now added to this journal under the above heading. If you read the hints that will be given you, and attend to them, they will undoubtedly add to your health, wealth and happiness. There will be no quack advertisements in these articles, but we guarantee to our readers that the best counsel, advice and hints will be furnished from the writer, whose authority and knowledge on the questions to be treated is unsurpassed by any allopathic or homeopathic doctor or physician in Canada.

Water.

Written for the Farmer's Advocate, by H. W.

Throughout Canada, as a general thing, there is a plentiful supply of the best of water, still those who have good wells do not always pay as much attention to the purity of the water used for drinking and household purposes as is necessary. From a sanitary point of view too much care cannot be taken to ensure its purity, as an article so extensively employed must if impure exert a very pernicious influence on the health of those using it. Water is one of the most common ways through which the poisonous metals, such as lead, etc., enter the system, and the specific poisons of disease may be readily conveyed through a neighborhood solely by persons using water from some well which has been contaminated. Decaying vegetable or animal matter may find its way into wells and render the water very unwholesome. Impurities are often present in water from the little care taken of wells—it may be from the mouth of the well being on a level, or lower than the ground around, and every shower of rain washes into the well any decomposing matter around it; or perhaps some drain in the vicinity becomes filled up and this water may find its way into the well. If the soil between the drain and well be porous, it would act as a filter at first and remove any of the impurities, but as the soil becomes saturated this purifying power is lost, and health would not likely be long preserved if such water was continually used. In cities and large towns it is very difficult to keep water in wells pure, but there can be no excuse for the farmer who by carelessness allows his well to become contaminated with poisonous substances, which will certainly produce disease, when with a little care he might have prevented it.

Water containing vegetable impurities, either dissolved or held in suspension, is decidedly unwholesome. In the spring, using such water would be very likely to bring on an attack of ague, or some other miasmatic diseases, and during the hot summer months it is one important cause of the prevalence of diarrhoea. If decomposing animal matter finds its way into wells, we have one great cause for the number of cases of typhoid fever, dysentery, and many other diseases, which are so common in this country.

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Garden, Orchard and Forest.

The Farmer's Familiar Foe—Insects.

Every one knows, in a general way, that there are more or less damages resulting to the crops of the country from the ravages of insects. But few persons, however, are aware how extensive and how damaging these depredations are. Occasionally some extensive destruction caused by them will attract attention, but the fact seems to be overlooked that not a season passes but the most of our crops are reduced a considerable per cent. by these destructive pests. The Hessian fly, the wheat midge, the chinch bug, the cut worm, the Colorado potato beetle, and others, have destroyed crops to the amount of many millions of dollars each year. A few years ago Dr. Fitch estimated the loss to the wheat crop in the State of New York in one year alone at \$15,000,000. The cotton worm of the South has been known to destroy that crop to the extent of not less than \$50,000,000 in a single year. The chinch bug prevails at times over extensive States, reducing by a large per cent. the products of the fields. The cut worm and the white grub are well known for their destructive propensities. Various species of potato beetle—and especially the 10-lined spearman—have of late years carried sad havoc to our potato fields, and have led many to the conclusion that it were better to discontinue their culture entirely. The army worm occasionally marches over the country like an invading army, leaving destruction in their pathway. The Western locust, like its near relative of Bible history, now and then swoops down with the Western breeze, and sweeps over the fields of our Western States like a devouring pestilence; before them the country is as the garden of Eden, behind them it is as a desert. Nor is the fruit raiser exempt from the ravages of insect enemies. The culicid has virtually vetoed the production of plums, as well as the finer fruits, the nectarine and the apricot; and now he is making his inroads on the peach. The codling moth lays its contributions on the apple till in some portions of the country it is no longer a profitable crop; and the canker worm and the tent caterpillar, with various other depredators, unite to reduce the profits of our orchards. Indeed, turn which way he will, the agriculturist and horticulturist meet the ravages of beetles, bugs, caterpillars, borers, worms, grass-hoppers, &c., to such an extent as to almost dishearten the most sanguine.

Such is the extent and severity of these ravages, that it is estimated by good authority, that the losses sustained by the people of this nation from this cause cannot fall short of three hundred million dollars annually. Yet, amid all this destruction there is a woeful ignorance of the nature and habits of these tiny destroyers, among the very person who suffer the most from them. And indeed many farmers and gardeners look upon the study of "bugology," as they are pleased to call the subject of entomology, as beneath their dignity. And the appropriation of a few thousands of dollars from the public treasury to sustain a competent entomologist in the field to uncover and study out the habits of these enemies, and make known the best remedies for their extermination, is regarded as a wanton and useless waste of the people's money. A thorough knowledge of the nature and habits of our insect foes will, I believe, in nearly if not quite every case, suggest such remedies as will enable us to contend successfully with them, and thus prevent a large proportion of the losses that now result from their ravages. In the hope of awakening a wider interest in this subject, and aiding somewhat in the attainment of this desirable result, I propose, in a series of short articles, to call attention to some of our most common insect enemies, and give such remedies as are most likely to prove effectual in their extermination, or at least, in checking their ravages.—*L. J. T., in Ohio Farmer.*

The Canker Worm.

Prof. Riley, in his late report, gives us some additional information in regard to this pest, so destructive to orchards in various localities of the country. For many years it was supposed that there was but one canker worm, and after the discovery that there were two kinds, the difference was supposed to be varietal, or at most, specific. In this report Prof. Riley separates the insects generically, and gives careful comparisons to establish his position. "*Palaeocrita verna*," he says,

"rises from the ground mostly in early spring," and he therefore calls it the spring canker worm. "*Anisopterix pomataria* rises from the ground in the fall," and is therefore designated the fall canker worm. The latter is rare in the Western States, being most common on the elms of New England. It is the spring canker worm, *vernata*, that is so destructive to orchards of the Western States. "The principal efforts to prevent the female from ascending the tree should be made in the spring. The cocoon is easily broken by any disturbance of the soil, and as the chrysalis is more liable to perish when the cell is broken, fall plowing under trees that have been attacked is recommended. The eggs being secreted mostly under loose bark, the scraping of trees in early spring, or any system of keeping them smooth, will act as a preventive of injury. Scraping and plowing will effect little in preventing injuries by the fall worm, as its cocoon is tougher, and the eggs are attached to smooth as well as rough trees.

"Thus, in addition to the characters pointed out a year ago, we have an important distinction between the two insects, from the practical standpoint, in the manner in which the chrysalis state is assumed. The spring canker worm, with its chrysalis formed in a simple earthen cavity, will be very materially affected by late fall plowing of the soil, especially if the soil be of such nature as to crumble easily; for I showed in 1869 that whenever the fragile cocoon is broken open, as it very readily is by disturbance of the soil, at that season the chrysalis has not the power to penetrate it again, or to form a second cavity, and either rots, dry out, becomes moldy, or, if on the surface, is devoured by birds. For the same reason the rooting of hogs is very beneficial in lessening the work of this species. With the fall canker worm, on the contrary, these measures will avail little, if anything; for the cocoon, composed of a thick layer of yielding silk strengthened by the interweaving of particles of earth, cannot be broken open by any such processes, and a dozen plowings would not expose a single chrysalis. Without doubt we have in these facts a vivid explanation all plowing or the use of hogs in orchards as canker worm checks."

Thinning Fruits and its Benefits.

There are several benefits which accrue from thinning out fruits as soon as possible after they are formed. With our hot climate in summer, and the aptitude of the trees to overbear the year they do yield fruit, and the disposition of orchardists to let them, there is an extraordinary waste of the vitality of the fruit trees of the orchards of this State. We have long known that the operation that secures choice fruits in the vineyard, in the glass orchard house, on the beautiful ranges of espaliers and wall fruit trees, which adorn the gardens of the old world, must be applied to orchard trees here before prime fruit, healthy trees and steady crops can be secured. We think a tree has just as much constitution to be taken care of as a horse or a cow. If the horse is worked too hard for the amount of food he gets time and opportunity to consume, then he decays. If a cow is not fed up to the amount of milk she gives, she loses flesh. If a tree is allowed to bear more fruit than its constitution and the feeding it has had will grow, it attempts to perfect the seed at the expense of the fruit; and hence its apples, pears, or other fruit, as the case may be, are plentiful in number, but poor in quality. The seed and its perfection in such quantity has really spoiled and shrunk the growth of the fruit, or that part that is valuable for market purposes. This nature of the seed has also sapped the material of the tree itself, just as milking a cow by having two calves suck her is sure to draw the animal down to skin and bone. Just so is the tree reduced, and the next year it has no strength to produce at all. Then, again, the very soil itself is sapped of strength for the purpose of producing bushels of worthless or inferior fruit, and the tree has no longer the fertile soil to draw upon for its recuperation. All these evils may be prevented in an orchard properly attended to, by the process of thinning out all fruit that seems to be too abundant for the wood of the branch on which it hangs to support and grow to its full size and perfection.

At a late meeting of the South Haven Pomo-

logical Society Mr. Dyckman said:—

"The operation was so simple and easy to perform that it would not take long to tell what he knew about. He got the idea of Mr. Parmelee, several years ago, and has practiced it ever since.

Mr. Parmelee cited the fact that the peaches on a thinned tree brought \$2.50 per basket, while from a neighboring tree of the same variety they brought but \$1.25 per basket. There are other benefits besides the double price of fruit; the favorable effect is noticed the second year in the growth of the fruit and wood; the tree and fruit buds are not so easily injured by the winter. The quantity of fruit is not so great the first year, but nearly so, and the bearing capacity and life of the tree is increased. Some varieties of peaches, especially Hill's Chili, nearly kill themselves in overbearing. Thinning in part should be done by pruning. Abundant seasons it is absolutely necessary to thin for profit. Some varieties of peaches, especially the Barnard, bearing its fruits all the same size, needs thinning most, while Crawfords perfect some at the expense of the rest. Thinning saves labor in the regular picking, assorting and packing. If the fruit growers hereabouts should all thin, we could build up a reputation for large, fine fruit, that would compete with all the other localities. The cost of thinning peaches cannot exceed five cents per basket. In thinning, leave one peach on a limb six inches long, and two on a limb one foot long. On last season's growth make the spaces as even as you can on the tree, distributing them so they cannot swing and rub one another, or the neighboring limbs and fruit. Finish thinning one limb at a time; work from the centre of the tree.

"He practices thinning his pears as well as his peaches. Leaves but one pear on a spur; picks off from one-half to three-fourths of the fruit. Thins weak trees more than strong ones.

"T. T. Lyon had practiced thinning his Wagner apples, increasing the size, color and quality. It would be productive of good to thin even Red Canadas when bearing heavy. Jonathans are more reliable and would be more benefited by thinning. Belmonts and Rambos overbear and need thinning."

In fact, there is no practice that is better understood or more thoroughly put in operation by all fruit growers of every kind of fruit, from the currant to the mangosteen, than the necessity of thinning at the proper time to preserve the constitution of the plant, and to grow fruit that is well developed.—*Michigan Farmer.*

Old Strawberry Plantations.

If they have borne two full crops, plow them under. We do not believe that it will pay to raise two crops of strawberries from one planting, and many of our best small fruit growers only take one full crop, knowing that they will diminish in size and yield thereafter; but if well matured when planted, and kept clean at all times, the second one may pay.

Let us examine the plants in a strawberry plantation at this season of the year, when a large crop of strawberries has just been gathered. If the plants have been kept in stools—the runners all removed—those stems which have borne fruit are exhausted and die, and so do the roots employed in feeding them; but from near the crowns of those roots, new roots have started; which either have thrown or will soon throw up new stems to form the basis of next year's crop.

Some practice cutting off and removing the old stems and leaves, just as we do the old exhausted raspberry canes after they are through bearing, and believe that the new ones start up fresher, and grow more rapidly in consequence, and we have certainly seen good results from such a course, but whether we cut off the vines or not the ground between the rows which has been compacted by many feet, should be broken up mellow, to the depth of three to five inches, and all weeds and grass cleaned out.

If the ground is not very hard, perhaps one of the improved cultivators or grubbers would be the best implement for mellowing it, but if it is packed too hard to yield readily to these, a one-horse plow (steel is the best) should be used, plowing the earth from the rows. After the plants have been cleaned out, the ridge thrown up between the rows should be leveled with the cultivator.

If the strawberries have been kept in matted rows, the spaces between them should be broken up, and the rows themselves cut down quite narrow, and cleaned out. Sometimes the workmen may run the plow just under the original plants, and leave a row of fresher ones on one side of the old one. Where this can be done, it will give you a more vigorous plantation for next year's crop.

After the plantation has been put in good order, you would have a stronger assurance of a good paying crop next year, if you should apply a good top-dressing of fine, concentrated manure.

A good article of superphosphate, or bone dust, could be easily scattered along the row, and would probably repay cost several times over in the next crop of berries.

The directions here given for the management of market plantations will apply equally well to the family garden patch, only substituting the spade for the plow in breaking up the ground.

If the reader comes to the conclusion that a good deal of labor is involved in the proper cultivation of the strawberry, it will be a correct conclusion, but then none but the best cultivation pays. Our best cultivators make some money in growing strawberries for market, but half cultivators make none.—*Am. Rural Home.*

Among the Roses.

One of the most successful rose raisers we ever knew was the late Charles J. Wistar, of Germantown. He took half ripe wood of roses, and rose-wood is half ripe just about the time the flowers are fading—and he would put them in pots of sand—the sand full to the brim and even rounded. These pots were set on his garden walk—a gravel walk—in the open boiling sun, and well watered every day—we are not sure but they had water several times a day—for the good old man spent most of his old days in his garden, and, if we are not mistaken, they had saucers of water under them besides. At any rate every cutting always grew; and we can imagine nothing more simple, or suited to the wants of "floral babies."

And, speaking of roses, we may add that towards the end of June propagation of roses, by budding, commences. This is very commonly employed with the rose; but ornamental trees and shrubs may be increased in the same way. Closely allied species must be chosen to work together.

The prairie roses have been found excellent stocks. Other roses take well on them, and they do not sucker much. It is old, very hardy, and it promises to be a very popular stock for rare roses.

The rose bugs are apt to be very annoying at some seasons. The best remedy is to shake them off into a pail of water. The rose slug is often very injurious to the leaves, completely skeletonizing them. All kinds of rapid remedies have been proposed—whale oil, soap, petroleum, &c.—but the best thing of all is to set a boy to crush them with finger and thumb. It is astonishing how rapidly they are destroyed by this process. This is true of most of the larger insects. Hand picking or crushing is by far the best remedy.

Peg down roses where a heavy mass of flowers is desired. The side shoots push more freely for this treatment.

Cut off the flowers of roses as they fade; the second crop will be much better for the attention. Seeds of all flowering plants should also be taken off; all this assists the duration of the blooming season.

Propagation by layering may be performed any time when strong, vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at the ends before using, when they will last for years.

Flower beds should be hoed and raked as soon as the ground dries after a rain. Loose surface soil prevents the under stratum drying out. Peg down bedding plants where practicable. Split twigs make the best pegs. In dry weather do not water flower beds often; but do it thoroughly when done. See that the water does not run off, but into and through the soil.

Prospects of Fruit in the United States.

From the Department of Agriculture's crop returns we extract the following report of the prospects for fruit, showing their condition up to the end of June, by which time the principal risks attending buds, blossoms and young fruit are over for the season.

FRUIT.

The apple crop of the New England States is

generally above average. In York, Me., myriads of caterpillars hatched out about May 20th, but the subsequent cold weather appears to have effectually disposed of them.

In the Middle States the bloom was abundant; the apples are above average and peaches below, the peach regions of Delaware reporting a very depressed prospect. Other kinds of fruit are promising.

Of the South Atlantic States, Maryland promises a full crop of apples and at least a half crop of peaches. In Virginia both these fruits are less prosperous. A cold spring with hard freezes following a mild winter, in several counties, cut down a previous fine prospect; apples are less than an average, and peaches one-third. South Carolina complains of extensive injuries by frost. In Pitts a blight injures the ends of the limbs and the fruit; apples eight-tenths of an average and peaches one half. The freeze extended to South Carolina and Georgia, though high crops are expected on high lands. Warm winter succeeded by cold in spring, caused great destruction in some localities. These states promise about three-fourths of a crop of apples, and less than half a crop of peaches.

The Gulf States are still more chary of promise of these two crops, but in the tropical and semi-tropical parts of Florida there is fair promise; in Santa Rosa unusual alternations of warm and cold weather caused successive bloomings on peach trees. Autauga, Ala, complains of a small insect injuring fruit, boring into the sprig just below the bud. In several counties in the Gulf region, severe frosts were felt. In East Baton Rouge, La., the thermometer falling to 29°, the peaches, plums, and nearly all the grapes and apples and pears are greatly injured. Severe frosts were noted also in Texas.

The inland Southern States indicate about eight-tenths of an average crop of apples, but not over a fourth of a crop of peaches. Here untimely frosts did their work with greater effect in many sections from the warmth of the winter.

The States north of the Ohio will, on the whole, probably turn out a full crop of apples, the deficiency in Illinois and Indiana being more than made good by the large surplus in Michigan and Wisconsin; Ohio is above average. Injuries from frost seem to have been more local in their character in this region, though several counties complain of them as severe. Michigan will have a full peach crop, but the others not one-half average.

Of the States west of the Mississippi river, the northern portions promise a surplus crop of apples, while Missouri and Kansas drop below average. Iowa will have an unusual crop of peaches, while Missouri and Kansas will be about half average. Untimely frosts are noted in the southern sections, together with hailstorms.

On the Pacific coast, California promises a full crop of apples and a surplus of peaches; Oregon a full crop of apples, but not quite of peaches.

Wood Ashes for Apple Trees.

Having some young apple and crab trees set out last spring on new stubble and broken ground, I mulched them with weeds and other rubbish of similar kinds, for about two feet all around each tree as soon as leaves began to fall. I put around each tree, after taking away the mulching, a good allowance of fresh wood ashes, taking care not to let the ashes touch the bark of the tree. That I spread about two feet around. Soon as spring came on in earnest, I scraped away with hoe most of the ashes, and forked round the trees. Some trees I did not put ashes to, but left the mulching all winter. Those trees round which I put the ashes have come out in beautiful style; put forth blossoms a week or ten days before those trees without the ashes, and look kinder and more healthy. During last summer, and all through the fall, I kept watering the same trees with house slops and soap-suds from the washing tub when cold. I had not enough slops to water all the trees at the same time, so took them in rotation and in order, so that each tree got the same allowance, and the trees appear much benefited by it. One tree (apple), near the back door, got more slops than came to its share, and it is grown more, is much thicker in the standard, and far the greatest blossoms on it. In England, common coal ashes sell at five shillings a load; wood ashes are not to be got there. Lime is used instead, and a great deal of agricultural salt on sandy or gravel lands.—*J. W. in Fruit Recorder*

Fruit Blight.

The blight of apple and pear trees is extending throughout the country; we hear of it from several localities and we see it in our own garden. The only remedy we applied was merely cutting off the affected branches. If the remedy mentioned in the following extract be as effectual generally as it has been with Mr. Westcott, it cannot be too widely known:—

Two or three years ago a paragraph went the rounds of the agricultural press, to the effect that Mayor Ludlow, of Norfolk, Va., had treated the pear blight with remarkable success, by applying linseed oil to the diseased parts. D. P. Westcott, of Rochester, N. Y., that same season had a tree attacked with blight, the bark of the trunk below the branches presented that blackened, burned appearance so indicative of what is called "fire blight." By cutting through the bark Mr. W. discovered that the inner bark and sapwood were black and apparently dead. Remembering the perscription referred to above, he washed the diseased parts thoroughly with raw linseed oil. This was in the autumn. The next spring the tree leafed out and commenced growing, and upon cutting into the diseased bark he found that a new inner bark had grown, and the tree is now alive and flourishing. Last summer his trees commenced blighting again, some of them very badly, and he applied the linseed oil again. The blight was arrested, and the trees have put forth their foliage in good condition this spring, and the new bark under the dead exterior is alive and apparently healthy. Although Mr. Westcott does not claim to have fully demonstrated the fact that linseed oil is an infallible remedy for pear blight, he will be very likely to try it again should his trees be again attacked, and we would advise our readers to do the same, and see what its effects may be in their cases.—*Rural Home.*

The Phylloxera or Vine Louse.

Our readers will remember what consternation there has been of late in France among the grape growers, in consequence of the ravages of the phylloxera, and the efforts that have been made to destroy or in some way get rid of the pest, which threatened to blot out the vineyards and put an end to grape growing. We are pleased to learn that a remedy has been discovered, and it has been endorsed by the French Academy of Sciences.

"M. Dumas recently announced to the French Academy of Sciences that a mode of treating vines attacked by the phylloxera had been discovered, which is certain in its results in destroying the insect and in restoring the vine to health and fecundity. The remedy is the combined employment of sulpho-carbonate of potash, which kills the insect at any depth in the soil, and of potassic ammoniacal and sulphureted manures. M. Dumas himself is the fortunate discoverer, though his announcement to the Academy was not made until after his process had been tried by exhaustive experimenting by the commission appointed to examine into the various plans submitted. This being the case, Dumas became the possessor of the \$60,000 reward, besides numberless other smaller prizes."—*Fruit Recorder.*

The plantations are being attacked by a very destructive insect, the *lophyre*. Near Antwerp, over 200 acres of pine trees have been so destroyed. The cocoons pass the winter in the moss at the roots of trees, becoming perfect insects in April; the insects then breed rapidly; the female dies after depositing her eggs, and the fly itself does not live beyond thirty days; the eggs are deposited in the incision made by a saw-like auger possessed by the insect, in the longitudinal section of the needle leaf, and in groups of six or eight; the worms in due time appear, and draw the leaf upwards, and only the one-half of it. A young worm will consume thus three of the pines in a day, and an adult as many as twelve; the trees first attacked are those of a sickly and dwarfish nature, growing on poor soils and on the outskirts of the wood. There is no effectual remedy against this pest, save to shake the caterpillars from the trees, and then destroy them.

The area sown with grain is larger than ever in California, and the abundant rains through the last few months give assurance of an abundant crop.

The Story.

Earnestine.

A Story of the Little House in the Cloister House.

CHAPTER III.

Beneath the tower of the old Dom Kirk is a wide archway, or postern, for foot passengers. Like most Dutch path ways, it is paved with the small-red tiles I have before mentioned. It is about twenty yards in length and is at times partially lighted by a light suspended from the roof. It is then very lonely, for its chief use, like Cloister Court, is that it is a "short cut." Another reason for its dreariness is that it is supposed to be haunted.

Close to the tower is the Kirkhoff, or Minister Yard, it has a square, white flagstone, which shows in conspicuous contrast to the red tiles; it marks the place whereon was erected the first Christian altar in Utrecht. This altar was demolished by the Spaniards during the invasion of Holland. They not only desecrated the sacred place, but killed the prince during the performance of mass. For this act of sacrilege, the assassins were executed by the indignant townspeople, and their spirits are condemned to haunt the scene of their last crime. Such is the legend believed in by the common people of Utrecht.

The long vacation had begun, and the city of Utrecht was almost deserted, yet Gerard van der Grethausse lingered in the neighborhood. He was sauntering along through Fisch Maart one evening, with only his cigar for company, when, to his surprise, he saw Earnestine, who was returning from the house of the ladies who employed her, where she had been detained until a later hour than usual.

He turned to accompany her across the lonely Kirkhoff, and, seizing the opportunity, said "Earnestine, I like not your working in this way for you bread. You must leave this with me. It is my place to provide you with all you want."

Earnestine blushed, saying softly, he knew best. "Then to-morrow!" he cried.

She started back, aghast at the nearness of so great a change.

"To-morrow!" she ejaculated—"To-morrow!"

"And why not to-morrow?" he asked, mimicking her tone. "Why not, my dearest?"

"But, Gerard," she said, "you have not been to the Stadhuis" (town hall)

"The Stadhuis, my love; what has that to do with you and me?"

"Why, Gerard," she asked, wonderingly, "how can we be married without going to the Stadhuis?"

"Oh!" he answered, carelessly; "what do we want with idle forms and ceremonies? We love each other and that is enough."

They had by this time reached the archway of the Dom tower. She caught at the wall to steady herself, and turned her face toward him. Alas! how white it looked, by the dim flickering light of the lamp over her head.

"Do you intend to say," she asked slowly, "that you do not mean to marry me?"

She spoke with painful distinctness, each word coming forth with an effort.

In spite of himself, Gerard's black heart failed him as he saw with how agonized a countenance she awaited his answer. For a moment he wavered; his good angel whispered in his ear, "Have pity. Do not betray so innocent a heart. She is beautiful, loving, pure!"

He hesitated; the fiend at his elbow, with a mocking laugh, hissed, "Le Baron van Doorman van der Grethausse, the high born son of a noble house, caught by the pretty Fries sempstress!"

"The evil path is chosen. He hesitated no longer, but looked down upon her, proud of his power, though for once he had mistaken its extent.

"Well," he said lightly, "you could hardly expect that. I think, considering all I give, my love shall—"

"I know," she interrupted haughtily; "I perfectly understand. But, with so tempting an offer, you must seek elsewhere. I have the honor to wish you good evening, mynheer!"

She turned proudly away, but Gerard caught her by the wrist, his face hard with disappointment.

"Earnestine," he hissed, "do your protestations of love amount to this? Can you not make one sacrifice for me?"

"An hour ago," she replied, in scornful accents, "I would have made any sacrifice for you save that of honor; now I would not marry you to be a queen! Let me go!" she continued. "Mynheer, you hurt me; do you forget I am a woman and helpless?"

He flung her hand from him with such cruel force that it struck violently against the wall, eliciting from her a low cry of pain.

For an instant he raised his arm as if to strike her to the earth; then dropping it, he turned upon his heel, with a sneering laugh, and strode away.

For some moments the poor girl leant against the wall, dumb with terror and faint from pain. Her wrist showed with what brutal strength he had gripped it; and the little shapely white hand was cut and bleeding.

Presently she gathered up strength to walk feebly across the Kirkhoff to her home. The good wife Smits was standing at the door, watching for her approach.

"Thou art late, my child," she began. Then as Earnestine sank into a chair, pale and fainting, "Why, what ails thee, child? and the poor hand all bruised and bleeding!"

She bustled about to procure water to revive her, and, as consciousness returned, and she pillowed the bright head on her kind bosom, began questioning the cause of her misfortune.

"Don't ask me!" she answered piteously, "I will tell you some day, Mose"—addressing the good wife by that sweetest of pet names for "mother," pronounced Moose.

Something in her wan face stopped the kind wife's tongue. She made no further inquiries, nor referred to the subject again.

For some days Earnestine lived in an agony of wounded pride and outraged affection. She had lost her lover—the lover in whom she had trusted, and whom she fondly believed to be the soul of honor and truth. Alas! her idol was shattered; her gold had turned to dust beneath her touch; the luscious fruit had proved to be but ashes; and, verily, "she was left alone, and thirsting in a land of sand and thorns."

When the first wild grief was over, she fell into a dull despair, which was even more distressing and puzzling to her landlady. She would watch the girl with a wistful expression, then turn away to hide the tears that flooded to her eyes, muttering the while, "Ah! its just as Doitje looked—just the same!"

As tidy and industrious as ever, Earnestine made no complaint; her embroidery was as beautiful as it had ever been; her plants, were tender as before. But the students looked in vain for her gay and cheery greeting as they passed her window or met her in the street.

"I cannot think what has come to Earnestine," one would say to the other. "She has not a word for anyone, so dull she is."

But they all knew their little favorite was in trouble, and more than one guessed the cause, and guessed rightly.

The bright autumn, the most pleasant time of the year in Holland, passed away, and in its stead came the damp and fog of dreary November, that season which, from its sudden and frequent changes to extreme cold, is so trying to the delicate.

About this time Earnestine began to be troubled with the fever—that fever of which the English know so little, except among the marshy Lincolnshire fens.

Once in the system, it is very difficult to exterminate. It is usually intermittent, and is always worse towards night. Its symptoms are extreme restlessness, varied by ague, cramps, and neuralgic pains throughout the whole body, but more especially in the head, neck, and shoulders. Of this fever many persons die, who actually waste away from sheer weakness.

Of course, Earnestine's illness was brought on, in the first place, by the grief over which she had brooded until she could think of nothing else. Gradually, but surely, the fever gained upon her, and when the new year came she was only able to sit up a part of the day, propped up by pillows, in the large arm-chair in Smits's kitchen.

It was a sad blow to her student friends when they heard the cloister maid was passing away to her rest. They could not sufficiently show their affection and esteem for her.

Many called daily to inquire after her, entering the court with soft tread, and tapping gently on the window for fear of disturbing her. And they carried to her little offerings of grapes, or jelly, or such flowers as they were able to procure.

Earnestine would look at them with wistful, lingering glances, as they stood on the little table beside her; then whisper, "How good they are to me!"

But the sweet voice would falter, and the deep loving gray eyes grow dim with tears, as the bitter thought rose uppermost in her mind that there was one who never came—one who did not care!

Now and then Vrouw Smit permitted one or two of the students to pay Earnestine a short visit. And, oh, my readers, it was a touching sight to see the tender, reverential way in which they would hold the thin, burning hand, and try to bring a smile to the wan, white face.

Thus the weeks wore on until February was far advanced, and Earnestine grew rapidly worse. About a week before the end she received her last visitor.

Wilhelm de Beaufort had ever been a favorite of hers, and hearing him pleading with the Smits "just to look through the door at her," she roused herself to beg he might be allowed to come in.

She had not seen him for a fortnight, and the young man started back aghast at the change in her. Could that be Earnestine? that pinched, white face, whiter than the pillows against which it lay; those large burning eyes, with deep purple circles beneath them; those sunken cheeks, and that drawn, weary-looking mouth—that Earnestine van de Welder? Yes!

And as Wilhelm gazed upon the wreck before him, an angry passion surged up from the depth of his heart, stifling his eyes with hot, scalding tears.

She welcomed him with a faint, flickering smile, as she held out her little transparent hand to greet him.

"How kind you are to me, Wilhelm," she said, "How good of you it is to come thus often. You won't have to come many more times," she added with a short sigh.

"Don't say that," cried Wilhelm, "don't say that; you will be better when the spring time comes again, and you can get out in the sunshine."

"I shall be in the sunshine long before the spring time comes, Wilhelm," she answered gently.

"Oh, Earnestine!" he almost wailed; "you must get well. We cannot spare you."

"Ah! the others; are they sorry?"

"Sorry is not the word; they will not believe it, and I cannot tell them."

"Yes," she said, speaking with an effort; "tell them for me that I say farewell to them all until we meet in heaven. Thank them for their kindness to me, and—Wilhelm, ask them not to forget me very soon."

He could not answer her; he only pressed her hand, and, kissing her forehead, turned, without one word, and left her. Outside he found several of his fellow-students waiting to hear the latest tidings.

"How is she?" they asked eagerly. But he only leant against the wall, his face hidden in his hand. Presently he raised his head, and dashed the tears from his eyes.

"She bade me say farewell to you all, until—until you meet in heaven. She thanks you for all your kindness, and asks that you will not soon forget her!" Then, breaking from them, he rushed away in the direction of his own rooms.

Several times a day did one or the other of the young men creep with noiseless footsteps to the little house in the Cloister Court, until there came a time when the shutters were closed and the blinds drawn to the top—the custom in Hol-

land—and Vrouw Smits came to tell them, with tears, that the end was come.

No need, now, to take the longer path by the Dom Kirk; be the echo of footsteps ever so loud, the loudest of them would never disturb Earnestine van der Weide.

CHAPTER IV.

It is customary in certain parts of Holland to hold, after death, what is termed *cene condoleance*—that is, to set apart a day for all friends to have an opportunity of seeing the departed for the last time, and this was what Jan Smits and his wife determined upon doing. The reception took place two days after Earnestine's death. Very, very beautiful she looked; all the weary expression of pain had passed away, and she was more like the Earnestine of old than she had ever been since that dreadful night under the Dom. She was laid in the little snowy bed which had always been her pride during life and health. Its white curtains were looped back, so as to allow the visitor a full view.

Robed in white, her small delicate hands crossed upon her bosom, her face had none of the horrors of death upon it, poor child. To her death was indeed a friend, a welcome friend, who alone could end the sorrow and pain of her troubled life.

One by one, the students, faithful when in death as they had been in life, passed into the quiet room to take a last look at their favorite, each one silently laying a bunch of fragrant white flowers on her bed, until she resembled a fair lily, surrounded by blossoms not more pure and lovely than herself.

At the appointed time they laid her in the grave, from which the two old people turned away with hearts that told them their life was indeed desolate.

After the death of his innocent victim, Gerard van der Grethausse found that Utrecht was no safe place for him. Shunned by all women of fair repute, openly threatened by the students, he was obliged to quit the city.

Whither he went none knew, few cared; but assuredly he bore with him the black fiend called "Remorse"—a foul shape would haunt and torment him with the memory of a fair life blighted, and the remembrance of what might have been.

It was long ere the students of Utrecht used the Cloister Court as a short cut, and longer still ere the memory faded of one so tenderly loved as had been Earnestine van der Weide.

Long after old Jan Smits and his good wife had passed into the silent land, and when the story of the Cloister Court had become mere hearsay, a figure would be seen lingering near the lattice-window cottage, and after each visit a wreath of snow-white blossoms was always to be found on Earnestine's grave. True to her in after life as he had been in youth, Earnestine, pretty and gentle, tender, trusting maiden, was never forgotten, never ceased to be loved and regretted by Wilhelm de Beaufort.

THE END.

Watercresses.

This very valuable plant is not wholly unknown in Canada, though we have never seen it grown in our gardens. It is, however, sometimes offered in our markets for sale, being gathered from low loamy places that are partially covered with standing water. It is classed among those valuable vegetables possessing the properties, not only of food but also of medicinal qualities. While wholly neglected by many, it is by a few highly prized as a salad. Its medicinal value is more or less affected by the intensity to which it has arrived, the plant, when in blossom, containing a greater quantity of those medicinal principals with which it is richly stored when it is in flower. Those principles also depend in part on the culture the plant has received. The better the culture and the better manured the soil, so much greater is its value for medicinal purposes, and, we may add, for food. If the water and soil in which it has grown are abundant in fertilizing elements, the watercress is proportionally valuable. The *British Medical Journal* gives an analysis of the cress from the President of the Academy of Science of Paris, showing that it contains—1st, A sulpho-nitrogenous essential oil. 2nd, A bitter extract. 3rd, Iodine. 4th, Iron. 5th, Phosphates, water and some other salts. The *Journal* says:—"As medicine, the watercress has been vaunted for its efficacy in all cases in which digestive organs are weak, in cachexia, in scurvy, in scrofula and lymetiatism. It has even been prescribed as a cure for phthisis." The essential oil in the plant increases in proportion to the quantity it receives of the sun's rays; hence the medicinal properties of the plant are in greater quantity when it is in flower.

It should be used as a salad—the only seasoning a little salt. Rinse it, if gathered from its natural bed, and it is then fit to be served up to table.

"Have you any eggs?" inquired a peaceful-looking man, as he leaned over the counter of a hardware store in Ohio, recently. "No, sir; this is a hardware store; we keep nails, stoves, etc.," answered the clerk. "Well, I did want some eggs," slowly drawled the old man, "but I kaint particular; and you may give me a pound of nails."

Nucle Tom's Department.

MY DEAR NEPHEWS AND NIECES :-

It affords me much pleasure to hear how well many of you are enjoying the holidays. Some say they are chiefly occupied in the fields. One of my nephews says he is going to the Centennial. I wish I could hear that you were all going. I believe I should be tempted to go and join you, though I am so busy. I thank you all for the new puzzles you have sent us, and hope to receive some more good original ones for our next number. Some of our little friends desire to know who sends in the most answers to puzzles; therefore, in future, the name of the one who succeeds in finding them all or the greatest number will be marked with a star. Hurrah! boys and girls: who shall have that honor? UNCLE TOM.

89.—ENIGMA.

I am compared to a jewel so rare
What few, ah! so few have worn;
How fleeting life's dream without one fond care,
How wretched when I, too, have gone!

J. H. C.

90.—My first gives life and joy, and makes the feathered songsters vocal,
Without my next we should not have a habitation local.

J. H. C.

91.—CRYPTOGRAPH.

Ayaw waya royu alftretungi rats
Yma own tyrahe meos mislpre ratsseh
Dan oyu ilwl smeli ta rihet vignieileb
Dna eight lashl epive ta orny digneivei

J. G. E.

92.—What town is like an intoxicated man?—

G. M. K.

93.—NUMERICAL ENIGMA.

I am composed of 33 letters.
My 2, 31, 4, 8, 18, 13, is a boy's name,
My 22, 9, 10, 3, 4, is a pronoun,
My 19, 18, 32, 29, is the name of a flower,
My 11, 18, 19, 32, 10, is a useful animal,
My 5, 10, 29, 6, 4, is a wild animal,
My 16, 25, 26, is wickedness,
My 30, 29, 19, 8, 28, is an apartment in a ship,
My 8, 19, 29, 26, 27, 18, 13, is the name of a place in Canada,
My 15, 14, 1, is a girl's name,
My 19, 21, 3, 7, 10, is the name of a river,
My 17, 4, 12, 20, 28, is the name of a cape,
My 23, 12, 20, 10, 14, is one of the elements,
My 24, 1, 27, 33, is a solemn declaration,
My whole is an old, true saying.

A. S.

94.—CROSS WORD ENIGMA.

My first is in mountain but net in hill,
My second in garden but not in drill;
My third is in turkey but not in goose,
My fourth is in deer but not in moose;
My fifth is in filly but not in horse,
My sixth is in master but not in boss;
My seventh is in old but not in age,
My eighth in anger but not in a rage;
My ninth is in youth, and I know you'll agree
I'm the happiest state in which you can be.

C. W. R.

95.—NUMERICAL ENIGMA.

Composed of 21 letters.
The 11, 10, 14, 17, 12, 16, is to leave,
The 7, 9, 20, 2, is a denizen of the forest,
The 8, 1, 6, 11, is to glorify,
The 18, 19, 4, 13, is a part of a fork,
The 5, 3, 21, is an enlightener,
The 4, 15, 2, is a recluse,
My whole is what we should all strive to secure.

J. H. M.

96.—CRYPTOGRAPH.

Fo lal eth serapp ahtt og eht dnuros
Eht sarferm dovatace meth wronsc

Orf esamfr whsoe respkee lenirchd dan lal
Ewnk eyht egt ti ehyt nerve kinth
Fo lodgincs ikrdangi eat so angylp llba.

S. C.

97.—DIAMOND PUZZLE.

1. A consonant. 2. A covering for the head.
3. Worn round the shoulders. 4. A company officer. 5. A fruit. 6. A name often applied to girls. 7. A consonant.

98.—VERBAL CHARADE.

In patience but not in meek,
In fir but not in teak;
In footman but not in page,
In queen but not in sage;
In guest but not in host,
In butter but not in toast;
In light but not in flame,
My whole's the ladies' favorite game.

J. C. M.

99.—CHARADE.

My wee first writes this:
My second guides I wis;
My third rides on the sea.
My whole an art it is,
Now tell what I can be.

MELVIN.

ILLUSTRATED REBUS.



100.—Name of a place in Canada.

101.—BURIED CITIES.

1. This ale must have been made for a long time.
2. Was it royal pomp that made England what she is?
3. Even when I saw her I escaped detection.
4. Will you send or shall I?

NORA.

102.—DECAPITATIONS.

1. Whole I am pure; behead me and I denote hurry; behead me again and transpose me, and I become an accommodation.
2. Whole I am a kind of grain; behead me and I signify warmth; behead again and I am a verb.
3. Whole I am to glide; behead me and I am a girl's name; again and I devour.

EDMUND.

Answers to Puzzles in July No.

- 75.—Wholesale, Whale, Hale, Owl, Weal.
76.—A, E, I, O, W and Y.
77.—Isaac, Kate, Seth, Ethel, Ethel.
78.—MATCH GRAND, ADORE RIVER, TOPEL AVICE, TORSET NECKS, HERTS DRESS.
79.—I love my country's pine clad hills, Her sunshine and her storms; Her rough and rugged rocks that rear Their hoary heads high in the air In wild fantastic form.
80.—W, S, I, N, B, E, L, L, E, C, O, L, L, E, G, E, R, E, P, R, I, M, A, N, D, W, I, L, L, I, A, M, W, E, L, D, A, C, C, O, M, P, A, N, Y, B, E, T, W, E, E, N, A, M, E, M, D, S, L, Y, D.
81.—Wagtail.
82.—Moore.
83.—Larkspur.
84.—Kincardine.
85.—Stone, Tone, One.
86.—Mountain Ash.
87.—A Crut stand.
88.—Chapter 1, Footprints and hungry animal. Chapter 2, Satiated animal and boots empty.

Names of those who have sent in Correct Answers to July Puzzles.

Lodena Whiting, S. Johnstone, J. Dawson, William Jeffery, Joanina Bell, Andrew Spence, Charlie Begg, James H. Cross, James H. McMurry, J. Wood, T. Thompson, S. J. Hall, Ada Taylor, Blanche Hooper, Theo. Weeks, Geo. Payne, Thomas Gowanlock, Edgar Jarvis, M. Collinson,

S. J. Sharpe, Geo. McKenzie, Sarah Clarke, N. McCauley, M. Kennedy, E. Minkler, T. Winlow, T. Y. Symonds, John Fitzpatrick, James Scott, Eleanor Moore, Jane Shore, Daniel Ballantyne, Isaac Billington, Octavius Hamilton, John Bell, Thos. Jones, Andrew Wenman, S. A. Donaldson, Minnie Davie, Saml. Bayley, Emma Rennie, W. J. Browne, James Vail, Stephen Smith, John Dart, Henry Symington, Eben Wellard.

HUMOROUS.

A Matter of no Consequence.

The day had been set and the young man was happy. But his father failed in business and he collected together all the pink love letters, the locks of hair, the faded violets, &c., and started for her father's mansion. He was high-minded and honorable, and he felt in duty bound to release her from the engagement. Yet he grew faint as he was ushered into the parlor. Such love as his wouldn't stay crushed.

"George! dear George!" she exclaimed as she entered the parlor and seized his hand.

"Arabella, I am here to do my duty," he said, as he rose up.

"W-what's the matter?" she asked.

"H-haven't you heard of—of my father's failure?" he inquired, his heart beating painfully.

"Why, yes, dear George, and what of it?"

"Aren't you—won't you—that is—!"

"I'm glad of it—that's all!" she cried.

"You are?"

"Of course I am. I was talking with father, and he said if your father had failed for \$60,000, he'd make at least \$50,000 out of it, and of course you'd get twice as much as you counted on!"

Not My Place.

A dispute having long subsisted in a gentleman's family between the maid and the coachman about fetching the cream for breakfast, the gentleman one morning called them before him, that he might hear what they had to say, and decide accordingly. The maid pleaded that the coachman was lounging about the kitchen the greater part of the morning, and yet was so ill-natured that he would not fetch the cream for her, notwithstanding he saw she had so much to do as not to have a moment to spare. The coachman alleged that it was not his business.

"Very well," said the master; but pray what do you call your business?"

"To take care of the horses, and clean and drive the coach," replied he.

"You say right," answered the master, "and I do not expect you to do more than I hired you for; but this I insist on, that every morning before breakfast you get the coach ready, and drive the maid to the farmer's for milk; and I hope you will allow that to be part of your business."

The coachman and the maiden soon after came to terms.

Darky Grandiloquence.

Here is a sample of actual occurrence in Washington market, having been overheard by a gentleman:

My colored friend, George Edward Fitz Augustus, walked up to the wagon of a fat countryman, and, after peering some time at his stock, inquired:

"Are does good taters?"

"Yes, Sir," responded the countryman.

"A tater," resumed George Edward Fitz Augustus, "is inevitably bad unless it is unwariably good. Dere am no mediocraty in de combination ob a tater. De exterior may appear remarkably exemplary and beatusome, while de interior is totally negative. But, Sir, if you wends de article in your own recommendation, knowing you to be a man ob probability in your transactions, I, without any further circumlocrition, takes a bushel ob dat superior vegetable."

GETTING RID OF WEEDS.—A farmer asking a provincial editor for the best way to get rid of weeds, was responded to in the editor's column thus—"Squeeze the hand of a plump young widow all in black. The next day she was in half-mourning, and a second kindly pressure resulted in a pink gown with a white bonnet. The weeds had disappeared."

Minnie May's Department.

Womans' Work.

To wash and bake, to mend and make,
The weary steps of toil to take;
To cook and scour, to dust and sweep,
And all the house in order keep.
To rise at morn and o'er and o'er,
Do duties done the year before,
And know that in to-morrow's train
The same things will come o'er again,
And often to herself to say,
The old, old lines in weary way,
"From dawn of day till setting sun
Woman's work is never done."

To watch and pray, to gladly take
Love's crosses for love's crowning sake,
To love and grieve, to smile and weep;
Her deepest thought in silence keep,
To teach and lead, to hope and trust—
Have trust betrayed—as woman must,
To gently chide, to cheer and bless,
And bear with patient tenderness
Her burdens all; nor shrink away,
But bravely look ahead and say,
"From dawn of life till setting sun
Woman's work is never done."

—Annie Halls.

DEAR NEICES,—I do not hear from so many of you as I should like. Have my neices Myra J. D. Hughes, J. Cook, etc., forgotten me. Of course I know you are all very busy but I think many of you who are such good housekeepers might favor me with some good recipe, for each one has some peculiarity in which they excel. Some understand the cooking of meats, others bread, others pastry, or preserves, or pickles, etc. Now, you see how much good it will do all to have an interchange of ideas. Hoping to receive plenty of letters full of good advice,

I am, your friend,
MINNIE MAY.

Farmers' Dinners.

MY DEAR NEICES,—There is no season in the year which requires more of our attention and labor than the present. We have to prepare good substantial meals for our men who have to labor so hard in the hot harvest fields. They should be unstinted in quantity and in reasonable variety. No meal should be considered complete without fruits. Laboring men are prone to consider them more as matters of taste and ornament than of use or nutriment. Often, in our ordinary eating, they are the one most important item lacking, and needed to keep the system in easy working order. I know it is not an easy matter to have fruits in much variety in early summer, unless we can draw on the last year's supply. The latter, however, we ought to be able to do, and now is the time to make the desired arrangements for another season. Stewed dried fruits can be used all the spring and early summer, and if carefully prepared are very nice. There is such an abundance of fruit this year that we should endeavor to preserve an ample supply. The cost of sugar is so trifling, and by adding a quarter of a pound of sugar to a pound of fruit, it will only require twenty-five pounds to every hundred pounds of fruit, and how enjoyable it is to have plenty in the early spring. Stewed dried cherries and berries, etc., make an agreeable change when other fruits are not so plentiful.

MY DEAR MINNIE MAY,—We are just as busy as we can be putting away our fruit for another year. We have made some raspberry vinegar and some black walnut pickles from the recipes you gave us, and am much pleased with them; the pickles will improve with age. I should like some of your neices to give a recipe for making grape wine. Will enclose a recipe for making Tapioca Blanc Mange and Floating Island, which looks so tempting on the table. Ever your niece,

H. I. WARREN.

TAPIOCA BLANC MANGE.

Half a pound of tapioca soaked for an hour in a pint of milk, and boiled till tender; sweeten to taste, and put it into a mould. When cold turn it out and serve in a dish with strawberry jam around it and a little cream.

FINE FLOATING ISLAND.

The juice of two lemons, the whites of two eggs, three tablespoonfuls of currant jelly and twenty medium-sized lumps of sugar; mix and beat these to a stiff froth. Put it into the middle of the dish and dress with sweetmeats; just before it is to be served pour cream enough in the dish to float it.

H. I. WARREN.

DEAR MINNIE MAY,—I was much pleased with the useful hints you gave about cooking green peas and potatoes in July No. Have followed your directions, and am happy to say my cooking has been much improved. I take much pleasure in offering our recipes for pickling red cabbage and onions, and hope they may be of some benefit to some of your young neices. From your niece,

A. E. PRICE.

TO PICKLE RED CABBAGE.

Choose a medium sized fresh red cabbage; tear off the coarse outer leaves; quarter it; remove the stalk; cut the cabbage into slices of about the third of an inch in thickness; place in a bowl; stew amongst it two good handfuls of salt; let the whole stand for twenty-four hours, stirring it once or twice; drain it as dry as possible; place it loosely in wide-mouthed jars, and fill up with strong raw vinegar, adding pepper corns, capscums, pieces of ginger or what other spice you may fancy. By adding a few slices of beet root amongst it will make it a beautiful color, besides being a nice addition to the pickles.

SMALL ONION PICKLES.

Small onions, not larger than marbles, must be carefully peeled and thrown into strong brine. Let them remain eight days, changing the brine every other day. Dry in a cloth, place them in bottles, add spices, and fill up with strong distilled vinegar. A tablespoonful of olive oil will prevent the onions from turning yellow. Mustard seed, horseradish, allspice, cloves, black pepper corns and mace are all excellent spices for onions.

FRENCH CUSTARD.

Take one quart of milk, flavor it with the peel of about half a lemon pared very thin, sweeten to taste with white sugar. Boil it and leave it to get quite cold; then blend with it three desert spoonfuls of fine flour and two eggs well beaten. Simmer it until it is proper thickness, stirring it in the whole time. Pour into cups or a custard-dish.

TOMATO CATSUP.

Boil one bushel of ripe tomatoes until perfectly soft, squeeze them through a fine wire sieve; add half a gallon of vinegar, one pint and a half of salt, two ounces of cloves, a quarter of a pound of allspice, two ounces of Cayenne pepper, three teaspoonfuls of black pepper, five heads of garlic, skinned and separated. Mix together and boil three hours. It should reduce to one half. Bottle without straining.

Contributed recipes from our neices, for which we thank them all.

Our niece "House Girl" sends us the following excellent recipe for

CLEANSING FLUID.

I have used it to wash alpaca, camel's hair and other woolen goods, and find it invaluable for removing marks that little hands have made on furniture, carpets, rugs, etc.—4 ounces ammonia, 4 ounces Castile soap, 2 ounces alcohol, 2 ounces glycerine, 2 ounces ether. Cut the soap fine; dissolve in a quart of water, over the fire; add 4 quarts of water. When nearly cold add the other ingredients. This will make nearly eight quarts, and will cost about 75 cents to make it. It must be put in a bottle and stopped tight, and will keep good any length of time. When I wash dress goods I take a pail of luke warm water, and put in about a teacupful of the fluid, shake well around in this suds, then rinse in plenty of clean water, and iron on the wrong side while damp. For washing grease from coat collars, etc., I merely take a little of the fluid in a cup of warm water—apply with a clean rag. It will make everything woolen look bright and fresh.

TO BOIL CAULIFLOWER.

Soak the head two hours in salt water and cook until tender in milk and water; drain and serve whole with drawn butter.

STOVE POLISH.

By placing a piece of camphor, about the size of a hickory nut, in the stove blacking the blacking will adhere through the heat.

HOW TO CLEAN A TEA OR COFFEE POT.

If the inside of your tea or coffee pot is black from long use, fill it with water, throw in a piece of hard soap, set on the stove and let boil from half an hour to an hour. It will clean as bright as a new dollar and costs no work.

CARBOLIC ACID AND HOUSE PLANTS.

Several of my nice geraniums began to look sickly, and, upon examination, I found little worms at the roots. I applied a solution of weak carbolic acid quite freely to the earth, and found it restored the plants to health and beauty in a very short time. It will also kill lice upon the stalks, if applied with a swab or feather to the plants, without injuring the foliage.

EAR ACHE.

There is scarcely any ache to which children are subject so bad to bear and difficult to cure as the ear ache. But there is a remedy never known to fail. Take a bit of cotton batting, put upon it a pinch of black pepper, gather it up and tie it, dip in sweet oil, and insert it into the ear. Put a flannel bandage over the head to keep it warm. It will give immediate relief.

ELDERBERRY WINE.

Gather the berries ripe and dry; pick them, bruise them with your hand and strain them. Set the liquid by in glazed earthen vessels for twelve hours to settle; put to every pint of juice a pint and a half of water, and to every gallon of this liquid three pounds of good moist sugar. Set in a kettle over the fire, and when it is ready to boil, clarify it with the whites or four eggs. Let it boil one hour, and when it is cold mash it with strong ale yeast and turn it, filling up the vessel from time to time with the same liquor, saved on purpose, as it sinks by mashing. In a month's time, if the vessel holds about eight gallons, it will be fine and fit to bottle, and after bottling will be fit to drink in twelve months.

CURRANT JELLY.

To make the nicest jelly, bruise the currants when just ripe; drain the juice from them without pressing; weigh a pound of sugar to each pint of juice; boil the juice and skim well; then throw in the dry sugar; boil ten to fifteen minutes. Another way:—Strip the currants off the stems and bruise them thoroughly; put them on the fire to heat, and when at a boiling heat strain them; to a pint of the juice allow a pound of loaf sugar; put the juice on the fire, and when it boils add the sugar. When it begins to boil again, let it boil just fifteen minutes.

OIL FOR SHOES.

Take a piece of old India rubber, set fire to it and let the melted rubber drop into a pot of tallow. Rub this mixture on the boots and shoes, and it will effectually turn the water and keep the feet dry, with no injury to the leather.

MUSTARD PICKLES.

One hundred small cucumbers, two quarts of silver skinned onions, two quarts of French beans, two cauliflowers, one pint nasturtiums, one dozen small red peppers; salt each of these ingredients separately twenty-four hours; then scald them well with vinegar separately and throw the vinegar away; then take one-half pound of ground mustard, beat it smooth with a little vinegar, add two quarts of vinegar (bring your vinegar to boil before adding the mustard); pack your pickles in bottles and fill up with the vinegar and mustard.

CLEANSING BLANKETS.

It is quite as important to have the blankets on our beds clean as to have the sheets pure and white. Put two large tablespoonfuls of borax and a pint bowl of soap suds into a tub of cold water. When dissolved, put in a pair of blankets, and let them remain over night. Next day rub and drain them out, and rinse thoroughly in two waters, and hang them out to dry. Do not wring them.

But this is not the only domestic use to which borax may be put. Borax is the best cockroach exterminator yet discovered. This troublesome insect has a peculiar aversion to it, and will never return where it has once been scattered. As the salt is perfectly harmless to human beings, it is much to be preferred for this purpose to the poisonous substances commonly used. For cleansing the hair nothing is better than a solution of borax water. Wash afterwards with pure water, if it leaves the hair to stiff. Borax dissolved in water is also an excellent dentifrice or tooth-wash.

Prof

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Poultry Yard.

Profits of Hens and Turkeys.

This account is given us by a woman who kept poultry under difficulties during the past season, living upon small rented premises without crops, and purchasing the food for all. The experiment began the latter part of April and ended the first of December. The account stands as follows:—

14 hens at 60 cents.....	\$ 8.40
5 turkeys at \$1.....	5.00
Cost of feed for hens, chickens and turkeys for 30 weeks.....	36.00
Total.....	\$49.40
By 100 dozen hen's eggs sold.....	\$22.00
By turkey's eggs sold.....	1.20
By 33 turkeys, young and old, sold.....	28.00
By 75 chickens and hens sold.....	24.97
By 41 pullets on hand.....	20.50
Total.....	\$96.67
Profit.....	\$47.27

This is a very good showing on this number. What better can be done with any other stock? The profit is more than is generally made on that number of sheep. If two dollars can be made upon each hen and turkey when kept for their ordinary product of eggs and chickens, to be sold upon the market, why should not every farmer keep at least fifty, and take good care of them, as the most profitable stock upon the farm?—*Nat. Live Stock Journal.*

"Scaly Legs."

The unsightly affection known as "scaly legs," that so disfigures fowls (and in the show room often prevents their winning) need never be seen to any extent in the poultry runs, if the disease is taken in hand seasonably.

It is quite easily cured in this incipient stage; and breeders should always be on the lookout for this, as they should be for roup, drooping, or other irregular conditions which their fowls are more or less liable to, from time to time.

This is in character, parasitical also. The "scales" are occasioned by myriads of small insects, invisible to the naked eye, but clearly made out by the use of the microscope. They huddle in scales, or whitish-grey blotches, at first, upon the shanks of fowls; and if not removed or destroyed early, will increase very rapidly until they form in wartish lumps like the carbuncle on the neck of the turkey cock in appearance, but of a hornier and rougher substance, which terminates in lumps or white sores like aggregations of salt rheum.

To cure this at any stage—although, as we stated, it may be controlled best when the flat scales first begin to form—wash the leg in whole-oil soap, and then apply a coat of powdered sulphur, mixed with lard, to the whole affected surface of the limb. Follow this up three days in succession, and then bathe the shanks with a bit of sponge or flannel dipped in common kerosene or spirits of turpentine.

This will destroy the insects and remove the dead shell of the vermin effectually.

Fancy Fowls.

Fannie Field, in the *Ohio Farmer*, says:—

And now a word about buying "fancy fowls." Get the best every time; it don't pay to get cheap stock—it is the dearest in the end. I know, for I tried it on several different occasions. Once I paid a dollar and a half for a setting of Light Brahma eggs, and they were the dearest eggs that I ever bought. Five of them hatched, two of them were as black as the ace of spades, and of the remaining three there was not one first-class chicken. I sold the whole lot for five cents a pound, live weight, and was glad to get rid of them at that price. At another time I sent some money to a man who advertised "high-class," Dark Brahmas for sale at four dollars a trio. Dark Brahmas they might have been, but they were certainly "poor relations." Early one morning I stole out to the henery with my "little hatchet," and we had a Brahma pie for dinner.

I was reckless by that time, and the next day deliberately sent \$15 to an eminent poultry breeder for a pair of Light Brahmas. I got them, too, and they were beauties. Since then I have paid high prices for good fowls, and have never regretted it.

Poultry breeders who have any reputation to lose cannot afford to send out inferior fowls or eggs, and they cannot afford to sell good stock for half price.

Pekin Ducks.

This breed of ducks, which appears to be fast coming into public favor, were imported by Mr. J. E. Palmer, in March, 1873, from Shanghai. They grow very large and heavy, and Mr. Palmer mentions that he took them for geese when he first saw them among some white China geese. Mr. P. says one of the imported ducks laid 133 eggs the first season and 201 eggs the second—from which it appears they are good layers as well as good feeders. In 1875 he imported four drakes and six ducks more. There seems to be little difficulty in feeding them to a weight of eleven pounds.

Doctoring Turkeys.

A lady who is very successful in raising poultry, says, when the wings of her little turkeys begin to lop down, and they look sick and weak, she pulls out the longest feathers on each wing, and they are all right and smart in a few hours. She very seldom loses any, and she has tried it for years. I have never tried it myself, but shall this year. If it is so, it is worth knowing and practicing.

ONTARIO POULTRY SOCIETY.—A meeting of the Executive Committee of the Ontario Poultry Society was held at the office of the Secretary, in the town of Galt, last week. The President, Mr. D. Allen, occupied the chair. Arrangements were fully made for sending 200 pairs of picked fowl to the Centennial, which will be shown at the Provincial Exhibition to be held in Hamilton in September. These fowls will be taken to the Centennial in charge of the President and Mr. Sturdy, of Guelph.

Read advertisement of Agricultural College in this issue.

Patrons of Husbandry.

New Granges.

515, Prospect Hill—Allan Flack, M., Cremare; Wm. Millie, S., Cremare. 516, Warkworth—Thos. B. Carlow, M., Warkworth; D. Ewing, S., Dartford. 517, Wingham—Peter Deans, M., Wingham; R. A. Graham, S., Wingham. 518, Big Bay Point—S. L. Soules, M., Barrie; Wm. Metcalfe, S., Palmwick. 519, South Monaghan—Wm. Adams, M., Bensfort; James Wood, S., Bensfort. 520, Morning Star—Thos. Johnson, M., Peterborough; Wm. Irwin, S., Peterborough. 521, Hilton—C. S. Becker, M., Hilton; S. R. Thorne, S., Hilton. 522, Willow—Wm. H. Kent, M., Medonte; Wm. Murray, S., Medonte. 523, Rothsay—H. H. Eaton, M., Truro, N. S.; Jno. S. Miller, S., Truro, N. S. 524, Vachell—Wm. Henry, M., Georgiana; R. A. Riddle, S., Vachell. 525, Bee Hive—Robert Murray, M., Blantyre; Donald Robertson, S., Blantyre. 526, Eden Grove—James McBeath, M., Eden Grove; Wm. Atkins, S., Ellingowan.

DIVISION ORANGE.

31, York—Charles McGibbon, M., Douglas, N. B.; J. H. Murch, S., Bear Island, N. B.

To the Editor of the *Farmer's Advocate*.

Will you kindly insert a few ideas of my own with the following extract:—

"The Grangers have been gradually pushing their organization to the front, and are becoming in some localities very numerous. Of course every man who desires to be a Granger can be one if he complies with the rules of the Order. The country is free, and even the country store-keeper should not object to any portion of the community 'playing at storekeeping.'

"To us there appears to be a suitability in everything, and it strikes us there would be as much fitness in a number of merchants going into the harvest field—where they would make a very poor figure, and where they would do a very poor day's work—as there is in a number of farmers becoming merchants, and we think the results will not be much more profitable.

"If farmers will become their own merchants, whether through an order of Grangers, or any other order, it strikes us that to make success certain their first step should be to pay up in full the country merchant; besides the old motto, 'Live and Let Live,' ought not to be forgotten. The day was when the farmer was glad to avail himself of the facilities which the merchant granted him for the payment of his supplies; there are whole districts where, but for the help thus afforded by the country, the settlement of the country would have been simply impossible, and although it may be convenient for the farmer to forget this, the fact

nevertheless remains. No one class in our country can do without the other; the one is dependent upon the other for its comfort, its success, and its enjoyment, and wherever the legitimate field of the one class is invaded by the other, it can only be done by exchanging confidence for selfishness, and a narrower and more contracted for a broader and more generous policy, which, if pushed to its extremity, would result in every man being his own physician, his own lawyer; and his own banker."

The above extract is from the semi-annual circular of Messrs. Jno. McDonald & Co., of Toronto, and from the standing of the firm, their well-known high character, and their great success in business without the aid of commercial travellers, their opinion is well worthy of consideration.

The question presents itself:—Can a farmer profitably divide his care, means, and attention, between farming and mercantile business? Can a farmer confide his interests as safely to farmer-directors of manufacturing companies, Granges' stores, &c., as to men in established lines of trade, born and bred to it, and of established character?

Our advice to farmer or Granger is: buy for cash as you sell for cash, buy in the cheapest market, and in as large quantity as can safely be utilized.

Be a farmer, and cultivate a small farm well and thoroughly.

Be a Granger for the benefit of mutual instruction, mutual counsel, protection, and to have individual ideas made strong and felt by the voice of numbers.

Let every Grange have a library, their essays, lectures and discussions, their annual picnic, their socials in the winter, and if necessary have the Grange assist the unfortunate as well as the enterprising.

Let the farmer either farm or keep store, the union of the two will surely bring loss to many, though it may accidentally enrich a brother Granger.

Labor for the greatest good for the greatest number.
Yours obliged, A. M. Westminster.

Dominion Grange will meet in Toronto, commencing Tuesday, Oct. 3rd, at 2 p. m.

Next meeting of Executive Committee, Tuesday, September 5th, Toronto.

The Grangers of Canada are making arrangements whereby they may visit Philadelphia at reduced rates. The details have not yet been decided on, but the tickets will be good for six weeks from the 20th of August.

The Peach Crop.

The loss of the peach crop in the south and west is a serious matter. There has never been so general and complete a failure. Many hundreds of thousands of dollars worth of peaches were cut off by the spring frosts. It is a serious blow indeed to the growers of peaches. Peach growing has not been very profitable for several years—but to lose the crop entirely is quite a different thing. The crop in some parts of Delaware is quite good, and we in the west will have to depend mainly on peaches from that State. They will be sent here by the car load—the shippers chartering cars for the purpose.

Carbolic Acid for Lice.

George Peterson is informed that carbolic acid may be mixed with water in the proportion of one part to one hundred parts, and liberally applied to the skin. The dark-colored, impure acid is preferable to the pure specimen, some of the allied products being more destructive to the parasites than the genuine carbolic acid. The addition of a little tobacco liquor will make the mixture even more efficient.

Free Grant Lands, Thunder Bay.

Mr. L. Jones, of Markham, who sent us some communications this spring concerning the free grant lands in the Thunder Bay district, writes us that, after the 10th of August, his address will be Prince Arthur's Landing, Thunder Bay, and that he will be pleased to answer all enquiries regarding settlement, clearing land, &c.

Stock Notes.

Canada West Farm Stock Association.

The first meeting of the stockholders of this company was held on Monday in Toronto, to organize the association. The Hon. David Christie, Speaker of the Canadian Senate, was in the chair, and James Maclellan, Esq., Q. C., acted as secretary. The *Globe* says:—The purposes for which the association has been organized are described in the charter to be "The Breeding, Buying and Selling Horses, Cattle Sheep, Hogs, and other Farm Stock and Produce," and "the acquiring, holding, working, alienating and conveying any real estate requisite for the carrying on of the undertakings of such Company."

As a first step towards these ends, an arrangement was concluded with the Hon. George Brown, by which the fine estate and short-horn herd of Bow Park became merged in the Association—Mr. B. retaining one-half interest in it.

The working capital of the company is \$500,000—nearly all of which has been placed, and over \$350,000 has already been paid up.

The Board of Directors for the first year is to be constituted as follows:—Hon. George Brown, Toronto, President; Hon. David Christie, Paris, Ont.; Major George Greig, Toronto; John Y. Reid, Esq., Toronto, Treasurer; George Fox, Esq., of Elmhurst, Lichfield, England; Thomas Nelson, Esq., of St. Leonard's Edinburgh; Hugh Rose, Esq., sr., Leith; Wm. John Menies, Esq., W. S., Edinburgh, Manager of the Scottish-American Investment Co.; John Clay, Esq., sr., Kercheesters, near Kelso.

The Secretary of the Association in Great Britain is Arthur Gremell, Esq., Queen's Terrace, Windsor.

The Bankers of the Association in Britain are the National Bank of Scotland.

Mr. John S. Armstrong, of Cranberry Farm, informs us that he has arrived with another choice lot of Short-Horns from Great Britain, purchased from the herds of Messrs. Marr, Cruickshank, and White.

One roan cow, Helen 11th, 4 years old, got by Heir of Englishman (24122), tracing back to 2nd Duke of Northumberland (3646), and Diamond (205).

One roan cow, Mary Ann 10th, 3 years old. A very fine beast, deep and heavy front quarters, and has carried off first prizes at large shows in Scotland, and was being prepared for the Highland Society's Show, to be held at Aberdeen, when purchased. She is got by Heir of Englishman (24122), who is too well known to need any further remarks.

One roan heifer, Missie 46th, 2 years old, a splendid animal, got by Young Englishman (31113), a son of Heir of Englishman (24122), and tracing back through the Missie tribe, which is well known in Canada.

One red heifer, 1 year old, of the Raspberry tribe, and got by Young Englishman (31113), of dam Heir of Englishman (24122), a straight, even beast.

Also, one roan bull, 4 months old, out of Ellen 11th, and got by Royal Prince (35398); Royal Prince (35398) was got by the famous bull K. C. B. (26492), a Booth bull, bred by Mr. J. Booth, Killybeg, and the sire of a great many prize taking animals.

The above animals were purchased from Mr. Sm. S. Marr, Upper Mill, Aberdeenshire, at a high price.

One red yearling heifer, of the Lovely tribe, and got by Millionaire (31917), tracing back through the Lovely's to the White Cow by Acton (1607). She was purchased at Mr. Cruickshank's sale, at Sittyson.

One red yearling heifer, purchased at Mr. White's sale at Clinterty.

The above animals landed at Quebec on the 23rd of June, after a passage of fourteen days; there is not a scratch on one of them except that the two-year-old heifer lost her calf two days before landing at Quebec.

Mr. W. Brown, Professor of Agriculture at the Ontario School of Agriculture, is now on his way to Europe to purchase cattle, sheep and swine for the Government. The Agricultural College advertisement will be seen in another part of this journal.

Short-Horn Association of Great Britain.

At the last meeting of the above society, held at their rooms, Hanover Square, London, England, on the 4th ult., the Duke of Devonshire, K. G., in the chair, the following well known Short-Horn breeders of America were elected members thereof: Simon Beattie, Toronto, Ontario; John Craig, Barnhamthorpe, Ontario; Major-General Curtis, Ogdensburg, New York; Richard Gibson, London, Ontario; John Hope, Markham, Ontario; William M. Miller, Pickering, Ontario; Chas. F. Wadsworth, Genesco, New York.

Farmers' Enemies.

THE ARMY WORM IN NEW BRUNSWICK.

"The train on the Fredericton Railway was completely stopped the other day by army worms." So the New Brunswick *Reporter* informs us. Small as these worms are, their numbers give them collectively a great power, so that they hinder the progress of any machine. The men on the line were forced to scrape the rails and cover them with sand before the train could proceed.

In New Brunswick as well as Ontario they have learned what heavy losses are incurred by the wanton destruction of birds. They say truly the prevalence of caterpillars and other destructive insects is caused by the scarcity of birds, and are calling for stringent laws to protect the birds from being shot and stoned by boys. In addition to this wanton and cruel destruction by boys, children, it is said, are in the habit of scouring the country for bird's nests, in order to secure a variety of eggs, and one lady boasts that she has already about one hundred eggs. This mania for eggs should, they demand, be stamped out.

GRASSHOPPERS IN ONTARIO.

A correspondent from Perth informs us the grasshoppers in Drummond are making a clean sweep of it. They are not confining their ravages to that locality. We have reports from other places in the Province to the same effect. In Simcoe they are said to be destroying the crops, having made their appearance in innumerable hordes in Windham and Townsend to the west of Bloomsburg. The farmers are apprehensive that their spring grain, vegetables and roots will be utterly destroyed. We hope it is only a flying visit they are paying on their way to some of their favorite haunts. A few days since the air was filled with them, when they appeared to be travelling southward.

THE CATERPILLAR.

In parts of Nova Scotia the orchards are suffering from the ravages of the caterpillar. The *Monitor*, Bridetown, tells us of an orchard, the largest in the county, in which some hundreds of the trees are entirely stripped of the foliage, and it seems likely that the remaining trees will also suffer. This orchard that a few weeks ago was covered with rich blossoms, giving promise of an abundant harvest of fruit, is now bare and barren, as if scorched by the deadly blasts of the Sahara. Two years since we had some choice English cherry trees robbed of their foliage in like manner in a few hours, and the trees never recovered.

Correspondence.

THE POTATO BEETLE.—You are well aware what farmers are and how they are crowded in this season of the year. I often wish you had an agent in this part of the country. You often wish farmers to send in something of their experience for the *ADVOCATE*. I will now give you a little of mine with respect to potato bugs—the best and safest way to destroy them:—I have a very fine show of potatoes of the Early and Late Rose kind planted in my orchard, near the house. My wife being very fond of the feathered tribe, we always manage to have large families of chickens. We give them the privilege of promenading up and down through the rows, and at times carry a little grain to the far end to entice them (the chickens). The result is no bugs. Two days ago I went to the far end, and

in one corner I discovered some bugs on a few stalks. We omitted for some few days feeding them there, and, as a consequence, they did not go that far. On the discovery of the bugs, my wife resumed the old practice: took them again yonder, and it was laughable to see them go in for the bugs. I have no bugs. My neighbors on the right and left complain of their being very thick, and some have used Paris green.

J. W.
Bondhead P. O., July 14, 1876.

P. S.—I would say this is the second year on the same patch.

J. W.
[When the potato beetle first invaded our country, we made trial of training poultry among our potatoes, but they would not touch the vermin, though it seems our correspondent's fowl are not so fastidious. Poultry are, however, well known as very useful aids in reducing the numbers of vermin that, of late more than heretofore, have been preying on every plant and tree that grows. They are useful in the vegetable garden as well as in the fruit garden, but their habit of scratching makes it doubtful if their destruction of vermin would not at most times be more than counterbalanced by the harm than they do. We have always preferred ducks in our garden. They keep it free from slugs and other vermin, and cannot scratch our garden beds.]

THE CROPS IN HESPELER.—The Scott wheat looks well, it is not so badly rusted as the Soules and Treadwell. Some fields here are very badly rusted. We have one field of Scott wheat now nearly ready to cut. The Clawson is very heavy; we sowed only 45 lbs., could not get more than for seed.

G. A. CONNELL.

Hespeler, July 12th.

Commercial.

Mr. H. Kains Jackson, in a review of the condition of the grain trade, written July 3, does not indulge in any great expectation of very high prices for breadstuffs the season just opening. Taking the entire wheat-growing countries as a whole, the prospect is not one of abundance. In England the crops cannot fail to be thin and the harvest late, but thunder showers have swept over the country, doing much good to all crops; and, with a continuance of hot weather, the grain will be good, though the yield may be under the average. Mr. J. says, speaking of the great agricultural belt of Eastern England:—"The wheat blooming has begun, and passed through favorably. Such a fortnight as the last has been of the greatest importance to the country. The season will have bestowed on the people in Western Europe some millions of quarters—probably 2,000,000 to 5,000,000 quarters more grain than they would have measured had the weather been boisterous and cold."

We know that the abundance or scarcity depends not wholly in the bulk of the yield. The quality is not of less importance, and so far the prospects are that the quality of English will be excellent. The *Farmer*, Eng., says: "The quality of the year's crop, with a fine harvest, will be excellent, but this will hardly compensate the deficient yield which is new more than probable."

LIVERPOOL MARKETS.

Liverpool, July 25.—Breadstuffs, market, steady. Corn, 25s to 25s 6d per quarter for new mixed western. Wheat, 3s 4d to 3s 10d per cwt for California club. Lard, 49s per cwt.

CHICAGO MARKETS.

Chicago, July 25.—Flour dull. Wheat active and higher; No. 2, Chicago spring, 91c for spot; 9c for August; 94c for September; No. 3 Chicago spring, 89c; rejected, 83c to 84c. Corn in fair demand and higher; No. 2, 45c for spot, 4 for August; 45c for September; rejected, 39c. Oats moderately active and higher; No. 2 at 29 for spot or September. Rye steady and unchanged. Barley steady and unchanged. Pork firmer and not quotably higher, at \$18.55 for spot \$18.65 to \$18.67 for September. Lard steady and in fair demand, at \$10.85 for spot; \$10.95 to \$10.97 for September. Bulk meats quiet and unchanged. Whiskey firm and unchanged.

NEW YORK MARKETS.

New York, July 25.—80c to 84c for No. 3 Chicago; 83c to 85c for No. 2 Milwaukee; 90c to 93c for No. 2 Chicago; 90c to \$1.00 for No. 2 Milwaukee; \$1.10 to \$1.17 for No. 1 spring; 65c to 95c for winter red western. Barley nominal. Oats, 26c to 41 cents for mixed western and State; 37c to 45c for white do. Pork heavy, at \$19.75 for new mess. Lard dull, at \$11.25 for choice steam. Butter, 5c to 26c for new state and Pennsylvania. Petroleum, crude, 9c; refined, 17c.

INGERSOLL CHEESE MARKET.

Ingersoll, July 25.—At the cheese market over 70 factories were represented, but only 24 factories were registered. The offerings were 71 boxes, and 555 boxes were sold; 1,065 boxes at 8c, and 60 boxes at 8c; 8c was the top price for choice. The market was very dull.

LONDON, ONT., MARKETS.

Deild wheat, \$1.65 to \$1.70; Treadwell wheat, \$1.60 to \$1.70; Spring wheat, \$1.60 to \$1.65; Barley, \$1.00 to \$1.05; Peas, \$1.05 to \$1.13; Oats, 85c to 93c; Corn, \$1.10 to \$1.15; Buckwheat, 90c to \$1.00; Rye, \$1.00; Hay, 90 to \$1.00 per ton.



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