

JAN., 1886

ESSES.
customer
ing the one
at suit
Best.
Albanv
EGE
LLEGE
ONT.

rganized and
an of teachers
pals of similar
most thorough
For full in-

V. B.A.
Hstock College.

R SALE.

lots 10 and 11
er. Co. Kent;
fine neighbour-

con., Chatham;
school on same
Chatham.
14 miles from
er cash, balance

ham Township.
Price \$5,000

OT,
ATHAM, Ont.

E & CO.
Montreal,

SPRINGS.
ON HAND.

an Company

io.

Co. Middlesex.
Y. Co. Treasurer

\$600,000
575,000
61,000
1,339,000

for two or more
bearing interest
half-yearly by

re authorized by
Company.

ROK Manager.

ry College
TORONTO.

ry Institution in
bers. Fees, fifty
begins Oct. 21st.
MITH, V. S., Edin.,
27-y

ENGRAVING CO
IGDEN
BEALE
KING ST W
TORONTO

FARMER'S ADVOCATE

AND HOME MAGAZINE

FOUNDED 1866.

VOL. XXI.

LONDON, ONT., FEBRUARY, 1886.

Whole No. 242.

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875.

THE FARMER'S ADVOCATE —AND— HOME MAGAZINE.

WILLIAM WELD, EDITOR AND PROPRIETOR.

The Leading Agricultural Journal Published in the Dominion.

The FARMER'S ADVOCATE is published on or about the 1st of each month. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for farmers, dairymen, gardeners or stockmen, of any publication in Canada.

TERMS OF SUBSCRIPTION

1. \$1.00 per year in advance; \$1.25 if in arrears. Single copies 10 cents each.
2. Subscriptions can commence with any month.
3. Remittances at the risk of the subscriber unless made by registered letter or money order.
4. Subscribers who desire to change their P. O. address must send us both old and new address.
5. The FARMER'S ADVOCATE is continued until otherwise ordered. The name of the subscriber is taken off the list with the same promptitude in all cases that it is put on, provided all arrears are paid up, but we cannot stop a paper unless the name of the Post Office, as well as that of the subscriber, is sent to us.
6. The address label shows when your subscription expires.

ADVERTISING RATES:

Single insertion, 25 cents per line. Rates for contract advertisements furnished on application, and manufacturers, seedsmen, stock breeders and others will find this journal an unrivalled advertising medium. No advertisement inserted for less than \$1.00 cash. Terms for Breeders' Cards at head of column. The FARMER'S ADVOCATE has the largest circulation among the best people in Canada. Its advertisements are reliable and are read.

Address—
THE FARMER'S ADVOCATE,
360 Richmond Street,
LONDON ONT., CANADA.

Our Monthly Prize Essays.

Our prize of \$5.00 for the best original essay on *The Agricultural and Social Elevation of the Farmers*, has been awarded to C. H. Eastlake, Ridgeway, Ont. The essay appears in this issue.

A prize of \$5 will be given for the best original essay on *Clovers and Grasses*. Essays to be handed in not later than Feb. 15th.

CONDITIONS OF COMPETITION.

- 1.—No award will be made unless one essay at least comes up to the standard for publication.
- 2.—It is not necessary for essayists to agree with our policy, so long as they give sound reasons for differing from us.
- 3.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.
- 4.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, the sum being decided by ourselves in each case, and the essay will appear in the same or in a succeeding issue.

Your Address Label.

Examine your address label and if your subscription has expired, please renew at once.

Do not expect your label to be changed on next paper unless we receive your remittance before the 25th of the month. Your label is your receipt. If it is not changed, notify us at once. Send cash either by registered letter or money order.

When remitting always give the same name as on label; otherwise two papers may be sent to the same family; be sure to give the same post office as that at which you receive your paper.

Editorial.

Libel.

Farmers, under the existing libel law we are prevented from protecting you from the numerous frauds and traps that are set to catch your hard-earned money, or even your farms. Hundreds, perhaps thousands, of you are swindled every year; many a farmer has lost his farm on account of the existing law. We have known of hundreds of smooth-tongued, plausible talkers, that have been carrying on swindling operations and offering alluring inducements to obtain farmers' signatures under the most deceptive temptations. Even monetary establishments have existed, and we believe now exist, in which farmers place their hard earnings with the expectancy of realizing a competency for themselves in old age, or for their families after their decease. Should we mention a name, or a business, or a location, or even the mode of operation, as a guide to you, we would be liable to have an action brought against us by the perhaps penniless or unscrupulous person, and be liable to pay costs, although our statements may be true and we may be able to prove them. We have had experience in this matter. We exposed a discrepancy of an official; an action was entered against us; we were obliged to engage a lawyer, put in our defence and pay the costs, because the plaintiff never appeared. He cleared out; had he continued the case we should have gained it if we could have depended on having fair play. Had we gained we should have been obliged to pay all our costs, perhaps more. We are pleased to receive a circular from the Canadian Press Association in regard to this subject, as they are about applying to the Legislature for an alteration in this act. In this they may do a work that may tend to the protection of many honorable men in our country, and the exposure and condemnation of the fraudulent. We would suggest the change that no editor be prosecuted for publishing truth, either by criminal or civil proceedings, and some security for costs be obtainable, so as to protect publishers from actions by parties who having no property judgments of the court for costs are of no avail and exercise no restraint on them.

Several valuable cows died in North Atchison, Kan., on account of eating the refuse—tomato and pumpkin seeds, sweet potato parings, etc.—thrown out from the vegetable canning establishment.

On the Wing.

I was present at the annual meeting of the East Middlesex Agricultural Society, held in London. There were present many of the old substantial farmers, who had conducted the Western Fair since its inception, and had given their aid to it until it had earned the reputation of being the best really agricultural exhibition on this continent. The election was conducted in such a manner that it should cause farmers in all parts to be on their guard, and, in fact, should invoke the attention of legislators. The voting was conducted by the show of tickets held up; these tickets were placed in the hands of many individuals who never had taken an interest in the exhibition, one person alone purchasing 100 tickets in this manner. Farmers consider that their interest has been sacrificed for years past. The first vote showed the result. One lawyer nominated a lawyer and another citizen as auditors; a farmer nominated one citizen and one farmer; another farmer nominated two farmers. One person gave the word, "All up!"—the citizens were elected and the farmers rejected. record this as a duty, and to show you the necessity of farmers being more united. The old farmers opposed the disposal of the grounds; they still have the power of retaining the remaining half, and are desirous of so doing until the promised new grounds are handed over to their control. It is believed that the object of purchasing the vote is to elect a sufficient number of persons to enable them to carry a vote to sweep both the money and the land entirely out of the control of the farmers, who have strongly opposed turning the Exhibition into a mountebank arrangement, and the introduction of demoralising influences, to the injury of agriculturists.

I was honored with an invitation to deliver an address at the annual farmers' dinner in Brantford. This we look on as one of the most successful and most important agricultural meetings I have been present at for many years, if ever. It was composed of the leading farmers within 12 miles of the city, and the leading citizens and members of Parliament. The dining hall was so much overcrowded that they contemplate holding their next annual dinner in the drill shed. The inhabitants of this city and county are intending to exert themselves to increase the interest in their annual exhibition.

I wish them every success, and feel satis-

ED. FARMER'S ADVOCATE. SIR—I notice in the August number of *ADVOCATE*, Constitution, By-laws &c., of the "Middlesex Agricultural Council," lately formed. We are endeavoring to form a "Farmer's Club" in this vicinity, but hardly know how to proceed in getting it up. I infer from clause No. 2, Sec. 2, that the Council would aid in the formation of Farmers Clubs. I am therefore instructed by resolution of our last meeting to write to see if we could obtain a Constitution and By-laws suitable for our purpose, and some general information respecting the working up of a "Farmers' Club." Our object seems to be as follows: The combination and co-operation of farmers in the matters of resisting and suppressing evils and abuses imposed on the farming community; the shipping of grain and other produce direct and probably getting supplies direct; also the cultivation of social intercourse and improvement in agriculture, raising stock, etc. As the address of any of the officers of said Council is not given, and as their meetings are held in the *ADVOCATE* Office, I take the liberty to write you on the subject, requesting that you or the Council be pleased to send us something in the shape of a Constitution, By-laws, &c., that we could use to begin with, which no doubt you will be glad to do, and for which I assure you we shall be very thankful. The thought suggests itself to me that something concise could be inserted in the *ADVOCATE* which would also be utilized by other communities.

Yours respectfully,
Goldstone, Ont. W. S. GRACE.

W. A. Macdonald.—As I had the honor of framing the Constitution and By-laws, permit me to state that I adapted them to the special requirements of this Council and not for farmers' clubs generally, but I think that any club could easily change them so as to make them suitable to its requirements. I am in favor of devoting part of our special fund to printing Constitutions and By-laws specially suited to farmers' clubs.

W. Weld.—Allow me to draw your attention to the suggestion made by the Secretary at the time our Constitution and By-laws were adopted. He then suggested the Council should have corresponding honorary members in different parts of the Dominion. Such members might be composed of the secretaries of all the farmers' clubs affiliated with this Council. I believe the greater part of the special fund could be most advantageously used in sending a member of this Council to aid in establishing farmers' clubs in obedience to such communications as we have received from Mr. Grace. Such members should also be prepared to deliver a lecture on any subject decided upon by the club. I do not think it advisable to publish rules and regulations in the *ADVOCATE*, for no two clubs should be founded on exactly the same basis; each club should be guided by local circumstances and conditions.

The further discussion of this question was postponed for deeper deliberation.

The President—I am pleased to see so many members present at our annual meeting, and the increased enthusiasm manifested. We ought to be thankful for the magnificent opportunity we have for doing good to the free and independent farmers of this Dominion, for we can speak to them through such a powerful organ as the *ADVOCATE* and I think we can also aid that journal very materially.

W. Weld.—As editor of the *ADVOCATE*, I want to protest against the remarks of the President. The *ADVOCATE* is not the organ of this Council or any other corporation; but I have promised to sustain you with my influence and my funds, so long as you keep free and independent, and I shall stick to my word. I don't expect that your support will be of any use to me, for I have already the best writers in the different departments of my journal. Before you commence the election of officers, I wish to state that I want to retire from the Vice Presidency as I feel worn out in the cause of agriculture, and don't desire to undertake greater responsibilities. You have other and younger members, highly capable of filling all the offices, but I hope you will retain my name on your roll as a private member of the Council.

The Farm.

Effects of Deep Sowing of Winter Wheat in Underdrained Soils.

A correspondent sends us specimens of his winter wheat, an illustration of which we give herewith, and asks us whether Fig. 1 or Fig. 2 will stand the winter best. This is a very important question, as it embraces many tillage operations, and we gladly give it special prominence. The illustrations are from photographs of the specimens we received, but are one-third smaller in size. A portion of the blades have been cut off in order to save space, but the roots have not been interfered with.

The slender filament in Fig. 1, which lies between the root and the base of the blades, is one and a half inches long in the specimen, or one inch in the illustration, and shows that the seed was sown deep, but how deep we cannot say. The seed which produced Fig. 2 was sown shallow.

It should here be understood that young



FIG. 1.

FIG. 2.

plants derive their food from the seed until such store is exhausted, or at least until the leaves are sufficiently near the surface to receive the light, for the carbonic acid of the atmosphere cannot enter the plant through the leaves in darkness. Fig. 1 had therefore a struggling existence before its leaves were able to reach the light, and the stiffer and wetter the soil the greater the struggle. These facts point out that the depth is largely dependent on the drainage, composition, and physical character of the soil.

In Fig. 1 the roots below the filament are scarcely three inches long, while those in Fig. 2 are five inches, and the roots of the latter are stronger and more numerous, and are therefore in a better condition to obtain nourishment, especially in a drained soil. The roots in Fig. 2 also spread out more widely, which is a fact of very great significance; for the capacity which roots have for obtaining food depends upon the number of particles of soil which come into contact with them; this number again depends upon the fineness of the particles, and the fineness of the particles is governed by the drainage and tillage.

Of primary importance are also the effects of frost. When undrained, a frozen soil expands bodily, and the injury to the crop can mainly

be traced to uneven expansion, causing the roots to break, especially between the frozen and unfrozen soil, should they penetrate to that depth. Now, if the frost level cuts Fig. 1 at any part of the filament, the plant will die, whereas, in Fig. 2, the roots, if cut off at any point, will grow again under favorable conditions, although the vitality of the plant may be greatly weakened. We should therefore prefer a field of wheat with roots like Fig. 2. Numerous experiments have also proved that the philosophy of the thing is correct, for a depth of one to two inches (according to the nature of the soil) has produced the best results.

These facts give rise to another important point, viz., Which is the better, hand or drill sowing? Drill sowing can only be defended on the ground that a proper and uniform depth can always be secured; and hand sowing can be condemned mainly on the ground that the depth is too irregular. The seeds left on the surface must suffer for having too much light and too little moisture, all seeds germinating better in the shade, if not in total darkness, and then there is also the risk of their being devoured by birds. Again, if they are sown too deep, the results will be as above described. The leading objection to drill sowing is that, when the roots are matted too closely together, they cannot be kept sufficiently in contact with the greatest possible number of particles of soil; hence they cannot feed to the best advantage.

There is evidently a fortune in store for the ambitious farmer's boy who will invent a drill which will sow a uniform depth, making the drills say two inches apart and dropping the seeds separately instead of placing so many in contact with each other.

Farm Drainage.

No. VI.

Laying out the Main Drain.—Having taken the level, and ascertained the lowest portion of the field, the first consideration is to get a good outlet, but before this is determined, it may sometimes be necessary to have an idea of the depth of the main as well as of the laterals, for the outlet may be sufficiently free for a shallow drain, whereas the obstructions offered to a deep drain may be a source of annoyance. This leads us to the following consideration:

If the upper layer of the soil to be drained is somewhat stiff, with a more pervious substratum say 4 feet below, it is better to dig shallow drains, placing them closer together, than to cut through the upper stratum, with the drains farther apart. Should the reverse be the case, however, then it is better to have deeper drains at wider intervals. (It should here be remarked that if the upper stratum is more or less retentive, with a porous subsoil say 4 to 8 feet below, then the land should be drained by digging holes into the pervious subsoil, and filling them up with a more pervious soil. The number of these holes will depend upon the retentive character of the upper bed, and the porosity of the pervious stratum. This course often becomes very practicable where springs abound. These determinations can only be made by digging test holes in different parts of the field.)

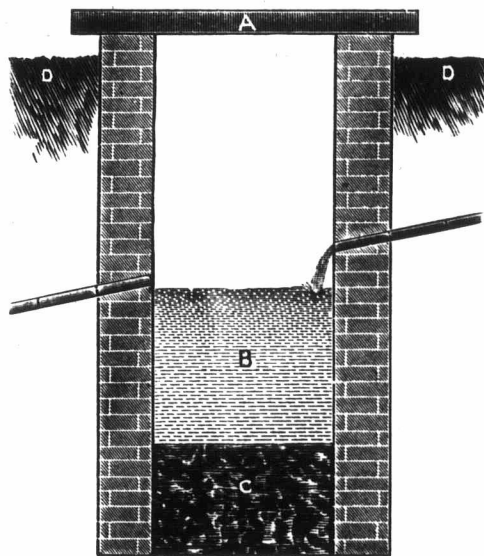
In these views of the situation the depth of the laterals should be ascertained before that of the main; but there are other considerations

which seem to clash with these methods of obtaining the depth. For example, it is said that, in any case, the drain should be deep enough to escape the frosts; but it must not be forgotten that an important object of drainage is to let the frost down as low as the bottom of the drained soil, and no heaving takes place so long as there is no water to be frozen except that contained within the particles of soil. Again it is said that, in any case, the drains should be deep enough to keep the water table below the reach of the roots of the crop. This must also be taken with a good deal of reservation. No soil can be drained deep enough to lower the water table beyond the depth of the roots of some plants, and it is a fortunate coincidence that in retentive soils, where the drains are supposed to be shallow, the plants can obtain as much nutriment in a depth of say two feet as they can in four feet in a porous soil. The more clay a soil has, the more plant food it will retain, providing it does not become impervious. When the soil and subsoil are uniform, the depth is then measured by the extent of their porosity. The practice to be followed in giving direction to the main depends upon many circumstances. There is only one safe rule, viz., that no rule should be followed. It is very important that the main should be so located as to afford the easiest and most desirable access for the greatest number of laterals entering both sides of the main, if possible; but it is also important that it should contain as few angles and bends as possible. Where the fall is considerable, it may sometimes be well to deviate gradually from a straight line, providing the extra length will save more digging than the extra depth of the shortest cut. However, where the fall is slight, follow a straight line if possible, for the fall from any one given point to another is the same whether the line be straight or crooked, although the fall per foot in the straight line is greater, so that the velocity of the flow is greatly retarded in the circuitous route, caused by the curve, the extra friction, and the extra length. Curved lines also require more tile, making the cost of drainage greater. On the other hand, it must be remembered that if, by the short cut, the drain gets too deep, the drainage will be inefficient, more especially if the soil consists largely of clay.

Next in importance comes the length of the main, the principles, for the most part, also applying to the sub-mains or laterals. This brings us to the discussion of the silt basin, a section of which will be seen in the accompanying illustration. It will be observed that we have supposed it to be made of brick, but stone, or durable wood cut into planks, will answer the purpose very well. We have only represented two sides of the four walls in order that the interior working may be seen. You see that the in-flow pipe or tile which penetrates the wall is a few inches higher than the out-flow pipe, the necessity for which will be readily conceived, but we shall allude to the principle involved when speaking of imperfect outlets. The clear water is represented by B, and the sediment or silt by C. The covering, A, whether made of plank or a flat stone, should fit tightly on all sides and corners of the walls to prevent the ingress of frost, which may damage the tile as well as interfere with the flow, always bearing in mind that good drains are intended to work in winter

as well as summer, whether the ground is frozen or not. Where greater security from frost is desired, it is advisable to use hard-burnt tile or piping, instead of ordinary tile, for several feet distant from the silt basin. The surface of the ground is represented at D. D. The size and depth of the silt basin are immaterial, but it is usually made from 12 to 24 inches in diameter, and the depth below the pipe should be such that the basin will not require cleaning out too frequently. The silt may be removed by means of a dipper. It will readily be perceived that the deeper the basin from the out-flow pipe, the cleaner will be the outflowing water, and hence the greater the security of the drain, as well as of the outlet.

The original intention of this basin was merely to gather the silt, and to ascertain, when the drain became plugged up, whether the obstruction was above the basin or below. If a peep be taken into the silt basin and it is found that the inflow pipe is running, the outflow being obstructed, the ascertaining of the obstruction must then be confined to the portion of the



SECTION OF SILT BASIN.

drain lying between the basin and the outlet. From this point of view, (although it is still advisable to construct silt basins in long drains) the basin is for the most part an apology for deficient skill and bad workmanship in the construction of the drain; for if all the operations be properly conducted, and the size of the tile be such that the drain will occasionally run to its full capacity, there will be very little danger of obstruction.

There are other considerations, however, which render the use of silt basins very desirable, and sometimes absolutely necessary. One portion of the main may naturally require a different fall from another, in which case a silt basin will produce an even depth of drain. When the upper portion of the drain has a much greater fall than the portion below the silt basin, see that the latter will discharge the water as rapidly as the former will flood it into the basin, otherwise the water level may remain near the surface too great a length of time, and if the head of the drain is higher than the top of the silt basin, the latter may overflow. The silt basin is specially useful where it is necessary to make sudden curves or sharp angles in the direction of the drain. Indeed, it may sometimes be necessary to lead two or more mains into one silt basin, making only one outlet.

Experiments With Potatoes—Potato Rot—Profits and Losses on Fertilizers.

(A Lecture delivered by W. A. Macdonald before the Middlesex Agricultural Council.)

No 1. 439

Mr. President and fellow-members: At the special request of your Board of Control I have brought with me a tabulated statement of the results of my experiments with potatoes, showing the percentage of gains and losses which I have made on the different manures and fertilizers applied, and their action in relation to the potato rot. I have also made a number of experiments with vegetables and some farm products, but those in relation to potatoes will occupy the limited time at our disposal. I do not claim originality in my system of investigation, for this has been the laborious efforts of half a century, in which the greatest agricultural talents of the age have been employed; but I claim to have the most accurately conducted experiments on the action of various commercial fertilizers upon the potato rot. In one important feature, however, I have moved out of the rut of other investigators, viz., the business calculations, without which I consider experiments to be of little practical value. I do not wish you to regard my experiments as conclusive, for they should be repeated on different soils and in different seasons, but my earnest desire is that they should awaken in you a spirit of investigation which is absolutely necessary to true agricultural progress. In order to effect this result, we must go back to the first principles; all the known conditions must be fully weighed, and it should not be said that a certain course is theoretical simply because it does not at once fall within the bounds of our understanding. If one single condition is omitted from our consideration, the whole experiment may be worse than useless, for it may lead us to adopt false methods. I rejoice that your worthy President is so well read in the science of farming, as well as being one of the oldest and most successful farmers in the County of Middlesex, and I tremble lest he too ardently expose any error that may accidentally fall from my lips.

Last spring, while loitering in the suburbs of London I observed a neglected plot, and being struck with the remarkable evenness of the soil, I resolved upon converting it into an experiment station. Fortunately, the land was for sale, and upon examination of the subsoil, I was strengthened in my conviction as to its adaptability for the purpose mentioned. Upon a mechanical analysis I found that it contained about 60 percent of clay, and it therefore borders on a loam and a clay loam. I ascertained that alternate cropping and neglect had formed the system of rotation for over 30 years, so that I found myself face to face with the task of commencing to restore a worn-out soil. Not being able to get a pedigree of the cropping, I was forced to conduct experiments as to what constituents of plant food the soil was most deficient in. I staked off the third part of an acre, embracing a portion that presented the same aspect to sun and wind. This plot made 33 rows 145 feet long and 3 feet apart, each row therefore being the hundredth part of an acre.

I planted the potatoes on the trench system, digging the ground the depth of the spade (one foot) and two spade-widths. This left a mellow

bottom, which, upon being levelled with the rake, left the trench 4 inches deep. Upon this cushion I placed the potatoes without cutting them, putting them 18 inches apart by exact measurement, and I found that each row used up exactly half a bushel of medium sized potatoes, or 97 in number. The variety used was the Beauty of Hebron, and I selected good, averaged sized seeds specially for the purpose. Of the first 18 rows all received a different kind of fertilizer, except three which I planted at the greatest possible distance apart from each other, using no fertilizer. My object in doing so was to test the uniformity of the soil; and my expectation was fully realized, for each of the three rows produced exactly the same quantity of potatoes. Now I considered it to be quite evident that if I produced more or less bushels from the other rows, the results must be attributed to the action of the fertilizers.

It being well known that the constituents of plant food which are usually most deficient in every soil are nitrogen, phosphoric acid and potash, it is evident that no brand of fertilizer would be of any use for my purpose unless I had its analysis, showing its percentages of these constituents which it contained. Owing to the lateness of my purchase and the consequent expedition with which I had to rush the work, I could not get all the kinds of fertilizers which I desired, but I succeeded in getting a fair variety. My mode of application was this: I raked about three inches of soil upon the top of the potatoes, and then sprinkled the fertilizers in the trench at the rate of 400 pounds to the acre, or 4 lbs. to each row. I then raked on another inch of soil, which completely filled the trench.

On some of the rows I applied fertilizers of which I had no analysis, and which I procured from several markets. These I have grouped together, and it will be seen by the following table that they produced 6 bushels per acre less potatoes than where no fertilizers were used. The potatoes were planted on May 23rd—nearly two weeks too late—and harvested Sept. 18th. The yield of each row was measured, the rotten potatoes being carefully separated and measured.

TABLE SHOWING THE YIELD IN BUSHELS PER ACRE, THE PERCENTAGE OF ROTTEN POTATOES, AND THE PERCENTAGES OF GAIN OR LOSS:

| Name of Fertilizer. | Total Yield Per Acre. | Percent Rotten. | Percentage gain or loss in Yield. | Percentage gain or loss in the money invested. |
|-------------------------|-----------------------|-----------------|-----------------------------------|--|
| No Fertilizer | 365 | 16 | | |
| No. 1 Fertilizer | 325 | 15 | +23 | +1000 |
| No. 2 | 350 | 21 | +32 | +1416 |
| No. 3 | 330 | 24 | +35 | +1250 |
| Dried blood | 250 | 20 | -6 | -125 |
| Cow Manure (1,000 lbs.) | 250 | 40 | -6 | -7500 |
| Sulphate of Potash | 302 | 15 | -12 | -63 |
| Mixture | 325 | 15 | +23 | +900 |
| Ashes (12 lbs) | 300 | 16 | +13 | +1750 |
| Hen Manure (33 lbs.) | 350 | 14 | +32 | +8100 |
| Superphosphate | 300 | 16 | +13 | +350 |
| Unanalyzed brands | 259 | 18 | -23 | -120 |

The following is an analysis of the brand of fertilizer No. 2, mentioned in the above table, with the method of reckoning the price per ton:

| | | | |
|-------------------------------|--------|-----------------|---------|
| Soluble phosphate of lime | 19.62 | 196 lbs × 13c = | 25.48 |
| Insoluble do | 3.72 | 34 " × 7c = | 2.38 |
| Sulphate of soda | 10.44 | | |
| " " potash | 1.69 | 109 " × 5c = | 5.45 |
| " " lime (plaster) | 25.33 | | |
| " " magnesia | 3.19 | | |
| " " iron and alumina | 3.06 | | |
| Insoluble matter | 16.65 | | |
| Organic matter, moisture, etc | 16.30 | | |
| | 100.00 | | \$33.31 |

Fertilizers Nos. 1 and 3 have nearly the same composition, but are not quite so strong, containing more moisture. You may be somewhat surprised that the figures in the column representing the total yield per acre are rather round numbers. To tell you the truth, I employed a boy from the High School to pick the potatoes, one who said he was expert at figures, but when he came to count up the half-pecks, quarter-pecks, etc., by converting them into decimals of bushels, he was completely bewildered. What a sad commentary on our educational system! A boy of sixteen who had "been all through the big 'rithmetic" stuck at a simple problem like this! However, I was present at the picking of the most important rows, and as there is a great difference in the yields, approximate figures are useful enough for all practical purposes. I am convinced that weight should be used instead of measure.

An examination of the profit and loss column in the above table cannot fail to astound you. Just think of it!—making a profit of 1416 percent on a fertilizer which sells in the market for \$33.31 per ton! Look again!—producing a loss of 125 percent on a fertilizer (dried blood) which costs \$60 a ton in our markets! And so on with all the other figures. Is it a wonder that the blind-fold system of applying fertilizers has proved a failure? In the unanalyzed brands (about half a dozen) the table shows that I lost an average of 120 percent on my investment. The question arises, can these heavy losses be averted, and a gain of at least 100 percent on the investment be assured? I emphatically say, YES—if you learn how.

(To be continued.)

Agriculture in Schools.

BY MARSHFIELD.

Of all the agricultural questions which are destined to make a lasting impression upon the rising generation, this is by far the most pertinent. It is the least perfectly understood; hence the great diversity of opinion. Argument and sentiment are both brought into play. The objectors to the introduction of agricultural science into our rural schools maintain that agriculture, being a profession, should have no greater rights in this respect than other professions. To this it is answered: "Agriculture is the bone and sinew of Canadian industry, and should therefore take precedence to all other professions." It is not denied that the principle is wrong, the offset being urged that nothing in our educational or industrial institutions is right. It is very true that our existing systems of agricultural education are all rotten to the very core, just because they have been established upon wrong principles, and a like disaster threatens the agricultural education of our youths.

The discovery having recently been made that we began at the wrong end, a cry has been raised favoring a start amongst our children. Is it not the teacher that makes the educational impress upon the pupils? Have not the trustees a voice in the personal idiosyncrasies and fads of the teacher? Does not the Government mould the educational character of the teachers as a body? Is the Government not a pale reflex of the people? Where now is the right beginning of the ring and the wrong end? If our Government has

brought shame and disgrace upon the agricultural education of adult farmers, to whom must we then intrust the literary lives of our farmers' boys?

But there is more than one way of beginning at the wrong end of agricultural education. This is strikingly exemplified by the heroic efforts which are being made by our fruit growers to introduce botany, floriculture, entomology, horticulture, pomology, etc., into our public schools. This also illustrates the iniquity of hobbies, especially when indulged in by powerful corporations supported by the peoples' money. Taking advantage of the ignorance of farmers as to what the principles of agriculture really are, the Fruit Growers' Association attempt to foist their fads upon the attention of the Government under the name and delusion of agricultural education. They want to prune the asperities from wayward urchins by the introduction of flowers into the school room; in other language, the useful must yield to the ornamental, despite the fact that it is only through the useful that the means for acquiring the ornamental can be obtained. Little does it matter to them whether the principles are right or wrong—in other words, whether they begin at the right end or the wrong—so long as they gain a step in their own aggrandizement.

But I do not accuse the fruit growers entirely of wilful aggression; for they commenced and have continued their own business from the wrong end—not designedly, but unwittingly. For example, I have heard such questions as the following discussed with the greatest gravity: "Are ashes good for gooseberries?" It is true that the President of the Association, who is an eminent chemist, knows better, and on one occasion, when asked him why he tolerated such nonsense, he answered to the effect that if he told his hearers that every plant would derive the greatest benefit from such constituents of plant food as were most deficient in the soil, he would be compelled to use technicalities which they could not comprehend, and he would then be stigmatized as being theoretic.

Herein lies the whole secret of agricultural education. Teach the boy not to be afraid to go back to first principles on account of certain technicalities intervening between his mind and the truth. Teach him that the requirements of the plant are subordinate to those of the soil, and his common-sense will then be his best guide. If we have to study what we and our domestic animals are to eat and drink, we must go back to the soil for first principles in order that we may begin at the right end; and the composition and classification of plants must therefore be subordinate to those of the soils in which they grow. If the soil and the fertilizers are right the plant cannot go wrong—except by forces which are external and visible.

Those champions of agricultural education who cannot defend it on principle are beginning at the wrong end. If it be introduced as a science, and not as a profession, all objections will instantly vanish. If it cannot be introduced as a science, then, on the same principle all other sciences must be wiped from the course of study. The farmer has a right to demand that the principles of mathematics, physics, chemistry, and biology should be illus-

trated in their application to agriculture as well as to other pursuits. The farmer's boy has been taught long enough how to figure out the gains and losses in mercantile transactions; let him now be taught, for example, how to calculate what percentage of nitrogen is in the carbonate of ammonia which is constantly escaping from the manure heap, and the enormous losses which farmers suffer by allowing the nitrate of lime to escape with the drainage water. Such are real practical questions which would tend to draw the boy's attention to the farm instead of to the counter.

I await with interest and curiosity the decision of our education authorities in important question. No credit is due to them for their skilful treatment of branches with which they are perfectly familiar; but with regard to the introduction of agricultural subjects into our public schools, I anticipate great bungling, in which the real interests of agriculture will be totally ignored.

Agricultural Education in the Maritime Provinces.

"H. F.," whose letter appears in our correspondence columns, says that our "criticism on the Guelph Institution has rather dampened the ardor for a similar Farm and School for the Maritime Provinces, which at one time seemed to be taking hold of the people."

It appears that we have been as much misunderstood in this question as we have been in our policy with reference to live stock. Some people do not want to understand us, and they attempt to twist the plainest Anglo-Saxon for the purpose of misrepresenting us. We are not against the establishment of agricultural schools and farms, providing they are conducted in the interest of agriculture and not for political purposes. The Guelph Farm is not only a political machine, but its experiments, with a few exceptions, are a fraud upon the farming community. If they are accurate, then those of hundreds of the best professional investigators must be regarded as fraudulent.

Individuals are, probably, not so much to blame as circumstances. We believe the Government is desirous of placing the institution on a sound foundation, but it does not know how, and must, therefore, be guided more by intriguers and speculators than by more honorable powers. It regards us as its enemy; it never asks us for suggestions, and if we make any it opposes them in the interests of our more avowed adversaries, who are the most intimate friends of the Government. It is quite possible that the Government has implicit confidence in these people. It can gain nothing by kicking against independent journals.

The staff of the Guelph Institution, already over-burdened with work, have undertaken the task of lecturing to the farmers. Farmers' Institutes are an American institution, and have been started for the purpose of booming up certain agricultural colleges and farms which could not otherwise command the confidence and respect of the farmers. If we could point out a single American boom which, having crossed into our territory, produced any beneficial results to our farmers, then we would have greater confidence in these Institutes. If the professors go around for the

purpose of gathering information, then the farmers should not be called upon to foot the bill; if their purpose is to impart instruction in what they know about farming, then they should be able to show that they can farm for profit, as well as do model farming. If they teach through the light of their own experiments, they teach false principles and practices, and it is no wonder that their system costs the country tens of thousands of dollars annually. If they had investigated anything that could be turned to profitable account, then by their superior knowledge, they ought to be able to make farming pay. The lack of the business qualifications necessary to conduct a large farm has done a great deal towards intensifying the evil.

A sharp line must be drawn between the Farm and the College. Mr. James Mills, President of the latter, is an indefatigable worker, and the high standing of the College as a literary institution is almost entirely due to his energy, ability, and scholarly attainments.

The "Bohemian Oats" Swindle.

A correspondent of the "Country Gentleman" says that the fraud is still constantly breaking out in different parts of the United States, notably New York and Michigan, and he sums up the character of the swindle in the following words:—

"The plan is this: They form an 'association of local farmers, promise them 'inside track' or 'ground floor' in a 'big thing.' Each buys 2 to 20 bushels of the oats, giving note for the same at \$10 per bushel, due a year hence. The 'association' agree to take of each member the next year twice as many bushels as he buys of the 'association,' paying him net \$7.50 per bushel for them. Usually a part of those who go in the first year get out even, so far as cash is concerned, and sometimes make a little, by passing on the swindle to their brother farmers. The Chagrin Falls Exponent truly says 'the grain itself is worthless,' meaning that it is worthless as a crop to raise. The yield per acre in Ohio (and they always have the best field and best care) is from 5 to 40 bushels, the average not exceeding, in my judgment, the average per acre of wheat. For feed, the grain is worth little more than ordinary oats, being without hulls. But they are not good for the manufacture of oatmeal. Ferdinand Schumacher, of Akron, Ohio, the largest oatmeal manufacturer, I think, in the United States, has repeatedly stated that he cannot use them. They are not a profitable crop to raise even if you could get the seed for 25 cents per bushel. Thousands of bushels have been fed to stock by disgusted Ohio farmers when they found they could not get \$7.50 per bushel for the seed, nor sell it at all, nor raise it as a paying crop. Every farmer in Ohio who has ever touched the swindle will substantiate the above, unless he has oats on hand that he still hopes to 'shove off' upon others before the facts are exposed."

Prof. Brown, an English author, in his work on "Animal Life," says that the tendency of animal life in domestication is, in his opinion, "the survival of the unfittest." He looks upon an animal as "a tub with a hole in the bottom," which must be filled by pouring into it quickly, because the quicker you pour in the less the waste.

PRIZE ESSAY.

The Agricultural and Social Elevation of Farmers.

BY C. H. EASTLAKE, RIDGETOWN, ONT.

I hold it truth with him who sings
To one sweet harp of divers tune,
That men may rise on stepping stones
Of their dead selves to higher things.—Tennyson

It has been a popular error in our country, that the exercise of talent is not necessary in the business of agriculture, that a person naturally stupid would make a decent farmer, and that education, in its common acceptation, is of no advantage in its social corner of agricultural prosperity. The theme or countersign to agricultural prosperity should be to-day, to all tillers of the soil, "onward," "upward."

Should the error of no education, no business talent be the supreme thought among farmers, where would the agricultural interests of to-day be? How often is it that people act on this ridiculous assumption? And if in the family there be a son endowed with a little more intellect than the others, this one must have the advantage of an education; perhaps sent to college, then to some profession, or established in some mercantile business, while the others, with essentially no more education than that of the brute nature, were kept on the farm to till the soil. The cause is, as I may say, the degradation of agricultural principles, and farmers have been looked upon by other classes as an inferior, ignorant sort of people; society working on such fictitious ideas, has converted this feeling into a reality, for if a class of beings are treated as inferiors, they feel and act as if they were more and more so, grovelling as it were during the lapse of time. To illustrate this, I might refer to the aboriginals, the red men of the last century, and their wild cannibalism, as compared with their civilized and domesticated state of to-day, scarcely indicating that they belonged to the same species.

However, I deny that the business of agriculture can be followed up successfully by persons of no mental capacity. On the other hand, I affirm that the highest grade of talent will lead to superior results, as in other businesses and other occupations.

Persons in other occupations adopt a different process of labor, for instance, an engineer, a carpenter, a dentist, a lawyer or a physician, is ordinarily obliged to serve an apprenticeship, and learn both by theory and practice the different parts of his trade or profession; yet by common consent (or, as it were, by the instinct of society), if an individual in other trades or professions advertised to do things in an art or profession before he has learned how by theory or practice, he is looked on as a knave or a fool; it is constructively supposed that any of these tradesmen would make a first-rate farmer in less time than it takes to raise a whisker, providing the physical strength accompanies the will or desire.

The whole of this popular prejudice, or popular error, or what you have a mind to call it arises from a false estimation of the very foundation on which agriculture is based. It is by no means asserted that all agricultural knowledge must be the result of manual labor. The professional man, the mechanic, and the merchant, may acquire more knowledge of the principles of farming in one year than the ordinary unthinking farmer in his life-time.

Principles are learned by study and reading; but without the application we have not the instruments to the department of labor.

Farmers, as well as other classes of professional men (for I class farmers among the professions), may elevate themselves and their social standing as tillers of the soil by more reading and study. For instance, a lawyer should read law, histories of famous cases, the eloquent speeches and pleas of famous counselors and pleaders, and biographies of leaders in his profession; so the physician, and the minister, and the artist, must each read in his own lines; the merchant should read of the commerce, manufacturers and leading merchants, and learn by their failure and success. The farmer must read books on farming, on soils, on domestic animals, and horticulture, and in choosing his periodicals or magazines let him as much as possible subscribe for and read and exemplify those who devote their time, pen and interests exclusively to the advancement of agriculture, and then will our yeomanry flourish and progress. I don't follow all I read; I use my own judgment and experience; nor would I, like a fool, decry "book farming," because nowadays all that is worth knowing has got into print, and he who does anything worth the doing is following, whether he knows it or not, what is contained somewhere in books.

The circumstances of all those pursuing farming are not such as will allow of them sending their sons to agricultural schools; therefore, I would propose a step in advance of that taken in our public school system. Who are truly now the good and great men as statesmen of our country? Who in our conflicts for independence and national honors and rights have caused their names to be written on the scroll of fame? Mostly the sons of the tiller of the soil! If in coming years the honest sons of our honest yeomanry, with a sufficiency of natural and acquired talents, are placed in our halls of Legislature, in our Cabinet Councils, and on Benches of Justice, we need not apprehend but that the glory of our Dominion to generations unborn will be the admiration of the civilized world. We should have nothing to fear from such men who, together with their families, are identified with the greatest interests of our country. They would consider our interests their interests, our advancements their advancements, and would have no motive to neglect either.

But you ask, "how are these things to come about?" We have law schools, medical schools, and theological seminaries, but how few are our agricultural schools? Is it not a fact that two-thirds of our common schools in this Province are supported by farmers? Then why not educate more in the interests of agriculture? There is scarcely a particle of the instruction given in them specially or particularly bearing on the interests or usages of agricultural science. Attend one of these quarterly or annual examinations or rehearsals at the public schools, and you would not suspect that these children knew they were the sons and daughters of farmers, that all their interests and anticipations were blended with the simplicity and unpolished realities of rural life; save the elements of education which are common to all classes, they are no more instructed

in the art and mysteries of their own particular sphere of life than though they were the red men of our western wilderness. I contend that this is fundamentally wrong, and it is caused by a want of interest on the subject, for the farmers are the ruling majority. To introduce into our public schools one or more treatises on agriculture, I think is a step in the right direction. When we see our future yeomanry, our future mechanics and the other producing classes of our country wanting in this kind of wisdom, let us advocate such a system, and not allow political paupers, demagogues, and political gamblers to occupy the administration of our government for a protracted number of years, or we shall be compelled to inscribe upon the arches of our political temples in the sublime language of the prophet Daniel, "Mene, Mene Tekel Upharsin." My ideas of social and agricultural elevation can at this point be blended with that of Mr. J. S. Pearce, in his essay on "How can public expenditures for agricultural purposes be turned to the best advantage?" for I think this great and necessary improvement might be brought about by "industrial education."

In conclusion, let me say, farmers, fathers and mothers, beautify your homes. I hear so many complaints that farmers' sons and daughters do not want to stay at home, "they hate the farm" and want other occupations; the girls would be mantle-makers or clerks in towns and cities, rather than help the mother make butter or assist in the garden; the sons want to try their fortune at mercantile business, and instead of their children being their help and comfort in their old age, they are an expense, caused by business failures. Teach them that the tilling of the soil is the sure source to independence and wealth; and do not allow them, for the want of a few home comforts, to indulge in a mad zeal of speculation and then repair to the towns and cities to hunt up a hasty fortune, for ninety-nine out of every hundred cases, where fortunes are quickly acquired, they are as quickly lost.

So let us strive to elevate the agricultural and social interests of this Dominion by taking a step to introduce some treatises on agriculture in our public schools, and let our legislation be progressive in industrial education, for this is the germ of a new life.

Massachusetts landowners are planting worn pastures with chestnuts, both for timber and the nuts. A Sudbury farmer thinks that such land can be put to no better use.

It is said, says the National Stockman, that the experiment of milking cows three times a day at the Iowa Agricultural College, did not increase the milk flow sufficiently to pay for the labor and expense of the extra milking.

A new scheme to swindle farmers has been worked in some of the southern counties of Michigan, says the Philadelphia Press. A man comes round buying straw stacks for paper mills. He gives his note for the sum, and asks for a receipt to send to the mills to show what he has bought. It is only the old dodge to get the farmer's signature to a paper which afterwards turns up a promissory note at the bank, left for collection.

Garden and Orchard.

Papers for Amateur Fruit Growers.

BY L. WOOLVERTON, GRIMSBY, ONT.

No. V.

THE APPLE—VARIETIES FOR THE COLD NORTH AND NORTHWEST.

As the apple tree is the most widely distributed of all fruit trees, we will begin with a list of those varieties which are best suited to endure the rigorous climate of our most northern settlements. By the cold north I shall include such sections as Muskoka, Parry Sound, Manitoulin Islands, Renfrew, Carleton, and southern Quebec, and by the Northwest, portions of that country in which the thermometer seldom falls lower than 40° below zero.

Through the industrious efforts of such men as Mr. Charles Gibb, of Abbotsford, P. Q., Prof. Budd, of Iowa, and Mr. A. A. Wright, of Renfrew, an energetic member of the F. G. Association of Ontario, a lasting boon is being conferred upon our cold sections by introducing and testing such hardy Russian apples as will bear a very considerable amount of cold.

Leaving aside the many varieties of promise that are yet only partially tested, I give a list of those few kinds which have been conclusively proved to be hardy, even for the regions above referred to. Of course, it must be understood that in such a climate there are ordinary precautions which must not be neglected, as, for instance, protecting the roots artificially when the covering of snow is insufficient to answer the purpose.

First in the order of ripening is the *Yellow Transparent*, a Russian variety which is to be distributed to its members by the F. G. Association of Ontario, next spring. This apple is likely to prove an acquisition everywhere, being earlier than the *Early Harvest*, fully as good in quality, and without its faults. It is a regular bearer, and the fruit is clean and of a waxy appearance. It ripens early in August, but continues improving until the end of September, all the time growing whiter and whiter, until almost like ivory. In size it compares favorably with the *Fameuse*.

The *Tetofsky* is also an attractive early apple, and equally hardy with the former, but not so desirable, for while the fruit of the *Transparent* will hang on the tree almost indefinitely, that of the *Tetofsky* drops very badly before time for picking. The color is yellow striped with red.

Whitney's No. 20 is an excellent fall apple of the best quality, which originated in Illinois. It is of the Siberian Crab family, but as large as the *Wagner*, similar in shape, and striped with red. Its chief fault is that it decays rapidly when ripe.

The same fault is found with the *Peach Apple*, of Montreal, which, however, is remarkably hardy, and may be relied upon for fruiting.

The *Duchess of Oldenberg* is a magnificent apple, which in many places is taking the lead of all summer and fall apples. It is of medium size, as grown north; as to color, streaked with red on golden ground, and its time of ripening is early in September. This apple is just a little less hardy than the kinds previously named.

The *Wealthy* stands at the very head of the

list for hardiness, while its other excellencies combine to make it most desirable. It originated in Minnesota. Its season is from December to February. The color is whitish yellow ground, with crimson cheek. Mr. Wright, of Renfrew, says: "Don't fail to plant in cold sections any amount of Wealthies; they are for us a grand acquisition; so hardy, so well colored, and withal the longest keeper we are as yet acquainted with that we can grow."

Coming just a little further south, or into the most favored localities of the cold north, we may add to this list the following valuable varieties:

The *Alexander* is a very large, fine looking

The Jewell Strawberry.

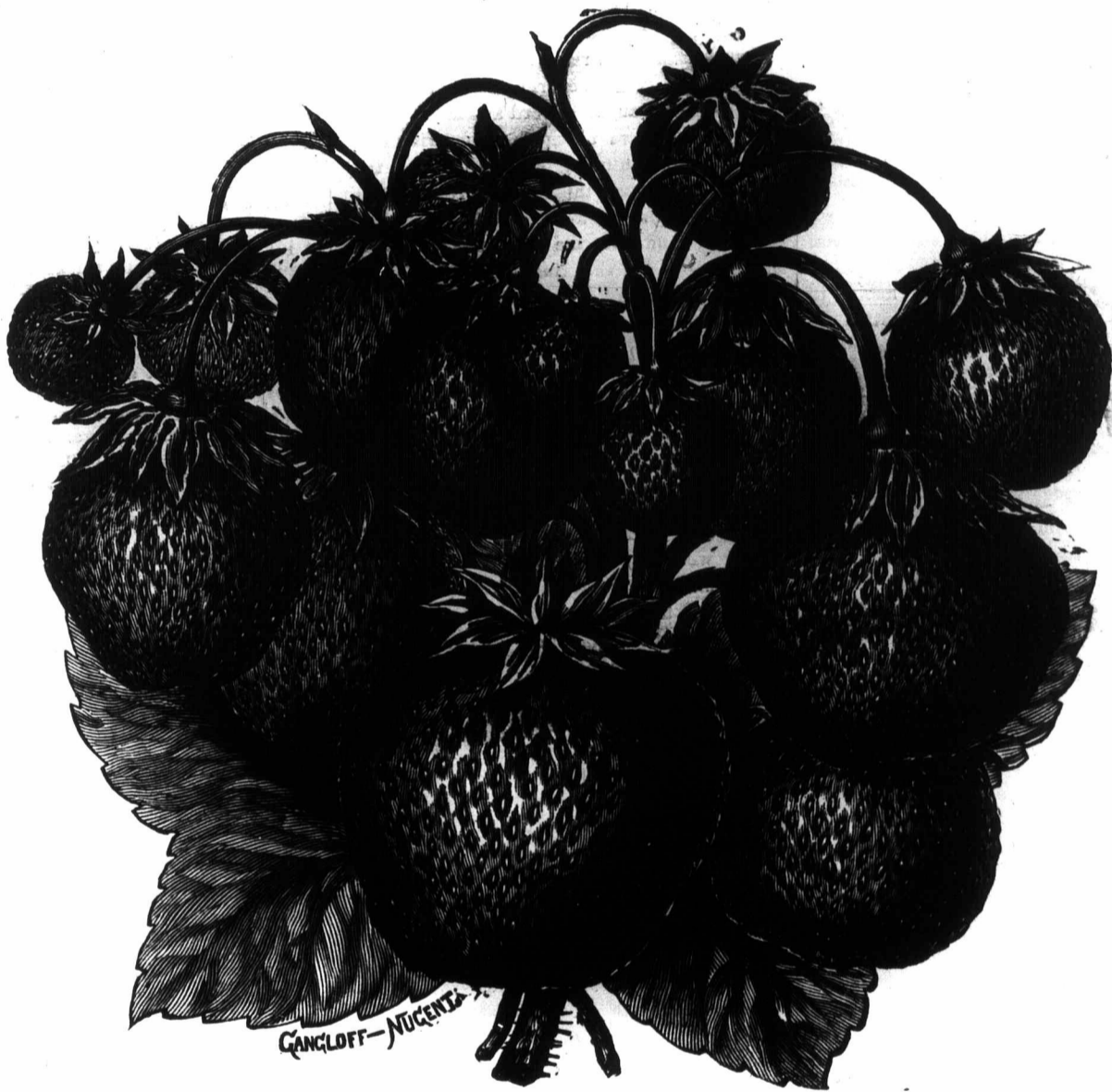
This new variety was produced by planting mixed seed of Jersey Queen and Prince of Berries in 1880. P. M. Angur & Sons, of Middlefield, Conn., are the originators, and from all the information we can gather, they do not claim more for it than it has proved worthy of.

It is in color bright red, changing to crimson when fully ripe, and the quality very good to best. The shape is conical, often wedge-shaped, seldom flat or coxcomb. The berries are quite firm, therefore carry well.

The blossoms are pistillate, very productive; season of ripening medium to late.

It has never fruited in Canada, and we do

and the one upon which there is the most general failure, is the "heat" (the manure). The quality of the horse manure will determine how long the heat can be maintained. The first requisite is that the manure be fresh. It is, therefore, important that it be obtained from large stables, where it can all be made in two or three days. That from two or three horses commonly gives a feeble heat, and it does not last long. It is important also that the manure should not contain too much straw. It should not be so light with litter that it will spring up when it is trodden down; put in straw as long as the manure will pack firmly. Manure from highly-fed horses is best. Good manure, properly managed, ought to give a nearly uniform heat for two months, and sometimes it will last



THE JEWELL STRAWBERRY

apple, ripening from October to December. This showy Russian apple will command a ready sale in most Canadian markets.

The *Fameuse*, grown very extensively about Montreal, is justly celebrated as the most delicious of dessert apples. In southern Ontario this variety is worthless of late years on account of scabs and spots, but in those northern sections where it succeeds well, it is one of the most profitable of all apples, being in great demand for shipping south.

The *McIntosh Red* is barely hardy enough to be introduced under this head, besides, it has one serious drawback, viz., it has been found to be subject to spotting like the *Fameuse*.

not know how it will behave in our Canadian climate, but the plants we have seen are very vigorous and healthy. We have it upon good authority that the illustration given is not overdrawn.

There is no doubt that it is the most promising new strawberry offered this season, either for home use or market.

About Hot Beds.

For the general farmer in this climate, the last of February or the first of March is early enough to start the hot bed, and it may be delayed until the first of April, says the *Country Gentleman*.

The most important feature of the hot bed,

three months.

During January and February the manure should be put in to the depth of a foot, after it is thoroughly packed down. In March and April a smaller amount will usually be sufficient. If the manure is over a foot deep, the heat may be too great. Over the manure place good loam to the depth of eight inches or a foot. The glass must not be near the earth, especially in those made early in the season. Three or four inches space between the mould and glass is quite enough. While only fresh manure should be used for the hot bed, it should not be put in until the heating process has commenced. If it is entirely cold when packed in it will not heat. This heating usually begins about as soon as the manure is made, but if it should not, in any case may be piled a day or two before it is used.

Propagating Forest Timber, Especially Nut-Bearing Trees.

BY HENRY IVES, BATAVIA, N. Y.

Editor FARMER'S ADVOCATE,—I have been very much pleased and interested in perusing the able prize article on the very important subject of growing the nut-bearing trees, and I would add a word or two in favor of (artificial) plantings for groves and belts of timber, all of the most desirable kinds of our native timbers, also a few others which, though native of other countries, prove to take kindly to our soil and climate, such as the Scotch Larch (tho' not an evergreen), Norway Spruce, among the evergreens; the Norway Maple, the Swiss Linden, and, possibly, some kinds of foreign oak, among the deciduous trees.

Many of us can remember when "a man was famous according as he had lifted up axes upon the thick trees," but in time this business was carried too far, and before an agricultural community was scarcely aware of it, the face of the country had been so far robbed of its native forests, which were its natural protection, equalising and utilising the effects of sun and wind and rain, and they were obliged to encounter winds and drought and floods, in consequence of their reckless destruction of the native timber growth. Then, when first realising their situation, they saw that their forests were gone, and it seemed as though their loss was irreparable, but some of the more enterprising ones commenced by planting some trees for shade about their buildings and along the high ways, and finding these to grow so well, it is quite common now to see groves and heavy double rows for shelter belts, and plantings for shade and ornament and protection along the windward side of fields, around orchards, and on the lawn, on many of the best farms throughout the country, and with those who have gone still further, and tried it, they demonstrate the fact that a judicious planting for timber growth is not only practicable but profitable, for it will better ensure the growing of the most thrifty and profitable kinds, but they will be placed where the stand of timber growth will do the most good, and be most ornamental to the farm, and they usually grow twice as thrifty as native growth in the reserved woodlot, besides having a stand of two or three times as many trees growing to the acre on grounds thus planted. This, I have found to be so practicable, that within the last thirty years I have on two farms wholly removed the old timber growth from the native wood lot as I found it on the farms, and have replaced them by planting much more timber, though on fewer acres of land I planted many kinds that were more valuable timber than the native stock, and with a judicious mixing of the kinds am more economical of space than a natural growth generally is. For instance, with the nut-bearing trees I plant alternately in the row the oak, the black walnut and the hickory. With these the black walnut will first obtain a growth, so as to be removed in twenty to thirty years, and the oak might remain to wholly occupy the land after this for one hundred to two hundred years, and so with planting all the other kinds, it is economy to alternate the fast growing ones with the slow growing, so as after a time to give up the land to them, or what is better, as the first ones are

removed fill their places with a native cedar or some evergreen. The effect will be fine, and their growth very practical, and this whole plan of planting for the timber growth on the farm always proves to be more satisfactory for those who have tried it than the original growth of native timber, as we usually find it left on the back end of the farm.

Besides the addition of many nut-bearing trees and evergreens that are not natives of the soil, but will make valuable and ornamental additions to the products of the farm, I would say, too, for the encouragement of the farmer only just commencing these improvements on his premises, (and every farmer should at once, if he has not) that my latest principal planting, some eighteen years ago, covering a few acres, and including many thousands of trees, both for timber and nut-bearing trees and evergreens, for timber lot and groves and sugar orchard and lawn, besides heavy double rows along the bordering highway, the first thinning out of these (for they were first planted thick in the row) brought me in a few hundred dollars, selling for others to plant, and for the last five years the thinning out and the trimmings have furnished quite an amount of fuel, and the trees now stand about three hundred to the acre, and about 30 feet in height, in rows one rod apart, with an orchard grass turf under all. Planting these where they will protect the orchard and buildings from the westerly winds, and in belts along the windward side of the farm, I have as the result more than twice the timber growth, and more than twice as thrifty a growth, all on less than half the ground occupied by the former wood lot, while that has been cleared and given me my best tilled land for some ten years past, and the black walnuts have given me fruit for about that time, and the farm today is much better provided with timber than before, besides the sales of trees have well paid for the use of the land so far.

Now as for the advantages of planting the nut-bearing trees, Mr. Editor, your correspondent in the article referred to has set that forth so much better than I could, that I only wish to endorse all that he has said in advocating their merits, but would not wholly follow his advice in the planting and management in growing them; he says it is sound advice which almost all writers give, "that the nuts should be planted where the tree is to grow," and this on account of the long and strong tap root, which, he says, "looks as if it was a skewer thrust into the soil to keep the top from turning over." Now quite likely he may be right in this, or if not, then there surely must be some other just as good reason why nature's law should always provide this tap root for all her nut-bearing trees, and I would not, just to suit the convenience of transplanting, or for any other reason, undertake to regulate nature in anything so essential as that "skewer" appendage seems to be, and, in fact, I believe that the most and the best that we can do, either in horticulture or agriculture, is to assist nature in best developing such plant or growth as we may wish to propagate, and believe that if we venture to break one of nature's laws in so important a matter, we do it at our peril in transplanting these trees, as we do others; we will first encounter more or less difficulty with the tap root, and then many of them will die,

even after lingering along for a year; others will make only a feeble growth for the first few years, while most of them will lack that robust and healthy growth shown by these trees growing in their native seed-bed. I have found by experience that two ways of planting and one of transplanting are reliable in propagating the nut trees, first to have a seed-bed prepared in the fall, where it is designed the trees are to grow, and plant them soon after they fall from the trees. To do this, if in a black soil, mark for the row two or three inches deep, drop the seed two or three nuts to the foot along the row, and procure a light-colored sandy loam to cover them with, about one and a half inches deep, thus shallow so they can feel the effects of the winter freezing, else they will not grow, and being covered with such soil the rows can readily be seen for cultivating in the spring before the trees are up, which is quite important to do, as they are late in germinating. Another way for planting in the spring is to spread the nuts on the ground, say on the lawn near the house, cover with a slight litter of straw or brush, and after keeping and freezing properly here they will be in good condition for planting out in the spring, where they are to grow. But in case the planter is in a hurry to get these trees started, but wants a year to properly prepare the ground, he may plant these nuts in nursery rows quite thickly, to be carefully taken up (top roots and all), and the first fall or the following spring transplant into the rows for permanent growth, and there they might grow one in two or three feet at the first, but the rows should be a rod apart, and these rod strips tilled to corn and potatoes for a few first years, then after trees are growing well, sow them to orchard grass, and mulch the trees enough to keep them free of grass or weeds about them. In this way every farmer can easily propagate all such trees, and in doing so will add greatly to the value and attractiveness of the home farm.

Planting the Walnut.

In spite of the high price of black walnut timber and its great scarcity, there is one consideration which prevents the general planting of the tree. It will not flourish on thin soil, says the Philadelphia Press. It only reaches its best development upon deep rich land, which is so valuable for agricultural purposes that no one wishes to set it apart for a crop that will be the best part of a century in maturing. It does thrive, however, in certain rich clay bottom lands of the West, which are too low for the production of corn or wheat. Even an occasional overflow does not seem to injure it, and Dr. Berry suggests that these slough lands can be utilized for walnut planting. Since the stumps of black walnuts that were cut and burned to make room for corn have since been dug out and sold by the pound, the planting of these low lands would seem to be worth a trial.

Dr. Daniel Berry writes some interesting memoranda to the St. Louis Planter to illustrate the power of these woods to resist decay. In the Wabash bottoms lives a man whose business for years has been the manufacture of shingles. As the standing timber of these varieties became scarce in his neighborhood, he hit on the novel expedient of hunting for it under ground, much in the same way as cedar logs are hunted for in the marshes of the Jersey coast. He got an iron rod and went about probing every long mound of humus and sand that looked like the grave of some ancient monarch of the forest. Strange as it may appear, he finds only the three kinds of timber—catalpa, black walnut and sassafras—in these mounds, in the order named. He has become an adept in the business. He says these are the only kinds of timber that will last long enough to enable the moss and other growth to cover and hide them as he finds them. Dr. Berry's house is covered with catalpa shingles, part of which were made from a log that, he says he has no doubt, laid on the ground a hundred years.

The Dairy.

Valuation of Milk According to its Percentage of Fat.

On various occasions we have pointed out the gross injustice of the existing system of disposing of milk and cream to the creameries, paying the same price for all grades, although it is well known that the milk or cream from one cow may have double the value of that from another cow, pound for pound. We have shown that private creameries would be a great improvement on this system; but in justice to those who still adhere to co-operative creameries, we take this opportunity of pointing out how they can be conducted in such a manner that ample justice can be secured to all the patrons.

In a recent issue of the *Milch Zeitung*, a dairy journal published in Germany, there appears an able article on the question from the pen of Prof. Fleischmann. If the injustice is so greatly felt in Germany, where the breeds of cows are of great uniformity, there is much greater necessity for a change in Canada, where there is so much diversity in the breeds as well as in the individual characteristics of our dairy cows. Having pointed out the injustice of paying the same price for all qualities of milk, the writer says that the percentage of fat is the true standard, providing the milk is to be devoted to the production of butter, but he does not discuss what the standard should be for other purposes. He asserts that the practice of regulating the price of milk according to the percentage of fat and the price of butter has existed in Schleswig-Holstein for a long time.

From the remainder of the article we make the following translation, but as the metrical system is used in Germany, it is necessary for us to convert the weights and measures into English expressions, and also to express the money in equivalents of our coin: 1 kilogram (kg.) = 2.2 lbs; 1 litre = 1.76 pints; 1 mark (M.) = 24 cents; 1 mark = 100 pfennige (d). The writer proceeds:

The payment of a kilogram of milk according to its percentage of fat implies a knowledge of this percentage yielded by the cows of each patron, and a uniform system of analysis, as well as analyses made at uniform periods of time. Soxhlet's method of determining the percentage of fat is the most accurate, and the contingent injustice becomes less the oftener the analysis is repeated. In most cases each patron does not have his milk analyzed oftener than four times a month. The determination of the percentage of fat is best made at approachingly near intervals, but the patrons are not to know anything about the time. According to an understanding, the analysis may be made of the morning or the evening milk, or both. In the last case, the milk should be thoroughly mixed in certain proportions, for example: From each kilogram let a cubic centimetre (.06125 cub. inches) be taken and be placed in ice, doing the same in the evening with the evening milk, and the following morning let both tests be mixed together and warmed to 40° C., at the same time stirring constantly and thoroughly, cooled again, and then submitted to analysis. Now suppose one patron, whose milk is to be examined, delivers 210 kg. of milk in the morning and 236 kg. in the evening, then 210 cubic centimetres would be taken from the former to be tested, and 236 c c m from the latter. By accurate manipulation care must now be taken that the milk has uniform warmth. Let it now be supposed that monthly statements are rendered, that the milk of the patrons is analyzed four

times monthly, and that one of the patrons is represented by the following statement:

| | | |
|--------------------|--------------|-----------------|
| By the I. analysis | 350 kg. milk | with 3.15% fat. |
| " II " | 310 " | " " 3.25 " |
| " III " | 290 " | " " 3.35 " |
| " IV " | 240 " | " " 3.55 " |

And now the average percentage of fat will be found as follows:

$$\frac{350 \times 3.15 + 310 \times 3.25 + 290 \times 3.35 + 240 \times 3.55}{350 + 310 + 290 + 240} = \frac{3933.5}{1190} = 3.305$$

This is the exact method of reckoning, but the percentage of fat can be more simply calculated as follows:

$$\frac{3.15 + 3.25 + 3.35 + 3.55}{4} = \frac{13.30}{4} = 3.325$$

percent,—therefore only 0.02 percent more than the accurate average. This difference is so small that the simple arithmetical mean is sufficiently correct for all practical purposes.

The calculation of the price for a kilogram of milk takes various shapes, according to the bargains made between makers and patrons.

1. How to ascertain the price of a kilogram of milk according to its percentage of fat in creameries which operate on their own account.

In this method monthly settlements are made; it is quite simple, free from all technical objections. It may be explained by the following example:

Suppose the company consists of four members, and let the net realization of a kilogram of milk for a given month be 9.81 pfennige. Suppose the percentage of fat be ascertained four times for each member, and the averages as well as the quantities delivered, be as follows:

| | | |
|------|-----------------|------------------------|
| I. | 25,000 kg. milk | with average fat 3.15% |
| II. | 20,000 " | " " 3.25 " |
| III. | 15,000 " | " " 3.35 " |
| IV. | 8,000 " | " " 3.55 " |

Total, 68,000 kg. milk.

The average percentage of fat may now be accurately ascertained as follows:

$$\frac{25000 \times 3.15 + 20000 \times 3.25 + 15000 \times 3.35 + 8000 \times 3.55}{68000} = \frac{22240}{68000} = 3.27 \text{ percent.}$$

As the net realization of one kilogram of milk having 3.27 percent of fat is, according to the price stated, 9.81 d, the price realized for one percent of fat is

$$\frac{9.81}{3.27} = 3 \text{ pfennige,}$$

and the proceeds may therefore be divided amongst the four members as follows:

| | | | |
|-----|-------------------|------|--------------------|
| I. | 3.15 × 3 = 9.45 d | III. | 3.25 × 3 = 9.75 " |
| II. | 3.25 × 3 = 9.75 " | IV. | 3.55 × 3 = 10.65 " |

In point of simplicity and ease of comprehension, no objections can be raised against this method of meeting out justice to the patrons. In point of practice, however, I have been told that monthly calculations would be too cumbersome for large creameries, where there is a large number of patrons. Nobody will dispute that the net realization of a kilogram of milk, if not exact to the last pfennig, is yet so near that no difficulty can be presented. But by striking the balances once a year, the division of the proceeds will be still more accurate, as the errors which are apt to creep into small accounts often balanced will then be avoided.

II.—How to determine the price of a kilogram of milk according to its percentage of fat in rented creameries.

The methods of calculation in this case are not so clearly defined as in the other. There is a dearth somewhere in all the propositions heretofore made, as the following will show. At any rate the ruling price of butter must not be lost sight of, nor the percentage of fat either. This method consists in striking monthly balances in such a manner that the average price of butter is taken into consideration, this price being taken either directly into the calculation, or reduced by the amount of the expenses attending the sales, and the division is then made according to the

quantity of milk required for a pound of butter in conjunction with the established price per pound. For example, if the lessors and lessees have determined that the standard for a pound of butter is 14 kg. of milk, the expenses being 6 D, and if the market price of a pound of butter, according to the highest quotation in the monthly average, be 132 pfennige, then

$$\frac{132 - 6}{14} = 9$$

pfennige will be the sum to be paid for a kilogram of milk. This price for milk is in reality nothing else than the price of the quantity of butter which can be obtained from a kilogram of milk. If 14 kg. of milk are required for a pound of butter, then out of 100 kg. of milk will be obtained 3.572, and 1 kg. of milk will give

$$\frac{100}{3.572} = 28 \text{ kg. of butter.}$$

But if a kilogram of milk costs 2 × 126 = 252 pfennige, then the quantity of butter obtained from a kilogram of milk will be worth 3.572 × 2.52 = 9 pfennige. Hence, according to the method of calculation adopted in Schleswig-Holstein, the price of milk is simply obtained by calculating the quantity of butter made from a kilogram of milk.

This method of calculating the price of milk includes the concession on the part of the lessors that the lessees be placed in a position to cover the full amount to be paid for the milk out of the butter and other proceeds. There is another condition in the calculation, viz., that 14 kg. of milk will produce a pound of butter, and justice can only be obtained when the milk delivered produces a certain average percentage of fat. It will here be seen that, as no analyses are made, estimates as to the average percentage of fat must be obtained by a mutual understanding, according to the butter-producing capacities of the milk.

If 14 kg. of milk produce a pound of butter, then, as before remarked, 3.572 kg. of butter will be made from 100 kg. of milk. Now, let the percentage of fat be indicated by *f*, the cream and the butter respectively by *A* and *A'*, and the percentage of fat in the worked, but not yet salted, butter by *F*, then the following formula will give the quantity of butter obtainable from 100 kg. of milk:

$$x = f \frac{A \cdot A'}{F \cdot 100}$$

Or, suppose *A* = 90 percent, *A'* = 97 percent, and *F* = 82 percent, then $x = f \times 1.0649$ percent, and, further, we obtain $f = x \times 0.939$ percent. From this the percentage of fat from the milk can be obtained by multiplying the percentage of butter from the milk by 0.939. As the butter in the above case is taken as 3.572 percent, then this corresponds to a fat percentage of 3.572 × 0.939 = 3.3535.

To find the price of milk it is now proposed to pay contract prices for a certain quantity of milk say the fourteenth part of the highest quotations for a pound of butter, connecting the price with the litre measure of milk; also the sum of money with the whole quantity of milk delivered, and then this sum with the litre percentages delivered by the individual lessors, i. e., divided in proportion to the respective volumes of milk and the corresponding average percentages of fat. If it is guaranteed that the yield of butter from the milk is rightly adjusted, and this exactly corresponds to the average fat percentage of the entire volume of milk, then no objection can be raised against this method of calculation. But injustice and contradictions in the operations must take place so long as this correspondence is not complete.

Perhaps the following propositions are worthy of consideration:

It will again be established what was observed in the first case relating to the average percentage of milk fats from the individual patrons. Here the percentages of butter which correspond to different grades of milk can be calculated, the same multiplied by the hundredth part of the average price for a kilogram of butter, the price for a kilogram of

milk being thus obtained, which is to be paid to each of the patrons.

An example will better explain: Take, as in case No. 1, the given average price of butter, 126 pfennige per pound, and 252 pfennige per kilogram, four patrons having sent in milk during the month:

| | | | |
|------|--------|----------------------|--------|
| I. | 25,000 | kg. with average fat | 3.15 % |
| II. | 20,000 | " " " " | 3.25 " |
| III. | 15,000 | " " " " | 3.35 " |
| IV. | 8,000 | " " " " | 3.55 " |

Total 68,000 kg. of milk.

Using the before-mentioned formula, we have $x = f \times 1.065$ for obtaining the percentage of butter from the fat percentage of the milk (f), then $x =$

| | | |
|--------|--------------------------------------|-----------------------|
| For I. | $3.15 \times 1.065 = 3.354\%$ butter | (14.90 kg. for 1 lb.) |
| II. | $3.25 \times 1.065 = 3.461$ | " (14.45 " ") |
| III. | $3.35 \times 1.065 = 3.567$ | " (14.01 " ") |
| IV. | $3.55 \times 1.065 = 3.780$ | " (13.23 " ") |

As a kilogram of butter is to be calculated at 252 pfennige, then each patron receives the following sums:

| | |
|-----------------------------|--------------------------------------|
| I. for a kg. milk | $3.354 \times 2.52 = 8.45$ pfennige. |
| II. " " " " " " " " " " | $3.461 \times 2.52 = 8.72$ " |
| III. " " " " " " " " " " | $3.567 \times 2.52 = 8.99$ " |
| IV. " " " " " " " " " " | $3.780 \times 2.52 = 9.52$ " |

The calculation can be made in another way, commencing with the average percentage of fat of the entire quantity of milk to be manufactured. Then the computation takes the following shape:

As ascertained in the observations made in the first case, the average percentage of fat of the whole quantity of milk is 3.27%. To this corresponds the butter yield $3.27 \times 1.065 = 3.482\%$, 14.86 kg. of milk being required for a pound of butter, and for a kg. of milk with 3.27% fat is to be paid $3.482 \times 2.52 = 8.77464$ pfennige. From this we obtain for one percent of fat

$$\frac{8.77464}{3.27} = 2.683 \text{ pfennige,}$$

and the patrons respectively receive:

| | |
|-----------------------------|--------------------------------------|
| I. for a kg. milk | $3.15 \times 2.683 = 8.45$ pfennige. |
| II. " " " " " " " " " " | $3.25 \times 2.683 = 8.72$ " |
| III. " " " " " " " " " " | $3.35 \times 2.683 = 8.99$ " |
| IV. " " " " " " " " " " | $3.55 \times 2.683 = 9.52$ " |

This gives exactly the same figures as in the last computation.

This method of calculation is also very simple in principle, and here the concession should also be made that the lessees be able to cover their payments for the milk from the proceeds of the butter. The value of the capital letters A' and F., that is the percentage of cream and butter, also the percentage of fat in the butter, with a word, the value of the constant factors in the formula $x = f \times 1.065$, may be combined to suit circumstances. So long as it is impossible to make determinations of the percentage of fat, it is justifiable to make estimates of the percentage of fat in the milk, and therethrough the possible production of butter. But when it is possible to make determinations of fat percentages, then these must take the place of the estimate.

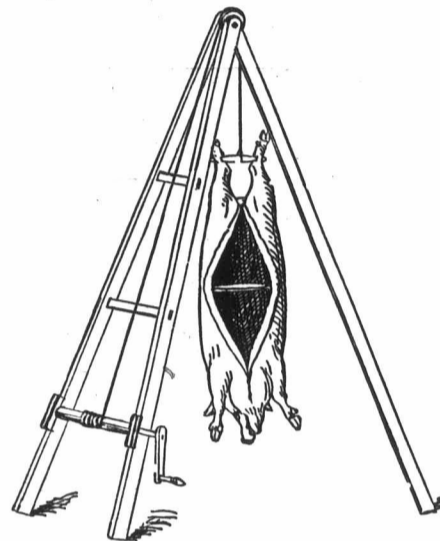
Consumers of bogus butter in the United States pay 133 percent gain on the cost of producing this vile stuff.

In an elaborate article the London Agricultural Gazette makes out the albuminoids of flesh-forming elements of 1,000 pounds of milk as costing less than one-sixth as much as in 100 pounds of meat. Including the fat and all in meat the calculation, in any event, is that its nutritive value is not over one-half that of milk of the above quantities. Reasoning from these data, the Gazette can get a greatly increased production of milk of a good quality by the farmers of the United Kingdom for the use of the people, as it is better food, taken in a proper quantity with other things, than meat, especially for sedentary purposes and those engaged in light labor. Those at hard or long, fatiguing work, of course, require a due proportion of meat in their food, and this is the case also with certain invalids.

Stock.

How to Suspend Hogs.

Mr. William Laing, Shakespeare, Ont., sends a sketch of a frame for hanging hogs, for which we are much obliged to him, and from which we make the following illustration. He accompanies it with the following description:



FRAME FOR SUSPENDING HOGS.

"It is made of 2x3 scantlings, of any strong wood, wide at the bottom and narrow at the top, with an iron pin through the top and a pulley through it, over which a rope passes down to the roller at the bottom. One can wind up a four or five hundred pound hog with ease. Any handy person can make the frame."

The Latest Results of Fat Stock Shows.

Even those who have sneered at our warnings in relation to fat stock shows must feel appalled at the moral of recent developments. We have been assured that butterine men of Chicago have paid \$1.50 to \$3.50 per head more for over-fed stock than the prices paid in the beef market, and 10 to 15 cents more per hundred weight for hogs. These facts have been commented on as being an important step in the onward march of genuine progress, and stock speculators and boomers will find innumerable converts to their new faith.

Above all, the butterine manufacturers will welcome the day. Their profits are already exorbitant, and they will use their immense power to make all sorts of grease as plentiful and cheap as possible. The magnificent fortunes they have already accumulated at the expense of poor people have enabled them to defy all laws passed for the suppression of their vile traffic. This is all the more alarming when one reflects that nearly all this stuff is sold to consumers under the name of genuine butter at an advance, it is estimated, of 133 per cent. on the cost of production, and even then so successfully competes with the pure article that dairymen are becoming alarmed, and there is an overwhelming increase of dairy cows glutting the beef markets.

The analytical method of determining bogus butter has proved cumbersome and unsatisfactory, and it is a source of congratulation that the microscope has come to the front as being the simplest and most accurate means of exposing the bogus butter frauds. If such traffics be not

peremptorily suppressed, we may reasonably hope for the time when every person who has regard for his health will be compelled to carry a powerful microscope for the purpose of examining everything he eats and drinks. It is annoying enough for the consumer to pay two or three prices for a bogus article, apart from the fact that it may contain compounds which are poisonous and deleterious to his health.

The live stock speculators will be exultant over their prospects of a bountiful harvest. There are thousands of domestic animals which are bred and fed exclusively for show purposes and are never permitted to breathe pure air, except, perhaps, when they are in the show ring. They are the richest pasture fields for all manner of disease germs, and can only be made a profitable investment when kept for a maximum number of years, and are made to attend a maximum number of shows. Their flesh becomes unfit for consumption, but as they can now be dumped headlong into the reeking butterine caldron, a new impetus may be given to the "profession." Woe to the consumers!

Meal and Milk.

About a year ago a summary was given of the pecuniary results of three series of experiments on feeding meal and skim-milk to pigs, and also one series of experiments on feeding meal and butter-milk. Mr. Gurler, of Illinois, getting his corn-meal and bran for \$10.50 a ton, and skim-milk for 25 cents per cwt., obtained a pound of increase in live weight for 3 12 100 cents on corn-meal, bran and milk, and for 3 27-100 cents on corn-meal alone with the milk. In Professor Sanborn's experiments, with corn-meal at \$20 a ton and skim-milk at 11 cents per cwt., the pound of increase cost from 3 to 4 cents. Dr. Goessmann, with meal at \$28 a ton, skim-milk at 22 cents and butter-milk at about 15 cents per cwt., obtained the pound of increase on skim-milk and meal at an average cost of 4 9-10 cents, and on butter-milk and meal for 3 8-10 cents.

In the last bulletin of the Massachusetts Experiment Station the results of new experiments are reported by Dr. Goessmann, six on skim-milk and meal and six on butter-milk and meal. The meal cost \$22.50 a ton, the skim milk 20 3-10 cents and the creamery butter-milk 15 9-10 cwt. About 7½ pounds of butter-milk and 5½ pounds of skim-milk were fed for 1 pound of meal, the gallon of butter-milk weighing 8.6 pounds, and the gallon of skim-milk 8.9 pounds. The cost of a pound of increase in live weight on corn-meal and butter-milk ranged from 4 21-100 to 5 29-100 cents, with an average for the six trials of 4 76-100 cents. The cost of each pound of increase on skim-milk and meal ranged from 3 95-100 to 4 46-100 cents, or an average of 4 32-100 cents.

The cost of food per pound of dressed pork was 5 73-100 cents on butter-milk and meal and 5 35-100 cents on skim-milk and meal, the pork being sold at 6½ cents per pound. It required an average of a little over 3 pounds of dry substance in the form of buttermilk and meal to make a pound of live weight, against 2 75-100 pounds in the form of skim-milk and meal. There was but little difference between the composition of the dry substance of the butter-milk and skim-milk. The latter was a trifle richer in protein. The quantity of dry sub-

stance in the 7½ pounds of butter milk was very nearly the same as in the 5½ pounds of the skim-milk fed with a pound of meal, so that the share of work done by the meal was just about the same in both sets of experiments. It would seem that the greater productive effect of the skim-milk and meal ration can properly be attributed to its slightly greater richness in the easily assimilable protein of the milk.—[Dr. G. C. Caldwell, in Tribune.

Our Plebeian Stock.

There are three live-stock organs published in this Province, of which two are the special organs of the stock speculators. If the total number were reduced by two-thirds, we might expect a loftier moral and intellectual tone pervading the columns of the one which is fittest to survive. We are pleased to see that the stockmen are all with us, and although the speculators are doing their best to snuff us out, we still hope to shine so long as we endeavor to give the greatest prominence to those branches of agriculture which can be proved by our soils and seasons to be the fittest and therefore the most profitable, not permitting inferior branches to over-ride superior ones for the purpose of enhancing the wealth and influence of a few speculators at the expense of the farming community.

The organ-in-chief has "sworn eternal enmity against 'scrub' stock," and yet it professes to be an independent journal. As an organ of Government farming and stock-raising, it should first reconcile itself with the Government which has conclusively proved, to the satisfaction of all its admirers, that the very self-same "scrub," against which the organ has sworn everlasting vengeance, is the best for our dairying purposes. The recent amalgamation of the herd books has thrown an extra batch of "scrubs" upon our markets, and we warn farmers against being imposed upon by owners of those "scrubs" whose names have recently been erased from the Government herd book. There can now be no doubt about the line of demarkation between stock of patrician and plebeian birth and inheritance. Not to be registered is to be a "scrub."

We personally know that "records" and "performances" have been falsified for the purpose of aiding in the extermination not only of the "scrub," but also of all other breeds. The Government, acting we believe on the advice of Mr. John Carnegie, M. P. P., made a step in the right direction when it introduced the testing of breeds at our leading exhibitions, and although these tests are far from being perfect, we hope to see them produce more practical results in the future. If the "scrub" can be proved to be less suitable for our purposes than other cattle, nobody will decry them louder than we; but we demand honest records, and this is precisely where we clash with the speculators. The stockman is anxious to know what breed he can most profitably utilize in the building up of his own herd and those of his neighbors, and is willing to sacrifice any breed he may have, providing a more profitable one can be found.

While we are willing to aid in exterminating the "scrub" or any other breed that can be conclusively proved to be unsuitable or inferior, yet we disagree with the method adopted by

the speculators and their organs. Our plan is to educate the farmer to his own interests, and prevent his being wafted away by live-stock and other booms, to the detriment of his own well-being and that of the farming community.

The other organ of the speculators affects to be deeply moved in the interests of the poor, benighted farmers. It is more insidious in its onslaughts than its fraternal contemporary. It vengeance rages against "cheap and worthless stallions" which stand in the way of dear and precious ones. It wants the Government to raise a standing army of political veterinarians empowered to grant licences to dear and sound stallions, to which a fee shall be attached, and it wants a law creating special facilities for the owners in collecting the service fees. The farmer must not forget that a stallion may pass as being perfectly sound and yet be unfit to perform service duties, and the longer and higher the pedigree the greater the danger in this respect. High priced, long-pedigreed stallions are apt to be raised so tenderly and accumulate so much fat that they fall off in procreative power, and the mischief is seriously felt in the offspring. This is the cause of the destruction of many excellent families. No veterinary in the employment of the Government would dare to refuse a certificate to such stallions, although he would have no scruples in rejecting superior but less pretentious animals. The farmer would thus be prevented from being his own judge, and might be compelled to reject first class stallions with whose history and performances he is perfectly familiar. If the owner of a stallion thinks a veterinary's certificate would be of any service to him, he can get one without the interference of the legislature, and if the farmer has any doubt as to the soundness, he will only be too glad to see the certificate produced.

Within the hearing of so much intemperat-language, we would advise calm deliberation on the part of the Government. No doubt there will be a great deal of lobbying amongst the speculators during the coming session of our Legislature, and the Government should be prepared. It should inquire into their motives; for when any class of the people unites to champion the interests of another class, suspicion should at once be aroused. If the Government yields to the speculators, it will be an admission that its efforts in educating the farmers have proved to be a disastrous failure. If, after all the hundreds of thousand of dollars that have been spent in blue-book agricultural literature, exhibitions, professors, etc., our farmers are still in such a benighted state that they know nothing about their own interests, then there is little hope that the speculators will be able to produce more satisfactory results, if they are powerful enough to seize the management with their own hands. The dear stallions may turn out to be as bad as the cheap education. The Government will see at a glance that if the proposed legislative action were desirable, the petition would come from the farmers, not from the speculators who are eternally clamoring for power to prey upon their vitals. It will also see that if certain classes of stock must be legislated into the hands of the farmers, the same rule must be followed with regard to everything they purchase. We fail to see what the speculators have done, to merit any favors

from the Government or the farmers; indeed, those who most deserve favors are least clamorous in asking for them. No dying is so painful as being legislated to death.

Carp Culture.

Since the publication of "W. B.'s" correspondence in our columns, we have received numerous letters relating to carp culture, but have advised our readers not to be over-sanguine in the enterprise.

The government at Washington has recently issued a circular which states that during the past six years it has been engaged in the distribution of young carp and has supplied over 20,000 applicants, not five percent of whom have made a profit of \$800 a year, while only a few have attained great success. The chief cause of failure is attributed to not heeding the instructions sent with the fish. In Germany carp culture has proved quite a success, but in the United States the prospects are still doubtful, except perhaps for one's own consumption.

Farmers who have ponds, or can make them with little trouble or expense, and have a taste for such an occupation or pastime, may try the experiment, being able to procure the fish free of cost, as will be seen in our recent correspondence columns; but they should positively refuse to deal with anybody except the commissioner of fisheries at Washington. We notice that "W. B." has been flooding the press with his letters, which at once aroused our suspicion. He has recently been denounced by some leading American papers as a fraud.

An English writer says of the foot of the horse: The hoof is not a mere block of solid matter resembling horn; but indeed is, so to speak, "the patent safe" in which are enlocked the valuables and title deeds of the whole animal as a property. How many horsemen know this; and by horsemen, we mean those who have bred them and worked them? Yet, "gone at the hoof" is a common verdict of condemnation, and a horse is often done at his prime through the carelessness of the shoer, who is very often an apprentice blacksmith who treats that portion of the live animal as if it were but the share of the plow.

The following are good remedies for lice on stock:—One pound of tobacco and six ounces of borax boiled in two quarts of water, with soap, is a good salve. Shortly after, the parts to which the soap mixture has been applied should be washed with pure water and a non-drying oil rubbed on. Oil of turpentine and lard oil, equal parts, with a little carbolic acid, is, perhaps, the most convenient mixture to make, and effectual in its application. Perhaps the easiest and readiest of all parasite destroyers is petroleum oil mixed in an equal quantity of linseed or other oil. Whatever form of mixture is used it will be necessary to apply it two or three times in the course of a couple of months.

A sample of American cheese in London, when analyzed, proved to contain neither milk nor any of its derivatives, says the Orange County Farmer. Its chief ingredients were lard and colored matter. It came from New York State.

A Chatty Letter from the States.

FROM OUR CHICAGO CORRESPONDENT.

The weather thus far this winter has been very much milder than one year ago. This one item makes a good deal of difference in the expense account of the feeder. The difference in the cost of making a pound of beef, pork or mutton this winter as compared with last fully offsets the decline in prices which market values show.

The latest advices from the western country indicate a very satisfactory state of affairs among the ranchmen. The ranch stock is in unusually good condition for this time of the year, and there is little doubt now that the supplies of range beeves will commence to come to market much earlier than they did last spring.

After all the wild speculation on this subject, it turned out that the receipts of range cattle at Chicago for the year 1885 were 90,000 head less than in 1884. This is quite remarkable when it was considered that the runs of grass cattle in '85 would be unprecedentedly large. The actual figures showed that there was a decrease of 60,000 head of through Texas cattle, and 30,000 decrease in receipts of cattle from the north and west. The low prices had somewhat to do with the curtailed receipts of last year, and as many cattle that were ready to come were reserved to take on another year's growth, there ought to be an early run of good beeves from the west. But on the other hand, there were not a few old heads in the business who declared that as a rule ranchmen had sent all available cattle, that the losses of the previous winter were the largest ever known, and that while ranchmen did not like to own it, many of them had lost 50 to 70 percent of their stock from the cold.

One fact is worthy of mention and that is that there never was a year when there was so large a proportion of cows marketed for beef by ranchmen. It was no uncommon thing to see a whole train load of cows, mainly useful breeders, coming to the beef market. There has lately been something of a craze among ranchmen of the North-west for running steer cattle to the neglect of breeding stock. This idea has come about by the fact that the prices have been low, and the production of range cattle very large. In addition to some fear of overstocking, it has been possible to secure earlier returns from steer stock than from cows and calves, and this has been quite a consideration with managers who have been unreasonably pressed for dividends. "Knowing ones" predict that this neglect of the stock will make it self felt a year or so hence in the decrease of stock. Last year there was a great hue and cry about Texas having many more cattle than she could support, and everybody seemed to be seized with the idea of over-production. But the demand for young steers out into the Texas supply very heavily.

It is no uncommon thing lately to hear the expression that there is great danger of the country being over-supplied with live stock. Sometimes, when one looks about and sees the army of men who have engaged in stock-raising during the past half-dozen years, there would seem to be some foundation for the fear, but on the other hand the extension of the consumptive demand during the time has been corre-

pondingly large. The population of this country has been rapidly growing, and the competition of the meat sellers is extending the sale of fresh meat to places where it was before a rarity. For instance, one Chicago dressed meat concern has something like one hundred fresh meat stations scattered along the Atlantic coast which they keep constantly supplied with fresh beef, pork and mutton from Chicago. The gigantic scale upon which the business is done enables the projectors to completely undersell local competitors.

The production of meat-producing animals does not exceed the growth of the demand for the same.

Grade bulls for service on the western ranges that sold two years ago at about \$75 to \$90 per head, are now about \$25 per head cheaper, and rather hard to sell at that. There is a fairly good demand from the west for young bulls, but the ranchmen each year realize more fully that it pays to have bulls "to the manor born." There are now a good many bulls raised in the far west, and the prospect is that ranchmen, in the course of a very few years, will be independent of the eastern-raised breeding stock.

Some time ago these letters contained a statement of some of the banner periods for receipts of stock at Chicago. The largest number of cattle received in any one day to that time was 12,096 head, which arrived August 27, 1885. This number was entirely eclipsed the past month by the arrival, on January 12, of 16,966 head of cattle, not counting calves. Ten years ago this number would have constituted a liberal run for a whole week. The enormous run was the result of a snow blockade. Dealers over-estimated the importance of the blockade, nearly all of them thinking it was going to be very serious, and that all who were lucky enough to have cattle on the market before the roads were open, would reap a rich benefit. But it so happened that the roads were practically all open, and so it was that so large a number of cattle was rushed to the slaughter in a single day. The owners and salesmen who expected to have the unfortunate buyers "on the hip" were the victims of their own far-sightedness, or lack of it.

Records for Speculation.

Surely nothing else has been so much run into the ground of late years as the herd record and stud books. Instead of being as they should be, a record of the best pure-bred stock and including only actually tested meritorious animals, they are now made a means for private speculation as nefarious as the tricks of the pool rings and gamblers' bucket shops, or the grain and stock markets. The "lowdown"est thing in the way of a record is the French Percheron Stud Book, which is only French in name, but is an American production got up by some speculators in imported horses in the West. The charge for record is simply nothing, not one cent; it is gratuitous and the cost of the book is thrown in as the popular chromo of the questionable stores where rye and sawdust are sold for coffee. A thing may be considered worth its cost if it has not been bought too dearly. If a record costing nothing in a fictitious French stud book is not too dear, it is worth just nothing, and that is the best to be said of it.—[Cor. N. Y. Tribune,

Poultry.**The Cause of Vermin.**

Says the *Poultry Nation*: Lice do not attack fowls that are in good condition as soon as they do those in an impoverished state. Lice and poverty go hand in hand among fowls, and it may be claimed the presence of lice causes the fowls to become poor, which is true; but if the fowls are fat and in good flesh, the lice are repelled to a certain degree, as they are not partial to oily carcasses, much preferring the poor, thin fowls as their victims, which they soon destroy. With clean quarters, a dust bath, and liberal feeding, the fowls will rid themselves of vermin, and do it so completely that they will not again be troubled, unless the breeder compels his fowls to live in filth and disease-breeding places. The same may be said of disease which follows lice. Fowls that become the prey of lice become weak and sickly, and are not able to ward off disease, and therefore become subject to it much quicker than those that are healthy. But if the poor fowls are attacked, contact carries the disease among them all, and the whole flock suffer. Instead of vermin causing poor condition, the reverse is the case.

Feeding Fowls.

If we watch the fowls they will, says the *London Live Stock Journal*, easily tell us what they desire. If you are feeding corn, throw down a few handfuls of oats; if they greedily take the oat and leave the corn, it indicates that they require something else. Try grass, meal, ground bone, pounded oyster shells, cooked vegetables, all of which they will accept or reject, according to their requirements. Feed regularly, and never more than they will eat up clean, for they will walk away from the food as soon as they have enough; never leave it on the ground. Feed early and late, and let them get hungry—that is, have regular intervals between meals; the practice of keeping food by them all the time promotes an excess of fat. Allow as much exercise as possible. Throw hay upon the floor or in the yard; place in it a few handfuls of some kind of grain that they do not receive often, and let them hunt and scratch for it. Feed growing chicks liberally, avoiding too much corn. Oats ground and warm in the morning is one of the best foods that can be given. Always give whole grains at night. In summer give no corn but once or twice a week; vegetables and grass are much better for them. Laying hens must have meat or milk. Eggs cannot be produced without nitrogenous material in some shape. Bones are almost absolutely essential. Above all, give pure, clean, fresh drinking water.

MAKING A ROOST.—There is no better roost than one made of 3x4 scantling, the edges being rounded off slightly to prevent cutting of the feet, with the narrow side up. Such a roost is strong, solid, and will hold any weight that may be placed upon it. Nor should the roosts be placed one above the other, or inclined so that they will be higher at the rear than at the front, as the fowls will all crowd to the higher roosts. A roost should be detachable, so as to be taken outside and cleaned, kerosene being freely used. The roosts should also be so arranged as to permit of easy access in removing the droppings.—[Farm and Garden,

Veterinary.

Breaking Vicious Horses.

The season is upon us when the two-year-olds should be broken. The time for breaking to harness is not wisely deferred beyond the two-year-old form. Halter-breaking should have been completed before the foal has witnessed, for the first time, the beginning and waning of a single moon. After-breaking is thereby rendered comparatively easy, because the young colt has learned two lessons that it will never forget—namely, obedience to and confidence in man. If halter-breaking is deferred until the colt is weaned, it will require much more time and strength to accomplish than if the same process had been performed before it was a month old. Increasing age and strength with the colt mean greater rebellion. The older, more stubborn head, and stouter muscles, and stronger bones, are simply accumulated munitions of war, with which the growing colt is furnished to battle against his master for his freedom. But nothing becomes so rebellious as the disposition, when it is not thoroughly studied by the horseman. Some horses are extremely nervous. They will, therefore, become frightened and act badly, mainly through the paroxysms of fear. Their viciousness, consequently, is no misnomer. It is simply the disastrous results of timidity. Neither the punishment of the lash nor the wounds of a scolding voice will render them more docile or obedient. Above all other horses they demand the consolations of caressing strokes and the encouragements of gentle words. They become courageous solely through the power of kindness. The same treatment speedily conquers the high-strung, headstrong, ambitious horse. He will resent harsh treatment, and repay unkindness by the rapid development of a vindictive disposition that displays itself in kicking, or biting, or running away on the slightest provocation, which he seeks every opportunity to create. These classes of horses can only be conquered by combined patience and kindness. But there are some horses that are naturally vicious; that are, in fact, as disposed to evil from their early colthood as some abandoned specimens of the human family are well-authenticated examples of total depravity. They are constitutionally mean, and the meanness displays itself in every stage from halter-breaking to submission to the shafts. These horses are not demented, like Cruizer, that the gifted Rarey was compelled to break over again every succeeding morning, simply because he had not brains enough to remember the lesson of the preceding day; nor are they devoid of memory, for they seem to thoughtfully devise means, over night, for circumventing the methods that conquered them on the preceding day. They are simply mean spirited. They are opposed to submission, averse to earning their feed, and determined to do nothing that will repay the expenditure for their worthless existence. Of course, such an animal in the hands of weak, timorous masters will come out the victor, and he should be sold, as both dangerous and worthless. But there is too much value in him to consent to his extermination. He can be broken, and, under the control of a determined horseman, his meanness can be so thoroughly subdued that he will become both useful and obedient.

The most elementary manifestation of his refractory disposition is his provoking habit of halter-breaking. He will pull back, laying his weight against the head stall and straining the muscles of his head and neck to their utmost, till the strongest of five-ring halters will snap when subjected to his powerful surges. Unless this habit is effectually broken up, he will never be safe to fasten either in the stable where other horses are quartered, or while in harness, for no hitching strap, however ingeniously it may be devised, whether it be a rope around his neck or broad leathern strap passing over his poll and fastened by strong metal snaps to the rings of the bit, will be sufficient

to resist his powerful efforts to secure his release. Even when these prove strong enough, there are many instances in which the post has yielded to his surges, and the result has been a destructive runaway, with the post dangling under his feet.

Many devices have been made to cure the confirmed halter-breaker, but most of them have proved ineffectual. Two methods, however, have been quite successful. One consists in placing a strong rope, fastened with the sailor knot, around the neck and tied to a strong-unyielding beam. The horse is then made to pull back, either by suddenly opening an umbrella before him or by rushing at him to alarm him. After a few unsuccessful attempts to secure his release, instead of pulling back he will actually rush towards his tormentor, rather than uselessly punish himself by pulling back. But the danger of this extreme treatment is the fear of dislocating the neck. Instances have been known where the neck has been disjointed or the horse has so long persisted in straining the rope that strangulation has actually taken place. Preferable to this is the method where the rope passes back under the tail, like a crupper, so that the strain comes upon the dock. This is such a surprise to the refractory horse, and, at the same time, administers to him such sharp pangs of punishment that, very rarely, will he repeat the pulling back meanness more than twice. The writer has seen this method practiced with perfect success upon the most obdurate horses. Indeed, he has never known it to fail, and if carefully tested it is questionable whether there should ever exist such an evil practice as halter-breaking by pulling back, either at the manger or in harness.

Another vicious habit is the refusal to start when harnessed, and the check is either loose or in position. Very often this meanness arises from a nervous, excitable disposition, but much more frequently it is inherited. The writer can now recall three generations—daughter, dam, and granddam—that were afflicted with this bad habit. They all acted precisely alike. When harnessed to the vehicle, and the word given to start, they would throw up their heads, dance about from side to side, finally ending in rearing up on their hind legs to an altitude dangerous to the driver, and would not start till the groom caught hold of the bridle and led them off. Even then they would not start till their ugly preliminary skirmishes were ended. Many remedies were tested. Cotton was placed in their ears and pebbles in their mouths, and other devices to direct the current of their thoughts away from their bad habit, but none of them proved availing. Finally the expedient was resorted to of harnessing them in the stall, elevating at the same time the check, and hitching them in the stable to the vehicle an hour before the time of starting. This worked like a charm. All restiveness disappeared. When the driver seated himself behind them they were anxious to start. After a few lessons of patience thus administered to their impatient temperaments, they would start when the harness had been previously placed in position and the check drawn up, five minutes before they were attached to the vehicle. At last they became perfectly submissive, and never refused to start when the driver grasped the reins, and the groom at the same time fastened the check rein.

But some horses are even more dangerous in their protests against starting. When commanded to go, they will plunge about, and end their antics by throwing themselves down, frequently breaking the shafts, if not injuring themselves in the fall. Whenever this meanness displays itself, the cure demands the most radical treatment. The groom should be ready to leap to the bridle, and force the head upon the ground. Placing his knee upon the head, he should keep the animal thus imprisoned upon the ground, in the shafts and harness, until it is completely exhausted. For this purpose a break-cart, supplied with long, strong shafts, should be used in the breaking. After he has thus been forced to lie prostrate for an hour, very rarely will the horse repeat the same insubordination. If,

however, he is still rebellious after the second act of throwing himself down, the break-cart should be removed, after the animal has been forced to remain on its side a sufficient length of time to enforce the lesson of punishment, and in addition thereto the lash should be laid on to his side vigorously for a few times, without permitting him to rise. This heroic treatment, coupled with the expedient of harnessing the animal to the vehicle, and then fastening him on both sides by hitching straps to the rings of the bit several minutes before the time for starting will, in the most obdurate cases, work a radical cure.

The opposite fault, that of starting too quickly, although equally dangerous to driver and vehicle, can be more readily obviated. Nearly all high-bred animals are surcharged with ambition. This manifests itself, generally, in excessive eagerness to start, very frequently in overturning the vehicle. This bad habit calls for the lesson of patience, which causes the horse to yield to restraint more than any other method of treatment. One of the most useful portions of stable architecture, especially upon the stock farm, is an ample hallway, running through the centre of the building, and dividing the box-stalls on either side. We say box-stalls, as a matter of course, for in this enlightened age no intelligent horseman would keep his horses tied in a narrow stall by the head, since he has learned how injurious this practice is both to their physique and their ruminating disposition.

If the central hallway is thus constructed, it will serve many useful purposes in breaking the young horse stock. Having two stout hitch-reins, secured firmly on either side of this hallway, the other ends should be placed in the rings of the bridle bit, after the eager-starting horse is harnessed. He can do no damage to himself or the vehicle. Let him be as restive as he pleases; let him start forward or back a few steps as he desires; his movements are confined to a few feet. If he is very restive, let him be thus fastened, after he is fed and cleaned in the early morning, then taken out for his dinner, and returned to the double-hitching position in the broad hallway until evening. No groom need to watch him. He can do no harm; but he will thus effectually break himself from starting too quickly when first harnessed to the vehicle. If the practice of starting too quickly extends to his performances upon the highway every time the driver has occasion to alight and hitch him for a short period, then this habit must be broken up by the driver. Every time the horse is unfastened from the hitching post, his driver must be careful to have the lines well in hand, and, while upon the ground, hold the horse in his place by word of command as well as by the lines, until the restiveness has subsided. All apparent anxiety to hasten in seating himself must be avoided; for eagerness on the part of the driver only adds to the nervous ambition of the horse to start before the reinsman is ready. His movements must be as steady and measured and assuring to the horse as possible. Very few drivers seem to appreciate that the reins are like telegraphic wires, communicating the emotions of fear, nervousness, or timidity, as well as courage and determination, from the driver to the horse. Still fewer drivers seem to realize how rapidly the horse learns the mental state of the reinsman, and takes advantage of his constitutional weakness with astounding celerity. When the driver, therefore, gains his seat behind the horse too anxious to start, he should command him to stand still for two or three minutes after he is seated. This should be repeated as often as the horse shows any disposition to start before the word of command is given, and after a few lessons thus patiently administered he will not make an effort to start until he is so directed. Moreover, when he is ordered to go, he should not be permitted to trot, but required to move off on a brisk walk until such time as the driver is given ample opportunity to adjust his seat and the reins, or take any other precaution preliminary to the trot, when the skillful driver is ready to feel every step his horse may take.—[Horseshoer,

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the ADVOCATE, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 10 per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed. In case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

In asking questions relating to manures, it is necessary to describe the nature of the soil on which the intended manures are to be applied; also the nature of the crop.

We do not hold ourselves responsible for the views of correspondents.

Sowing Early Out and Damaged Wheat.—As you have undoubtedly heard, a great deal of wheat in Manitoba and the Northwest was injured by a severe frost on the night of the 23rd August last. Since then it has been discovered that a great quantity of it could have been cut previous to that date. To many it would have seemed absurd to cut grain as green as the most of it was at the time. We have, however, positive proof that wheat cut much greener than I have ever seen it harvested in Ontario, gives a beautiful sample of grain; the only thing it lacks is in size and plumpness, in all other respects it is perfect. Would you please give me your opinion as to whether such grain could be relied upon for seed.—SUBSCRIBER, Kinbrae, Man.

[Early out grain, or grain that is to some extent damaged for a season, would be very little depreciated in value for seeding purposes, if it belongs to a good stock, and is sown on a suitable soil; but if such seeding be persisted in for several years, the quality would deteriorate.]

Various Notes from New Brunswick.—In reading your valuable magazine, I very seldom see anything from this Province. Perhaps you would like to hear from us down east occasionally. The hay crop was good in this part of the Province, although not as good as two years ago, but in sections where it was under water so long in July, when we had the highest freshet known for years, in the St. John River valley, the crop was poor. Oats, average yield; wheat, extra good, although not much sown; barley, average; buckwheat, good; potatoes on light soil good, but on clay or wet, heavy soil, badly rotted; carrots, average; turnips, extra; corn, extra. Benjamin and Charles Ingraham raised upwards of 100 bushels from 1½ acres. Farmers in this section follow variety farming, or rather do not depend on any one kind of crop. Some sell a few potatoes and oats, but the most of them feed what they raise to their stock, and sell pork, beef, sheep and lambs, also butter, and a few of our old farmers follow the practice of making cheese at home; don't believe in the factories. Markets for all kinds of meat have been low this season; sheep and lambs 20 per cent. less than last year. Most of our sheep and lambs go to the Houlton Slaughter House Co.; until this year the company has paid for lambs \$2.50 to \$3 each; for fat sheep from \$3 to \$6, when this year lambs only brought \$2 each and fat sheep \$3, although our local market (Fredericton) has been fair, lambs bringing \$2.50 each. I send you the weight of two of my neighbors' hogs and pigs. Geo. L. Slip killed 7 wintered hogs 19 months old, and 6 pigs 8 months; hogs' weight, 465, 474, 509, 512, 568, 610, 589—3627 lbs.; pigs, 288, 295, 319, 290, 305, 255—1985 lbs., total 5612 lbs. Byron McNally, hogs 19 months old, pigs 7½ months old; hogs, 624, 527, 558, 528, 444—2741 lbs.; pigs, 279, 287, 285, 284, 305, 216—1656 lbs., total 4397 lbs. The above hogs were fattened on coarse potatoes, sour or skimmed milk and cracked duckwheat mixed, cooked and fed warm.—J. H. M., York County, N. B.

Housing Hens and Sheep Together.—Would you confer a favor on me by letting me know through your next issue if it is injurious for hens and sheep to be housed together?—A. W., Port Elgin, Ont.

[Hens should be housed separate from all other classes of domestic animals.]

Controlling the Sex.—I notice in your paper the inquiry about the controlling of sex. I do not know for myself, as I have never put it to practice. But the method, as given by Professor Thury, for the benefit of stock raisers, is this: "If you wish to produce female, give the male at first signs of heat; if males are wanted give him at the end of the heat." I will give you what a Swiss stock grower says of this practice under date of February, 1897: "In the first place, on twenty-two successive occasions, I desired to have heifers. My cows were the Schurtz breed and my bull a pure Durham. I succeeded in these cases. Having bought a pure Durham cow, it was very important for me to have a new bull to supersede the one I had, without leaving to chance the production of a male, so I followed the prescription of Professor Thury, and the success has proved once more the truth of the law."—W. A. W., Castleton, Ont.

Smut in Barley.—I would like to know the cause of smut in barley, and whether you consider smutty barley fit for seed or not, as mine was very smutty this year, but in other respects is No. 1 barley. Please to let me know if there is anything that will destroy the smut spores which adhere to the sound barley, without injuring it for seed?—T. H. N., Pontepool, Ont.

[We treated fully of the smut question in our issue of last July.]

Talk about Dairy Barns—Selling—Muck for Litter—Spreading Manure on Snow.—As you seem disposed to allow criticism on your remarks respecting Mr. Murray's barn, I will offer a few words. From a dairyman's point of view the barn is altogether unsuitable. The cattle stable all inside, surrounded with root houses, boxstalls, horse-stable, sheep houses, hog pen, and henhouse, how can pure flavored milk come from such a situation? My buildings are cobbled up out of old ones that were on the farm when I came into possession, and I can feed 20 head of the barn floor, with a certain amount of carrying, but that and wheeling out the manure gives a large amount of labor, and as you state, "the handling of the manure is a very important consideration;" and another very important one is the handling of green feed for soiling—a business which we will certainly have to adopt, more or less, if we are to retain our position as a dairying Province. I think a byre to accommodate 20 to 40 cows should have a wagon road before the cows for hauling in green feed in summer and fall, and forking it to them out of the wagon as you pass along; also a wagon road behind them so that the manure could be taken to the field with one handling, and both byre and surroundings kept, as near as possible, perfectly clean and pure. I think we cannot use muck for bedding; I tried it some years since and gave it up, as I found it impossible to get it dry enough to act as an absorbent on any extent. I would be thankful for information on how to provide a supply of dry muck. I haul out all the manure I can in winter, both with wagon and hobs, when the fields are at all passable, and have been well satisfied with the results, especially when the manure has been put on grass land, but I disagree with you about spreading it on frozen ground or snow. I did so in my first attempt, but when the spring came the manure was thawed out before the frost was out of the ground, and a part of it came running down the furrows and off that field in the shape of a rich looking brown liquid. Since then I put the manure in piles, making 3 or 4 from a large load, and before the piles are thawed out the frost is out of the surrounding ground, and I then open the piles in the centre with a pickaxe, and as they thaw their liquid part is absorbed by the earth and in one or two days they are ready for spreading.—SOD, Belmont.

[We understand Mr. Murray's plan was to partition off the departments in such a manner that there would be no communication between them, except perhaps tightly fitting doors, using ventilators for each department. The stench would then be no greater than if the buildings were several rods distant from each other. Bad odors are better kept down by absorbents than by erecting separate buildings. If our correspondent hauls out his manure mixed with straw, he makes a great mistake; he should at least put the straw through a cutter. Every farmer is not so situated that he can procure muck, in which case dry earth of any kind may be substituted. In a dairy stable, bad odors must be kept down, and it would usually be cheaper to use muck than plaster or lime. A good deal would depend upon the nature of the soil upon which the manure is to be applied; if it is deficient in vegetable matter, muck will have a very high fertilizing value, much more so than lime or plaster. We have drawn out and spread manure in winter with great success and profit. It is true that a very heavy rainfall in spring may produce the effects mentioned by our correspondent, but his land was evidently not drained. The same shower which melts the manure will also melt the soil, and if any water then washes over the surface, a clayey soil would filter the manurial constituents out of the water, so that there would be little or no loss. Where there is a muck bed, a rough frame shed

should be built, and the dirt thrown in during dry weather from time to time as the muck dries. The hauling should be done in winter when time is not so precious. A slight dressing of farm yard manure, where muck has been used as an absorbent, will often produce more satisfactory results than the plowing under of a crop of clover—in soils lacking in organic matter. We are pleased to see our correspondent advocating the soiling system, but Mr. Murray's plan would here work better, for the wagon could be driven round on the barn floor above the stock, during the greater part of the season, thus saving much space in the passages below.]

Building the Barn.—The subject of barn building is one of great interest to our farmers. Every year new barns are being erected all over the country, and it is well for those intending to build to have a good plan in view. A great many farmers build their barn first and make the plan afterwards, when they find out by experience its inconveniences. It is not an easy matter to alter a building when once up, hence the desirability of having a well matured plan before commencing work. The first thing to consider is the size,—this will be regulated by the productiveness of the farm and the kind of farming to be engaged in.

The best and most convenient barn for Ontario farmers, generally speaking, consists of a good stone foundation for stabling stock, with a well framed timber superstructure for storing the crop. It is desirable to build on the face of a hill, and if necessary the material excavated can be used on the upper side to make the approach into the barn easily accessible during harvest time. The best position for the building in our severe climate is with the stable doors on the south side of the building, with a shed or high fence along the west side as a protection for the barnyard against our prevailing west wind; we also like to see an overshoot or shed of 12 to 16 ft. above the stable doors.—It keeps the doors dry and forms a convenient rendezvous during storms. The stone foundation should be fully nine feet above ground to admit of racks for feeding cattle, and skylights or windows above the doors for properly lighting the stables.—D. N., Toronto, Ont.

Carp Culture.—I saw in the ADVOCATE you request those engaged in carp culture to give you a result of their experiments. I embarked in carp culture four years ago. I obtained first six small carp, about five inches in length, from Mr. George Finley, Pittsburg, Penn., at \$1.00 each. By an accident or rather carelessness on my part, I lost all but two of them, but in the meantime I became aware how rapidly these fish would grow under favorable circumstances and so I was determined to procure more carp.

I next applied to Prof. Baird at Washington for carp, and was delighted to receive from him twenty carp about the size of a steel pen. It was late in the fall when I received them and before spring came I had lost them all, I think from the water becoming too cold for them. I have since procured from Mr. Finley twenty carp about eight inches in length and have now in my carp ponds thousands of carp varying in size from two ounces to ten pounds weight. Only the first I procured have attained the latter size. Carp are voracious feeders, eating almost anything a pig will eat, and consequently they grow very fast. They sometimes under favorable circumstances measure eighteen inches in length at sixteen months old.

Carp will thrive where trout or almost any other fish would not live. They thrive in artificial ponds with much shallow water; they require warm water to grow well, hence it should be shallow; they should however have a deep place in the pond in which to winter. Carp do not eat or grow in winter, but hibernate. Unlike most other fish, they require no gravel to spawn in, but stick their spawn to brush sticks or grass which may be in the pond. I consider the carp a very good table fish, not quite equal to trout or bass, but much easier propagated and grown. All one has to do to have plenty of carp is to procure a few fish in the spring, build a pond that will not wash out when high water comes, and leave them to themselves; in a short time your pond will swarm with carp.—G. C. H., BARNSTON, Que.

[We are glad to hear of our correspondents success. We would not like to see our readers over sanguine in the carp business, for some of the American papers are writing it down. Possibly there has been too much of a carp boom on the other side of the line. However, if carp can be procured free from Washington, we see no reason why all farmers having good ponds, should not try the business as an experiment. They should report their success or failure in our columns.]

Useful Hints from Manitoba.—My knowledge of the country extends over a period of nearly six years, during which time I have had an opportunity of judging of it from the foot of the mountains to Winnipeg, and having had a pretty practical training in things in general, I have used my own experience to enable me to arrive at fair conclusions concerning it, without getting into the excited frame of mind that seems to attack, with scarcely an exception, parties who view the country from the comfortable seat of a Pullman, or while being bowled pleasantly over the prairie to some, particularly at

tractive spot along the line of railway. I have listened to people from Governor-Generals down to the most obscure individuals, detail upon the present state and future of the country, and seldom have I heard practical common-sense views taken of surroundings. I will, however, say in justice to them that their motive was not willfully to mislead, but the trouble almost invariably was that they did not know what they were talking about. That a great many people have been deceived as to the Northwest it is useless to contradict, but for my part I believe they deserve being taken in for believing all they were told, and never for a moment anticipating drawbacks and difficulties which could not help existing in a new country. However, it is pleasing to find that people who were most prone to grumble and find fault are consenting to settle down to a matter-of-fact state of things. Many a man out here (I am speaking principally of farmers) who would have been hard to satisfy a year or two ago, is now content if he is out of debt and has a prospect of supporting himself and family, which he can do on Governmental land, provided they have a start. To a person who had visited some of our new settlements a year or two ago, there would now be an agreeable surprise; instead of almost general discontent—notwithstanding injurious frosts—they would, as a rule, be found cheerful and full of hope for the future, and this is generally owing to their having their dwellings made comfortable, stables, pigstyes, hen houses, etc., completed, and 20 or 30 acres under crop as well as a good collection of live stock, the increase of which seems to be spontaneous. The latter the Northwest farmer will have to make his main stand-by, for there is one thing undoubted in my mind, and that is that he will be a formidable competitor in supplying foreign markets with not only horned cattle, but with horses, both of which mature quicker and cost less than half to raise that they do in the older provinces; in fact I look upon the raising of a good sturdy class of draft horse out here as one of the safest and most paying investments a man could put money into. The local demand for years will more than equal the supply, and a span of two-year-olds, especially if they are Bibles, will easily make \$300, whereas the cost would not be one-half that amount. Frosts out here I suppose you have heard of, and you will hear of more for years to come, but when you bear in mind that not 25% of land prepared for cultivation is fit to put seed into, that one-half of the holders of land never farmed before they came to this country, then judge the results. I will admit that the last three seasons' frost has done a great deal of harm, by causing alarm and stopping immigration. On the other hand it will do good, for it will drive people into mixed farming sooner than if they had to do so from some other cause. Notwithstanding our misfortunes we are not so badly off. There is plenty in the land, with plenty of vegetables, the best of beef, pork, and good wholesome bread. A settler who has these need not be afraid of being in want, and those who have not got all these necessities can buy as cheaply as in Ontario. We have the healthiest climate under the sun, and as far as the winters are concerned, now that I have everything snug and comfortable, I prefer them to the summer months. That there will be thousands upon thousands of happy homes in the Northwest I have no doubt, but to make them nice they will have, as elsewhere, to use their brains and their hands.—[SUBSCRIBER, Kinbrae, Assa.]

New Varieties of Wheat.—In sending you a new subscription for your valuable agricultural journal, I would take the liberty of asking you some questions with regard to the enclosed sample of wheat. The seed that this sample was grown from was imported from Ontario three years ago, and sold to me under the name of "New Canadian." I have grown it successfully for three years, find it yield well, and also midge proof, but if sown early while the ground is cold it is apt to come very thin. It makes a good quality of flour and very little bran. Now, what I want to know is what name does it go by in Ontario, and is it considered a good wheat. What would a good clean seed of it cost? What I have is mixed.—W. S., Bay View, P. E. I.

[We know of no wheat called the "New Canadian." Likely it is some old variety under a new name. The head you sent is considerably broken up, so that we do not feel confident in naming it, and the grain looks more or less like several varieties. You had better pick out a number of heads which are truest to the variety, sow them by themselves, and when grown send us a few specimen heads by sample post. If we then cannot identify the variety, you may give it a new name, and perhaps you can make quite a lot of money out of it.]

Agriculture in the Maritime Provinces.—The year just closed may be put down as a fairly prosperous one with the farmers of the Maritime Provinces. It is true the crops were not universally good, and many farmers began the year handicapped by the bad harvest of '84, but to most persons engaged in agriculture economy has to be reduced to a science, and a shrinkage in the yearly income is felt less than in most callings, if followed by a good season. There is a very strong feeling in N. B. just now in favor of improving the breed of horses. The St. John Agricultural Society early in September sent a circular to each of the societies in the Province, suggesting the Government be invited or asked to import several horses of heavier breeds to be kept on the Stock Farm when not required for

service, and inviting the opinions of the societies on the suggestion. I think there is no difference of opinion as to the necessity of improvement in the N. B. horses, but all were not agreed as to the best way of setting about it. When the Board of Agriculture met in December, a resolution was passed asking the Government to import a certain number of horses. An amendment was moved, but lost, that the Government give a bonus to any society or syndicate that brings and keeps within the Province for a certain length of time, a certain description of horse, approved of by a committee appointed by the Government. What will be the result of the resolution time will enlighten us. The Provincial Farmers' Association meets in Sackville, the 24th of the present month. The subjects for discussion are 1st—Commercial fertilizers, their application and benefits, and the results obtained by their use in other countries, and to what extent can they be used by the farmers of this Province. 2nd—How can the farmers of this Province best improve the practice of their profession so that they may more successfully compete with the agriculturists of other countries. 3rd—How can our hay crop be best improved and utilized. I will send you some report of the discussion, if nothing prevents. The second question is supposed to give those in favor of an agricultural school or college an opportunity of giving their views an airing. There is a growing feeling in both N. B. and N. S. in favor of a better and more practical scientific education for the farmer—a training more in accord with the changed circumstances of the business and the times. Your criticisms of the Guelph institution have rather dampened the ardour for a similar farm and school for the Maritime Provinces, which at one time seemed to be taking hold of the people. The winter so far has been very pleasant. Very little snow before Christmas, and no cold weather. Since January came in we have plenty of snow and a few cold days. At present we are enjoying as fine a winter weather as it is possible to imagine.—H. F., Point de Bute, N. S., Jan. 16th, 1886.

Nitrate of Soda for Wheat and Barley.—What is the price of nitrate of soda at the place where it can be had? I tried it on wheat and barley and it did well.—J. G. D., Selwyn, Ont.

[You had better write to all the firms which advertise commercial fertilizers, and they will quote prices for you. The latest quotation from Peter R. Lamb & Co., Toronto, is 5 cents per pound.]

Carp Culture.—In accordance with an indication contained in your published reply of Spencer F. Baird, Commissioner of Fisheries, Washington, D. C., U. S., I wrote to him for carp and received the following reply: "I regret that I cannot make further distributions to individuals in Canada, but the receipt of an application from the Dominion Government through our Department of State, may be able to furnish a supply of carp to be distributed to individuals as your Government may deem advisable."—S. A. B., Mt. Elgin, Ont.

[We shall endeavor to make arrangements with our Dominion Government by which our subscribers will be able to secure American carp free of charge.]

Uniting Against Monopolies.—Find enclosed \$1. I have taken the ADVOCATE one year and I am certain that no farmer can spend a dollar to better advantage. All farmers should be proud of the independent stand it has taken in their interests; but it seems to be a thankless work, for are not the farmers the most disunited and lacking-of-self-interest class of our population? Among the different tradesmen in the towns, and even the miners, there are powerful unions whose unity has been tested by long-continued strikes, and these unions have no doubt done their members a great deal of good in the struggle between labor and capital. And there is unity among capitalists, as every farmer knows to his cost; they form themselves into companies and monopolize our railroads and our grain-buying, so there is unity among all classes who get their living off the farmer, while unity among the farmers is represented by a few feeble granges and farmers' clubs, which could hardly pay the expenses of their own funeral. I believe one cause of the trouble is the keen part farmers take in politics, preventing any kind of united action among them. An election or political meeting is always well attended, and almost every farmer supports a party paper and studies it too, judging by the hot arguments at election time. And are the farmers and their interests any better represented in the Legislature because of all this partyism? I think not, for practical farmers are very scarce among our members of Parliament; as far as my experience goes, they all live in town, and their interests in farming generally consists in making some hard-working farmer keep up his rent or payment. This is an age of monopolies, and if the farmers expect to hold their own against them they must oppose them with their own weapon, unity.—FARMER'S SON, Edwarville, Ont.

Comparative Values of Hay and Bran.—Will you please let me know if one ton of bran or one ton of hay will go the farthest, at the same price, and which will be the best for feeding cattle, when there is plenty of straw and turnips to be fed also.—J. H. K., Galt, Ont.

[A ton of bran is much more valuable than a ton of any kind of hay, at equal prices, especially if the extra value of the manure is taken into consider-

ation. Bran can be advantageously fed with straw, but you can never make a fattening ration out of hay and straw. Good hay and bran with turnips may be fed with a small quantity of straw, but you would get better and quicker returns by adding some grain or oilcake. The larger the quantity of straw, the more bran, grain, or oilcake you should add to the ration. You will get most of the cost of the bran and cake out of the manure, if you save it all.]

Effects of Breeding Hogs In and In-Fertilizers for Carrots.—Last spring a number of farmers in this section sustained a considerable loss in young pigs, and as it is now drawing towards another season, a remedy or advice might be a benefit. A number of cases which I knew were about alike. I will state the particulars of my own case. The sow went twelve days over the proper time of pregnancy; the pigs were alive at birth, but only lived a few hours. They were void of hair, except a little on the forehead. They were of large size, as large as pigs usually are at two weeks old. The sow was in good flesh, but not over fat. Her diet during winter consisted of the waste from the kitchen, with wheat bran and ground oats and peas mixed, and sometimes a feed of potatoes. I knew another case exactly the same, and also a farmer had two sows wintered alike; one had a healthy litter and the other the same as those above stated. 2. Which fertilizer would you consider the best for carrots, soluble Pacific guano or superphosphate?—YOUNG FARMER, Dalling, P. Q.

[1. The indications are that your pigs have been bred in-and-in too closely. Get a boar from some other herd. 2. If your soil is deficient in phosphates, superphosphate will be best; if it is deficient in all the elements of fertility, use guano. You must make experiments to find this out.]

Parentage of the "Empire State" Grape.—In your notice of the Empire State Grape in your January number, we observe an error in regard to its parentage. It is a seedling of the Hartford Prolific, fertilized with the Clinton, not Concord, as you have it. Concord and H. Prolific both belong to the La'ruica or Fox grape family. Clinton belongs to the Riparia or river-bank class. These two species are found in their wild state throughout Ontario and the United States, east of the Rocky Mountains—the former from the Atlantic Coast to the Alleghenies, the other in the vast valley of the Mississippi and Ohio rivers. The Empire State unites in itself these two families, and seems to possess the best elements of both. It has the hardiness of the Concord and the adaptability to great varieties of climate and soil of the Clinton family, while in quality and beauty of appearance it has no equal in either class.—PRATT BROTHERS, Rochester, N. Y.

Dairying in Short Pastures—Sour Apples for Stock.—1. I can winter ten cows, but my pasture will only support six during the entire season. Suppose I add four cows, making ten in all, and thus overstock my pasture. The pasture will supply them say until July 1st, when it will get a little short. For the following four months suppose I allow them in the pasture about eight hours per day, they will thus get say two-thirds of a day's ration. Can the balance be supplied by a feed of corn meal and bran or any other food at night, and would such a plan be profitable and practicable, taking into account the extra amount of skim milk I get and require for calves, pigs, &c.; also the extra amount of manure I get from housing the cows nights.—manure being worth one dollar per two-horse load here? I estimate that these four additional cows will make in a fair season about one hundred and twenty-five dollars worth of butter, and the ten cows would require about sixty-four dollars worth of extra feed to make up the deficiency in the pasture. How much meal, bran or other food would a cow require, provided she got only two-thirds the amount of grass she required, and could the original six cows do as well or better on two-thirds grass and one-third meal and bran as they would if they got all the grass they wanted and that only? 2. I have heard that sour apples will dry cows up, that is, if fed in any amount. If that is a fact, why will not ensilage dry cows up also, it being sour? I find young stock, bulls, and cows not giving milk, do exceedingly well on ensilage; in fact, cows that I dried off two months before calving are getting fat, but those I am milking and not due to calve until May, are quite thin and shrinking rapidly on ensilage, notwithstanding I fed them unthreshed oats on straw, and turnips.—E. P. S., Knowlton, Ont.

[1. There are two plans open to you,—(1) the one you propose, and (2) soiling, both being excellent practices. If you feed bran or meal, and sell the manure at the price you mention, you need not calculate much on your speculation; the manure would be worth nearly \$2.50 a ton, based on the present prices of commercial fertilizers (see page 38). Corn meal and bran make a very good mixture, but you may give some oat meal for a change, adding to it the bran instead of the corn meal; and if you have good facilities for saving the manure, it would pay to add small quantities of oilcake. If there are no shade trees in the pasture, let out the cows in the

cool of the morning or evening, and stable them at night and during the heat of the day. The quantity to be given depends upon many circumstances which you must investigate for yourself. It does not pay to give some cows grass, let alone bran or meal. If the cows have a good deal of traveling to do in procuring grass or water, they will eat more, and if they are large and in a healthy condition, drinking only pure water, they will eat still more. Most cows will be benefited by all they will eat up clean, while others are apt to gorge and injure themselves. If they masticate their food well, you will experience little danger from overfeeding, providing they are in good health, and produce a good flow of milk. With these facts before your eyes, give 8 to 12 pounds per day of grain or mixture of grain with bran, making the bran about one-third of the mixture. Under favorable circumstances, this practice would be preferable to exclusive soiling or exclusive pasturing. 2. Sour apples, by their superfluous acidity, may weaken the constitution of the cow, and to this extent affect the yield of milk. There is a great difference between sour apples and sour ensilage, the former being desirable and natural when given in suitable quantities, but the latter is purely artificial, even in the minutest quantities. There are four stages of fermentation: (1) The *saccharine*, evolving sugar from the starchy portion of the food; (2) *vinous*, evolving alcohol from the sugar; (3) *acetous*, evolving vinegar from the alcohol; (4) *putrefaction*, or rottenness, evolving ammonia. The ensilage may be good or bad, according to the stage it has reached, but if fermentation takes place at all, it cannot be so good as the original grass. The saccharine stage may not be regarded as objectionable, but the cow is provided with saliva for the purpose of changing starch into sugar, so that there is no sense in the artificial method. In the intermediate stages, the ensilage acts as a stimulant, which usually produces injurious results if persisted in for any considerable length of time.]

Building a Milk Cellar.—I would feel much obliged if you would give in your paper a few hints as to building a milk cellar, say for 8 or 10 cows; the building to be detached and the floor either sunk a foot or two, or level with the surface. No doubt it would need ventilation and perhaps a double wall. —P. T. Brantford, Ont.

[For many reasons the house cellar is best for milk if the drainage is good; for in keeping it clean, cool and well ventilated, you benefit the milk as well as the health of your family. It can be more efficiently ventilated than a separate cellar, for a pipe can be made to extend from the cellar into the chimney, where a good draft can be obtained. However, as you want to build a separate cellar, you should select a spot, if possible, where the air is pure and free from stable odor. The brow of a hill being best, and where pure water is easily obtainable. The main benefit of a hillside is that the drainage can easily be made complete. It should be made for milk and butter alone; make no departments for vegetables or anything that decomposes and produces odors. Of course, eggs or anything of that sort, will do no harm. If your object is to make first-class butter, not grumbling at a little extra expense, you may make a double wall of brick or stone, filling the space with *dry* sawdust or cut hay or straw. You may make a double roof in the same way, using planks instead of brick or stone. So long as the drainage is complete, you may sink the cellar into the ground as far as you like. As to ventilation, the air should enter at the bottom, and if the floor is below the level of the ground, you may use pipes connecting the outside air with the ventilators which should be placed just above the level of the floor, and should contain slides by which the air can be closed out when necessary. A ventilator with a slide should also go through the roof, and the top of the windows should be as high as possible and made to open at the top, which will also act as ventilators. Keep the ventilators open when the air is purest and coolest outside.]

Growing Several Crops Together—Feeding Value of Chess.—1. What advantage is there in sowing peas and oats as a mixed crop for grain? 2. What is the feeding value of chess compared with oats? —W. H. W., Lakelet, Ont.

[1. Any two or more crops may be sown together for feed grain, providing they ripen together, are easily harvested and threshed, and the land can be got into suitable condition for them. 2. We have

never seen an analysis of chess, or feeding experiments made with it. If, according to most practical farmers, wheat turns to chess, there would likely not be much difference in their feeding values; but if, according to the evidence of botanists, it belongs to a different species, it may have a widely different feeding value from wheat or oats. The comparative feeding values of wheat and oats and other grains have recently been published in the *ADVOCATE*.]

Cure for Spotted Apples.—Fruit Growing in Nova Scotia.—I would like to ask if lime would tend to produce even-shaped, smooth fruit. Some varieties of my apples grow one-sided and spotted, especially the Yellow Bellflower and Spitzenburg. For some years the fruit on them has almost been an entire failure. Apple orcharding is being largely extended in the valley of Annapolis and Kings, and many other parts of the Province. Small fruits are also coming to the front, among which cranberry culture is occupying considerable attention. Though our fruit growing and farming is small compared with the more extended parts of the upper Provinces, yet if we keep on extending our fruit culture and farming in general for a few years to come, as in the past, we will, at no distant day, occupy no mean position among the farmers of the Dominion. The standard of the *ADVOCATE* is high for us as to farming, but we can use judgment and approach as near to it as we may think fit.—I. J. S., Berwick, N. S.

[Spotted apples have been discussed by our fruit growers, and a leading member of the Fruit Growers' Association, who has tried sulphate of copper (copperas), speaks highly of it as a remedy. Sprinkle from one-half to one pound (according to the size of the tree) about the roots of each tree, and let the rain wash it in on the ground. Probably you don't manure your orchard enough, or perhaps you use too much of a one-sided fertilizer. We hope your anticipations about fruit culture in N. S. will be fully realized.]

Oyster Shells and Bones as Fertilizers.—1. Will you kindly inform me through the columns of the *ADVOCATE* whether oyster shells are better burnt or spread on the land whole, and what is their value burnt. 2. Are bones partly burnt and then ground as good as dry ground bones without burning, and what are their different values? 3. Will sulphuric acid dissolve whole bones, and how strong will it have to be? How many pounds acid per 100 lbs. bone?—H. B., Fort Lawrence, N. S.

[1. Oyster shells are mainly carbonate of lime, and so are of little more value than limestone, which is not of much use for most soils. They should be burnt or pulverized, of course. 2. When bones are burnt the nitrogen is lost, but as the percentage of nitrogen is usually small, little loss is sustained. Bones pulverized but not burnt are more valuable. The respective values can not be ascertained without knowing the percentage of nitrogen, which is greatest in fresh bones. 3. Sulphuric acid will dissolve whole bones very slowly; it will pay to break them. The acid as procured from the drug store should be diluted with an equal volume of water, and as much put on as will reduce the bones to a pulp. Mix the pulp with l-ached ashes before you apply it.]

Ration for Cows—Cisterns for Liquid Manure.—1. I have been feeding the cows until lately on uncut hay at night; morning and noon, cut straw one bushel, with four lbs. pea meal and 1 lb. bran each meal; also a peck of turnips twice a day. Then I discontinued the meal and gave 6 lbs. bran per meal, but I find neither of these rations pays for the food consumed. It seems to take at least 18 quarts of milk to make 1 lb. of butter. Do you consider straw suitable for milk cows? If so, what would give better results fed with it? Would corn or oats, and how much should a cow 800-900 lbs., get? The cows are common natives and give fair results on grass. The milk is set deep in water. 2. We lately dug a cistern for liquid manure. One neighbor says it will not give good results unless mixed with straw. Another last winter who got his stable drain frozen, found it killed his strawberries, although it was very much diluted with snow water. The soil is clay.—BEGINNER, Waterdown, Ont.

[1. There are two sides to this question; (1) something may be wrong with the ration; (2) something may be wrong with the cows, and two wrongs never make a right. Straw, when fed for milk or beef, must be used cautiously, and should be of first-class quality. Being very bulky, it must be fed with the most concentrated foods, such as oil-cake, bran and peas. Try hay instead of straw, or add some oil-cake to the meal and bran, and if the ration does not then pay, the fault lies in the cows, and you must look to your manure heap for the profit. You must have observed that some cows can utilize bulkier food than others. Corn or oats can only be fed with good hay. From 9 to 12 pounds per day of a mixture of cake, bran and peas should be fed with straw. 2. As a rule, we do not approve of cisterns for liquid manure. We can see no sense in mixing it with straw. Barnyard manure, solid or liquid, is just as apt to produce injurious results as any other kind, if improperly applied. Likely your neighbor's strawberry patch was badly drained.]

Colonial Exhibition.

The Colonial Exhibition to be held in London, England, this year, should be, if properly managed, of great benefit to Canada. It is our intention to attend, and we expect to meet many of our Canadian, Australian, New Zealand, India and British friends there. We have not as yet heard who are intending to exhibit from other parts, but this city we think will be fairly well represented. Mr. W. Saunders, Canada's great entomologist, chemist and pomologist, is appointed to superintend the pomological department, and is preparing the exhibit. Mr. White has one agricultural engine ready for shipment, and is working on a new one which appears to us the most complete agricultural traction engine we have seen, but he fears he will not have it ready in time for the first shipment. Perhaps the Government may allow two shipments of agricultural implements, as it will for horticultural products. John Elliott & Son will exhibit two harvesters. Stevens, Turner & Burns one threshing machine and one agricultural engine. The North American Co. will exhibit one thresher and one mower. Wortman & Ward, churns and hay forks. D. Darvill is talking of sending a pile driving machine. McClary & Co. will make a large exhibit of stoves and tinware. Mr. Thompson, carriages. Mr. Leonard & Sons, and Jno. Campbell, are as yet undecided.

As Others See Us.

SIR.—The *ADVOCATE* is the best paper in Canada.—LYMAN B. SMITH, Warrington.

SIR.—The *ADVOCATE* is to the farmer as the compass is to the sailor.—R. S. McGill, Hagersville.

SIR.—I have taken various agricultural journals, but am best satisfied with the *FARMER'S ADVOCATE*.—J. W. BURNS, Rockwood.

SIR.—I cannot do without the *ADVOCATE*, hard as times are. Wishing you greater success.—FRANCIS MIDDLETON, Chandos.

SIR.—I would not think of doing without the *ADVOCATE*, for I believe I receive ten times its cost every year.—E. W. BROOKS, Glen Ross.

SIR.—After reading some of the articles that appeared in last issue, I made up my mind that I could not do without the *ADVOCATE*. Stick up for what is right for the agricultural class, and all right-thinking people will stick to you and be your friend.—THOS. WHITE, Branchton, Ont.

SIR.—Enclosed please find \$1, being my subscription for the coming year. This is my fourth year, and I certainly have less inclination to give it up than ever. I like the *ADVOCATE* for the fearless way it criticises things it conscientiously believes to be wrong.—GEORGE H. HEALEY, Virden, Man.

SIR.—Although I have rented my farm for a time, I still take an interest in farming and everything connected with it, and do not intend to give up your old and valuable journal. I have been a subscriber, I believe, ever since it started, and have got a great many useful hints in its columns. Wishing you every success.—JAS. ANDERSON, Guelph.

SIR.—I enclose you one dollar to pay for the *ADVOCATE* for 1886.—It is twenty-one years next February since our Township Clerk presented each of the Councilmen with a copy of your *ADVOCATE*. The remarks that were made about the little sheet were, it would not last long and would soon die a natural death. But each of us subscribed for it, and I have taken it ever since, and to-day it is a credit to the country; also the publisher to send forth such a sheet, for it fearlessly advocates what is right and denounces what is wrong. Hoping it may continue long in the true cause.—JACOB SOVIEREEN, Delhi, Ont.

The Household.

The Beginnings of Lung Mischiefs.

BY A FAMILY DOCTOR.

The disease familiarly known as consumption is one concerning which there exists a good deal of popular fallacy; and one mistake lies in believing that the disease is wholly and solely an hereditary one. That consumption is transmitted by hereditary influence—in other words, that it descends in families—medical men have no reason to doubt, but quite the contrary. The exact method of such descent or transmission is somewhat obscure, and we can hardly hold with some who believe that there is any positive poison in the blood of the child of a consumptive parent at its birth, if the child and parent are to all appearance healthy at the time. If there were any such poison in the blood, it would not lie dormant for ten, fifteen, twenty, or thirty years, and become fatally fertile at last. It is easier to believe that, as like follows like, the hereditary tendencies to consumption are due to the child inheriting from the parent the peculiar formation of the frame and organs of the body which shall render him liable to be attacked by the disorder, and unable to repel the onslaught when so attacked.

On the other hand, the disease may be, and is very often, produced from careless habits of life, from errors in dieting, from intemperance, from living what is called fast, and from exposure to damp cold atmospheres and impurity of air; and this, too, where there is no hereditary influence at work—no consumptive diathesis. This latter word, "diathesis," is one that I am not fond of using when writing a popular paper on any disease. It is a misleading one, and to many a hope killing one. I should like my readers to live in such a way as to defy diathesis, and this I am happy to tell them they can to a great extent do. I have no wish, however, to underrate the very serious nature of the disease called consumption. What we ought to bear well in mind, then, regarding it are these two facts: first, that those who may be hereditarily inclined to consumption need not of necessity fall victims to it; secondly, that there is the possibility of any one becoming phthisical quite independent of any hereditary influence at all.

Is consumption infectious? This is a question that deserves a well considered reply. Many believe that the disorder is the result of specific morbid matter, and that the germs thereof may be transmitted from the diseased to the healthy, even in the air that is breathed, by means of floating germs.

This theory was first promulgated about twenty years ago by a gentleman of high standing in his profession, and it finds many supporters even at the present day. A recent writer calls consumption a parasitical disease, and says it bears some analogy to that dreadful accidental disorder called *trichiniasis*, which is induced by eating underdone pork, ham, or sausages containing the cysts of a small thread-worm called the *trichina spiralis*, which, finding their way into the blood and multiplying indefinitely among the muscles, leads to a painful and terribly distressing death. Dr. Max Schullar would seem to have proved that animals into whose veins or tissues small portions

of a solution impregnated with tubercular matter has been injected, fell ill and died of consumption. Others have fed rabbits and pigs with the milk of affected cows, and on killing them found unmistakable evidence of tubercular deposit—consumption, in other words—the disease being caused by the disposition of this tubercular matter in the lungs, &c. This is credible enough, and probably proved the contagious character of the actual tubercle; but after many experiments, and much observation, other medical men have come to the conclusion that consumption is not only contagious, but infectious as well—that it can be communicated by inhaling the air of a room where a person in consumption lives, and in which the disease germs are supposed to be afloat.

While admitting the possibility of the generation of phthisis by contagion, which is only another word for inoculation, I do not think it has much practical bearing on the health of the community; but I shall need to have a deal more proof adduced, before I can believe that the complaint may be transmitted through the air like scarlet or typhoid fever, or that it is thus disseminated over the land, as some think. Experiment can prove a great many things, but it does not prove everything; and experimentalists are too often led by the nose by their own ideas and notions; they sometimes mistake a Will-o'-the-wisp for the true light of science. They, moreover, are apt to go too far afield to look for the *causæ morborum*—the causes of diseases—which they might find much nearer home; in this respect they put one in mind of one's grandmother, who spends a couple of hours looking for her spectacles, and finds them at last on her reverend brow.

When one reads the history of cases of so-called cured consumption in medical journals or pamphlets from beginning to end, till he comes to the pleasant finale, "dismissed cured," one is apt to ask himself the following questions:—Will the individual dismissed cured live happy ever after? Is the cure as perfect as that for the tooth-ache, treated by means of the cold steel of the dreaded dentist? What becomes of the hereditary tendency? Has that been cured, too? Has the peculiar phthisical formation of the body been got rid of—the chest expanded, the lungs extended, the stomach strengthened or re-coated—in a word, has the quondam patient been made over again? Or is consumption one of those diseases which there is but little, if any, danger of taking twice, or "dying of more than once," as Biddy O'Sheen would say?

Consumption, then, is a blood disease, or disease of a constitutional nature, and its first symptoms are stomachic in their nature. There is a peculiar kind of dyspepsia, characterized by the inability to digest, and probably a distaste for, certain articles of diet, such as fatty meat, butter or sugar, and beer or alcohol in any form. These turn soon on the stomach, and heartburn is the result, and a variety of other distressing symptoms, and not the least painful among them being flatulence. A form of dyspepsia of this kind could not long exist without producing disease of some kind, and in those who have a tendency to the disorder, the result is too often consumption, set up or excited, perhaps, by an attack of catarrh from exposure in some way to cold and damp. But indigestion, even in those of strong constitution,

should always be taken as a warning of something impending. Dyspepsia is the dark shadow cast before many a coming event, that may end in death to the sufferer from this simple but insidious complaint; it should never, therefore, be neglected. But it must not be supposed that it can be removed by a few boxes of pills, a few bottles of mixture, or by medicine alone of any kind. The indigestion will yield only to regulation of the whole system. A change should be made in the method of living. Begin with the food; the diet should be wholesome, simple, and well-cooked. Made dishes of any kind should be avoided. For breakfast, which should be taken about eight o'clock, preceded by a short walk, if possible, weak coffee with plenty of milk will be found better than tea, and cocoa is better than either; toast, with butter, is preferable to bread, and fish, eggs, ham, or cold meat may be eaten therewith. The meals must not be hurried; if there be no one at the table to carry on an agreeable conversation with, a book or a newspaper should be the companion; so will the food be taken slowly enough to produce that due admixture with the salivary juices, which prevents the formation of acidity. If breakfast be taken at eight, at twelve or one some luncheon, however light, should be taken. A dyspeptic patient should never fast long, nor ever eat much at one time. Dinner may be preceded by that light and pleasant refectation called the afternoon tea. I think soup for dinner is, as a rule, better avoided. Variety of dishes at any one meal is to be avoided, while fish, game, mutton, beef, and fowl, with well-boiled potatoes and green vegetables used sparingly, should form the staple of diet. Condiments, rich sauces, pork, fatty dishes, and pastry should not be taken, nor cheese; but a little ripe fruit may, avoiding nuts as poison. Wine, and even beer, should be done without, if possible.

The supper should be light and not sloppy, and so-called nightcaps should be avoided. The best tonics are—exercise in the open air, the soap-bath, an occasional Turkish bath, and, whenever it can be borne, a cold, or at all events a tepid, sponge-bath before breakfast.

Cod-liver oil will do good if it can be borne, but I question the judiciousness of what I may term cod-liver oil cramming. A bitter vegetable tonic, such as calumba infusion, with some mineral acid, does good by increasing the appetite, but it should be taken in small doses often repeated. Good is done by the use of the extract of malt, or maltine; it may be mixed with milk, or even water, to which a little lime-juice is added. If good lime-juice cannot be had, the pure juice of the lemon should take its place.

The bed-room should be quiet and well aired. The bed-clothes should be light and warm, but not so much as to cause sweating. Flannel should be always worn next the skin, and draughts, damp, fog, night air, and east winds avoided like the pestilence.

As to the change of climate to other lands, let me just warn the incipiently phthisical to look well before they leap; they may do far better by staying at home.

SIR,—I enclose the annual dollar with pleasure, and am pleased to believe your clientele begin to appreciate the advantage of having an independent journal in the FARMER'S ADVOCATE.—ROBT. CAMPBELL, senr., East Zorra.

Family Circle.

HOW THAT CUP SLIPPED.

"There's many a slip Twixt the cup and the lip."

In Chicago. But who would ever think of locating a romance in Chicago? and not only using that prosaic city, but selecting for its hero a quite (except when in a "corner") coal merchant? My plea is this: romances locate themselves, and heroes are like murder—you never know when or where to prepare for them. So it was in Chicago that the cup was lifted, and quiet, bashful Mr. Strong, who knew far more about the different kinds of coal than he did about women, whose unsteady hand let it fall. Mr. Strong at a date prior to the beginning of this romance, belonged to that army of middle-aged young men seldom visible to a lady save at a theatre, or occasionally on Madison Street, or going up the steps of some boarding-house. At the theatre they troop by twos and threes to their reserved seats in all the joyous freedom of ungloved hands. Listen to the play, unless perchance they are distracted by the sight of some former companion who is detected stealing slyly in with a pretty smiling girl, upon whom he lavishes bonbons and attentions, and never once glances in the direction of his forsaken friends. They always hurry out between acts, not so much, I am convinced, for the sake of getting a drink, as to escape into the open air, and chuckle over the capture of Brown. Or (presuming my reader to be a lady) you are at another time indebted to one of this band for a seat in a crowded stage in crossing from one side of the city to the other. He cheerfully resigns his place, you are made comfortable, and he hangs on to a strap and bumps his expensive beaver against the stage roof. Or, as I said before, you may see him mounting the steps of his boarding-house.

It was in the latter case that Miss Jessie Bloomer first saw Mr. Strong. She had arrived in Chicago one summer day by an afternoon train, had taken a warm bath and a refreshing nap, had tossed her waving brown hair into an artistic mass, robed herself in a pale blue muslin, the delicate shade of which brought out every rose and lily of her pretty dimpled face, and at last had floated airily down stairs, and was standing at one of the parlor windows just as Mr. Strong, fanning himself with an evening paper, put his foot upon the lower step of his boarding-house. Some young fellows were lounging on the upper one, and a word from them caused him to look up. As he did so, the picture framed by the opened window with its shadowy lace drapery was so dazzling that it caught his eyes at once, and he was overcome with embarrassment, and shuffled clumsily up, to the suppressed amusement of the fellows at the top, who remarked that "Strong seemed struck."

Now it may naturally be asked how Miss Bloomer came to invade the home of these commercial gentlemen. The answer is easily given. She was a young sister of Mrs. Jack Morin, who, with her husband, also boarded at No. 19. Now all the fellows in the house knew Mrs. Morin very well indeed, but when she was forty years old, had a double chin and easy manners, and it had not taken any courage to make her acquaintance. But it was a very different thing to have a dainty bud of a girl suddenly settle down in one of the rather worn easy-chairs of their parlor, and as she had come without warning, she was such a surprising apparition that she caused each one of the boarders to scuttle back from the parlor door, when he would have entered, and converse in unusually low tones on the front steps.

In the meantime Mr. Strong paused not to listen to the gibes of his companions, but hurried up to his room to re-arrange his dusty garb; for he was late, and the fumes of the dinner were already mounting the basement stairs in an overheated manner, and mingling with the still warm air of late afternoon.

When he re-appeared the scene was changed, and the household was assembling around the dinner table. As he entered the dining-room, Gordon, the wit of the house, had, with Jenkins and Smith, the other boarders, been introduced, and was giving the new arrival a humorous catalogue of the sights which Chicago offered, and which she must make a point of seeing.

Miss Bloomer was thinking, just as Mr. Strong took his seat, that it must be very funny indeed to drive under a river instead of over it, and she was thinking, too, that a tunnel must be rather a frightful place, especially at night, which gave Gordon a chance to get off one of his *mots* (not altogether new to his fellow-boarders), to the effect that although it was a good place for lurking robbers, they could hardly be called highwaymen, at which Miss Bloomer laughed sweetly, with her big eyes as well as her pretty lips.

Somehow Mr. Strong felt irritated with Gordon and his old jokes, and when he in his turn had been introduced to the young lady, he chose to turn the conversation into a grave, even a gloomy, channel. But fortunately gaiety was restored by the timely entrance of belated Jack Morin, who greeted his charming sister-in-law in a boisterous and brotherly fashion, giving her a hearty kiss and hug when she sprang from her chair to meet him—a proceeding which was watched with envious eyes by the boarders, and when he pulled one of the long *ceils* which hung in her neck, and told her that after himself she was the beauty of the family, every fork was silenced in rapt attention. But I must not linger too long over this part of my story, since it is only the preface.

Not many days passed before Miss Jessie was adored by the four bachelors. Not one would

have owned that he was doing more for her than he would cheerfully do for any lady visiting the city for the first time, when each vied with the other in making her visit agreeable. But, oh, Messrs. Gordon, Strong, Jenkins, and Smith, did you do as much for quiet, plain Miss Wyman when she, only twelve short months before, visited her cousin, your landlady, in this very house? Where then was this lavish display of hospitality on your part? Did she not broadly hint that she would like to go out to the "cub," and so see the interior of the shot-tower? And did she not say plainly that she was not afraid of horses, when you, Mr. Gordon, made a sham show of regret that your swift trotters were not safe for a lady to drive behind? And did not you, Mr. Jenkins, trump up a business visit to St. Louis rather than wait upon the ladies to the opera? And as for Smith, he ought to blush to his dying day when he recalls the falshood concocted about the perils of a trip out to the cub. And when did you, Mr. Strong, ever lay aside your evening paper and tantalize Miss Wyman to beat you at a game of chess? Shame, shame upon you all! You know very well that you all wad that poor young lady to have a dismal visit in the city you are now making so lively for this rosy girl, with her bewitching smile and eyes.

But to resume my chronicle. For the first few evenings Mr. Strong was, to all outward seeming, true to his paper but a close observer might often have caught him looking over the top at the central figure of the group around the card table. Especially was he distrustful when a light, happy laugh called him away from politics and current prices, and a pretty white hand reached out with a childish petulance after a lost "trick." And he gave up all semblance to reading when a girlish figure perched itself upon the piano stool and waited patiently while that favored Jenins tortured the strings of his violin, and prepared to squeak out a villainous accompaniment.

Then came an evening when he stood back of Miss Bloomer's chair and gave her some useful hints on euchre-playing, which were most gratefully received. After that he was often one of the four around the ever-present euche table.

About this time a certain world-renowned prima donna began an engagement at M'Vickers, and one evening Smith came home unusually early, and spent an unusually long time over his toilet. A little later, a gaudy and expensive bouquet arrived, and was sent up to his room. At dinner, Miss Bloomer, always prettily dressed, had added several touches to her dress, which, taken with the sympathy in Smith's case, threw the other three bachelors into a high state of excitement, and they anxiously awaited further developments. They were not kept long in suspense, for soon after dinner a carriage drew up before the door, and the driver at once called for Mr. Smith. Mr. Smith was notified, and was soon waiting in rather a nervous manner, in the hall. Presently Miss Jessie Bloomer tripped lightly down stairs, wrapped in a fleecy opera cloak, and carrying the mysterious bouquet in her hand, and together the forsaken trio of bachelors gloomily watched Smith hand her into the carriage, and drive away to the opera. They all resented what they felt to be shabby, underhanded behavior on his part, and had they been Englishmen, they would have joined in voicing him "a c-d." But being merely good citizens of Chicago, they contented themselves with the remark that Smith was sometimes a little tricky on "Chance," which fact really had no bearing upon the case in hand, as his present behavior was certainly straightforward and above-board. He had asked Miss Bloomer that morning if she might have the pleasure of her company to the opera; she had readily accepted, and it had never once crossed his mind that it was a duty he owed to his fellow-boarders to acquaint them with his intentions. But it was terrible to think that Smith's conduct was such that it could not be overlooked nor meekly borne. If he could whisk Miss Bloomer away to the opera, why, so could they, and then and there each to himself vowed a vow, the carrying out of which rolled gold—or rather good greenbacks—into the coffers of that prima donna, and into the pockets of florists and hackmen. And never before did a little village maiden have such a feast of opera, or accumulate bouquets and librettos at such a rate. This opera business was but the beginning of her dissipation. There were drives out to Lincoln Park; Gordon's skittish beast flew along "the Boulevard" with the bewitching little sitting beside their owner; an excursion was arranged offhand for herself, Mrs. Morin, and one of her admirers out to Hyde Park, when she was heard to express a wish to go there and gather fringed sentiments; and as for bonbons, they flew up to her room in a perfect procession of costly satin, gilt, and inlaid boxes. So altogether Miss Bloomer was behaving, as she wrote to a friend at home, "a perfectly lovely time."

But in the natural course of events there came a time when she had to cease revolving in this round of gaiety.

One soft autumn evening, as she was driving beside Mr. Strong along the lake shore, there came a full moon, and they silently watched the full moon as it began to burnish the tranquil waters of Lake Michigan. The carriage rolled softly along, and the horses stepped evenly over the damp drive, and every thing combined to enhance the quietude of the hour. Finally Miss Bloomer spoke, and there was a tone of earnestness in her voice which her statement scarcely seemed to warrant. She said: "I had a letter from mamma to-day." Mr. Strong was puzzled by the woe of her manner, but hoped her mamma was well.

"Yes, thank you, she's quite well; but—"

"Your papa is not ill, I hope?"

"No papa is very well too? but—"

"Yes?"

"I have to go home."

"Go home? Oh no. Why you've only just come."

"Oh, Mr. Strong, I've been here ten weeks next Saturday."

"Ten weeks! It doesn't seem that many days."

"And I've had such a perfectly lovely time. I only wish I had just come; then I'd still have my visit to make."

"But why need you go home? Write and ask your mother to let you stay all winter."

"It would be of no use; and what is worse, I don't expect ever to see dear, lovely Chicago again. You know Jack is going to live in St. Louis after this."

"And that is the suggestion of a sly Miss Jessie's voice as she finished her sentence."

Mr. Strong mused, and at last said, "that's too bad."

It was some time before either spoke again, and during the interval the gentleman was feeling sincere regret that the lively little girl was going away. He would probably never know a "other's will"; indeed, he never would have known her if she had not walked right into his home, and, as it were, forced him to make her acquaintance. Never before had he asked a lady to drive with him or go to the opera; and although he had found it a pleasant experience, he had not the faintest idea that he would ever repeat it, for, as I hinted before, he was a bashful man, and he trembled at the thought of presenting himself before any lady through the usual avenues of society. The result of all this retrospection was merely a repetition of his first avowal, that it was too bad.

"Do you mean it is too bad for you, or for me?"

"Why, for—for me, of course," Mr. Strong had really up to that instant not known which side his sympathies were on.

"Oh, now, Mr. Strong, don't tell fibs; you know you don't care in the least whether I go or stay; you'll forget that I ever existed after I am gone a month; and the big eyes looked a merry reproach upon him.

"You are too hard upon a fellow, Miss Jessie—indeed you are;" and after Mr. Strong had commended his protest it was easy to go on. "You can't guess how much well I miss you—all of us—and, especially, you may be sure, I'll be lonely enough when you are gone."

"You are very kind to say so."

"Kind! How could a fellow help missing such a—a—" (Be careful, Mr. Strong; Miss Jessie looks very sweet in the moonlight, as she sits waiting for you to finish your sentence.)

"Such a—a—?" asked a saucy, mocking voice.

"Such a lovable little thing as you are;" and before he realized what he was doing, he had bent down and taken a kiss from the smiling lips.

"Oh, Mr. Strong!" drawing back,

"You are not angry, are you, Miss Jessie? Please forgive me. I need I couldn't help it."

"I am very, very angry, and you could have helped it if you had wanted to."

"Perhaps I could if I had wanted to."

The young lady preserved a severe and silent demeanor, and the culprit grew uneasy.

"You will forgive me, won't you, Miss Jessie? If we have to part, let us part friends," in a very contrite tone.

No answer. What was he to say to make his peace? What would Gordon probably have said under similar circumstances?

A sob from Miss Jessie. "I'm just as unhappy as I can be. Mr. Strong, and I'm very sorry I told you I was going away. I never thought it would make—make you kiss me."

This was encouraging, and her companion's spirits grew lighter, and he became fluent in expressions of regret for his conduct and his remorse. He at last succeeded in gaining forgiveness for the first, and in assuaging her grief at leaving "dear, darling Chicago;" for so perfect was the reconciliation that when their drive was ended, Miss Bloomer was promised a visit from Mr. Strong.

Now a well-conducted romance ought to have gone on smoothly from this point; but, instead, this one sought out the roughest path through which to wander. In the first place, Mr. Strong found awaiting him at a telegraph which called him to Pennsylvania, and while he was away the father of Miss Bloomer made an unexpected appearance in Chicago, got very homesick, after the manner of old gentlemen unaccustomed to leaving home, and spirited that young person away to the farthest corner of Minnesota, only the day before her lover returned. Had she known of his nearness, she might have persuaded her father to wait twenty-four hours; but I am forced to confess with shame that my hero had never once written to his little fiancée during the ten days of their separation. He would gladly have done so, and had even dated numerous sheets of paper, but after the date was once written he was at a loss how to continue. The address was the stumbling block; if he could have settled that to his satisfaction, he might have gone on, but he could not. Since Miss Jessie was not present, his engagement became so vague a thing that he was only half certain that he had not dreamed it that night in the seething car. When he had started upon that eventful drive, no idea that he would return from it her promised husband had ever crossed his mind. Then, in less than two hours after, he said a hurried farewell in the hall, had stolen a couple of kisses when they were out of range of the open parlor—wherein reigned an ominous silence—had promised to be back the moment business was over, and had taken his valise and rushed away to catch the night train going East. So, after the many vain attempts I have noted in the letter was given up, and he depended upon forgiveness, when he should reach Chicago, by eloquently and truthfully stating the case.

But a letter might have prevented all that followed. For if a letter had come, it is more than likely that in the course of time it would have been shown to Mrs. Murin, who would straightway have told her husband and father, and the engagement would have been talked about in the family. Indeed, Mrs. Jessie had depended upon the coming of a letter to divulge her secret to her sister. But when none came it was but human that indignation should settle down upon her heart, and silence upon her lips.

So she departed, leaving but a brief note, which was to give her neglected lover her Minnesota address, "should he desire to make use of it."

This note called forth a prompt, awkward apology from the erring string, which was received and pardoned—both the conduct and letter—in a graceful and lengthy epistle from Miss Bloomer. Indeed, it was such a pretty letter that it inspired the recipient with a glow of pride in being able to claim the charming writer as his own. He carried it in his breast pocket, and read it many times, and on the following Sunday retired to his room immediately after breakfast, and wrestled with an answer during the greater part of the day. He began by informing her that her "favor of last Monday was received, and contents duly noted." Then he was glad to learn that she had reached home safely, and that she had found all well there; he was also glad that she had not mentioned their engagement to her sister before leaving Chicago, as the fellow would all have had their remarks to make, and it would be just as well to give them a good surprise one of these days; and should he write to her father? He supposed she knew the great news about Jack and Geo. don going into a partnership and setting up in St. Louis the next week. He would try to get off some time near Christmas and visit her. In the meantime she must tell him what kind of a ring she would like. Business was beginning to hurry him, and she must not always wait to answer letters, but write to him often, and he remained respectfully hers, etc., etc.

As an ordinary letter it was a study, but as a love-letter not a success. Still, Miss Jessie understood her difficulties, read the most readable passages to her dear friend and confidante, and proceeded to make a record of her future husband, and did as he desired about writing often.

Almost any reasonably good fellow can be idealized into a hero by simply setting himself upon a pedestal in the heart of an imaginative, affectionate young girl, and then leaving her. First of all he will be a hero because it is necessary for her to have one to worship; then he is here, has given himself to her in preference to any of the thousand other women he has seen, and why that act alone has shown him self superior to the thousand other men whom she has seen. He may be a trifle dull in conversation, and more than a trifle dull in his letters, and withal somewhat neglectful of her; but then he is absorbed in the affairs of the world, and what would become of these same world affairs if he took no interest in them? So she cheerfully accepts him as he is, and stands just a little in awe of him, because he stands masters into which she cannot enter. He may be rather taciturn, but in that case he has the veritable grand seigneur style, and is all the more admirable for it. Under any and all circumstances her common clay turns to finest marble and she worships her idol, and commands all her friends to kneel before the shrine.

Now even on the slight acquaintance my readers have with Mr. Strong, I'm sure they will agree with me in the verdict that he was not of the stuff from which heroes are usually made. He was not built of very fine clay, nor of sounding brass; he was more, judging him impartially—like a bass-wood image than anything in the world; but such as he was, Miss Jessie had not been parted from him a month before she had him entreated, with innumerable tapers glimmering through the clouds of lucence constantly burning before him.

How sad to think that he was so soon to cast himself down from that pedestal! Or did Fate do the deed? I'm more than half inclined to think he was only a tool in the hands of inexorable destiny, for years after, when he told me the whole story, he came a near weeping as a Chicago coal merchant could. He twisted his hands together, and turned about on the little finger of his left hand a magnificent diamond ring (which was bought for a much fairer hand), he groaned aloud, and swore that a greater blow than he ever lived, and in every way showed the liveliest remorse. To justify him as much as possible with my readers, I'm going to let him finish the story for himself, and they will be convinced of his sincerity.

"I arranged my business so as to get away for a couple of weeks about Christmas. I wrote her I was coming, but did not say just where, as I was so uncertain. I was going a little way and her home, too, before I returned, to visit some of my mother's relatives. I wanted to see poor little Jessie very much; indeed I did; but I dreaded to meet the old folks, and all her girl friends, and the whole village; so when I got on the train to start, and met a friend who was going hunting in my uncle's neighborhood, I decided to go right on with him, make my visit there first, and then visit Jessie on my way back to Chicago. I thought I'd gather courage in the mean time to meet her folks.

"I found my friends very glad to see me, and the first week of my vacation slipped away with me realizing it. Then I thought I'd send a line and fix a day for starting. I didn't get a chance to write that day; and the next, when I sat down to begin, I found it rather awkward to tell her that I had come right past her station to see other friends first, so I concluded not to write, but just step in the next day when she wasn't expecting to see me. That very night a terrific snow-storm came, and there wasn't a train to be seen for forty-eight hours. The last one that went through brought me a letter from my partner in Chicago, urging me back as soon as possible, as we were likely to meet with a heavy loss. The letter decided me to take the first train that came, and get to Chicago as soon as possible. I fully intended to dispatch my business there, and the moment I could get away, to take a three days' visit that poor little girl. Of course I couldn't write to tell her how I'd been loafing within one hundred miles of her for nearly two weeks.

"When I got to Chicago I found affairs badly mixed up, and it was two weeks more before they were straightened. I was so harassed all that time that writing was quite out of the question with me. I never was much of a letter-writer anyway, and least of all in the line of friendly correspondence. But I had thought of my behavior every day, and many times each day and I can assure you I didn't respect myself any the more for my convictions.

"The very night that my business was completed I received this letter from Miss Bloomer," and he handed me a little missive from out his note-book. It ran thus:

"Mr. Strong,—After receiving your last letter, nearly a month ago, I expected you daily. But I need scarcely say, now that I have learned from a true friend that you passed through Forestville twice last month, that I do not expect you at all.

"Your conduct has been very singular, to say the least, and I do not understand it. Do not, please, imagine that I am breaking my heart over the matter, for I am not. I only congratulate myself upon my happy escape from a man who has so little regard for his word.

"Trusting that your ways will be more straightforward in the future, for your own good,

"I am, respectfully, yours,
JESSIE BLOOMER."

"Pretty severe, isn't it?" he asked, as I finished. "But I deserved it."

"Yes, you deserved it," I replied, handing it back.

"What did you do to clear yourself?"

"I wrote and told her the whole thing, but received my letter back, along with the others I had written, and a little slip of paper, upon which she merely said that a poor excuse was better than none, but I must pardon her if she declined to accept it."

"And did you ever learn how she found out about that unlucky trip?"

"Yes; it seems that White—the friend I met on the train—saw Morin in St. Louis, and told him about our jolly hunting party; Morin mentioned it to his wife, and she wrote it to Jessie."

"And you've never heard of her since?"

"Yes, I had a—that is, not a letter, but—her wedding card, about six months after."

"Ah! Whom did she marry?"

"Gordon."

"Oh!"

Color of the Eyes.

Clear, light blue eyes, with a calm steadfastness in their glance, are indicative of cheerfulness of disposition, of a serene temperament, and a constant nature. These eyes are peculiar to the Northern nations; one meets them among the Swedes, and also sometimes among the Scotch. The blue eyes we see among the rare blondes of the South—that is, in Italy and Spain—have among them eyes in which are some greenish tints; and such eyes, though often called light blue, have none of the qualities of serenity and constancy which belong to the light blue eyes of the North.

Neither must the pleasant light blue eye with the honest glance be confounded with another sort of eye, of a pale blue, almost steel-colored hue, which has a continually shifting sort of motion, both of the eyelids and the pupils of the eyes. People with such eyes as these are to be avoided, as they are indicative of a deceitful and selfish nature. Very dark blue eyes, with something of the tint of the violet, show great power of affection and purity of mind, but not much intellectuality. Blue eyes are more significant of tenderness and of a certain yieldingness of purpose, than either brown, black or gray eyes. Blue-eyed people are not inconstant, like those of the hazel and yellow eyes, but they yield from affection.

Grey eyes, of a somewhat greenish grey, with orange as well as blue in them, and which are of every-varying tints, like the sea, are those which denote the most intellectuality. They are especially indicative of the impulsive, impressionable temperament—a mixture of the sanguine and the bilious—which produces the poetic and artistic natures. In England, where there are more varieties of tints in eyes than in any other country, the poets have almost always gray eyes. A biographer of Byron speaks of his "beautiful, changeful gray eyes." Shakespeare also had, we are told, gray eyes; Coleridge, eyes of a greenish gray. Among the artists, too, eyes of this color abound.

Black eyes, or what are considered such, are indicative of passionate ardor in love. Brown eyes, when not of the yellowish tint, but pure russet brown, show an affectionate disposition; the darker the brown—that is, the more they verge on to that deepest of browns, which in eyes we are in the habit of calling black—the more ardent and passionate is the power of affection. The brown eyes which do not appear black—that is, which are not dark enough to appear so—are the eyes of sweet, gentle and unselfish natures, without the inconstancy of the light brown or yellow eyes—"golden eyes," as they were called by a lady novelist, and which are very little more to be trusted than the green eyes.

Minnie May's Department.

MY DEAR NIECES,—Did it ever occur to you that there are two distinct kinds of people continually crossing our daily path, namely, the comfortable and the comfortless, and their surroundings are necessarily characteristic of themselves. How closely is comfort identified with the idea of home. Comfortable people are not satisfied merely with a home, but they must have comfort. Not less wretched than the homeless are those whose homes are lacking that quality.

Comfort does not mean merely warmth, good furniture and good eating and drinking. It means something more than this. It means cleanliness, pure air, order, frugality. Luxury is not necessary; a poor man's house, moderately supplied with the necessaries of life, presided over by a cleanly, frugal housewife, may contain all the elements of frugal living,—for comfortlessness is caused not so much by the absence of sufficient means as by the lack of knowledge in domestic management.

Comfortable people are kindly-tempered. There must be peace, mutual forbearance, mutual help, and a disposition to make the best of everything. "Better is a dinner of herbs where love is, than a stalled ox and hatred therewith."

Comfortable people are also those of sound common sense, discretion, prudence and economy. They provide for their own household, yet are not wanting in proper hospitality and benevolence, and every one feels pleasure when in their company.

Now, for a moment let us look at the state of the uncomfortable or comfortless; we all know more or less of such people. Where the house is in a muddle, the smell of washing is constant; dirty children running about, who are petted one moment and scolded and slapped the next; where nothing is clean, nothing mended, nothing ready, and in the midst of all, is the worn-out distressed housewife in a constant pucker from morning till night because things don't and won't go right.

Now my advice to you, one and all, is to notice both sides of the picture and let each be a lesson to you; both for your own sake and those about you, be comfortable and help, at least, to make your homes so too.

MINNIE MAY.

SIR,—I am well pleased with your paper. I would be lost without it. As for its instruction it cannot be better.—JOEL DAY, Dairyville, Ont

Work Basket.

EMBROIDERED BUTTON-BAG.—This is a very necessary addition to a work-basket. In ordinary cases a single bag is sufficient, but where there is a large family and much repairing to do, a set of three will be found very convenient. The platted linen used for silver and glass ware is the material used for these bags. When finished they measure one finger in length, and three-quarters of a finger in width. Allow for seams and an inch wide hem at the top, through which the draw-string is run. Work a simple design in crewels or silk, or, if desired, the squares may be darned, each with a different color.

If a set is wished, make three bags the same size, embroidering only two for the outside ones, and fasten securely with a few stitches at the top of the hem, and run the draw-string through all three.

DORCAS MAG.

KNITTED BLANKET.—This is made in stripes of two shades, blue and white, or grey and pink are pretty contrasts. Cast on forty stitches, and knit across plain.

1st row.—Slip 1 (a), knit 1, purl 1, repeat from (a) to end of needle.

2nd row.—Slip 1, and knit the rest plain. Repeat these two rows until the stripe is the desired length, remembering to slip first stitch so as to make an even edge. Care should be taken to have the purled stitch in third row come directly over the purled stitch in first row. Crochet the stripes together with another color.

DORCAS MAG.

INFANT'S BODICE.—Materials required:—Five oz. white Berlin wool; four pins, No. 14 (Walker's gauge). Commence with the band for the waist. Cast on twenty-eight stitches, work backwards and forwards in plain knitting until you have worked 18 or 20 in.; now commence the decrease for the pointed flap by—*1st row.*—Knit two stitches together at the beginning of the row, knit 6, slip 1, knit 1, pass the slip stitch over, knit to within 10 stitches of end, slip 1, knit 1, pass the slip stitch over, knit 6, knit 2 together. *2nd row.*—Knit 7, cotton twice over the pin, knit to within seven stitches of end, cotton twice over pin, knit 7. *3rd row.*—Knit 2 together, knit 5, knit 1, and purl 1 in the made stitches, and knit the two last stitches of the row together. *4th row.*—Knit 6, slip 1, knit 1, pass the slip stitch over, knit across to the other stitches worked in the made stitches, slip 1, knit 1, pass the slip over, knit 6. The holes thus formed are for the button holes, which should be worked over in button-hole stitch. Continue the decrease at the beginning and end of every other row until you have sixteen stitches on the pin, then make another hole as before described—when only 12 stitches remain cast off. The band must fasten in front. Pick up the back half of stitches, knit one and purl one alternately for three inches. The purl and knitted stitches must be reversed in every other row to keep the rib on the right side; cast off. The fronts are worked in two parts; pick up the stitches for one side, knit 1 and purl 1 alternately for three inches, cast off all but the

six stitches nearest the arm, on this work four more rows, and cast off. The other half of the front is worked in the same way. Sew the back and front together at the shoulders. With three pins pick up the stitches round the armhole for the sleeve, knit 2 and purl 2 alternately for two inches; cast off. A crochet edge is worked round the neck and sleeves. *1st row.*—1 treble in a stitch at the edge of knitting, 1 treble into next stitch, 2 chain, pass over 2 stitches, and repeat. *2nd row.*—1 double under the chain, repeat. A ribbon is run through the rows of trebles and tied in front.

EMBROIDERED TABLE COVERS.—The old-fashioned tables, with under shelf, can be made very ornamental in the following manner: First cover the standards with plush or velvet by cutting a strip just the width and catching it together on the inside of the legs. The feet will require more care. A pattern must be cut, then cut the plush, lay a thin coat of thick glue on the wood, and press the plush in place. The designs for the two covers can be em-

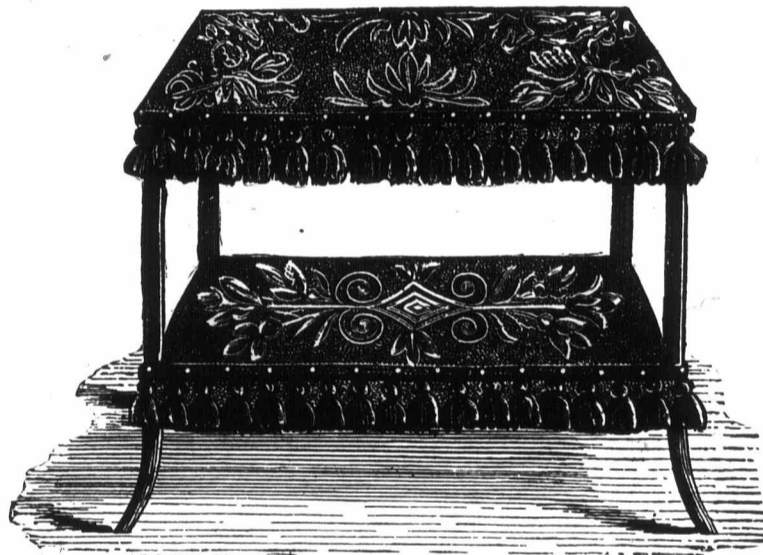


FIG. 1.—EMBROIDERED TABLE COVERS.

broidered in various styles and on various materials. Applique work on cloth looks well; figured plush on velvet, part embroidered, likewise. Althea and tulips form the motive of the top design, tulips alone the motive of the lower shelf. The flowers in both instances are conveniently arranged. See Fig. 1.

BED-ROOM TABLE.—A very pretty way to cover an old-fashioned square stand (and almost every home has at least one) is to put over the top smoothly a fine piece of scarlet or blue silesia, or cambric; over this put a cover of any pretty openwork lace or muslin. Then put a piece of the silesia, about thirteen inches deep, around it, cover this also with the lace; the effect is excellent, and in this way a useful article of furniture is redeemed from positive ugliness and deformity. If the legs are scratched or marred, a coat or two of varnish will make them look all right.

REVIVING FADED FLOWERS.—Cut the stalk, and hold it a few moments in the flame of the candle, and then set the flower again in the cold water, when it will recover its strength almost visibly after this violent assistance.

CASE FOR KNITTING NEEDLES.—This case is made of strong linen, the compartments outlined with red silk cord or ribbon. A small

oblong of flannel for needles may be placed on the inside of top flat. The lower flat is embroidered in cross stitch, and the front can be ornamented with a monogram. The fastenings consist of buttons and loops of cord. See Fig. 2.

OTTOMAN.—This useful article is made of a half barrel sawed down to the desired height, or a water pail, with a cover made to fit, would answer. Slightly wad both inside and outside of stool and cover; then line the article with dark maroon plush, embroidered or braided in a large open design with old gold, light blue pink and the olive shades and brown floss. Finish the edge of the cover with a very large cord, and on the bottom of the ottoman put the same. There are four castors at the bottom. See Fig. 3.

Answers to Inquire

H. B.—1. Keep the earth of your house plants moderately moist; water not too frequently, but thoroughly. 2. The record we have of vaccination as a preventive of small-pox was in 1799, when it was introduced into Great Britain by Dr. Edward Jenner.

HOUSEWIFE.—1. It is very unhealthy to paper the walls of a room over the old paper; it should be removed before the fresh paper is put on. 2. Upon receiving an invitation to dinner you should decline or accept unconditionally at once, for without an immediate answer the hosts are unable to determine for how many to provide.

EDEN DERRY.—We have so often to remind our readers that questions will not be answered unless the full name and address are attached to each communication. The *nom de plume* is not sufficient. We will be very

pleased to give you any information in our power when you comply with our rules.

JAMES A. 1. Certainly, though upon arriving at your friend's house to make a call you find invited guests when you had not been invited, politeness demands that you should go in, acting as if you were not surprised. After remaining a few moments, beg to be excused and retire. 2. It is quite proper, when introduced to a stranger, and you fail to hear the name, to ask that it be pronounced again.

E. P. D.—1. You can easily remove the spots from your varnished furniture by rubbing it with spirit of camphor, and the lustre can be restored to the morocco leather by varnishing with the white of an egg. 2. The best way of improving the skin is to improve the general health by temperate living and moderate exercise, which is worth more than all the face powders and "lotions" that were ever concocted. 3. It may be quite proper to accept a ring from a gentleman friend, to whom you are not engaged, as the ring may be a token of friendship between old and dear friends. We cannot judge without knowing more of the intimacy between you, but we see no more objection to accepting a ring than a present in any other form from an old friend.

CONSTANT READER.—1. As a rule the hostess or members of the family will see that the several dishes upon the table are passed at the proper time, or request you to pass what is near you. 2. Gentlemen lay the napkin across one knee, never tuck it into the button holes, or worse still, arm-holes of the vest. Bibs are for babes; men who cannot eat without letting drops fall upon their bosoms are not fit for polite society. 3. Leave your chair at the table.

Recip'es.

AMERICAN CREAM.—One package of gelatine soaked in one pint of milk for ten minutes; afterwards add one quart of milk; put it on the stove and let dissolve slowly; six eggs, yolks and whites beaten separately. After beating the yolks thoroughly, add to them six tablespoonfuls of granulated sugar, which mix with the gelatine and milk on the stove, stirring constantly until it comes to a boil. Beat the whites until they stand alone, and to them add two or three tablespoonfuls of sugar; put the whites in a good sized bowl and stir in the custard, beating rapidly until thoroughly mixed; flavor to taste with lemon or vanilla; then pour into a mould and let cool. As it cools in the mould the gelatine separates from the custard and goes to the bottom, making a beautiful dish.

LEMON JELLY CAKE.—One and a half cups of sugar, one half cup of butter, one cup of milk, three eggs, two teaspoonfuls cream-tartar, one of soda, three cups of flour. Mix and bake in five thin layers. For the jelly, grate the rind of one lemon, and add the juice of two large ones with one cup of sugar, one egg, one-half cup of water, one teaspoonful of butter, two tablespoonfuls of flour. Mix with three tablespoonfuls of water, and boil till it thickens; then spread between the layers of the cake.

RICE BISCUITS.—Beat 2 oz. of fresh butter to a cream, stir into this 4 oz. of ground rice and two tablespoonfuls of powdered loaf-sugar; moisten the mixture with a well-beaten egg; roll it out and stamp into small rounds with pastry cutter; put these in a baking dish and bake in a gentle oven.

GRAHAM POP-OVERS.—One quart water, half a cup sugar, half cup yeast, a small piece of butter, a little salt; in the morning add a small piece of soda. Take care that the irons are very hot.

EXCELLENT WAY TO DRESS FINNAN HADDIES.—The art of cooking finnan haddies is not generally understood. It is often boiled, by which means a great portion of the fish is rendered uneatable. The proper way is to wash it well in hot water, wipe and place it in a pan, and pour milk and water to almost cover it. Bake in an oven twenty minutes, basting occasionally; when done, put on a hot dish, rub it over with a bit of butter, and you have a most delicious breakfast dish.

TO COOK CELERY.—Cut the celery into inch dice; boil in water until soft. Then take new milk, slightly thicken with flour and flavor with nutmeg; warm with the celery in the saucepan; serve warm with diamonds of toasted bread round the dish.

HOME MADE CREAM CANDY.—To a cup of white sugar add two tablespoonfuls of water to dissolve it, and boil, without stirring, in a bright tin pan until it will crisp in water like molasses candy. Just before it is done put in a teaspoonful of vanilla or lemon or peppermint essence, and a quarter of a teaspoonful cream tartar. When done pour out into a



FIG. 2—CASE FOR KNITTING NEEDLES.

buttered pan, and when cool enough to handle work as you would molasses candy until it is perfectly white, then stretch and lay on a board and with a chopping knife cut into mouthfuls, or you can cut with the shears, and lay on buttered paper on a plate. Grease your hands with butter before working it and it will not stick to your fingers. Granulated sugar is not as good as other white sugar.

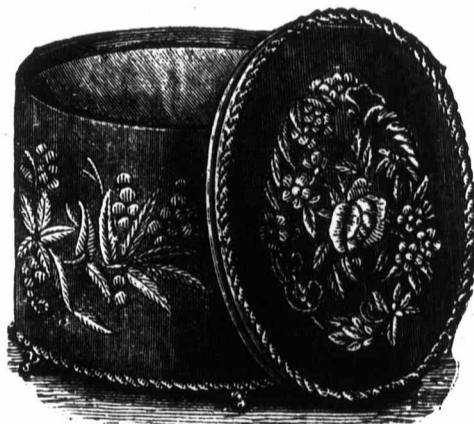


FIG. 3—OTTOMAN.

The Two Valentines.

A TRICK OF DAN CUPID'S.

Dan Cupid sat in his easy chair,
Mending his pen with a busy air;
'Twas Valentine's Eve, and nearly night,
And he still had a lot of rhymes to write.
So he mended his pen and scratched his head,
Then suddenly starting, "Come in!" he said,
In a doubtful tone, for he thought he heard
A tap at the door, but was not quite sure;
It might be the wing of a passing bird
On the pane, or a snap of the furniture
(He had bought it cheap at a poet's sale,
And poets' effects are apt to be frail);
But the door was opened, and in there tripped
A maiden, bright-eyed and rosy-lipped,

Who said, with a prettily-pleading whine,
"Dear Cupid, do write me a Valentine!"
Sly Cupid smiled at the maiden's plea,
And "Who is it for, my child?" quoth he.
"For Charlie, of course," said the bright-eyed
lass,
As she stole a look in the mantle-glass.
"Do you love him?" "Love him! Of course I
do;
But I never intend to tell him so;
'Tis mine to listen, and his to sue,
And, alas! he says never a word, you know;
But I'll give him my love in a Valentine,
And leave him to guess if the gift is mine."
Dan Cupid thought for a minute or two,
Then over the paper his quick pen flew,
Until "There, my dear, do you think that'll
do?"
He asked, as he gave her the tiny sheet.
"Do!" cried the maiden. "Dear Cupid, it is
sweet!
Oh, what shall I give you, you love, for this
"The price," quoth Dan Cupid, "is just one
kiss!"
With a coy little blush the price was paid,
And off to the post tripped the happy maid.

II.

"Aha!" cried Dan, as he smacked his lips
And blew a kiss from his finger-tips,
"Go your ways, forsooth, for a pretty dear;
Your Charlie's a craven swain, I fear,
If he dosen't—Hullo! whom have we here?"
For a rat-tat-tat was heard once more,
And a handsome youth flung wide the door,
Who, stopping a moment to breathe and smile,
Cried, "Cupid, good fellow, I've run a mile
To own to you I'm a rhymeless dunce:
You must write me a Valentine at once!"
"Must I?" quoth Cupid. "Pray who are you?
And whom must this billet be written to?"
"Oh, Charlie's my name; but never mind me,
For the Valentine is to Hattie, you see.
To what other girl could it possibly be?"
"Ah! then you love Hattie?" "I love her more
Than e'er mortal maiden was loved before;
But, you see, I rather—that is—I doubt—
In short, for my life, I can't quite find out
Whether Hattie loves me in return, and so
(As I haven't the cheek to speak out, you
know)
I'm resolved at least to offer her mine
In the incog. style of a Valentine."
While Charlie was talking, sly Cupid wrote
And folded a fragrant, tinted note,
Then said, with a twinkle in his eye,
"There's the best I can do for you now; good-
by!"
"But the price? No guerdon, I'm sure, is
dear—"
Quoth Cupid, "We'll settle the bill next year!"
And, closing the door with a roughish grace,
He laughed all the tears ran down his face;
For why? With the single change of name,
These two notes he'd written were just the same!

III.

"Here's a curious riddle!" young Charlie cried,
As he stood next morning by Hattie's side;
"I posted a Valentine yester eve
To a maiden I know, and, by George, I receive
This morning a copy—the very same—
A perfect fac-simile, save the name!"
"Indeed!" cried Miss Hattie, "Oh, pray let
me see,
For the very same thing has happened to me!"
He looked in her eyes for a moment's space,
And the blush grew deep on her bright young
face—
Into what happened next neither you nor I
Have any particular business to pry;
But Cupid, sly rogue, is perfectly clear
That his bill will be settled before next year.

SIR.—Enclosed please find my subscription (\$1) to your excellent periodical for 1886. The ADVOCATE seems to me an admirable publication, containing an easy and intelligible expression of the best principles of the science of agriculture, with the requisite caution and conservatism which come from the experience of the practical man.—G. HAMILTON VANCE, Strathairn.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES.—The letter budget for this month is larger than ever; the numerous contributions which we receive evince not only an earnestness on your part to maintain the interest in our department, but also to strive for continual improvement and the culture of your minds. Intellectual work is not like manual labor—use does not wear out the forces you work with. You will find the more you write the easier it becomes, and the more you discipline your minds the more easily will the words follow your pen. I know many of you are tired from over work and do not have much time for reading and writing, and are apt to neglect the culture of the young minds. But do, my young friends, strive to catch the spirits of the times; be up and dressed always, not gaping and rubbing your eyes as if you were half asleep; be wide awake for whatever may turn up, and you will be somebody before you die. Now I hope I shall hear from a great many more new nephews and nieces next month; if you cannot make up puzzles you can at least send some answers.

UNCLE TOM.

Puzzles.

1—HIDDEN RIVERS.

The fish I like best are the salmon and eel.
Do you hear the bees hum Bertie?
The camel began to run away.
So many are ill that I in good health am especially grateful.
He stood erect when the sentence was pronounced.

HENRY REEVE.

2—ANAGRAM.

Samenens ushn nad lal tai rinat,
Dogoesns ekes dna ilef si niga.

LIZZIE C. WATT.

3—MONUMENT PUZZLE.

_ 1 means fear.
*_*_* 2 complete.
*_*_*_* 3 worth.
*_*_*_*_* 4 billows.
*_*_*_*_*_* 5 a view.
*_*_*_*_*_*_* 6 importance.
*_*_*_*_*_*_*_* 7 cheerfully.
*_*_*_*_*_*_*_*_* 8 to declare.
*_*_*_*_*_*_*_*_*_* 9 devout.

ADELE LA PIERRE.

4—DROP-VOWEL PUZZLE.

Th - wh - l - s - cr - t - fg - - dm - nn - rs - st -
"d - - nt - - th - rs - sy - - w - - ldth - t - th -
resh - - ldd - - nt - y - - ." FAIR, BROTHER.

5—DIAMOND.

1, A consonant; 2, clamor; 3, an estate; 4, to see; 5, a lady's name; 6, a sour liquid; 7, a poet; 8, to disfigure; 9, in enmity.

ADA ARMAND.

6—HOUR GLASS.

1—Drawn in lines without colors; 2—To travel from place to place; 3—An inhabitant of Greece; 4—a town in France; 5—a number; 6—In "Uncle Tom"; 7—a weight; 8—to exalt; 9—pressing. 10—odious; 11—a mineral. Right diagonal—a person one hundred years old; centrals—to view; left diagonal—a flower.

FAIR, BROTHER.

7—DIAMOND PUZZLE.

- 1—Destructive insects.
- 2—A light.
- 3—A sullen look.
- 4—A warehouse.
- 5—Relish.

Read diagonally gives the names of two poets.

ADA ARMAND.

8—PICTORIAL REBUS.



9—DIAMOND PUZZLE.

A consonant; a body of water; a military pupil; to satisfy; sacred; honestly; a sea in Europe; repetition; a juror's disgrace; a addition of water; a small animal; a consonant.

JOSEPH ALLEN.

10—SYNOPATIONS.

Mimble = To separate.
Vapor = A stalk.
To furnish = A would.
A relation = Fine.
A rope = A kind of sea-fish.
A flat stone = To weaken.
Beach = To throw.
Hoot = Fiery.
Sincopated letters will name a great battle.

HENRY REEVE.

Answers to January Puzzles.

- 1—Weasel—easel—lease—seal—sale—ale.
- 2—The hound will fawn on any one
That greets him with a kind caress,
The flower will turn toward the sun
That nurtures it in loveliness.
- 3—Tweed, Arno, Douro, Don, Seine, Tyne.
- 4— X M A S
M A R T
A R E A
S T A G
- 5— L I M P
I D O L
M O D E
P L E A
- 6—Count that day lost whose low descending
sun
Sees on thy part no worthy action done.
- 7—Small cheer and warm welcome make a merry feast.
- 8—England expects that every man will do his duty.

Names of those who have sent Correct Answers to January Puzzles.

Ada Armand, Adele La Pierre, R. J. Risk, Becca Lowry, Lillie Steven, Mary Morrison, Lottie A. Boss, Henry Reeve, William Webster, Willie B. Bell, Frank L. Milner, Lizzie C. Watt, Fair Brother, Becca Forbes, Jessie H. Dyer, Annie Craig, Madeliene Lawe, Will. Thirlwall, Joseph Allen, Robert Kerr, Robert Wilson, Emma Dennee, E. A. Manning.

SIR,—Although not at present farming myself, yet I think \$1 for the ADVOCATE is the best investment I can leave the boys on the farm.—A. K. HANSBERGER, Jordan Station.

"Sheated."

Those who endeavor to cheat others very often suffer the results of their own cupidity, and are sometimes foolish enough to seek sympathy and redress, which is not and should not be given. The *Detroit Free Press* tells the story of an injured German who was determined to "sue somebody" because he had defrauded himself.

"I dink I wants von lawsuit," he said, as he entered the Central Police Station.

"What is the matter?" asked the captain.

"Vell, I vant a suit of clothes, you know. Dot old von vas no more goot. Mine vife she vos 'shamed mit me, und my poy Shake looks me all over und say,—

"Fadder, peoples vas shudged by der clothes, more as any udder way. If you dond get some new clothes, peoples vill say our peaness vas all gone der beeces."

"Dot Shake vos a shmart poy to talk like dot, und I see how it vas. I go up on Meechigan Avenue last night to py me some suits. Vell, I look und look. Some vos for four dollar, und some for ten. Eaferytings vas varranted not to vade und to vit me like a glock. You see dis suit?"

"Yes."

"You like him?"

"No; that is a second-hand suit, and ugly at that."

"You vas right. He ask me nine dollar for dis suit, but I dond do it. I laugh at him, I make fun of him. Py und py I feel in der pants-pocket. Dere vas some pocket-book in dere."

"Left there by the former owner, I presume," said the captain.

"Dot's how I belief."

"Felt pretty bulky, eh?"

"Felt shust like it vas growded mit green-packs, und I feels dickled all oafar. I pys dot suit as queek as lightning."

"Of course."

"Und I runs half de vay home only to find dot it vas an empty pocket-book. Here it vas."

"Worth about ten cents."

"Dot's vat Shake say. Captain, I shall sue dot man."

"You can't."

"But I vas shwindled."

"You swindled yourself."

"Can't I do somethings?"

"Not a thing."

"Vell, vell; is dot so?"

"It is."

"Vell, vell, vell; vat is dis world comin' to ven an honest man must be sheated so?"

ART IN MANNERS.—Manners should be to a man what coloring is to a picture, nothing clashing or contrary to good taste, but all beautifully blended in one harmonious whole. Such a result cannot be obtained by mere outward polish. Its root lies deeper, and springs from the soil of the heart. As our bearing towards others is guided and shaped by the feelings, the cultivation of charity greatly helps to tone down or modify any rough or uncouth manners. Politeness may be a social virtue, but it can only be true and sincere when springing from refinement of mind. Kindliness of heart will cause its influence to be felt in a gentle bearing towards all; and the secret of Art in Manners may be found by acting on the principle of making every one as happy as lies in our power.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., Feb. 1, 1886.

We have had another month of mild weather, with light falls of snow and sudden changes from very cold to mild weather. Trade has been quiet, and merchants are looking forward to sleighing, with the hope that farmers will take advantage of good roads and move their produce.

WHEAT

Has ruled very dull the past month, and there is little hopes of much improvement for another month or two, and by that time the prospects of the growing crop will then become an important factor.

A leading commercial paper reports the American market as follows:—

The weather conditions during the week have not been unfavorable to the new crop of winter wheat, except possibly in the less important southern districts where it was not protected by snow and where alternate freezing and thawing occurred. Most of the country where the bulk of the winter wheat is produced has had the ground well covered with snow during most of the winter; in some places it was rather thinly protected, but up to the present time there has nothing occurred to give apprehensions of any serious damage to the wheat plants, which are very hardy and can sustain without serious injury a very low temperature, provided the position of the roots in the ground is not disturbed.

The course of the speculative wheat markets has been downward in this country, while values in Liverpool have not changed much, and yet the export movement has not been greatly enlarged. There is a further reduction in the visible supply, which, however, is much larger than a year ago, and the prediction that values would improve when supplies began to diminish has proved that the prophets (as well as the profits) can not always be relied upon.

The stocks of wheat and corn at twenty-one leading interior and seaboard markets east of the Rocky Mountains, in transit from the West to the seaboard, and afloat on the ocean, destined for Great Britain and Continental Europe, on dates named, were as follows:

| | Wheat, bu. | Corn, bu. |
|-------------------------|------------|------------|
| Total, January 11, 1886 | 73,780,000 | 11,302,000 |
| Previous week | 73,533,000 | 11,354,000 |
| Total, January 12, 1886 | 63,448,000 | 8,064,000 |
| Total, January 13, 1886 | 53,977,000 | 12,110,000 |
| Total, January 14, 1886 | 42,563,000 | 11,509,000 |
| Total, January 15, 1886 | 47,142,000 | 18,591,000 |

CLOVER SEED.

As yet there has been no movement of red clover seed. Farmers are either holding back or have not threshed. No doubt both these causes have something to do with the very meagre offering at present.

Alsike has been moving much more freely, and the price is very reasonable, although there is a very wide range of prices, all the way from \$4.50 up to \$7 having been paid by shippers. The latter figure for very choice samples. The cause for this wide range of prices is this: that while really fine samples are wanted for export, there is not export demand for the medium and lower grades. These will have to find a market at home, and for ordinary seeding are just as good as the finest and more expensive samples. With the moderate price of alsike, and the fact that one bushel of alsike will go as far as two bushels of common red clover in seeding (from the fact of the alsike seed being so fine), farmers need not want for seeding clover at moderate prices. We think farmers will do well to turn their attention more to seeding with alsike and

other grasses, and not depend so much upon red clover and timothy.

LIVE STOCK.

The Montreal Gazette reports the live stock market in that city under date of the 27th ult., as follows:—

The following were the receipts of live stock at Point St. Charles by the Grand Trunk Railway:—

| | Cattle. | Sheep. | Calves. | Hogs. |
|--------------|---------|--------|---------|--------|
| Week ended | | | | |
| Jan. 23... | 1,041 | 632 | 65 | 40 |
| Prev. week.. | 718 | 398 | 16 | 36 |
| Since May 1, | | | | |
| 1885..... | 75,697 | 58,899 | 4,701 | 13,279 |

The cattle market since our last has ruled quiet. At the Point St. Charles this morning business was dull. Receipts have been more liberal, in fact 800 head were received to-day, which glutted the market and weakened prices, as there was little demand, buyers holding off for lower prices. Export cattle were dull and lower at 4c@4½c per lb. live weight, and exporters were not buyers, partly owing to unfavorable cable news. There was a slow demand for butcher's cattle, but values were about steady at 2c@3½c per lb. as to quality. The offerings of sheep were light and demand slow at 3½c per lb., with lambs in fair request at 4½c. Live hogs were in light supply and higher at 4½c per lb.

CHEESE.

The cheese market remains steady with a firmer tendency all round. There is a decided difference between the tone of the present cheese market and that of the market one year ago. This time last year it had shown signs of weakening, and from that time onward there was a gradual decline and matters went from bad to worse till the market in May and June was completely demoralized. Dealers have pursued a very sensible policy by keeping prices steady and not attempting to boom the market, and the prospects are that the market will be gradually cleared up and brought into fair shape for next season's trade. This is very much to be desired, and we hope shippers, dealers and salesmen will all unanimously combine to bring about this desirable object. This can be very much facilitated by our factory-men making as few cheese in the first half of May as possible. We think this a very desirable and important point. It was brought up at the Convention at Woodstock a few weeks ago, but we are not aware that anything definite was done. We think the Board of the Western Dairymen's Association should take this matter up and endeavor to have the factories agree to not open their factories till about the 15th of May.

BUTTER.

Really choice fresh butter and fine fall made are in good demand, but anything below is not wanted at any price if the better qualities are obtainable. We hope farmers and makers of these qualities will soon have to give up making such or turn over a new leaf and make what the trade and consumers want.

PRICES AT FARMERS' WAGONS, TORONTO.

| | Jan. 29, 1886. |
|--------------------------------|----------------|
| Wheat, fall, per bushel..... | \$0 80 0 82 |
| Wheat, spring, do..... | 0 75 0 82 |
| Wheat, goose, do..... | 0 68 0 70 |
| Barley, do..... | 0 60 0 68 |
| Oats, do..... | 0 35 0 36 |
| Peas, do..... | 0 58 0 60 |
| Beans, do..... | 0 60 0 60 |
| Eye, do..... | 1 00 1 25 |
| Dressed hogs, per 100 lbs..... | 5 25 5 50 |
| Beef, forequarters..... | 3 60 4 50 |
| Beef, hindquarters..... | 6 03 7 50 |
| Mutton, carcass..... | 6 40 8 50 |
| Lamb..... | 8 40 8 50 |
| Hay, timothy..... | 13 00 15 00 |
| Hay, clover..... | 11 00 12 00 |

TORONTO SEED MARKET.

| | Jan. 29, 1886. |
|-------------------------|----------------|
| Alsike clover seed..... | \$5 75 6 50 |
| Red "..... | 6 25 0 00 |
| Timothy seed..... | 2 25 0 00 |

PRICES AT ST. LAWRENCE MARKET, TORONTO.

| | Jan. 29, 1886. |
|------------------------------|----------------|
| Chickens, per pair..... | \$0 50 0 80 |
| Ducks do..... | 0 65 0 90 |
| Butter, pound rolls..... | 22 25 |
| Butter, large rolls..... | 15 16 |
| Butter, inferior..... | 10 12 |
| Lard..... | 10 00 |
| Bacon..... | 9 11 |
| Turkeys..... | 75 1 50 |
| Geese..... | 70 85 |
| Cheese..... | 8 11 |
| Eggs, fresh, per dozen..... | 22 25 |
| Potatoes, per bag (new)..... | 70 75 |
| Apples per bbl..... | 1 00 2 00 |
| Cabbage, per doz..... | 75 90 |
| Turnips, per bag..... | 35 40 |
| Carrots, per bag..... | 40 45 |
| Beets, per peck..... | 15 00 |
| Parsnips, per peck..... | 15 20 |
| Onions, per bag..... | 1 00 1 10 |

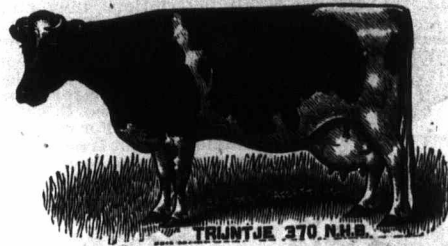
The seed catalogue and prize list of Samuel Wilson, of Mechanicsville, Pa., is at hand.

The seed catalogue of Peter Henderson & Co., of New York, has been received. It will be sent to any of our readers who forward six cents to pay postage.

POULTRY SHOW.—The exhibition of the Stratford and Seaforth Poultry Association has just been held in the City Hall, Stratford. The show was a credit to the poultry and pet stock fanciers. The birds at this season of the year look much better than in the fall. The judging was done according to the American score card by Mr. A. F. Stevens, of Wollesley, Mass. This makes the 224th show he has judged, and he says he never judged a better lot of fowls at any one exhibition.

NEW ADVERTISEMENTS.

Holstein-Friesian Cattle AT AUCTION



AT GRAND'S REPOSITORY.
47 TO 53 ADELAIDE-ST. WEST, TORONTO, ONT.
W. D. GRAND, AUCTIONEER.
TUESDAY, MARCH 30TH, 1886, AT 11 A M

The great demand in Canada for these cattle, and the inconvenience attending the quarantining of small lots, has induced us to send a shipment of 23 head from our own herd, to which will be added about 15 head from the prize herd of H. M. Williams, of Platon, Ont. These cattle will arrive at Grand's Repository, March 25th, and remain there for inspection until the date of sale. Every animal is registered in the Holstein or Holstein-Friesian Herd Book of America, and the certificates of registry and transfer papers will be furnished with each animal sold.

For illustrated catalogue address
B. B. LORD & SON,
242- Sinclairville, Chaut. Co., New York.

WANTED.

A MARRIED COUPLE TO WORK ON A FARM near Philadelphia, U. S. Man must be a first-class plowman and general farm hand, and his wife capable of managing the housekeeping, and boarding the additional farm hands, and for which a fixed sum per head will be paid her. Young children objected to. Liberal wages and good home to right parties. Manager of place is Scotch. Address with full particulars and references to

242- Sinclairville, Chaut. Co., New York.
MR. GOLDIE, CORUNNA, Ont., Canada.

400
Shorthorn Polled-Angus
PURE-BRED
BULLS, COWS and HEIFERS
 for Public Sale at Perth Auction
 Market, Perth, Scotland, on
WEDNESDAY, MARCH 10, 1886

THE ABOVE SHOW AND SALE WILL COM-
 prise 220 Shorthorn and 100 Polled-Angus year-
 ling Bulls; 40 Shorthorn and 3 Polled-Angus Cows
 and Heifers, all of Herd Book Pedigree, and by far
 the largest and best selection in Scotland. A num-
 ber of the above are of the highest class and likely
 to be prize winners. SALE AT 10 A.M.

Catalogues on applica for to
MACDONALD, FRASER & CO.

Perth is within two hours ride of the seaport of
 Glasgow.

For further particulars apply to
R BERT BICKERDITH, MONTREAL, P. Q.
 Perth, Scotland, 20th Jan., 1886. 242-a

IMPORTANT AUCTION SALE
 —OF—
SHORTHORN CATTLE
 —ON—
Wednesday, April 7th, 1886,

at my farm, four miles from Brampton, on G. T. R.
 and C. P. R., and two miles from Edmonton, on
 C. P. R. I will sell 45 head of pure-bred Shorthorns
 —35 females and 10 young bulls. These are good
 cattle, with pedigrees that will stand the test of all
 the herd books. Catalogues will be ready by first of
 March, and will be sent on application.

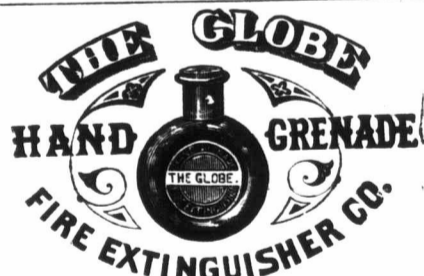
242-a — **J. C. SNELL, EDMONTON, ONT.**



stock send for my new Catalogue, sent free to all.
A. G. HULL, Central Fruit Gardens,
 St Catharines, Ont. 242-c

BEST PLANTS IN THE MARKET

Grape Vines, Empire State,
 Niagara; Woodruff Red; Berries
 of all descriptions, new kinds
 and old; Roses etc., etc. Plants
 by mail a specialty. Illustrat-
 ed Catalogue mailed free, con-
 taining \$1, \$2, \$3, and \$5 collec-
 tions and instructions for plant-
 ing; be sure and see it before
 giving your order. For variety of



**ARE MANUFACTURING THE MOST PER-
 fect Fire Extinguishers in the market. It is the
 Simplest, Easiest, Quickest, Most Efficient and
 LEAST EXPENSIVE WAY OF PUTTING
 OUT FIRES KNOWN.**

It is simply a glass bottle filled with a liquid that
 generates gases when broken into the fire, that kill
 it almost instantly.

Every factory, every mill, every business house,
 every home should be supplied with these goods.
 Price \$9 per dozen.

For further information, circulars, etc., address

GLOBE FIRE EXTINGUISHER CO.,
 64 and 66 Dundas street, London, Ont.
 Correspondence invited. 242-b.

CAULIFLOWERS AND HOW TO GROW THEM

A New Book with Practical information in Minute
 Detail. By mail, post paid, 20 Cents. Dealers sup-
 plied at liberal discount. **FRANCIS BRILL,**
 RIVERHEAD, LONG ISLAND, N. Y. 242-c

AUCTION SALE
 OF HIGHLY-BRED
BATES' SHORT-HORN CATTLE,
 Horses, Sheep, Implements, &c.

Having made a business arrangement in the West,
 and rented my farm, I will sell by auction, without
 reserve, on my farm, lot 25, con. 16, London Town-
 ship.

On Wednesday, March 10, 1886,

my entire herd, consisting of 15 females and 9 bulls,
 headed by the Imported Bull, "Wild Eyes Sel-
 grava," 5 splendid Yearling Bulls—4 reds and a red
 roan. Also 7 Horses, &c. Terms—six months on
 approved joint note, or six per cent. per annum off
 for cash. The farm is 16 miles from London, 1½
 miles from Denfield (a station on the L. H. & B.
 Railroad). Sale to commence at 11 a. m. sharp.
 Catalogues on application.

241-c **JOHN GIBSON, Denfield, Ont.**

KEITH'S
 Gardener's Assistant and Illustrat-
 ed Catalogue of Garden, Agri-
 cultural and Flower Seeds
NOW READY
 and will be mailed free on-application to any ad-
 dress. I call special attention to my

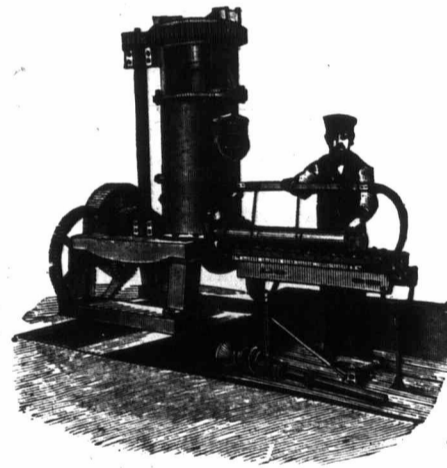
CHOICE RED PIPE WHEAT

(See advertisement in December number of this
 paper). Price \$1.50 per 60 lbs.

Clover and Timothy, Orchard, Blue and Red Top
 Grasses, Flax Seed, Tares, Seed Wheat, Oats and
 Barley, &c., &c.

GEO. KEITH, SEED MERCHANT,
 242-a 124 King-St. East, TORONTO.

DARVILL & CO'S



BRICK and TILE MACHINE.

This is the most perfect Machine manufactured in
 Canada; manufactured with or without brick at-
 tachment. Highly recommended by all who have
 used them.

You will please refer to the following parties who
 are using it and purchased last season:—Chas. Pratt,
 London; Peter McIntosh, London; H. C. Rider,
 Nilestown; Robert Myers, Stratford; James Kerr,
 Ailsa Craig; R. D. McCormack, Watford; W. M.
 Dobby, Glencoe; John Hich, Stratburn; Alex.
 Stewart, James Nichols, Frome.

Send for Descriptive Circular. Address—
D. DARVILL & Co.,
 242 LONDON, ONT.

Guelph Business College
GUELPH, ONT.

This Institution is steadily rising in popular favor.
 Its list of students already represents two Cana-
 dian Provinces and five of the American States.
 This fact can be attributed only to the thoroughness
 and practical usefulness of the work done in its
 departments. Young men whose early educational
 opportunities have been limited, or who desire to
 pursue a course of training more in accordance
 with the requirements of the practical affairs of life
 than they have hitherto had, would benefit by
 inquiring into the advantages offered by the Guelph
 Business College. 240-y

For particulars address
M. MacCORMICK, Principal.

BRUCE'S
 FRESH and GENUINE
SEEDS

FOR THE FARM, VEGETABLE AND FLOWER GARDEN,
 are unrivalled for Purity, Vitality and General
 Excellence. The thirty-fifth annual edition of our
 descriptive Priced Catalogue beautifully illustrated,
 will be mailed free to all applicants, and to custom-
 ers of last year without ordering it. Every market
 gardener in the Dominion will find it to their in-
 terests to use our Seeds. 242-a

John A. Bruce & Co., Hamilton, Ont.

FOR SALE.
FRUIT AND ORNAMENTAL TREES.

Apples, \$15.00 per 100; Pears, \$25.00 to \$35.00 per
 100; Plums, \$25.00 to \$35.00 per 100; Norway Spruce,
 \$5.00 to \$35.00 per 100; Austrian Pine, \$20.00 per 100;
 Roses, \$10.00 per 100; Grape Vines at all prices.

GEORGE ARNOLD, Prop.,
 241-f **PARIS NURSERIES.**

JUST ISSUED.
LETTERS FROM
GOLDEN LATITUDES

A large, finely-illustrated pamphlet, descriptive of
 the North-West Statistics compiled from official
 sources. Sent free on application to
 241-c **C. H. WARREN, G. P. A., St. PAUL, MINN.**

SEEDS FOR 1886

OUR 44 PAGE
CATALOGUE
 —OF—
 Garden, Field & Flower Seeds
SENT FREE.

ADDRESS—
JOHN S. PEARCE & CO.,
 SEND FOR ONE. LONDON, ONT.

241-a

WONDERFUL NEW IRON-CLAD PLUM
MARIANA
 FRUITS, ORNAMENTALS, EVERGREENS,
 ROOT GRAFTS, CIONS.—EVERYTHING.
SIARK NURSERIES 52d Year, 300 Acres
 LOUISIANA, Missouri.

SMALL FRUITS

**Jewell, Woodruff No. 1, May King, At-
 lantic, Prince of Berries** and other new and old
 Strawberries.

Try the new **Black Raspberry, HILBORN,**
 large, hardy and productive.

Gregg, Tyler, Souhegan, Shaffers, Marlboro,
 Nomaha, Caroline and other standard Raspberries
 grown in large quantities.

Fay's Prolific and Baby Castle Currant,
Gooseberries, Grapes, and other Small Fruits.

SEND FOR PRICE LIST.

FIRST-CLASS PLANTS—LOW PRICES

W. W. HILBORN,

241-b **ARKONA, ONT., CANADA**

HALF A MILLION GARDENS
ARE ANNUALLY SUPPLIED WITH
SEEDS *Peter Henderson's* **PLANTS**
EVERY THING FOR THE GARDEN

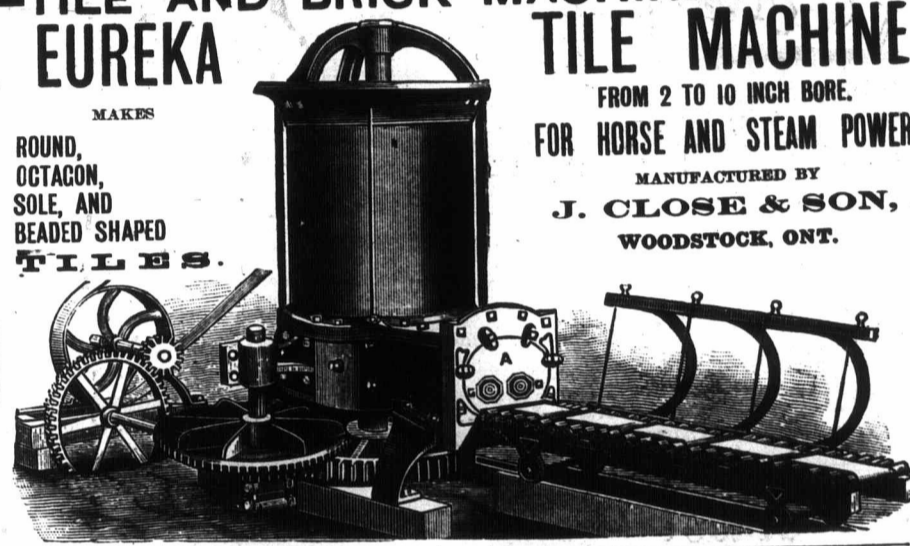
Our Seed Warehouses, the largest in New York, are fitted up with every appliance for the prompt and careful filling of orders.

Our Green-house Establishment at Jersey City is the most extensive in America. Annual Sales, 2 1/2 Million Plants.

Our Catalogue for 1886, of 140 pages, containing colored plates, descriptions and illustrations of the **NEWEST, BEST and RAREST SEEDS and PLANTS**, will be mailed on receipt of 6 cts. (in stamps) to cover postage.

PETER HENDERSON & CO., 35 & 37 Cortlandt St., NEW YORK.

TILE AND BRICK MACHINERY.
THE EUREKA TILE MACHINE
MAKES
ROUND, OCTAGON, SOLE, AND BEADED SHAPED TILES.



FOR 2 TO 10 INCH BORE.
FOR HORSE AND STEAM POWER

MANUFACTURED BY
J. CLOSE & SON,
WOODSTOCK, ONT.

THE EUREKA TILE MACHINE IS THE STRONGEST, EASIEST AND FASTEST WORKING TILE MACHINE MANUFACTURED.

PETER R. LAMB & CO.,
FERTILIZERS
TORONTO, CANADA.

SEND FOR CIRCULAR.

PRICE ONLY \$16.00.



NATURES INCUBATOR
Best known for hatching chicks. Its principle is just like a hen sitting on a nest full of eggs. Chicks can be raised in it at 5 or 6 cts. per lb., and sold for \$1 to \$2 cts. per lb. A fine chance for women and boys to make money. Send for circular.

Address **Natures Incubator Co., Quincy, Ill.**

CHOICE FRUIT!
10,000,000 Trees and Plants.
Forest Trees for Timber Claims.

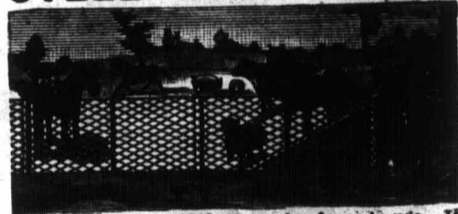
All kinds of Fruit, Forest, Ornamental Trees, Shrubs and Plants.

A PAPER FREE for one year, devoted to fruit growing, to all who buy \$1 worth of trees or plants.

1 Niagara Grape, \$1; 6 Russian Apricot, \$1; 12 Concord Grape, \$1; 4 Dwarf Junecorry, \$1; 150 Russian Mulberry, \$1; and 134 other \$1 sets per mail, post paid. Silk Worm Eggs and Mulberry Trees for silk culture. Send at once for our price list.

Address—**CARPENTER & GAGE,**
Fairbury, Jefferson Co., Nebr.

SEDGWICK STEEL WIRE FENCE



Is the best general purpose wire fence in use. It is a strong net-work without barbs. Don't injure stock. It will turn dogs, pigs, sheep and poultry, as well as horses and cattle. The best fence for Farms, Gardens, Stock Ranges and Railroads. Very neat, pretty styles for Lawns, Parks, School-lots and Cemeteries. Covered with rust-proof paint, or made of galvanized wire, as preferred. It will last a life-time. It is better than boards or barbed wire in every respect. The Sedgwick Gates made of wrought-iron pipe and steel wire, defy all competition in lightness, neatness, strength and durability. We make the best, cheapest and easiest working all-iron automatic or self-opening gate, and the neatest cheap bearing. Entirely new made. The best Wire Stretchers, Cutting Pliers and Post Augers. For prices and particulars ask Hardware Dealers, or address, mentioning paper,

SEDGWICK BROS., Richmond, Ind.

HEAR YE DEAF!

CARROLL'S ARTIFICIAL EAR DRUMS
As invented and worn by him perfectly restoring hearing. Entirely deaf for thirty years he hears with them even whispers, distinctly. Are not obtrusive, and remain in position without aid. Descriptive Circular free.

JOHN CARROLL, Cincinnati, O.

BRICK AND TILE MACHINERY
AND
CLAY CRUSHERS
THE BEST WORLD



FOREST TREES.

Catalpa Speciosa, White Ash, European Larch, Pines, Spruces, Arbor Vitae, etc., etc.

Catalpa Speciosa Seed, Forest and Evergreen Seeds.

R. DOUGLAS & SON,
Waukegan, Ill.

VIRGINIA FARMS & MILLS
For Sale & Exchange.
FREE Catalogue.

R. B. CHAFFIN & CO., Richmond, Va.

Off with the tariff on seeds! Relief for the people!

GREAT SUCCESS TO SEED TRADE
OUR NEW DEPARTURE IN THE SEED TRADE
SEEDS AT YOUR DOOR AT WHOLESALE PRICES.

In order to sell our seed crop—1885—direct to the planter, we make the following PROPOSITION: **60 CENTS** in postage stamps or money, we will send you **10 PACKETS**, each of the following new and improved seeds:—**Hastian's Early Blood Turnip Beets**, the earliest and "BEST OF ALL" BEANS short bean in the world, best for table use. **Hawaii Sugar Corn** from the Sandwich Islands; the sweetest sugar corn that grows. **Early Etampes Cabbage**, best and earliest of all early varieties. **Sure Head Cabbage**, best winter bage, best and earliest of all early varieties. **Golden Self-Bleaching Celery**, needs no banking up; excellent quality; keeps all winter. **Perpetual Lettuce**, tender and crisp all summer. **Fride of Georgia Watermelon**, none sweeter or better, a new muskmelon from the south of Spain. **First premium at Penna. State Fair.** Pro-nounced the best-flavored muskmelon in the world. **New Red Kocos Onion** from Italy. Grows large onions from seed first year. **Tennessee Sweet Potato**. Pumpkin, none better for pies or custards. **Abbott's Improved Sugar Parsnip**. **Ruby King Pepper**, the largest and finest sweet pepper ever seen. **Improved Long Scarlet Radish**, best for early use. **Half-long Strasburg Radish**, good for spring or summer. **New Brazilian Sugar Squash**, sweetest and best-flavored, for summer or winter. **Livingston's Favorite Tomato**, large, smooth as an apple; productive; solid. **Early White Egg Turnip**, sweetest and best for table use. In all **15 PACKETS** for **60 CENTS**; **TWO COL-** **LECTIONS** for **\$1.10**; **FOUR** for **\$2.00.** **ANOTHER PROPOSITION** To adorn your homes and make life pleasant, as we grow flower seeds by the pound, bushel, and by the acre, to give our lady friends the benefit of the wholesale trade, we will send by mail **18 PACKETS** for **30 CENTS** following, for **30 CENTS** **Chrysanthemum** (Paris Daisy), very fine **Mignonne**, sweet scented. **Double Rose-flowered Portulaca**, nearly all double; all bright colors. **Fansies**, finest strain. **Paisley**, large-flowering; **Phlox Drummondii**, all bright colors. One splendid **Climbing Plant**. One beautiful **Everlasting Flower**, bright colors. One fine **Ornamental Grass**. **Directions** for cultivating on each packet. **ONE COLLECTION OF FLOWER SEEDS AND ONE OF VEGETABLE SEEDS FOR 30 CENTS**, OR **TWO OF EACH FOR \$1.50.** Our Beautiful Illustrated Catalogue accompanies each order. **No change.** Address **SAMUEL WILSON** SEED GROWER, **MECHANICVILLE, BUCKS COUNTY, PENNSYLVANIA.**

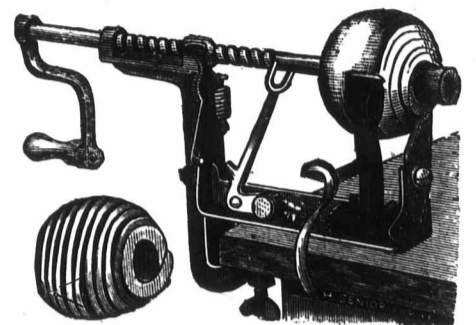


LOVETT'S GUIDE TO FRUIT CULTURE

Is a book of 70 Pages, with illuminated cover, embellished with nearly 200 engravings of Orchard and Small Fruits, Nuts, &c. Gives honest descriptions of Golden Queen Raspberry, Lawson-Comet Pear, and over 400 varieties of other fruits, and instructions for planting, pruning, cultivation and management, with Low Prices for Trees and Plants. Also directions so clear that even a novice can readily determine what and how to order. Price, with colored plates, 10c., without plates, 5c. Price list of Trees and Plants Free. All who mention this paper will receive a copy of "Orchard and Garden" gratis. J. T. LOVETT, Little Silver, N. J.



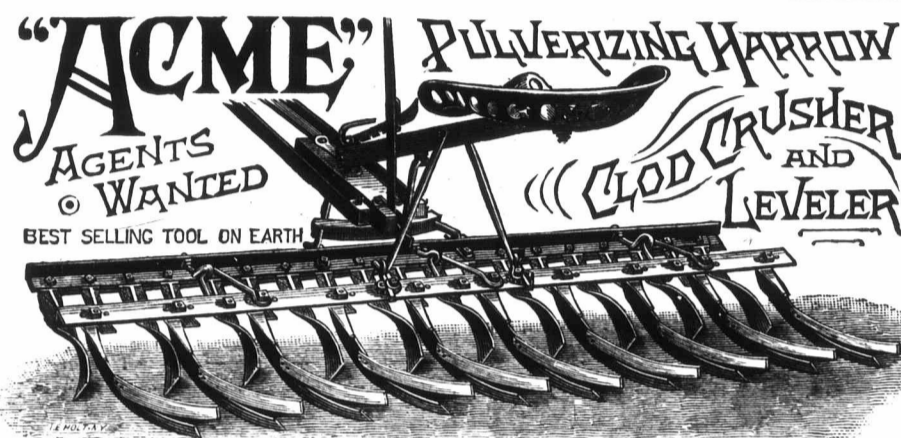
Additional Premiums.



For two new subscribers we will send you the **White Mountain Potato Parer**. It will pare a potato much better than can be done by hand; will take off a thinner paring and clean out the eyes. Or you may have the **White Mountain Apple Parer, Corer and Slicer**. This machine does its work quickly and economically, leaving the fruit ready for drying. No farmer should be without an apple or potato parer.

The Novelty Rug Machine.—Makes rugs, tidies, door mats, etc. Is an entirely new invention. Performs its work satisfactorily, is simple of construction, and can be worked by a child. This little machine not only saves much time and labor, but much of the material used by the use of the ordinary mat hooks. For making Turkish rugs it cannot be excelled. Every housekeeper should have it. For three new subscribers—"Household" **Special Premium**.—THE NEW AMERICAN DICTIONARY contains 1,000 engravings and more pages than any other similar work published. This volume is a library and encyclopædia of general knowledge, well bound, and contains every useful word in the English language, with its true meaning, spelling and pronunciation, besides an amount of information on different subjects—a complete library of reference.

Or the **World's Cyclopaedia and Library of Useful Knowledge**.—Giving concise information



Subjects the soil to the action of a Steel Crusher and Leveler, and to the Cutting, Lifting, Turning Process of Double Gangs of Cast Steel Coulters. Immense cutting power. Crushing, Leveling and Pulverizing performed at the same time. Entire absence of Spikes or Spring Teeth avoids pulling up rubbish. Only Harrow that cuts over the entire surface of the ground. Sizes 3 to 15 feet wide. With and without Sulky attachment. We deliver free at Distributing Depots.

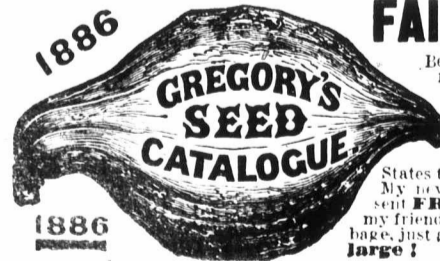
Send for pamphlet containing thousands of testimonials from 48 States and Territories.
BRANCH OFFICE: HARRISBURG, PENN. **NASH & BRO.**, MANUFACTORY & PRINCIPAL OFFICE: MILLINGTON, NEW JERSEY.
N.B.—"TILLAGE IS MANURE" and other Essays sent Free to parties who name this paper. 242 d

THE BELL ORGAN

High Grade Organs at low prices consistent with quality. Our factories are running 12 hours per day to keep up with orders, which are constantly increasing. Catalogues Free.

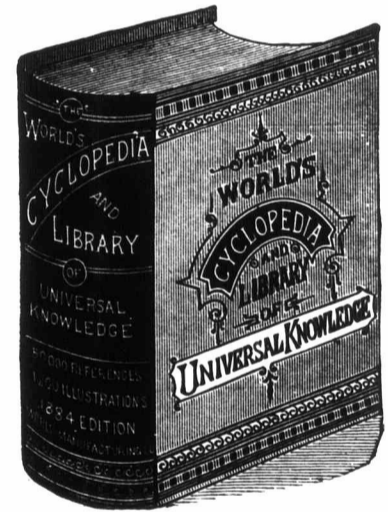
W. BELL & CO.,
Guelph, Ont.

BRANCHES AT
Hamilton, Ont.; St. Thomas, Ont.,
and London, Eng.



FAIR AND SQUARE DEALING.

Believing that if a man has dealt squarely with his fellow-men his patrons are his best advertisers, I invite all to make inquiry of the character of my seeds among over a million of Farmers, Gardeners and Planters who have used them during the past thirty years. Raising a large portion of the seed sold, (few seedsmen raise the seed they sell) I was the first seedsman in the United States to warrant (as per catalogue) their purity and freshness. My new Vegetable and Flower Seed Catalogue for 1886 will be sent FREE to all who write for it. Among an immense variety, my friends will find in it (and in none other) a new drumhead Cabbage, just about as early as Henderson's, but nearly twice as large! James J. H. Gregory, Marblehead, Mass.



on nearly every subject. Contains 800 pages, 50,000 references, and 1,200 illustrations, and is an indispensable library of universal knowledge.

Book Premiums for One New Subscriber.

A series of works for young people, well illustrated, with stiff paper covers.

The Lady's Manual of Fancy Work.—Four hundred illustrations, paper cover, containing a great variety of excellent designs for dress or household decorations. It is a book which will please, and should be in the hands of every lady.

Grimm's Fairy Tales, 70 illustrations.
Anderson's Fairy Tales, 60 illustrations.
Mrs. Caudle's Curtain Lectures, 60 illustrations.

The story of a Feather, 50 illustrations.
Oliver Twist, by Chas. Dickens.

Tennyson's Complete Works.
Language of Flowers, by Uncle Charlie.

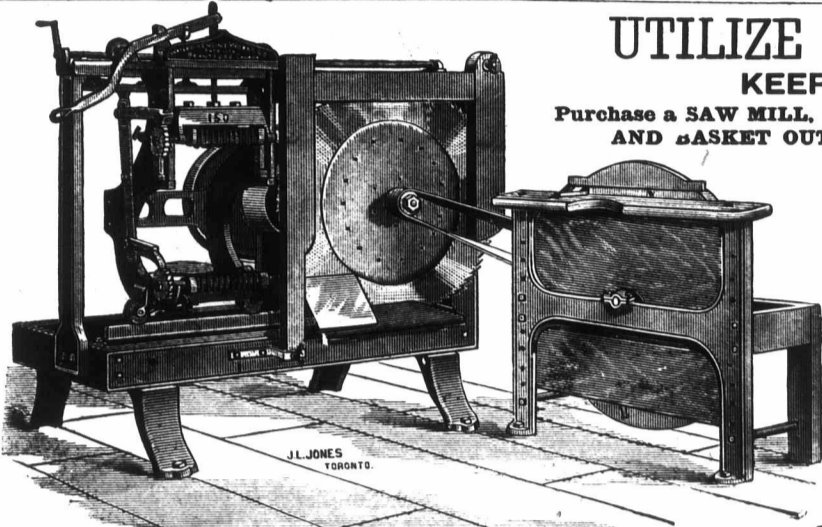
Each volume is complete.

For two new subscribers with \$2 you will receive your choice of the following series as a premium:

Sandford and Merton.
Æsop's Fables.
Paul and Virginia.
Games and sports for Boys.
A Year at School, by "Tom Brown."

The following series are well illustrated, the paper is of good quality, the binding firm and attractive, while the illustrations are many and excellent:

Dod's Beauties of Shakespeare.
Sydney Smith's Essays.
Burns' Poetical Works.
Moore's Poetical Works.
Wise Sayings of the Great and Good.
Criden's Concordance.
Arabian Nights.
Things in Doors, for young Folks, 470 illustrations.
Dr. Dancison's Counselor, with recipes.



Lever-feed self-acting Shingle Mill, in great demand, the favorite machine with millmen, threshers and farmers.

UTILIZE YOUR SURPLUS POWER. KEEP YOUR ENGINE AT WORK.

Purchase a **SAW MILL, SHINGLE MACHINE, CHOPPING MILL, or a CHEESE BOX AND BASKET OUTFIT.** Saw-irons from \$350.00 up, suitable for any power.

Send for Circulars stating power and capacity desired.

STANDARD CHOPPING MILLS,

USING BEST FRENCH BURR MILL-STONES. SIMPLE, EFFICIENT, PRACTICAL. CAN BE RUN BY ANY INTELLIGENT MAN, NO RENEWING PLATES AS IN IRON MILLS. GRINDERS WILL LAST A LIFE TIME.

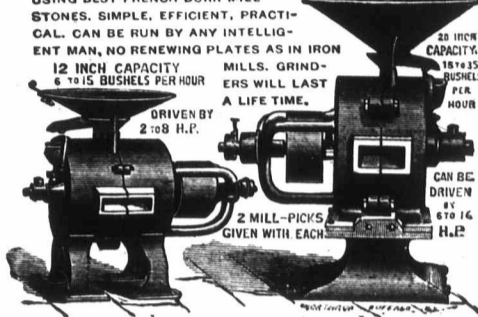
12 INCH CAPACITY 6 TO 15 BUSHELS PER HOUR

20 INCH CAPACITY 15 TO 25 BUSHELS PER HOUR

DRIVEN BY 2 to 8 H.P.

2 MILL-PICKS GIVEN WITH EACH

CAN BE DRIVEN BY 4 & 1 H.P.



1250 Built

Many Improvements

FOR
1886.

DON'T BE MISLED
EXAMINE THE
CHAMPION

IT IS
THE BEST

THE CELEBRATED FIRE-PROOF CHAMPION

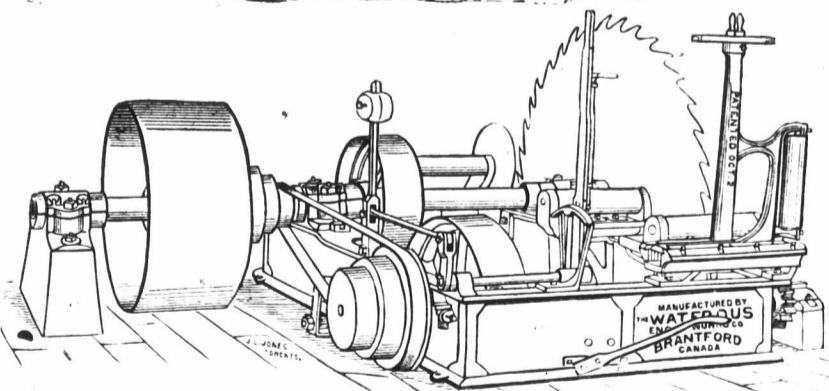
The Pioneer Traction Engine of Canada.

The **FIRST** to be Built! The **GREATEST NUMBER** in the Field!
TRIED; TESTED for **FIVE SEASONS.**

Examine it thoroughly for **1886**, before purchasing. Only Traction safe in going up or down steep hills. The only Traction whose boiler is relieved from extra strain of Traction attachment.
Easily Handled, Simple, Durable, Safe from Fire or Explosion. The Farmer's and Thresher's Favorite.



1250
BUILT.



This cut represents our No. E medium saw-irons; we build 3 sizes smaller, and 3 sizes larger.

READ THE FOLLOWING:

Jordan, Dec. 23rd, 1885.
I like the 12 H. P. Champion Traction Engine, 1157, which I bought last season, very much. I unloaded it at station, filled it with water, and steamed it up home, and have never had the tongue on it since, although I have run it all the season through the very muddy roads of this fall. I have been up and down the mountain, which is something over 100 feet high, without the slightest trouble. I like the engine very much, and would prefer a Traction to a plain engine. I have two engines, the Traction and 12 H. P. Champion, number 248. I have run 248 for six seasons, with not over 6 dollars repairs, and this was for heater pipes burst by frost, and a new globe valve. Sgd., SAMUEL HONSBARGER.

Gourack, Guelph, 14th December, 1885.
I can say that my 20 inch Standard Chopper gives good satisfaction; also, my 12 H. P. Traction Champion gives great satisfaction. I have not had one cent repairs on the engine, and I have travelled across roads where other engines had to have two teams on to cross over. I took the water tank along and traveled through mud through which the platform dragged. We crossed hilly roads that a horizontal boiler would not have been safe to cross for danger of bruising the tubes, as for about two miles we had only about 400 feet of level road. The most of the hills average from one to four feet of pitch in 12 feet.
Yours truly, SOLOMON STROME.

SEND FOR CIRCULARS AND IMPROVEMENTS FOR 1886,
BRANTFORD and WINNIPEG.

WATEROUS ENGINE WORKS COMPANY,

IMPROVED PRIZE LIST FOR FEBRUARY, 1886.

Most Pleasing and Profitable Premiums to be Obtained without Money.
Given only to Old Subscribers for Sending in New Subscribers' Names, Accompanied with Subscription Price, \$1 for each New Name sent in.

The following articles will be all sent by mail, postage pre-paid. The trees will be good plants, cut back, leaving good roots, thus ensuring good growth the first season, and will be carefully packed.

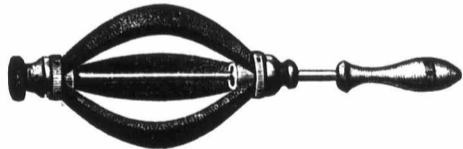
Subscribers who have not the time to secure the requisite number of names to entitle them to any (or as many as they may require) of the following articles, can obtain the same by remitting the cash value set opposite each. These are supplied to ADVOCATE subscribers only.

| No. of New Subscribers. | Value. | No. of New Subscribers. | Value. |
|-------------------------|--|-------------------------|---|
| 1 | Two strong plants of Black Walnut trees, cut back. The most valuable timber tree we can grow; see out and description in this issue, p. 34 | 1 | Package consisting of one Virginia Creeper; this is the hardiest creeper, very handsome; will thrive in Manitoba; also three of the Alder, or Ash-leaved Maple trees; they are well adapted to all parts of Canada; they are too seldom met with, but should be planted; they appeared the most thriving and most beautiful of deciduous trees that we saw thriving in Manitoba |
| 1 | Four small plants Black Walnut | 1 | One of each of the following varieties of Grapes, the hardiest and best approved of for general cultivation: Clinton, Hartford Prolific, Delaware |
| | Two plants largest variety of Sweet Chestnut, on trial; see p. 35, Dec'r. | | One plant each of the best Apple and the best Crab Apple adapted to our northern latitudes; see particulars in future issues |
| | Four cultivated Sweet Chestnuts | 1 | one package of the earliest maturing Field Corn offered this season; see future issue |
| 1 | Two Catalpa speciosa; see page 332, November issue | 1 | One package of a new and highly approved Cabbage; see future issue |
| 2 | One Niagara Grape vine; one-year old plant. See vol. 20, p. 81 | 1 | Two plants of the latest improved and highly commended Raspberry |
| 3 | One do.; two-year old plant | 4 | One dozen plants do.; see future issue |
| 2 | One Empire State Grape vine; one-year old. See page 2, vol. 21 | 1 | Two plants of the most promising new Strawberry; see p. 41, this issue |
| 3 | One two-year old do. | 4 | One dozen do. |
| | These are the two most valuable new Grapes that are offered this season, having a great reputation. | 1 | One package choice assorted Vegetables, containing many of the latest and most approved varieties |
| 1 | Two small plants Ampelopsis Veitchii, or Japan Ivy; see p. 353, vol. 20 | 2 | Large packages and greater variety do |
| 1 | One strong plant do. | 1 | One package varieties choice flowers |
| | A very few of these plants have as yet been introduced into Canada, and the price charged by some dealers has been from 75c. to \$1.50. | 2 | One larger package and larger number of varieties do |
| | Most of the above list is best adapted to Western Ontario. | | |

Among the following will be found the very hardiest and best plants and seeds, that will be very valuable to our subscribers in our northern latitudes.

N. B.—We have no direct interest with any particular seed establishment. We disposed of all our stock of seeds years ago, and only offer these in our premium list to our subscribers only. For their benefit and the benefit of the ADVOCATE, we select the most valuable and the most promising new varieties from the most enterprising and honorable propagators, dealers and importers. There is an advantage in having the first of any valuable variety in any section. The cheapest way to procure them is by sending in a few names of new subscribers.

Address the FARMER'S ADVOCATE, LONDON, ONT.



NOVELTY LAMP GLASS CLEANER, Pat. in Canada and U.S.
Male and female agents wanted to sell this, the best selling article ever handled. Samples sent by mail for 25 cents. Address, E. H. HALL, Sole Manufacturer and Patentee, box 427, Guelph, Ont. Agents can make from \$2 to \$5 per day. Agents' prices sent with sample. 240-c

CORRESPONDENCE BUSINESS SCHOOL

451 MAIN ST., BUFFALO, N. Y.

A new and special Department of the **Bryant & Stratton Business College**. Thorough and practical instruction given to young and middle-aged men and ladies at home by means of personal correspondence.

BOOK-KEEPING, BUSINESS FORMS, PENMANSHIP, ARITHMETIC, COMMERCIAL LAW, LETTER WRITING AND SHORTHAND

successfully taught. Distance no objection. Terms moderate. Circulars free by mentioning FARMER'S ADVOCATE. Address,

C. L. BRYANT, Secretary,
Buffalo, N. Y.

231-y

WANTED, SITUATIONS on Farms in the North West Territory, near Shell River; preferred, by two English sisters, one capable of taking charge of the household, the other is a good milk woman. Would prefer a situation in a dairy. Highest References. For particulars, address—Mrs. R. J. EVANS, 380 Richmond street, London, Ont. 241

SANITARIUM,

320 DUNDAS-ST., LONDON, ONT.

SPECIAL TREATMENT FOR

Catarrh, Rheumatism, Paralysis, Sciatica, Dropsy, Female Complaints, Kidney Diseases, Nervous Disorders, and all Obsolete Chronic Maladies.

Send for Circular. J. G. WILSON,
240-c Electropathic and Hygiene Physician.

THORLEY FOOD

—MANUFACTURED BY—

EMPIRE HORSE AND CATTLE FOOD CO., MITCHELL, ONT.

The only Food Co. in Canada ever awarded "A SILVER MEDAL" by the Provincial Association of Ontario.

In constant use at the Model Farm since 1881—last shipment of 500 lbs. on 29th Sept., 1885. Used more extensively by leading feeders than any other preparation. Invaluable for horses, fattening cattle, milch cows, calves, sheep and pigs. Numerous testimonials from prominent breeders. We grind our own ingredients and guarantee their purity, which is done by no other Food Co. in Canada. If you cannot get our food from your dealers, send direct to the mill. Do not be deceived by dealers, who may wish to sell you an inferior article. Price at the mill \$5.25 per 100 lbs., less quantities at higher rate. Cash must accompany all orders. We also manufacture an excellent Poultry Food. 240-a

Stock Notes.

We have just received the catalogue of Mr. Wm Douglas, of Caledonia, containing a list of his Shorthorns.

SIR,—I now mail you my twentieth subscription to the "FARMER'S ADVOCATE." My Percherons and Shorthorns are looking well. Have seven bull calves dropped already, without a single female.—GEORGE BALLACHEY, Brantford.

Mr. Edward Jeffs, of Bond Head, has purchased from J. & W. Russell the young bull, Prince Arthur, 3452, by Honest Lorne 791, dam Sheriff Hutton's Queen (Imp.) He is a very promising young animal, and we hope he will equal his brother, Sir Arthur Ingram 3453, that took the diploma at London and Toronto last fall.

Messrs. M. Cook & Sons, Aultville, Ont., report the following sales of Holstein cattle made during the last three months:—Bull, "Lord Byron 5th," to John Burgess, Williams-town, Ont.; bull, "Lord Byron 6th," to E. Smart, Brockville, Ont.; cows, "Eldred" and "Bexje 2d," to B. B. Lord & Son, Sinclairville, N. J.; cows, "Innome" and "Shortia," to F. N. Ritchie, St Anne de la Parade, Que.; cow, "Rosina," to B. W. Folger, Kingston, Ont.; bull, "Lord Byron 3rd," to Jas. Birmingham, Gananoque, Ont.; heifer calves, "Rosina 2nd" and "Glenora," to William Campbell, Williams-town, Ont. The above are all registered in the Holstein and Holstein-Friesian Herd Books.

Notices.

The catalogue of Messrs. Galbraith Bros., of Janesville, Wis., is just received.

Our readers should send to James Vick, of Rochester, N. Y., and procure a copy of his Floral Guide.

How to Grow Cauliflowers.—A treatise thereon by Francis Brill, author and publisher, Riverhead, N. Y., is just received.

We have received from Mr. Henry S. Evans, Secretary of the Montreal Horticultural Society, bound volumes of the society's reports, which contain interesting and useful information and should be read by all who have anything to do with horticulture.

Charles A. Green, editor of "Green's Fruit Grower," says: "We are always glad to recommend the 'Acme' Pulverizing Harrow, Clod Crusher and Leveler. We use it more than any other tool on the farm, and we use no other harrow. See advertisement.

"COMMON SENSE IN THE POULTRY YARD."—A work containing 192 pages, by J. P. Haig, published by the Industrial Publication Co., New York, it just received. It contains stores of failures and successes in poultry breeding, with a full account of 1,000 hens and what they did. The work is well illustrated.

"THE NEW AGRICULTURE."—Just received: A work containing 223 pages, by A. N. Cole, published by The Angler's Publishing Company, 252 Broadway, New York, entitled "The New Agriculture." It is a system of irrigation by means of underdrainage, instead of overflowing, and should command the special attention of horticulturists and gardeners. The water by passing upwards from the drain, saturates the soil in accordance with the needs of plants. The system is endorsed by leading authorities, and is said to give excellent satisfaction.

In accordance with the custom of the day the Burlington Route is now running California Excursions from the Missouri River in connection with the Denver & Rio Grande, Central, and Southern Pacific Railroads, connecting at Omaha and Pacific Junction with regular trains from Chicago, Peoria, St. Louis and other Eastern points. Both first-class and the rate excursions are run, leaving the Missouri River on the following dates:—First class—Feb. 3rd and 17th, to Los Angeles; March 3rd, to San Francisco. Low Priced—To all California emigrant points, on Wednesdays of every week until June 30th inclusive.

COGENT REASONS WHY THE CHATHAM WAGON

Adopted by the Government of
STANDARD



the Dominion of Canada as the
WAGON.

should command your preference:—

The intrinsic cost and value of it is at least \$10 more than any other wagon made in Canada, and any unprejudiced practical man will tell you so, and the thousands who now have them in use say so, because it is not only made from the best, carefully selected and thoroughly seasoned timber and best of iron, but the **skeins** used, made only by us, are superior to any skein made or used in Canada, and are constructed specially to receive our **Patent Climax Truss Rod**, which doubles the strength of the axle; the boxing of the hubs are **pressed**, not wedged in; a guarantee for a year accompanies each wagon, and notwithstanding this additional cost and superiority the **Chatham Wagon** can be purchased at no greater price than is charged for inferior wagons. **Bear in mind**, it is the running gear that carries your load, and no amount of fancy painting on the box will make an easy running and great Carrier of a poorly constructed wagon. **Liberal Terms to Parties Buying in Carload Lots. Correspondence Solicited.**

240-

CHATHAM MANUFACTURING CO., Limited.

FOREST CITY BUSINESS COLLEGE, LO DON, ONT.—Our Course has been **Practical Accountants** from the leading banks and offices in the city, also by **wholesale and retail dealers**, and in every instance the highest praise was bestowed upon the **thorough and practical character** of our work. Our elegant rooms are being rapidly filled by **earnest and enthusiastic students**. The attendance has more than doubled during the past month. We were awarded **First Prize** at Provincial and Diploma at Brantford for penmanship. 240c

Western and York

Hamilton Agricultural Works

L. D. SAWYER & CO.,

—MANUFACTURERS OF—

"L. D. S." Portable Engines

With Return Flue Boilers.

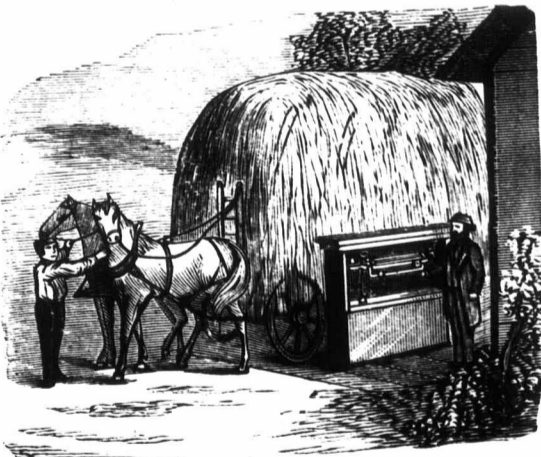
Awarded First Prize, Provincial Exhibition, London, 1885; Northern Exhibition, Walkerton, 1885; Great Central Fair, Hamilton, 1885.

"Grain Saver" Threshers. "American Peerless" Threshers.
Pitt's 10 and 12 Horse-powers. Tread Powers for 1, 2 or 3 horses. Light Separators for Tread Powers. Clover Mills and Clover Attachments.

SEND FOR ILLUSTRATED CATALOGUE. Address

241-d

L. D. SAWYER & CO., Hamilton, Ont.



Write for our Illustrated Catalogue.

241-c

OLMSTEAD BROS.

HAMILTON, ONT.,

Manufacturers of all kinds of Builders' Supplies,

Columns, Crestings, Finials, Balcony Railings, Gallery Railings, Brackets, Church Pew Ends, Staple Fittings,

IRON LAWN AND GARDEN CHAIRS

IN GREAT VARIETY.

Fountains, Garden Statuary, Tie Posts, Carriage Steps, Wrought and Cast Sidewalk Gratings, Vases, Settees, Sinks, Wrought and Cast Iron Fencing, Thimble Skeins, Cuspadoes, etc. Boyton Improved Hot-air Furnaces.

DOMINION STANDARD SCALES



CROSS EYES STRAIGHTENED

J. N. ANDERSON, M. D.
M. C. P. S. Ont.—Eye and Ear Surgeon, 34 James St. Hamilton, Ont. Dr. Anderson gives exclusive attention to the treatment of the various diseases of the **EYE and EAR.**

NOTICE TO FARMERS.—Wanted at once, active pushing men, to wholesale my famous teas to consumers. A good man wanted in every township. No peddling, no license to pay, no capital required. Commission or salary. To good men we pay salaries of from \$800 to \$2,000 per year; write for particulars. **JAMES LAUT**, importer and jobber in pure teas. Head office 231 Yonge St., Toronto 232-y

GARDEN, FIELD, FLOWER AND TREE

SEEDS

STERLING WORTH AND QUALITY HAVE MADE

SIMMERS' SEEDS

the most popular brands. Sow them and you will use none but Simmers'.

All Seeds Mailed Free on receipt of Catalogue Price. Please send your address for a Seed Catalogue, free on application.

J. A. SIMMERS

SEEDSMAN, - - TORONTO.

(Established 1856.)

240-d



Will be mailed FREE to all applicants, and to customers of last year without ordering it. It contains about 180 pages, 600 illustrations, prices, accurate descriptions and valuable directions for planting all varieties of **VEGETABLE and FLOWER SEEDS, BULBS, etc.** Invaluable to all, especially to Market Gardeners. Send for it. Windsor, Ontario. **C. M. FERRY & CO.,** Detroit, Michigan.

241-d

HAMILTON BUSINESS COLLEGE

(Cor. King and James Sts. (opposite the Gore),

HAMILTON, ONT

A FIRST CLASS BUSINESS TRAINING COLLEGE

Practical in every department; well qualified and energetic teachers; system new, unsurpassed by that of any other College of the kind, and endorsed by the leading business men of the city.

SHORTHAND AND TELEGRAPHY BY

SKILLED INSTRUCTORS

Ladies admitted to full course. Terms reasonable. For further particulars address

E. A. GEIGER.

M. L. RATTRAY,

Secretary.

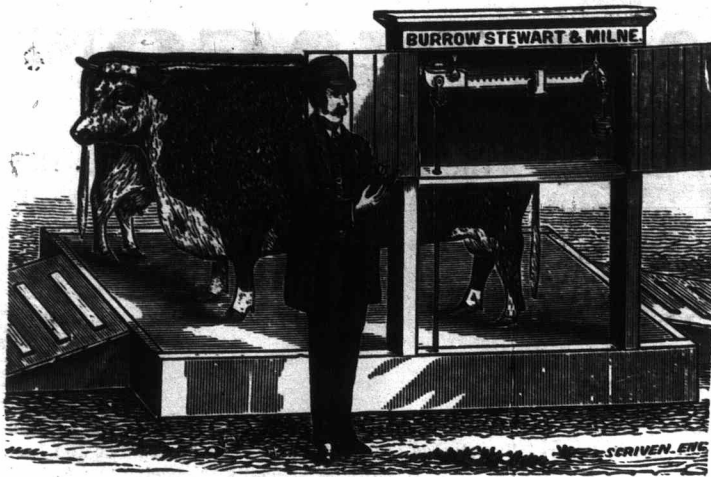
Principal.

Mention FARMER'S ADVOCATE.

241-y

DR. W. E. WAUGH. Office—the late Dr. Anderson's, Ridout-St., LONDON, ONT. 241-y

SCALES! SCALES!



The Platform of this Scale is 6 feet by 4 feet.

No Farmer, Stock Raiser or Produce Dealer should be without one.

It weighs Accurately from half pound to 4,000 pounds

**DAIRY SCALES,
SPECIAL FAMILY SCALES,
COUNTER SCALES,
PLATFORM SCALES,
HAY SCALES,
&C., &C.**

Quality, Accuracy and Beauty of workmanship unsurpassed.

**BURROW, STEWART & MILNE
HAMILTON, ONT.**

THE STANDARD Fertilizer Chemical Co.

(LIMITED)
SMITH'S FALLS, ONTARIO.

SPECIAL FERTILIZERS FOR FRUIT, Vegetables, Grain, Roots, &c.

Awarded SILVER MEDAL at Toronto, 1885. Diploma at Sherbrooke, E.T.

Circular and Price List ready in a few days, free on application. Correspondence solicited.

Address to **R. I. BRODIE, Manager,** Smith's Falls, Ont.

Or to **BRODIE & HARVIE, Montreal.**

DERICK'S HAY PRESSES.

are sent any where on trial to operate against all other presses.



the customer keeping the one that suits best.

Manufactory at 90 College Street, Montreal, P. Q.

Address for circular P. K. DEDERICK & CO., Albany.

ORGANS! ORGANS!

Superior Design and Workmanship.

Every Instrument Warranted 7 Years.

The "KARN ORGAN" Triumphant

COMPETITION OPEN TO THE WORLD!

NEW FACTORIES COMPLETED. CAPACITY 500 ORGANS PER MONTH.

Awarded Silver Medal and First Prize Over all Competitors at the Dominion Exhibition, Held at St. John, N. B., 1883.

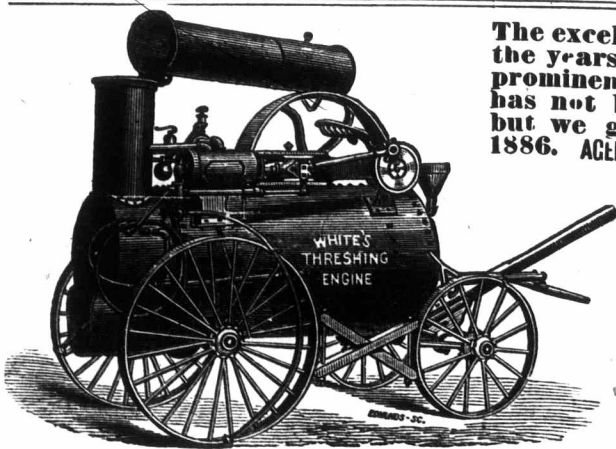
Received the Only Medal Awarded Cabinet Organs, Toronto Industrial Exhibition, 1882.

Awarded Silver Medal, Toronto Industrial Exhibition, 1881.

Awarded Three Diplomas and Two First Prizes, Dominion Exhibition, Montreal, 1882.

These, with many other Medals, Diplomas, Prizes, &c., place the "KARN ORGAN" ahead of all others. We call the attention of the public to the facts above. We manufacture Organs suitable in style for Churches, Parlors, Schools, Lodges, &c. Send for Circulars and Prices to

D. W. KARN & Co., WOODSTOCK, ONT.



The excellent record of this Engine as the years roll on has brought it so prominently in favor that the supply has not been equal to the demand, but we guarantee a full supply for 1886. AGENTS WANTED IN SOME LOCALITIES.

It is licensed by all insurance Co's and has proved itself to be the most durable.

The Engine for the Northwest is made to burn either coal, wood or straw. Farmers, procure a Genuine White Threshing Engine at the Forest City Machine Works, London, Ont., Can.

GEORGE WHITE, Proprietor and Manager

H. B. WHITE, Supt. of Machinist Dept.

A. W. WHITE, Supt. of Erecting Dept.

HUB. J. WHITE, Secretary-Treasurer.

F. J. WHITE, Assistant-Secretary.

The engines may be seen at Van Tassal's foot bridge warehouse, Belleville.

BUSINESS COLLEGE
IN CONNECTION WITH
WOODSTOCK COLLEGE
WOODSTOCK, ONT.

The College has been thoroughly re-organized and placed in the hands of a most able staff of teachers (including two who have been principals of similar and successful institutions). Course most thorough and practical. Fees very moderate. For full information, address—

N. WOLVERTON, B. A., Principal Woodstock College.

W. & F. P. CURRIE & CO.
100 Grey Nun St., Montreal,

MANUFACTURERS OF
SOFA, CHAIR AND BED SPRINGS.
A LARGE STOCK ALWAYS ON HAND.

IMPORTERS OF
Drain Pipes, Vent Linings, Flue Covers, Fire Bricks, Fire Clay, Portland Cement, Roman Cement, Water Lime, Plaster of Paris, Borax, Whiting, China, Clay, etc.

Agricultural Savings & Loan Company
LONDON, ONTARIO.

President—WM. GLASS, Sheriff Co. Middlesex.
Vice-President—ADAM MURRAY, Co. Treasurer

Subscribed Capital, \$600,000
Paid Up do, \$575,000
Reserve Fund, \$61,000
Total Assets, \$1,339,000

The Company issues debentures for two or more years in sums of \$100 and upwards, bearing interest at highest current rates, payable half-yearly by coupons.

Executors and Trustees are authorized by law to invest in debentures of this Company.

For information apply to
JOHN A. ROE, Manager.

Ontario Veterinary College
TEMPERANCE STREET, TORONTO.

The most successful Veterinary Institution in America. All experienced Teachers. Fees, Fifty Dollars per Session. Session 1885-6 begins Oct. 21st. Apply to the principal, PROF. SMITH, V. S., Edin., TORONTO, CANADA.

SPECIALTIES
FINE ART * LIVE STOCK * MECHANICAL
WOOD & ENGINEERING
HIGH CLASS
TORONTO ENGRAVING TO BRIGDEN & BEALE
17 KING ST W TORONTO