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(PUBLISHED MONTHLY.)

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[Toronto, August 1890.



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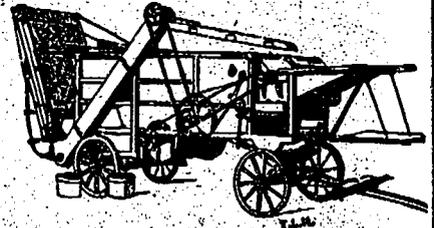
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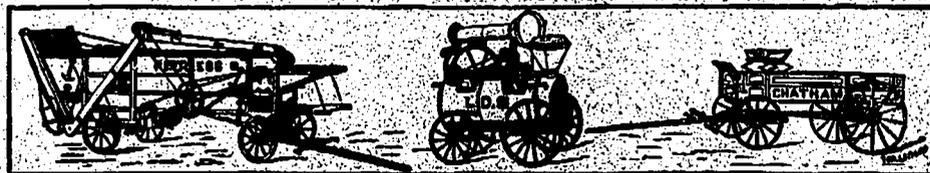
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Massey's Illustrated

(PUBLISHED MONTHLY.)

A Journal of News and Literature for Rural Homes

New Series.]

TORONTO, CANADA, AUGUST, 1890.

[Vol. 2., No. 8.

Contributed to MASSEY'S ILLUSTRATED

Ancient and Modern Agriculture.

BY F. J. M.

AS the wealth of a nation is indissolubly connected with its agricultural resources, the growth of these should have a keen interest, not only for those actively engaged in farming pursuits, but for all right-thinking people, who have their own as well as their country's prosperity at heart. A change has in the last half century come over the development of this important natural element—a development chiefly brought about by the invention and application of agricultural machinery, which, from nearly nothing, has in that period risen to the most important adjunct of the farmer.

The blessings of the application of power to the reduction of human labor are prominent and undeniable. The multiplication of manufactures through the use of so powerful a force is a fact which cannot be gainsaid. The reduction of the possibilities of art to an automatic basis, thus relieving the individual mind from tension, and the individual morality from responsibility, offer attractions, while all deductions favor the most wide-spread employment of power and machinery. Thus, the so-called "labor-saving" machinery enables the user of it to save his muscle and improve his mind; though displacing certain kinds of labor, it creates a certain necessity for other kinds, thus bringing about merely a change of relation, and not of existence; it enables the prosecution of vast enterprises, involving only the prosecution of capital; and it increases the capacity for foreign trade. These simple statements are undeniable. Their acceptance involves, by a process of inexorable logic, the acceptance of the largest possible increase of mechanical power and machinery as beneficent agents in the constant improvement of the condition of the race.

In reviewing the agricultural system of the ancients, we find continual allusion to it in the Bible, though we must therefore conclude that the art of agriculture was always with the Jews a most primitive one. The seed was roughly ploughed under and generally left to chance, the harrow seeming to have been comparatively unknown. Yet, if our translations be correct, Job speaks of the harrow, and thus it must be one of the oldest agricultural implements in the world. Of their mode of ploughing we have a Biblical illustration, when, in First Kings, we read that Elijah found Elisha, the son of Shaphat, ploughing with twelve yoke of oxen before him. The early tillers of the

soil delighted to work together in companies, partly for mutual protection, and partly for the love of gossip; and, as they sowed no more ground than they could plough in a day, one sower answered for the entire company. These ploughs made no proper furrow, but merely rooted up and threw the soil on either side, and so any number could follow one another, each making its own scratch along the back of the earth. It seems now hard to conceive how so small a tract of land as the Land of Promise should have been able to contain and to

a million of inhabitants in ease and comfort. Cotton, rice, sugar cane, indigo, and nearly every other valuable product for the use of man, would flourish most luxuriantly. There were, in fact, sugar plantations here long before America was discovered; and it is quite possible that this plant was taken from this very spot to Tripoli, and thence to Spain by the Crusaders, whence it was carried to the West Indies. Palestine indeed possesses all the elements fitting it for a brighter destiny. It is sad to think that in spite of the wide-spread desire to see it a flourishing country, it should in this age of wonders remain practically in the same miserable plight in which it has been for centuries.

Concurring testimony indicates that the systems of cultivation were somewhat similar, in early days, in all the countries bordering on the Mediterranean, which are characterized by arid summers, and autumn and winter rains. The agriculture of Egyptian Palestine to-day is much as it was some four thousand years ago; though, when we consider the teeming population that existed in ancient times in the narrow valley of the Nile, the large standing army that was maintained, the extraordinary works of engineering and architecture still visible

in our day, and the exportation of corn to other nations, we would infer the system of agriculture then pursued to have been even above that of to-day, simple in all respects as it was.

Thus, when the land was dry enough for work, the seed was thrown broadcast by hand in the field, which was then roughly ploughed and left. The



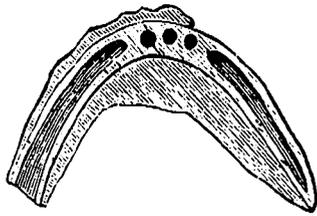
THRESHING SLEDGE IN PALESTINE.

nourish such a multitude of inhabitants as it did, and also to supply other countries with its superior grain. The soil and resources of Palestine were undoubtedly rich and fruitful, and even now in its desolation it is a land flowing with milk and honey. There is no evidence of its climate having changed or deteriorated, nor any reason to suppose that it would fail to support as great a population as it ever did, or, with an improved agricultural system, a much greater; and the Holy Land may well be regarded as a hopeful land for colonization. "The Lord thy God bringeth thee into a good land, a land of hills and valleys, a land of wheat, and barley, and vines, and fig trees, of olive oil and honey." The Valley of Jordan is a most fertile tract, which, if subjected to the science and modern mechanical appliances of agriculture, might well sustain half



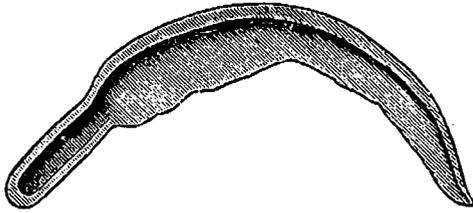
REAPING IN ANCIENT GAUL.

animals employed for ploughing were oxen; occasionally an ox and an ass were yoked together; camels were seldom used, and horses very rarely



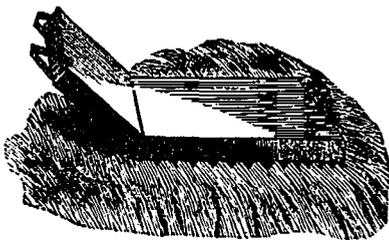
PRE-HISTORIC BRONZE SICKLE, FOUND AT CHEVROUX, FRANCE.

—the latter pulling too fast to suit the lethargic habits of the Egyptian or Israelite. The ancient plough was wholly of wood, and in some instances consisted of little more than a pointed stick, which was forced into the ground as it was drawn forward. An important implement of husbandry in those days was the ox-goad, which was an indis-



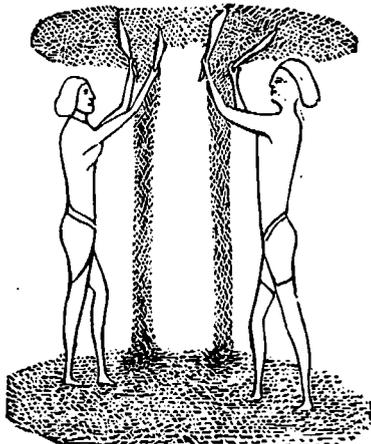
SICKLE OF THE IRON AGE—PRE-HISTORIC.

pensible accompaniment of the plough. The upper end, with its pointed prick, serves instead of rein and lash to urge on the ox, and the other end with a sharp piece of iron is used to clean off earth and weeds from the share, and to cut away any roots or thorns. It was to sharpen this part of the goads



THE CHARATZ OF EGYPT.

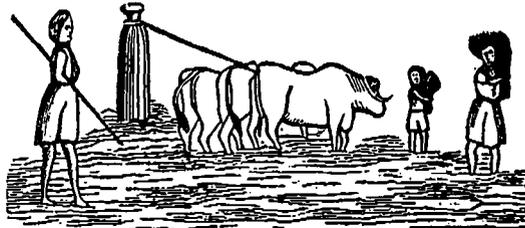
that the Philistines permitted the Jews to have a file in the early days of Saul. References to the goad in the Bible are numerous and interesting. Solomon says that "the words of the wise are as goads," to keep or guide in the right path, and to stimulate the indolent to exertion. Our Lord, in his address to Saul, says, "It is hard for thee to kick against the pricks"—a proverbial expression, taken from the action of an unruly ox. The proverb is exceedingly expressive, and one which conveys to all the world, where the goad is known, a most important lesson—namely, that of not rebelling against our rulers or guides.



WINNOWING IN ANCIENT EGYPT.

Turning to harvest operations, the instrument in use from time immemorial for cutting corn has been

the sickle, and those used by the ancient Jews, Egyptians and Chinese appear to have differed very little in form from those employed in Great Britain and America in the present century. The grain was not bound into sheaves, but gathered into large bundles. Two of these, secured in a large network of rope, were placed a few feet apart. The camel is made to kneel down between them, the large bundles are fastened to his pack saddle, and at a signal from the driver, up rises the peaceful beast and marches off towards the threshing floors. Arrived there the patient animal kneels down again,



ANCIENT THRESHING-FLOOR, WITH CATTLE TREADING OUT GRAIN.

and is relieved of his awkward load, only to repeat the same operation all day long, and for many



CAMEL CARRYING STRAW TO THE THRESHING-FLOOR.

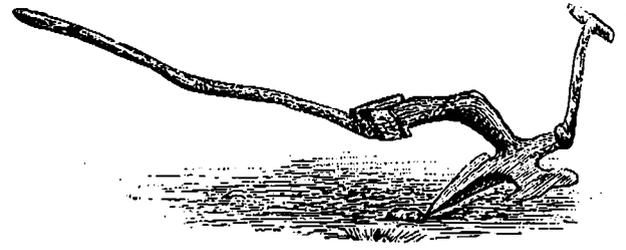
weeks together. The threshing floors were arranged near the town or village, and the most common mode of threshing was with the ordinary slab,



MOWREJ, SHOWING STONES ON BOTTOM.

called *mowrej*, which was drawn over the floor by oxen, until not only was the grain shelled out, but the straw also was ground into chaff. To facilitate this operation, bits of rough lava were fastened into its bottom, and the driver sits or stands upon it. This was superseded in later times by the threshing sledge, a heavy frame mounted on three rollers, which was dragged over the corn. An improvement on this had circular saws attached to the rollers; doubtless it is to this instrument Isaiah refers in the 41st chapter of his prophecies: "Behold, I will make thee a new sharp threshing machine, having teeth. Thou shalt thresh the moun.

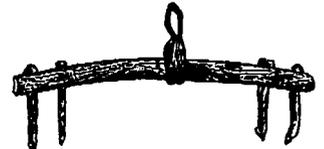
tains and beat them small, and shalt make the hills as chaff. Thou shalt fan them, and the



PLOUGH.



OX-GOAD.



YOKE.

wind shall carry them away, and the whirlwind shall scatter them." There were times when no machines were used, the corn being literally trodden out by oxen and asses, while the command of Moses not to muzzle the ox that treadeth out the corn was faithfully obeyed, and to this day is not forgotten.

The next era in agricultural development and the improvement of implements is that of the Romans. The pursuit of husbandry was long the only source of wealth open to Roman patricians, and it was deemed the most honorable of occupations. Its operations were then directed by men of wealth and learning, and no wonder that its literature was so copious, and held in so high estimation. Cato, who died 150 B.C., was the first and most celebrated agricultural writer. The large farming system had in his time been fully established; and he gives us not only the most minute particulars regarding the management of the slaves on his Sabine farm, but all the details of husbandry, from the ploughing of the fallows to the reaping and threshing of the crop. Being an essentially practical nation, the Romans largely improved on the plough, adding to it the colter and mold-board.

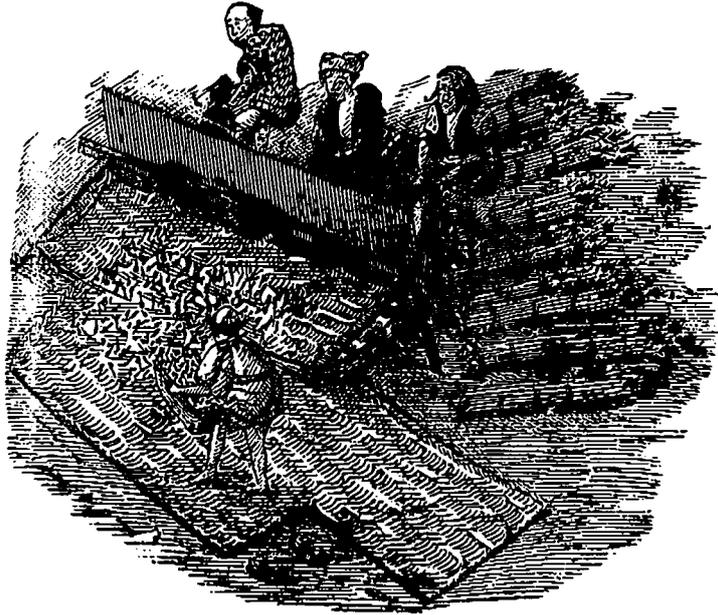
Among the American aborigines the plough was almost unknown, though the Peruvians practiced a rough kind of ploughing, which consisted in the dragging forward of a sharp-pointed stake by six or eight men, its sharp point, which was in front, being kept down in the ground by the pressure of the foot

of another man, who directed it. Britain and America and their colonies are the



GATHERING WHEAT IN INDIA!

only countries in which the plough has been brought to a state worthy of being considered effective, and even in Britain the most important amendments to it are not two centuries old. England took the lead in improvement by rendering the form more



JAPANESE STRIPPER.

neat and effective, and by attaching wheels to aid in keeping the plough in a proper upright position.

Without following in detail the slow but steady development of agriculture and its concomitant implements and machinery, we arrive at the great achievements connected with modern husbandry—namely, the introduction of steam in the field, and the use and application of threshing machines, reapers and binders.

Although it is no more than a quarter of a century since cultivation of the land by steam came into successful operation, it is upwards of three centuries since it was foreseen to be possible. So long ago as 1618, David Ramsay and Thomas Wildgoose took out letters-patent for engines and machinery to plough the ground without the aid of oxen and horses; and nine years afterwards, other ingenious men obtained letters-patent for machines to effect a similar purpose. It is, however, to the efforts of Messrs. Fowler, Howard and Coleman that the present efficient work of the steam plough is due. In every sense of the term, the systems of

the first two-named are the most popular; each has its advocates and its advantages. In both the chief elements are an engine, anchors, a wire rope, and a balance plough. The operation in Fowler's system is what is called the direct—the pull of the

implement being directly to and from the engine; in Howard's system, the round-about operation is adopted, the implement being drawn at right angles. Both inventors have introduced two engines, working simultaneously on opposite headlands. In ordinary working, steam ploughs accomplish an acre an hour. There are now upwards of five thousand in use in England and Scotland, though Americans are strangely behind in the employment of this invention.

Various attempts were made to supersede the flail by a machine, but with little success till 1787, when Andrew Meikle, an ingenious Scotch mechanic, produced a threshing mill so

perfect that, after having run the gauntlet of over a century of improvers, it is essentially the machine of its original inventor.

The attempts which for the last three-quarters of a century have been made to accomplish the process of reaping by machinery have now been crowned with the most complete success. Yet reaping by machinery is no modern invention. Pliny the elder, who was born early in the first century of the Christian era, found a reaping machine in Gaul. He says: "In the extensive fields in the lowlands of Gaul, vans of large size, with projecting teeth on the edge, are driven on two wheels through the standing corn by an ox yoked in a reverse position. In this manner the ears are torn off, and fall into the van." Palladius, about four centuries later, found a similar appliance for reaping corn in Gaul. In modern times the idea of a mechanical reaper appears to have originated with a Mr. Capel Lloft, who in 1785 suggested a machine something after the pattern of the ancient one above described. Between that time and the

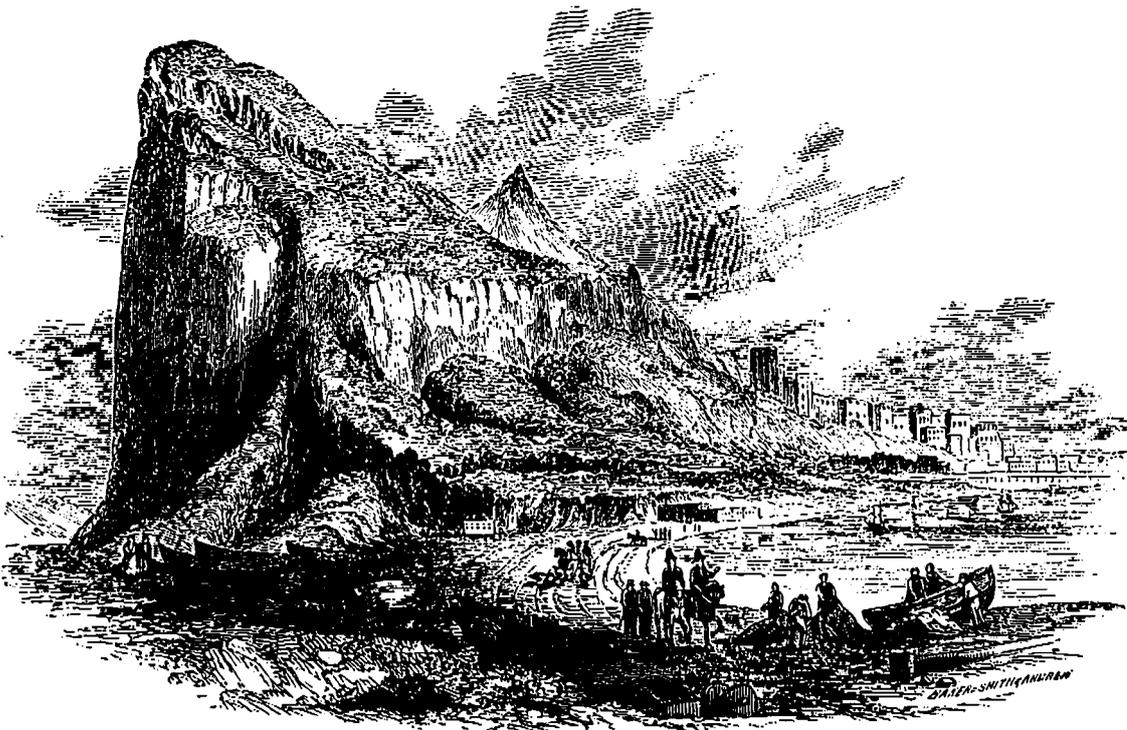
Great Exhibition of 1851, in London, from which the use of mechanical reapers may be said to date, the patents taken out for reaping machines were very numerous. In 1826, the Rev. Patrick Bell, of Carmylie, Scotland, constructed an efficient and simple machine, which long continued in use, and several features of which are observable in the reapers of the present day. The inventor of this, the first machine of the kind in Scotland, received a public testimonial from agriculturists, in consideration of the services he had rendered to agriculture. In America, Obed Hussey, McCormick, Whiteley, Miller and others were the fathers of the reapers now so extensively used throughout this continent, and which, in their great improvements by later inventors and manufacturers, have reached a very acme of perfection, and which, in their use and application, have in a great measure revolutionized the agricultural system of the past, and have placed fresh vigor and activity in the harvest field.

Old Tusser sums up the whole "husbandry furniture" of his day—the 16th century—in twenty-one verbose and doggerel verses. At the last London Exhibition there were exhibited agricultural implements and machines, and other articles more or less connected with the working of the farm, to the number of over 5,000, the value of which was estimated at upwards of \$1,000,000. The calling of the husbandman is no longer the slumbrous life it used to be. Its quiet, poetical felicity has been mightily disturbed. Farmers are now men whose talk is not alway of oxen; and their ideas stretch beyond the stable and the byre. Sneers at the



FLAIL THRESHING.

slow, dull toiler of the soil are altogether without point now-a-days, for there is no department of industry in which more energy and skill are exhibited. Poets in search of similes for stagnation or "holy calm," must not hope to find them in the fields; they must search for them in the grass-grown courts and squares of cities.



GIBRALTAR (HELD OVER FROM JULY NUMBER).

Second Prize Essay

Can our Present Methods of Farming be improved upon; and if so, How?

By WALTER HICK, GODERICH, ONT.

SUPPOSE we take a farm rather run down and dirty—that is, with a good deal of weeds—and that has not been yielding very remunerative crops, as I am sorry to say is the rule rather than the exception.

Let us give a field at a time a good summer fallowing, beginning in the fall with a good deep plowing. The following winter will nicely mellow the soil, and it will be in good condition after the spring crops are in, to get another good plowing. If there are any low or wet places, put in under-drains wherever needed, at least two and a half feet deep, which will dry the land and make a very great improvement. This will aerate the soil, by means of which we can work the soil later in the season as well as earlier in the spring; in fact, it will be dry before the other parts of the field. Give it a good coat of barnyard manure, being careful to spread it thicker on any rather barren spots, if any. Then put on the gang plow or a good cultivator, so as to stir up and turn it over. This will give the weeds a chance to start. After each plowing or turning over, give it a good harrowing, and so continue for two or three times, when it should again have a plowing. By this means the land will be pretty well cleared of thistles and other weeds, and the following harvest the grain can be bound without gloves. If the ground is lumpy, put on the roller after plowing, and get it fit for a seed bed.

In the fall drill in wheat, being careful that the seed grain is clean of all fowl seeds, for if we sow fowl seeds we are sure to gather a fowl crop. Seed down with timothy and other grasses if necessary; sow the grass seed liberally. If the land is in good, fine condition as a seed bed and well manured, the following winter will not have as much effect on the plants as it would otherwise. Then early in spring sow the clover. Then for the next two or three years keep this as a meadow, from which we may reasonably expect good crops of hay, but the aftermath must not be pastured too close while in meadow. For the next two or three years keep it as a pasture, when the soil can be broken up early in the fall, and the following spring plant potatoes, roots, and corn on part of it (using all the manure we can possibly put on during the winter) and spring grains on the balance. Thistles and other fowl seed may probably get in again by this time.

Let us by all means keep all the Live Stock we possibly can, and what we keep let us keep well, in good growing condition. In the summer, if the pastures fail, which they often do, especially in a dry season, feed the stock plentifully with green feed, such as corn, which I find yields the greatest amount of succulent forage, consequently we should grow a good large piece for that purpose.

To enable us to keep the Live Stock in good heart and growing all the year round, we must also have good farm buildings, and a good bank-barn (so called) is about the best form for the main building, with a conveniently fitted-up basement of stone for horses and cattle.

As the prices of grain have been low for the last few years, it is more profitable to grow only just enough for our own use, which feed liberally, as well as hay, to the Live Stock; thereby we shall be able to take our produce to market on its own feet, and also have a good heap of barnyard manure of the best description, which is better in almost every respect than the commercial fertilizers. We should during the winter draw out most of our manure and spread on the land soon after it is made—we then get the full strength of it. By adopting the above method, we should be able in a few years to go all over the farm, and as some one has said, "become a benefactor to his country, able to make two blades of grass grow where only one grew before." Aye, more than that.

If the farm, or the first portion of it thus treated becomes dirty again, which it probably will, while we are surrounded by careless and dirty neighbors, begin again as at first. This leaves a regular rotation of crops covering about seven years, which is better than oftener. We keep a good part of this time in grass, and in these days grass is king.

Horace Greeley said: "Only good farming pays."

The good farmer alone grows good crops at first, and better ever afterwards; it is far better to maintain the productive capacity of a farm than to restore it. . . . Rotation is at least negative fertilization, it may not positively enrich a farm, it will at least retard and postpone its impoverishment. He who grows wheat after wheat, corn after corn, for twenty years, will need to emigrate before that term is fulfilled. The same farm cannot support (or endure) him any longer than that. All our wheat-growing sections of fifty years ago are wheat-growing no longer, while England grows larger crops thereof on the same fields that fed the Saxon Harold and William the Conqueror. Rotation has preserved these as the lack of it has ruined those."

We must by all and every means keep our lands clear of weeds as far as possible, for we cannot grow half a dozen crops mixed together.

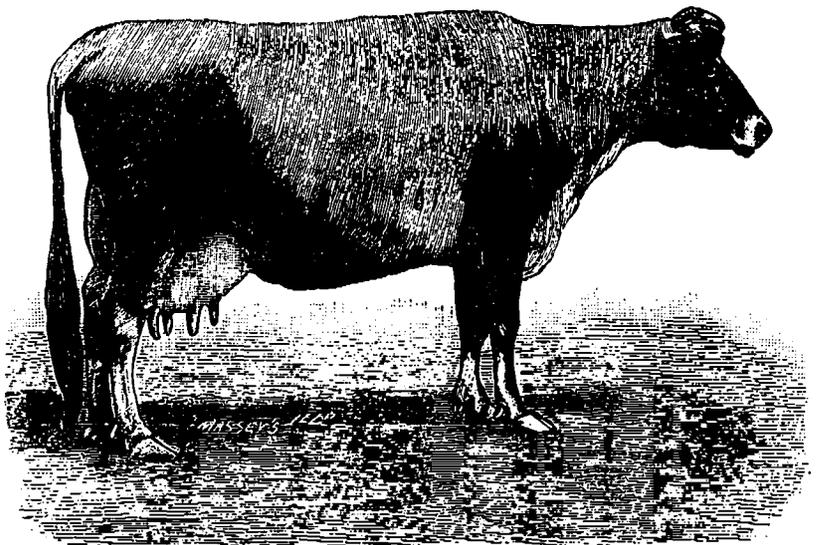
This puts me in mind of a neighbor's hay field last year. The first crop of hay after wheat, he had a heavy crop such as it was. There was about 3 parts thistles, 2 parts chess, 1 part cockle, 1 part wheat, 1 part rye, 2 parts mustard, 3 parts timothy, 1 part clover, besides shepherd's purse, sorrel, yarrow, and other trash.

Let us keep the scuffler and hoes going frequently on all root and corn crops. The farmer's life is a busy one at certain seasons (and as for that all other occupations have to keep busy, besides a good deal of worry), but we can save a good deal of labor by not growing so much grain as we have been in the habit of doing.

Another method of improving farms would be to plant plenty of good thrifty shade trees, which would act as shelter as well as shade, in front of the farm, and I have often thought that a row of trees between and surrounding every field would be a great advantage. The little shade the trees would give to the crops would be trifling compared to the comfort afforded to stock in pasture. Besides, timber is getting scarce, and those trees would make good posts that would not need renewing very often, to fasten wire on as fences. They would also act as wind breaks, which are very much needed now as our forests are nearly all swept away.

Almost any farmer can improve his place by making it attractive; it would be the best investment he could make for his children, and it would surround their youth with a beautiful and attractive home. The dwelling may be small and rude, but a few choice flowers and shrubs in front and surrounding the house, and good fruits, together with a select lot of vegetables, and best of all, a nice variety of small fruits, which can be grown so easily, would add a great deal of pleasure for the young folks as well as conducive to health. There is very little labor done on the farm that is so profitable as that which makes the wife and children fond of their home. We should also have a small library of well-selected books, and not begrudge some of the best papers, particularly good agricultural and horticultural journals. This would save many youths from wandering away from their homes.

I may not have advanced many new ideas for a progressive farmer, but they are practical and common sense ones.



We take pleasure in presenting a portrait of the Jersey cow Eurotisama, breaker of the annual record for butter, she having given, in the year ending April 21, 1890, 945 lb. 9 oz., salted ounce to pound and ready for market—which is 8 lb. 10½ oz.

more than the yield of the only other cow that is known to have reached 900 lbs. Eurotisama was bred, tested, and is owned by Mr. D. F. Appleton, of Ipswich, Mass.

Second Prize Plan of Poultry House.

SUBMITTED BY MR. A. J. MILLAN, LORNEVILLE, ONT.

In order to obtain the best results from poultry, it is necessary to give them the best of accommodation and care, and so I herewith enclose the plans of a good substantial poultry house. I believe that the best is the cheapest. It is 24x14 feet, and 12 feet from the sill to the eaves.

There is a stone foundation under it, and the ground floor is cemented in order to make it rat proof, and so that it will be easily cleaned. It is divided into three compartments, each supposed to be large enough for twenty-five or thirty hens. It is boarded tight for about two feet from the floor, and fine wire netting the rest of the way; the feeding rooms are divided the same way. The perches are made of 3x4 inch scantling, rounded on the top, and should be placed about 2½ feet from the floor; and as the feeding rooms are above the sleeping rooms, there is a platform about three feet square directly under the opening, above and about half way between the perches and the floor above. The opening in the floor is about two feet square, with a board around it about six inches high to prevent them from scratching whatever is on it down, as it is better to have a depth of chaff or sand, with some of the grain raked into it, to give them a little exercise.

There is a board a foot wide, and about six inches from the floor, all around the room, and then their trough is fastened so that the top will be about six inches from that again, and as it is so narrow that they cannot perch on it, it is impossible for them to dirty it.

Their drinking trough should be made the same way, only fastened to the wall with hooks, so that it can be taken down whenever required.

The nests are set in the wall next to the passage, so that the eggs can be got without coming into the rooms; the bottom is on hinges also, so that they are easily cleaned. The dusting box should always be set in a sunny place.

There is a room for a small furnace to boil grain and roots, and to help warm it when very cold.

You will see that the feed and earth bins are large enough to do with filling them twice a year.

By the time there is chicks, it will be warm enough for the rest to run in the yards, so that the chicks can have the feeding rooms.

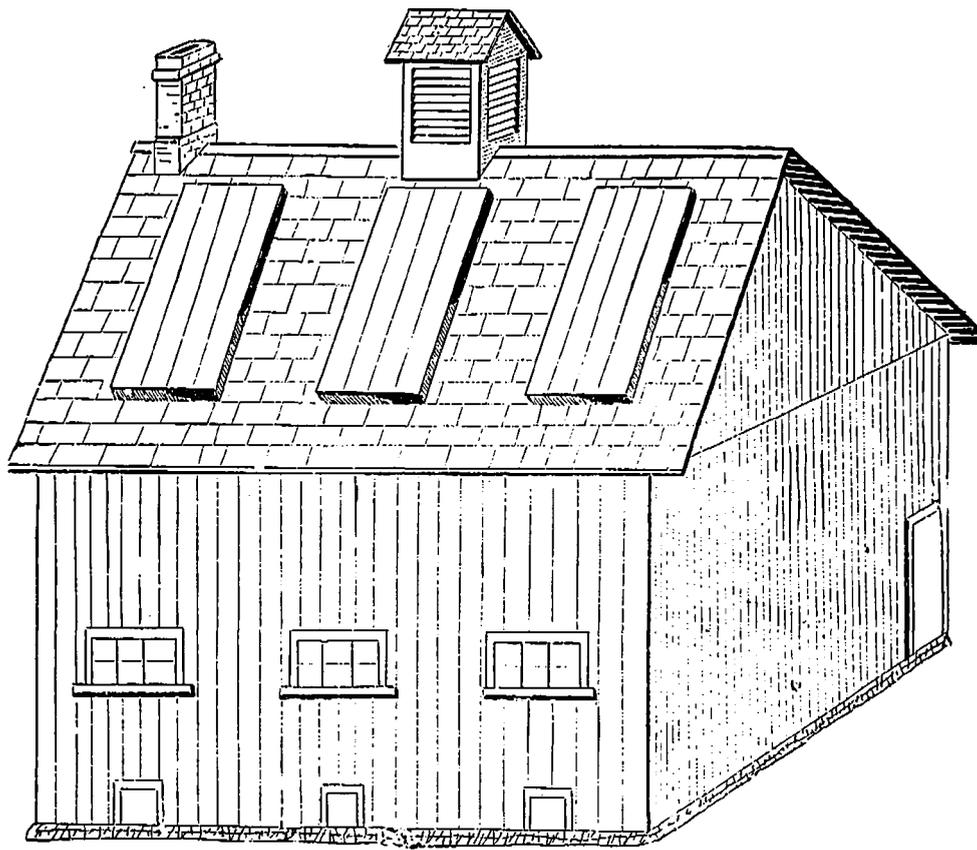
By putting a ventilator at each end of the passage, and above each of the doors, you can have as much fresh air as you want.

The sashes of the skylights should be made the same as for a hot-bed; overlap the glass and put white lead between.

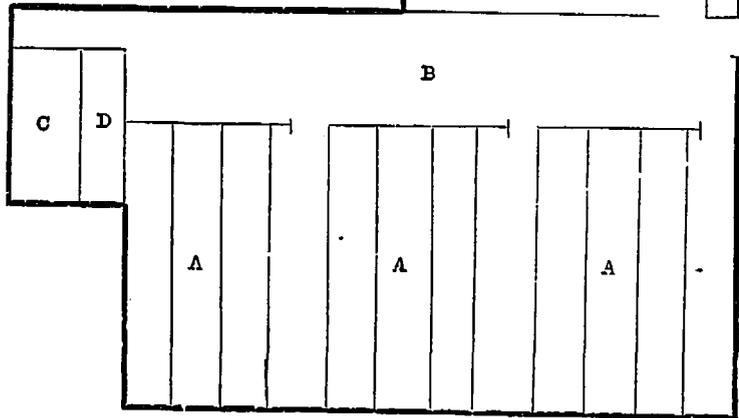
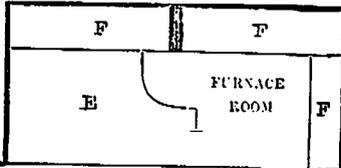
The house is double-boarded, leaving a space about ten inches, which is filled in with lime and gravel; so, with a good coat of tar paper under the shingles, it ought to be pretty warm.

A, Sleeping rooms; B, passage; D, earth bin; C, manure bin; E, root house; FFF, grain, chop and bran bins (upper floor); GGG, feeding rooms; HHH, opening from below; I, troughs; J, dust boxes; K, stairs; L, sand or chaff bin; M, dust bin; N, lime, gravel and charcoal; O, trap to let cleaning into manure bin; P, grain bins; Q, hatching nests.

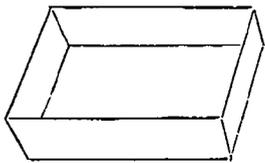
No class of people are so favorably situated for raising poultry as farmers. With plenty of room and grain, certainly two essential advantages are theirs. Do not blame the hens for lack of success, but determine to overcome the difficulty, and the next effort will be a success.



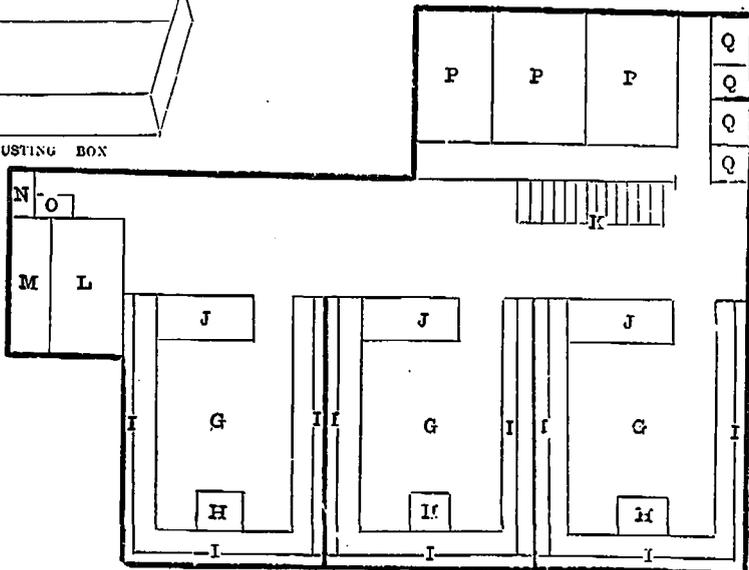
POULTRY HOUSE



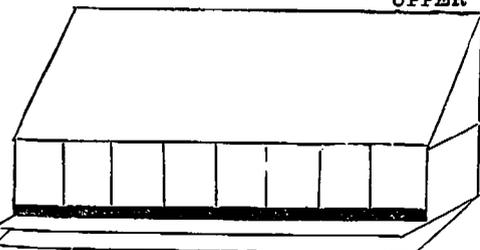
GROUND PLAN



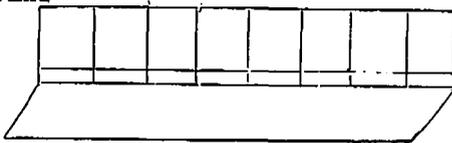
DUSTING BOX



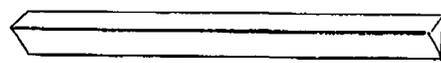
UPPER FLAT



FRONT V. EW OF NESTS WITH BOTTOM DOWN



BACK VIEW OPEN



FEEDING TROUGH



Preferences and Treasures.

I'd rather drink cold water from the brook
Than quaff excitement from a golden chalice;
I'd rather sleep on straw in the shepherd's hut
Than lie awake and restless in a palace.

I'd rather earn dry bread in lusty health,
And eat it with a sense of wholesome pleasure,
Than feed without the zest of appetite
Off gorgeous plate 'mid unavailing treasure.

I'd rather have one true, unfeeling friend,
And fifty parasites to crave my bounty;
And one poor lass who loved me for myself,
Than one without a heart who owned a county.

Nature is kind if our desires are pure,
And strews rich blessings everywhere around us;
While Fortune, if we pant in her pursuit,
Too often grants her favors to confound us.

Fresh air and sunshine, flowers and health and love,
These are endowments if we learn to prize them;
The wise man's treasures, better worth than gold,
And none but fools and wicked men despise them.



THE Composite Silver Binder Twine, manufactured by the Dartmouth Ropework Co., is working exceedingly well in the field. It cannot but be gratifying to that firm that their effort to supply the farmer with a cheap and serviceable twine should have been so successful.

OUR September number will be a thing of beauty. Besides other attractive features, it will contain a handsomely illustrated article by Prof. Scrub; and the cover will be a triumph of the lithographers' art. As it will be largely distributed at the September fairs, advertisers would be consulting their best interests by placing an advertisement in its columns. THE ILLUSTRATED is admitted to be one of the best advertising mediums in the Dominion.

DURING the past two months considerable loss was sustained in various parts of this continent by fires caused by lightning. A series of articles has lately

appeared in a scientific paper published in Belgium, giving statistics of thunder storms in that country. It seems from these articles that there exists some relationship between the extent of forests and the corresponding amount of damage effected by lightning. Some Swiss statistics show that in certain regions which have been gradually deforested the increase in fires due to lightning has been as follows: Forty two during the decade 1856-65; forty six during the decade 1866-75; eighty five during the decade 1876-85. This is considered sufficient to prove that as the forests are cut down so the frequency and violence of thunder storms increase, and that forests afford a large amount of protection against the various consequences of lightning.

SCIENCE is making wonderful strides in agriculture. In France the experiment has been made of applying electricity, and *La Lumiere Electrique*, a French scientific paper, states that seeds which are subjected to the action of the current by placing them when wet between copper electrodes in long glass cylinders open at both ends, and sending a current through them from one to two minutes, develop more rapidly and more completely. The plants which resulted from the electrified seeds were larger and of brighter color than plants from other seeds, but the current had no effect on the yield. In the case of peas, beans, barley and sunflower seeds, development took place in from 40 to 60 per cent. less time than when the seeds were not subjected to the influence of the current before planting. When large plates were sunk in the earth at opposite ends of the garden plot, and a current passed between them, the result was a larger crop, and the growth of vegetables of enormous size.

NEXT month the Fall Fairs will be in full swing. The first in importance is the Toronto Exhibition, from the 8th to the 20th, at which the best herds in the Dominion will be seen, and the exhibit of horses will be the finest yet, the entries exceeding those of last year, which then nearly reached one thousand. The Dominion Experimental Farm will make a grand exhibit, and the Ontario Agricultural College will also make a fine display. We have previously mentioned other important features, and as Manager Hill promises to have special attractions of a superior character, there is no doubt that this year's exhibition will be as usual a great success financially and otherwise. All entries must be in by the sixteenth of this month. The Western Fair, London, and the Great Central, Hamilton, follow the Toronto, the former from the 18th to the 27th, and the latter from the 22nd to the 26th. Every effort is being put forth by the directors of both to surpass all former fairs, each having a most liberal and attractive prize list, besides special attractions.

THE following facts about wool may be interesting: Of the composition of wool this estimate has been given; Carbon, 50 per cent; hydrogen, 7; nitrogen, 17; oxygen, 21; sulphur, 5. While 98 per cent. would be organic, 2 per cent. would be ash. The fiber varies in diameter, the delicate Saxon merino being the thirteenth-thousandth of an inch, and the Southdown the eleven-thousandth. Soundness of fiber indicates health. Lustrous wool is long and strong, sometimes twenty inches in length. Old sheep usually lose the power of producing the best wool. As a rule, the wool of marshy and stormy localities is poor, though the wool of Shetland has always been famous; but in this case the breed has remained uncontaminated with inferior breeds. The curls on some wool may be from twelve to twenty-seven in an inch. As soon as the point of the fiber has protruded through the skin of the animal, a series of growths take place. One side grows faster than another, and causes the curl. The finer the wool, the greater is the tendency to curl. According to Dr. Bowman, the breaking strain of human hair in grains is 1641; of mohair, 586; of Lincoln wool, 502; of Leicester, 473. In Southdown wool, however, it is only 36; in Australian, 50, and in Saxony, 36. In elasticity, on the other hand, the Australian wool is nearer to that of human hair than that of the Lincoln.

PROF. SHAW, of the Ontario Agricultural College, in a bulletin issued recently, gave the results of an interesting and encouraging experiment in fattening lambs on rape and finishing them on winter ration. The experiment was commenced on October 10th., 1889, and concluded on February 10th. last. At the commencement the aggregate weight of 48 lambs was 4,612 lbs., or an average of 96 lbs., and the results from feeding on rape to Dec. 10th. (62 days) were: aggregate weight 5,476 lbs., aggregate gain 864 lbs., average weight 114 lbs., average gain 18 lbs. The results from feeding in sheds for the remaining 59 days were: aggregate weight of 48 lambs Dec. 10th., 5,476 lbs.; aggregate weight of 47 lambs (one having died) Feb. 10th., 6,020 lbs.; aggregate increase in 59 days, 544 lbs.; average weight per head Feb. 10th. 128 lbs.; average increase per head in 59 days, 14 lbs. The price paid for the 48 lambs on October 9th., was \$184.70 and the price received for the 47 lambs was \$370.30; increase in value \$185.60 or an average increase per lamb of \$3.86 2-5. It will be observed that the lambs were sold for more than twice the sum paid for them and that the loss of one lamb lessens the return by about \$8.50. While on the rape they were fed in troughs one-half pound each of oats daily and were given salt at will, but they were not given any water. While in the sheds they were fed the following daily rations: grain, consisting of whole oats only, 1,057 lb.; turnips, sliced, 5,107 lb.; clover hay, of rather poor quality, what they would eat. They had access to water all the time. Prof. Shaw says that the following conclusions may be drawn from the above experiment: 1. That good grade lambs may be made to gain 9 lbs. per month when pasturing on rape with a supplement of 1/2 lb. oats per day. 2. That the same class of lambs may be made to gain 7 lbs per month on a winter ration of clover hay, and say 1 lb. oats and 5 lbs. roots per day. 3. That lambs pastured on rape for two months, with a supplement of 1/2 lb. oats per day, may be made to increase in value about \$2 per head. 4. That good lambs judiciously purchased at the ordinary selling rates in autumn, and treated as described in this experiment, may be made to increase in value more than the sum paid for them in say 5 1/2 months time and on the condition that the buying and selling prices (4c. and 5 1/2 c respectively per lb. live weight) are relatively the same as in this experiment. 5. That lambs thus purchased and fed may be made to increase in value 1 1/2 c. per pound live weight.

WE have much pleasure in announcing that the winners of the cash prizes offered by us to the canvassers who sent in the four largest lists of subscribers to July 1st last are:—

1st prize, \$50,	Mrs. Edmond, Toronto,	163
2nd " 30,	Miss A. Millard, Freelon, Ont.,	70
3rd " 15,	Mr. B. B. B. Finnie, Toronto,	34
4th " 5,	Miss E. Sibbald, Morley, N.W.T.	21

Nearly a dozen others were very close upon the fourth prize-winner. A little extra exertion is all that is required to roll up a list large enough to win a prize, and in future our canvassers should bear this in mind. To the prize-winners and other canvassers we extend our cordial thanks, and we trust they will continue their efforts to procure subscriptions and thereby earn some more valuable premiums. A good time to start a vigorous canvass is after the harvest is over. Most of our subscribers can help to swell our subscription list by getting their friends and neighbors to subscribe. We do not ask it to be done for nothing, as for every new subscriber a premium is given. Show them a copy of the paper, and when they find that the price is the trifling sum of fifty cents per year, we feel sure they will not hesitate to subscribe. THE ILLUSTRATED, like good wine, improves with age.

ONE of the institutions, which Canadians have just cause to feel proud of, is the Ontario Veterinary College, Toronto. Its fame is world-wide, and students have come from Australia, the Sandwich Islands, all parts of the United States, Jamaica, England, Ireland and Scotland, besides those from our own country, to seek inspiration within its walls. Professor Andrew Smith, the Principal of the College, is one of the most distinguished and best known veterinarians in the world and the College owes its fame and success in a great mea-

sure to its popular Principal, who has held that position ever since it was established in 1862. Owing to the rapid growth of the college a new building had to be erected last year containing two large lecture rooms, rooms for microscopic and other demonstrations, and every convenience for the thorough teaching of all departments necessary in the equipment of the veterinary surgeon, both as a scientific and practical man. The establishment forms undoubtedly the finest college building for veterinary purposes in America, and good authorities give it as their opinion that few even of the great European colleges can furnish more admirable facilities to their students than are afforded by it. The faculty is composed of men eminent in their various departments and some of the graduates of the College hold prominent positions in the veterinary field. The importance to the agriculturists of the Dominion, in having such an institution in their midst, cannot be over-estimated.

In Denmark there is a thoroughly practical system of training for young farmers. They are apprenticed to the best farmers all over the kingdom for two or three years, under the oversight of the Royal Agricultural Society. They work for good farmers for one year as learners, receiving a small sum besides their board and lodging. At the end of the year, the apprentice is removed to a farm in another part of the kingdom, and his third year is spent on a still different farm in a district where a different kind of agriculture is practiced. The society gives each apprentice a number of agricultural books at the outset, which become his property upon the completion of the three years. The apprentices report to the society at stated intervals, and from these reports and other records where they have worked, the society judges of their progress and grants diplomas accordingly. The young men must get a thorough knowledge of all kinds of practical farming, but they have to work for it, as they are at hard labor from four in the morning till seven at night, except meal hours. The society has started the system of apprenticing young men in the best of dairies for three months instead of three years.

Our enterprise in procuring and publishing crop reports from all over the world in our last edition has been universally commended. The reports excited so much interest that on the morning after their publication an epitome thereof appeared in all the leading papers throughout the Dominion, and some of the dailies in the States. During the past month the growing crops in Canada have on the whole been blessed with favorable weather, and the outlook for our farmers is more promising than it has been for years, more particularly as prices have every appearance of being good. The crops in Great Britain and France have been ruined by continuous rains, the United States report a heavy deficiency of fifty-five million bushels, in some of the greatest wheat-growing provinces in India the crop is deficient, and in the South-West provinces of Russia the wheat harvest shows deterioration in quality. These circumstances are such as to encourage a firm tone in the wheat market here, and to the belief that better prices will prevail than for the past four or five years.

SOME people who can see no evidences of beneficent designs in the universe have written about the wastefulness of nature. They state that not one seed in a thousand produced by tree, shrub, or more humble plant, ever germinates. They are fond of referring to the destruction caused by floods, winds and fires. They show that only about one fish egg in a million ever hatches, and that most of the small fish are devoured by larger ones. They insist that nature does nearly everything wrong. There are other people, however, who see things through different eyes and conclude that nature does all things well. They show how the luxuriant vegetation of a former geological age was stored up in the form of coal that it might afford light, heat and power when they were needed. They refer to the good work of insects in forming coral and the

operations of the earth-worm in improving soils. They show that coarse plants, which grew and died thousands of years ago, enriched a barren soil and put it in a condition to produce wheat, potatoes, strawberries and roses. They point out the way in which trees, long since dead and decayed, brought up potash and phosphorus from a hard clay subsoil and deposited them near the surface of the ground. They show how limestone was formed and vegetables preserved in the form of peat. Lately they have explained how nature prepared natural oil and gas and stored them up for the present use of man. And now it appears that the sentiment and religion of a nation that has passed away have been productive of good to a modern nation. The ancient Egyptians regarded cats as sacred and they treated them carefully when alive and embalmed them at considerable cost when they died. Little did the Egyptians think to what base uses their sacred cats would be put. Recently a laborer while cutting an irrigating ditch about a hundred miles from Cairo broke into an immense tomb and found it filled with mummified cats. An Englishman secured the lot and sent it to Liverpool, England, where it was sold to a manufacturer of fertilizers at about \$18 per ton. The consignment embraced some 180,000 cats. They were ground up and have been applied to the hop fields of Kent and the pastures of Durham. Thus the sentiment and religion of one country provide material for beer and butter in another land.

OUR UNIVERSAL CROP REPORT.

What the Big Toronto Dailies said about it.

The mid-summer number of the MASSEY'S ILLUSTRATED shows considerable enterprise, which will doubtless be fully appreciated by the large class of agriculturists among which the paper circulates. It contains a universal crop report, embracing the latest and most reliable returns of crops from the Continent of Europe, Great Britain and Ireland, Australia and New Zealand, the Argentine Republic, South Africa, the United States and Canada. These reports were obtained chiefly by telegraph and cable.—*The Globe*.

THE ENTERPRISE OF "MASSEY'S ILLUSTRATED."

The mid-summer number of MASSEY'S ILLUSTRATED is an exceptionally attractive issue of that always interesting monthly magazine. The special feature of the number is the Universal Crop Report—a complete presentation of concise information about the crops, specially secured by cable and wire from the Continent of Europe, Great Britain and Ireland, Australia and New Zealand, the Argentine Republic, South Africa, the United States, and the Dominion of Canada. The successful carrying out of so extensive an undertaking shows remarkable enterprise. The last descriptive letter of the series written by Mr. W. E. H. Massey while on his trip around the world, illustrated by several engravings from sketches and photographs taken by him, is also an attractive feature of the number.—*The Mail*.

THE WORLD'S CROPS.

MASSEY'S ILLUSTRATED for this month, issued yesterday, contains four pages in small type of the latest crop reports from all over the world. By cablegrams of the 2nd inst. crops in Great Britain and Ireland are reported as having been materially injured by late rains, but the general crop is expected to be very heavy, and on the continent of Europe wheat is ripening fast and there is every prospect of a good crop all over. In South Africa the prospects are good, while in Australia grasshoppers from the interior had eaten up the young blades of the early sown wheat and grasses. Reports from the United States by letters of date June 30th to July 3rd state that in Dakota, both North and South, the crops will be 50 per cent. better than last year; in Michigan better, but in the other states not much difference, even worse in New York state. Telegraphic reports on July 2nd and 3rd from Ontario and Quebec show that a good deal of damage has been done to the crops by rain on low lands, but on the whole a good harvest is expected. In the Maritime Provinces the harvest will be from two to three weeks late and promises to be good. In Manitoba, the North-West, and British Columbia, the most encouraging reports have been received; the harvest will be bountiful, recent rains having put all doubts aside. In all the provinces the hay crop has suffered, owing to the old meadows being in a great many cases winter-killed. Speaking generally the tree fruit will be a poor crop. The paper has shown commendable enterprise in the matter, the reports being very complete and from trustworthy sources.—*The Empire*.



1st.—Celebration of Dominion Day. . . . Chief Justice Johnson, of Quebec, knighted. . . . Destructive storm in Eastern Ontario.

2nd.—Death of Mr. John Page, Chief Engineer of Canals, at Ottawa. . . . Mr. Duncan, Gladstonian, elected to represent Barrow-in-Furness in the Imperial Parliament, defeating both the Conservative and Unionist candidates.

3rd.—Sir Redvers Buller succeeds Lord Wolseley as Adjutant-General of the army. . . . Close of Toronto's Summer Carnival. . . . Idaho admitted as a State of the Union.

4th.—Great damage to shipping and loss of life by a gale on Lake Michigan.

5th.—An English and Holland syndicate purchases between five and six million acres of land, and 75,000 head of cattle in the State of Tamaulipas, Mexico. . . . The French Senate votes in favor of a duty of three francs on American corn, and six francs on cornmeal.

7th.—Threatened strike of the London, England, police force averted. . . . Mutiny among the men of the Grenadier Guards, London; thirty put under guard. . . . The town of Fargo, Dakota, almost completely destroyed by a cyclone; several lives lost and many injured; great destruction of crops within a radius of thirty miles.

8th.—Mr. M. B. Daly, ex-Deputy Speaker of the House of Commons, appointed Lieutenant-Governor of Nova Scotia.

9th.—Strike of the London, England, letter carriers. . . . Great destruction of property and loss of life by terrific wind-storms in the States of New York, Vermont and Maine. . . . Population of Montreal estimated at 277,700.

10th.—Wyoming admitted as a State of the Union. . . . The London letter carriers return to work.

11th.—Several lives lost at Dartmouth, N.S., by a ferry float giving way and precipitating men, women and children into the harbor. . . . Several men killed and others injured by an explosion in the hold of the steamer Tioga, while being unloaded at Chicago.

12th.—Henry M. Stanley and Miss Dorothy Tennant married in Westminster Abbey. . . . The Prince of Wales inaugurates the Bisley Rifle meeting; the Princess fires the first shot. . . . Death of Dr. O'Reilly, Inspector of Prisons for Ontario. . . . Mr. Carrere elected for Gaspé, Que., defeating Mr. Flynn, the Opposition candidate.

14th.—Opening of the Universal Peace Congress, London, England. . . . The McKinley Tariff Bill condemned by an immense workmen's meeting at Sheffield, England. . . . Appalling loss of life and destruction of property by a cyclone near St. Paul, Minn; an excursion steamer wrecked and about 150 people drowned. . . . Destructive fire in Wheatley, Ont.; loss about \$40,000.

15th.—The Canadian cricket team defeated by the Americans at Chestnut Hill, Pa., by an innings and 31 runs.

16th.—Death of Rev. Dr. Samuel Rose, the prominent Methodist divine, at Toronto.

17th.—Pierre Maranda, wife and three children burned to death while asleep in their rooms, St. Joseph street, Quebec; incendiarism suspected. . . . Mr. John Ross Robertson, Toronto, elected Grand Master, and Mr. J. M. Gibson, Hamilton, Deputy Grand Master at the meeting of the Grand Masonic Lodge, Kingston.

18th.—The Western Union Telegraph building, New York, gutted by fire. . . . Four Canadians reach the second stage of the Queen's Prize Competition at Bisley, England.

19th.—The second battalion Grenadier Guards punished and disgraced by being ordered to the West Indies. . . . Duchess of Sparta, wife of the Crown Prince of Greece, gives birth to a son.

20th.—Republics of Guatemala and San Salvador at war; big battle reported, in which the Guatemala forces were defeated.

21st.—First sod of the Calgary and Edmonton railway turned by Hon. Mr. Dewdney, amid great jubilation by Calgary's population. . . . The inhabitants of Heligoland meet and adopt a grateful farewell address to the Queen of England.

22nd.—Second Battalion, Grenadier Guards, leave London for the West Indies, an immense crowd accompanying them to the railway station and cheering them vociferously.

23rd.—National Line steamer Egypt, from New York to Liverpool, abandoned on fire at sea; her crew rescued. . . . The English team win the Kolapore cup at Bisley.

24th.—Death of Robert Hay, ex-M.P., Toronto. . . . Steamer Idaho, from Montreal to Bristol, wrecked at Anticosti; cargo valued at \$650,000.

25th.—Mr. Desjardins, Conservative, elected M.P. for Montmorency, Que.

26th.—Revolution breaks out in the Argentine Republic; desperate fighting in Buenos Ayres. . . . The Earl of Jersey appointed Governor of New South Wales. . . . Adam Brown, M.P., appointed Canadian Commissioner to the International Exhibition at Jamaica. . . . Eight persons killed, forty injured, and an immense amount of property destroyed by a terrific cyclone in South Lawrence, Mass.

28th.—More than half the village of Minden, Ont., destroyed by fire; loss \$23,000.

29th.—Insurrection in the Argentine Republic subdued; President Celman resigns. . . . Serious blaze in the Balmoral hotel, Montreal; loss \$30,000.

30th.—Disastrous conflagrations in Chicago, Ill., Seneca Falls, N.Y., and Saginaw, Mich., the losses being respectively \$300,000, \$700,000, and \$400,000.

31st.—Epidemic of diphtheria reported at Bonne Bay, Newfoundland; nearly the whole village stricken and many deaths.



Culverts—How to Build them.

EVERY farmer in the country knows how to build a culvert. It would be a disgrace to a farmer's boy ten years old if he could not tell just how one ought to be made, even though he lacked strength to put in the work. There is the stone culvert—that is



FIG. 1.

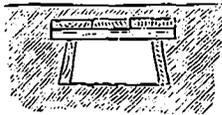


FIG. 2.

the best of all when the stone can be had. Then the log culvert, with poles or planks on top. There is the culvert of heavy planks, strong, and supposed to be durable.

The farmers in the Eastern States have been building culverts for at least one hundred years. They ought to know what they are built for, as well as how to build them. But they don't. Practice speaks louder than words. While they say that a culvert is to carry water under a road, then practice says that it is only a little bridge over a hole. Is proof wanted? Every heavy rain-storm washes out innumerable culverts—perhaps the very

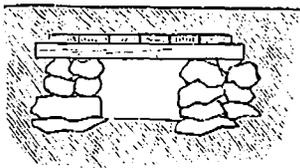


FIG. 3.

same that were washed out in the same way two or three years ago. And they will be washed out again in a little while. And why? Because, when they are built, no end of pains are taken with the top and sides, while the bed on which the water is to flow is left just as the man with the hoe or shovel dressed it. It's dry weather. Nobody thinks it worth while to prepare a way for the water which will come in the spring or fall. When a smart rain comes and fills the ditch, a little stream struggles along the broad, flat bottom of the culvert. It is spread out in a wide sheet. The leaves it has brought along with it are piled up

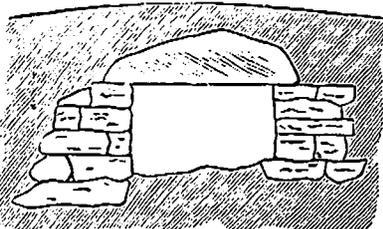


FIG. 4.

here and there, and it barely trickles through. A heavier rain brings in some stones. The rough, flat water-way gets more and more obstructed each time the water finds its way under the road. "Of course," says the farmer, "culverts get stopped up." Yes, and then they are washed out bodily, and the farmer has to pay for building them over again. And perhaps he has to wait a couple of weeks until the road surveyor gets ready to see to matters. When there is a stream flowing all the time, who ever saw any one take pains to have a clear bed for it under the road? There is always space ample for the flow, but so obstructed with rocks or stones that, when the flood comes, the stream begins at once to attack the sides. Perhaps it rises and flows over the roadway. Figures 1 to 4 represent primitive forms of culverts of different degrees of defectiveness, but all of them may be found in country roads. Figure 1 belongs to the

"corduroy" period of road making. A rough log is thrown down on either side of the hasty excavation, and short string-pieces are placed across them to support the planks. Fig. 2 is of similar construction, save that planks are set up edgewise in place of the logs. Fig. 3 is bad and expensive. Fig. 4 is still more costly, and equally bad in construction at the fundamental point.

Now, a lesson from the engineers who build sewers will cost nothing, and it may save some culverts next year. It is a lesson that pertains to the bot-



FIG. 5.

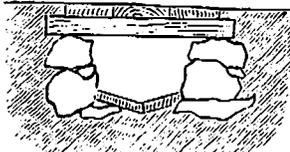


FIG. 6.

tom, and not to the top of the culvert, the water-way and not the roadway. The engineers have found that when they want a stream of variable size to keep its course clean, the best form of pipe or conduit for it is an egg-shaped section, with the small end down, as shown in Fig. 5. The tiles rest upon planks properly graded. Much drain-pipe is made of this form. Then, again, when they want water to flow anywhere, they give their pipe a down-grade in that direction. The culvert bottom is usually not only flat, but level. Water does not run fast when on level ground. Where there is a brook to take care of, make its bed smooth in the culvert, and on the up-stream side remove any loose, round, or other stones which high water might lodge under the road-bed.

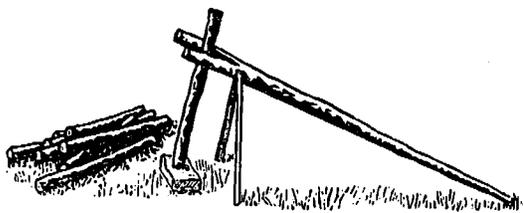
If it is too costly to buy an oval pipe for the culvert, make a plank bottom. But do not lay the planks flat. It will take a broad and heavy stream to carry a single bunch of leaves through under such conditions. Make the bottom a blunt V-shape, as in Fig. 6. Then a small stream will have a small channel. A slight obstruction will back up the water so fast as to remove it at once. In a word, what the engineers call the "scour" will be great. The culvert bottom will be largely self-cleaning, and when a freshet comes, instead of a dam being already begun and in position to catch any floating substance, there will be a clear water-way, in which it will be difficult for anything to lodge.

Finally, remember that when an engineer wishes to make the water flow slowly, to bring the current to a standstill he makes the sewer with a flat bottom. In this case, reform is cheap, and it also pays. Therefore, it is to be hoped that the farmers will reform, build more sensible culverts, and, as a consequence, have fewer washouts in the future than in the past.—*American Agriculturist.*

Sharpening Posts.

In most sections of the country the setting of fence and other small posts is nearly done away with, for the reason that they are and can be more quickly driven. In soil subject to heaving by action of frost, heaved posts are also easily redriven to their original depth, which cannot be done with posts that are set and have blunt ends. Farmers have also learned that, nine times in ten, posts rot away a little below and at the surface of the ground; hence a cumbersome piece of wood placed two feet or more below the surface is comparatively useless.

A simple arrangement for holding posts while they are sharpened is shown in the cut below. A pole about 20 feet in length is split at one end and



supported by wooden legs six feet in length set in a bracing position, as shown. One end of the post rests upon a block, the other is supported and held firmly in the V-shaped split in the end of the pole. This is a cheap holder and one readily moved about as desired.

THE press drills are rapidly coming in favor among Canadian farmers. In Manitoba and the North-West, where they have been extensively used this season, they are spoken very highly of.

LET the hogs and sheep eat all fallen fruit that cannot be marketed or evaporated. In this way a large number of different pests that injure both the trees and fruit will be destroyed, and this will be much better than allowing the fruit to go to waste.

If you save all the slops from the house, the wash water and suds of sundry occasions during the week, you will find that you have a supply of nutriment at hand to draw upon which is far richer than you had any idea. It will not make a poor soil permanently rich, but it will afford sufficient nutriment to nourish such plants as you grow in it during the summer in a very satisfactory manner.

EVERY member of the family should exhibit something at the annual Fair. The farmer and his older boys will most likely exhibit animals and crops. Many make the mistake of feeding and pampering their animals preparatory to the fair until they are "fat enough to kill." For a "Fat Stock Show" this may be well, but at the fair animals should be in good working order, or good salcable condition, if one should wish to buy.

THE most sensible way to utilize lawn mowings for fertilizing purposes is to feed them to poultry or other stock. If such and similar materials, however, are to be used directly as manure, this can be done by adding them to the compost heap, mixing them well with the animal manures. Where the latter are not at hand, the mowings may be piled up in a square heap, with other vegetable refuse and the kitchen slops emptied upon it from time to time as accumulated. Or the grass may be mixed with loam and composted.

ALLOWING weeds to go to seed in various places on the farm does not pay, although it yields a large return in trouble in fighting them. Burdocks, yellow dock, mullein and the like should be cut off with a hoe just below the surface, and thistles should be continually cut till choked out. A handy weeder can be made as follows: With a cold chisel cut six inches from the point of a worn out scythe; then cut two inches of the blade part off the back; put on a light handle; then bend two inches of the point on a curve so that the point and handle will be at right angles, and you will be surprised to see how handy it is.

THE use of petroleum for preserving wood structures is gradually extending. It penetrates the pores of the wood, and if a sufficient quantity is applied, converts perishable wood to a nature nearly as durable as cedar. Those who use it commonly apply it too thinly. It may be laid on heavily with a coarse whitewash brush, and it soon sinks and enters the wood, and where much exposed, two or three coats will be better, if applied at intervals of a few days. Its operation is the opposite of that of coal or gas tar, which remains on the surface. Petroleum is best for wood exposed to the weather, or to alternations of sunshine and storms; coal tar succeeds well if applied to wood in moisture and shade, as fence posts, or unde ground structures. Superficially or carelessly used, neither of them succeeds well on fence posts. The coal tar should be applied hot, so as to perform a perfect casing. Petroleum should be repeatedly applied, so as to penetrate the wood perfectly. It will then render the wood very durable. For shingles, they should be dipped in a tub of the petroleum. Whether used for shingles, siding or fences, the coating should be repeated every eight or ten years. A strong recommendation of petroleum is its cheapness.

Livestock.

A Swill and Temper Saver.

ANY one who has fed pigs and been annoyed by their getting into the trough while it was being cleaned out, and then after they are driven away rushing back and getting their feet in the trough just in time to have the swill poured all over their heads and much of it spilt, will appreciate the contrivance represented in our illustration. The trough is fastened inside of the pen; two boards are hinged so as to swing in over the trough. In the middle of each board is a strip fixed to slide up and down. A heavy pin in the upper end of this strip acts as a convenient handle. This strip drops

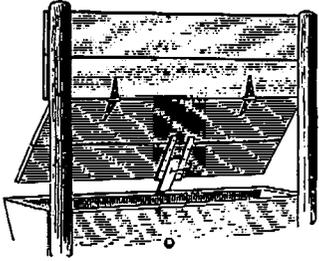


FIG. 1.—TROUGH CLOSED.

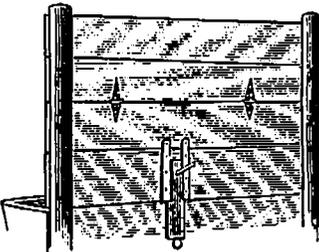


FIG. 2.—TROUGH OPENED.

down on the outside of the bottom board of the pen and holds the whole firmly in place. When the pigs are to be fed the slide is drawn up, and with the foot the hinged boards are pressed inward, the strip dropping down behind the trough, leaving the whole length of the trough clear to sweep out and pour the swill in. Mr. Pig is on the other side of the boards and must bide his time. In Fig. 1 the trough is shown as closed against the pigs; in Fig. 2, free to their access.—*American Agriculturist*.

In every large flock of sheep during the summer months there are always a few that do not keep in as good condition as the rest, and there are nearly always, more or less, cull lambs. Every sheep-grower should have a small enclosure where he can place these culls with their dams, and give them a little grain every day to help out the grass and milk ration. A mixture of corn-meal and bran, equal parts, is a very good feed for these ewes and lambs, and it is within reach of most farmers. Of course to do this gives some trouble; but the farmer will be well repaid, as well as surprised, when winter comes and he finds these sheep as good as any in the flock. To secure an even lot of sheep should be the farmer's aim, and they can be made and kept so by proper care and feed.

WHEN the margin of profit is small, as it often is in feeding and fattening hogs, a few days of unprofitable feeding will make a considerable difference in the percentage of profit. To a considerable extent, early feeding lessens this, but in order to be able to market early the hogs must be pushed during the summer. To let them run all during the summer, and then commence to feed in the fall, will necessitate a larger feed, increasing the cost and delaying the time that they can be ready for market. Early field corn is often ready to feed by the middle of August, and by commencing to feed gradually, and then increasing until they are given all they will eat up clean, they will fatten very rapidly, and can be made ready for market very early in the fall. It is often the case that the early market is the best.

PROTECT your animals from the flies. The best protection for hogs is the wallow. Though cattle have tough hides, flies occasion them much discomfort, and it is humane, as well as profitable, to make a smudge. In some situations this is actually necessary at certain seasons. The animals soon learn to take advantage of the smoke. Horses suffer greatly from flies, on account of a tenderer skin and sensitive nervous organization. For farm teams the cheapest protection is leather nets, which, with reasonable care, will last for years. They should be cleaned and oiled at least once a month while they are in use, or the sweat of the animals will rapidly rot them. Those who cannot buy leather nets should get the coarsest gunny sack. The cover should reach over the neck, with pockets to cover the ears. These covers should be washed once a month while in use, and when they are put away at the end of fly time.

THE following remedy for a kicking cow is very simple, easy of application, does no injury whatever to the animal, and is perfectly effective: Take a small rope or cord, about the size of a clothes-line; make a loop in one end; hold the loop end in one hand; drop the other end over the cow's back; pick it up and pass it through the loop; then slip it back just behind the hips, bringing it underneath, just forward of and close to the udder, adjusting it so that the loop is near the backbone. Now draw the rope through the loop tightly and fasten it, the more tightly the better if the animal is very vicious. On the first application she will jump and try to kick, and perhaps bellow; but let her kick, she will soon get tired of doing so. Now you can sit down and milk without the least danger; you can hardly provoke her to kick. If she should still try to kick, tighten the rope, and continue to do this till she gives it up. Three applications in succession will cure the worst case. Treat her kindly and gently all the time, without the least excitement.

It is well to prepare early for the fall feeding of cows. When the season is about to end, feed is usually scarce and poor, because preparations are not made for it in good time, and the product of milk falls off at the very time when it should be kept up for the winter profit. Once a cow loses milk it is very difficult, and in many cases impossible, to restore it. The best recourse is a field of aftermath, grass or clover, or a pasture which has been reserved specially for the purpose. It may be too late now to remedy a failure for the present season, but the warning should be heeded in time for another year. Still, something may yet be done. A planting of early kinds of sweet corn, sown in rows eighteen inches apart, and three inches apart in the rows, will very soon afford acceptable feed. Millet may be sown for pasture; oats sown in August or September will make the best of pasture for the early autumn, and rye will serve to follow after the early frosts. If no other way can be found, some of the best hay, with a liberal ration of corn-meal, should be given as soon as the outdoor forage has become scarce. Later, the small potatoes may serve as succulent food along with the hay. Bran and shorts have great value, both as food products and for enriching the manure, and apples are worth more to feed to cows than for cider.

The Poultry Yard.

SEE that your fowls have lots of clean, fresh water this hot weather; put it in a shady place so it will not get too warm, and change at least twice a day.

RYE, as all poultrymen know, is an excellent green food for poultry; it remains green and succulent late in the season, and it also comes up early in the spring, but little warmth being necessary to start it. As it is cut off it starts again rapidly, and quite a large supply of green food can be raised on a small patch.

Egg shells should not be given to hens, as they will learn the vice of egg-eating thereby. When an egg is broken in the nest or yard it should be removed as soon as discovered. A hen seldom begins to eat egg shells until she finds one broken by accident, or until she becomes accustomed to egg shells that may be thrown in the yard.

A GOOD plan to break hens of sitting is to remove the sitter from the pen to which she is accustomed to one which is provided with no nest boxes. There give her generous food, abundance of fresh water, and everything her heart longs for but a nest. Don't let her be lonely. Give her for a companion a strong, vigorous, attentive cockerel. Under such associations, and with such companionship, the most obdurate, persistent sitter will forget her broodiness in a few days, and be ready to be transferred to her old home.

A FOWL taken at first with lameness, and which in the course of a day or two will stagger about, make a rush for the food and stumble over it, with an appetite always good, is troubled with apoplexy. Bleeding by opening a vein under the wing, and feeding on light food, will be helpful, and in some cases will effect a cure. It is possible, however, that this may be one of the results of a long course of in-breeding, by which the constitutional vigor has been impaired. Possibly too much meat has been given, or the hens may be too fat, and if a warm breakfast gives place to a diet of oats and wheat in equal parts, or better still, barley, the chances are that there will be a marked improvement.

MOULTING hens will be greatly relieved and assisted in feathering if given some kind of a tonic at this season, and one of the best is to mix together 20 grains quinine, 20 grains chloride of iron, 40 grains red pepper, one pound fenugreek, one ounce sulphur, and half a pound of salt. Put a teaspoonful of the mixture in some kind of soft food, for every six hens, three times a week. Give meat occasionally and feed mixed grains. Moulting fowls take cold very easily should the weather change suddenly, and care must be taken to keep them warm and dry. It is a good plan, also, to separate the males from the females during moulting.

THE average farmer wants a hen that will lay a goodly number of eggs per year; that will hatch a good brood of chicks under adverse conditions, and that furnishes a good carcass for the table. If he continues to breed in year after year his stock will run out. To keep up the vigor and productiveness of his flock, new blood should be introduced. The best hens should be selected for breeders, preferably hens one year old; then—as the male is half the flock—buy a full-blood cockerel (or more if the flock be large) of some desirable breed. There is no better time for attending to this matter than the present, as the flock needs culling now, and breeders are anxious to sell their surplus stock at this season. Cockerels with some defect in plumage or coloring can often be bought at low prices, and are just as good as "standard" fowls for improving common stock. This is the cheapest and best method for those who do not care to keep pure-bred fowls.

Pithily Put Pickings.

THE future tense of due is done.—*Youth's Companion*.

Do unto the animal as you would be done by if you were an animal.—*Farm, Stock and Home*.

OUR friends are those who make us do what we can.—*Christian Union*.

YOUR mind is worth more than your pocket book. Which had you better serve?—*Rural New Yorker*.

FATHERS, encourage your boys to be smart, and be kind to them, because I know encouragement helps me along a heap.—*Southern Farm*.

As a general rule, the most worthless citizens in any given farming community are the owners of the most useless and vicious dogs.—*Farmer's Review*.



Halil Yousef.

Who is Halil Yousef? He is a native of Cairo, Egypt—an Egyptian Arab of the better class, and who at home is known as a dragoman or guide and interpreter. He speaks four different languages—Arabic, English, French, and Italian, and can make himself understood in German. He is making a brief sojourn in Canada, and it has been arranged for him to be present at the Industrial Exhibition, Toronto, where he will appear in native costume, never having worn any other. The following circumstances led him to visit Canada. Yousef (Joseph) travelled through the Orient with Messrs. W. E. H. Massey and his brother, the late Fred V. Massey, for a period of about two months, acting as guide and interpreter, etc. The Orientals are a very friendly and kind-hearted people. He became much attached to the Messrs. Massey, and especially to Mr. Fred, with whom he formed a very warm friendship, which was strongly evinced in their parting, when Joseph wept like a child. As a mark of his esteem, he took from his finger a handsomely wrought gold ring, in which was mounted a valuable ancient scarabæus, and presented it to Mr. Fred. Halil Yousef is the possessor of some considerable property in Cairo, and determined as soon as he could realize on it, to visit his new-found Canadian friends, and further, having been with Mr. Massey when he sold the first reaping machine at Jerusalem, Palestine, he became interested in hearing of the great Canadian Harvesting Machine works.

During Mr. Fred Massey's long illness, a letter from Halil announced his intention of coming to Canada next year. Word was sent back, however, by Mr. Fred, that he could not hope to live but a few months, and if he would see him again on earth, to come at once. Pained to hear of his illness, and most anxious to see him again, Joseph started. He had, however, only gotten as far as London, Eng., on his way, when he learned at the London Office of the Massey Manufacturing Co. of Mr. Fred's death. His great grief at this news was sad to see. At first he was for turning back, but

after consideration decided to come on and visit his dear friend's grave—a thing that is always considered a highly esteemed privilege by the Orientals—and to become acquainted with the other members of the family, and see the great reaper works. Hence he came. Since arrival, he has been busying himself at the office of the Massey Manufacturing Co. He will remain during the Industrial Exhibition, and will daily exhibit the Toronto Light Binder on the stand of the Massey Manufacturing Co., where the Company's patrons may make his acquaintance. At the close of the Exhibition Halil returns home, with a firm determination to do his part to further the interests of Massey-Toronto Machines in the Orient, where they have already been introduced. Halil is confident that it is only a question of time when self-binders will supplant the cheap labor and old time reaping hooks still in general use in his native land.

List of Fall Fairs.

NAME.	PLACE.	DATE.
The Industrial	Toronto	Sept. 8 to 20.
Midland Central	Kingston	Sept. 1 to 6.
Eastern Townships	Sherbrooke	Sept. 2 to 4.
Southern	Brantford	Sept. 9 to 11.
North-Western	Goderich	Sept. 15 to 17.
Southern Counties	St. Thomas	Sept. 16 to 18.
Western	London	Sept. 18 to 27.
Great Central	Hamilton	Sept. 22 to 26.
Central Canada	Ottawa	Sept. 22 to 27.
Wellesley	Wellesley	Sept. 23 and 24.
South Grey	Durham	Sept. 23 and 24.
Ontario and Durham	Whitby	Sept. 23 to 25.
South Lanark	Perth	Sept. 23 to 25.
Lindsay Central	Lindsay	Sept. 23 to 25.
Bay of Quinte District	Belleville	Sept. 23 to 26.
Central	Peterboro'	Sept. 24 to 26.
Centre Bruce	Paisley	Sept. 24 to 26.
Canada's International	St. John, N.B.	Sept. 24 to Oct. 4.
Central	Guelph	Sept. 25 and 26.
South Renfrew	Renfrew	Sept. 25 and 26.
West Durham	Bowmanville	Sept. 25 and 26.
Central	Cannington	Sept. 26 and 27.
Lincoln County	St. Catharines	Sept. 29 to Oct. 1.
Central Agricultural	Walter's Falls	Sept. 30 & Oct. 1.
Comty Haldimand	Cayuga	Sept. 30 & Oct. 1.
N. Riding of Oxford	Woodstock	Sept. 30 & Oct. 1.
Comty Peel	Brampton	Sept. 30 & Oct. 1.
Mornington	Milverton	Sept. 30 & Oct. 1.
Northern	Walkerton	Sept. 30 to Oct. 3.
North Lanark	Almonte	Sept. 30 to Oct. 3.
Great Northern	Collingwood	Sept. 30 to Oct. 3.
South Oxford	Norwich	Oct. 1 and 2.
Scarboro'	Woburn	Oct. 2.
Peninsular	Chatham	Oct. 1 to 3.
West Monck	Dunnville	Oct. 2 and 3.
North Perth	Stratford	Oct. 2 and 3.
North Renfrew	Beachburg	Oct. 2 and 3.
South Grimsby	Smithville	Oct. 6 and 7.
North Brant	Paris	Oct. 7 and 8.
Howard Branch	Ridgetown	Oct. 7 to 9.
East York	Markham	Oct. 8 to 10.
Central Wellington	Elora	Oct. 9 and 10.
Norfolk Union	Simcoe	Oct. 14 and 15.
West York	Woodbridge	Oct. 21 and 22.

BLOKSON—"I understand that Borer has gone South for the rest of the winter." Popinjay—"Yes, and for the rest of the community, too."

NED—"So she said she would be a sister to you?" Jack—"Yes." Ned—"What did you say to that?" Jack—"I told her we would compromise on 'aunt'; I was too young to be her brother."

"I wish it would stop raining," remarked a St. Petersburg gentleman the other day, after a week's storm, and a detective promptly arrested him for referring to the Czar as 'it.'"

FATHER—"Well, how did you come out on the bean-guessing contest?" Dull Boy—"I guessed there was 150 beans in the jar, and there was 9,200." Father (sadly)—"I'm afraid you'll never be fit for anything but a weather bureau chief."



A Live Plaything.

As our young friends are all aware, it is much more interesting to play with a "real, live" plaything than with one where we have to "make believe too hard." So kittens and dogs, squirrels, mice, rabbits and even Guinea-pigs have found many admirers among the children, but we know of only one insect that has been thus favored. This insect is called the *Poc mesa*—or lay-the cloth—by the little Brazilians, who like to see it raise itself up whenever a sudden noise is made and hold out its fore-arms like a waiter about to spread a table-cloth.

Boys and Girls of Turkestan.

The juvenile life of children born in Central Asia is extremely brief. There a maiden of eighteen is considered almost an old woman, while she is generally married at the age of nine. This may be because in that climate they grow old in appearance very quickly and are quite wrinkled before they are thirty. Boys wear loose garments and queer cone-shaped caps and, when six years old, attend school pretty regularly, the daily session lasting from sunrise till quite late in the afternoon, with a few short intermissions for rest and eating. Holidays are few and far between. As soon as the scholars reach the school-house in the morning they slip off their shoes, which resemble slippers, and sit "tailor-fashion" on mats on the floors in a semi-circle around the teacher, who keeps a long rod constantly at hand and uses it, too, whenever a lad is inclined to be lazy. The Koran or Mohammedan Bible is their principal study,—for their prophet has said, "Much learning is heresy. All that is right to know is contained in the Koran." They are, however, also taught to write and a little geography and arithmetic. How would you like to be a boy in Turkestan?

Learning from Pictures.

A FEW years ago two little boys, about two years of age, who belonged to neighboring farms, commenced collecting pictures of live-stock cut from various periodicals. At four years of age they became adept at the cutting themselves, following closely the outline of the animal. At five they had each collected a large boxful, and so eager were they for new pictures that, upon entering a house, they would first go to the center-table and look over all the papers, and if they found illustrations quite different from what they already had, they managed to beg some of them. They would spend hours each day looking over these collections, making them, trading, buying and selling. These boys soon became so expert from this spontaneous kindergarten training work that they could tell a Shorthorn, Jersey, Polled Angus, Hereford, Devon, Alderney, Ayrshire, etc., at sight. But this love of live stock did not stop with pictures. They are now ten years old, and, as soon as they enter the gates of a fair-ground, they "break" for the stockpens and stables. Nothing pleases them so much as to see fine sheep, cattle, or horses, but they have no eye for a scrub of any kind. A flock-master was heard to say that he would give a thousand dollars if his boy had such inclinations. One of these boys was seen, lately, to tie his horse to the fence and go into a pasture and examine some Jersey cows with the eye of a connoisseur. See the educating effects of good pictures from agricultural papers.



NECESSITY IS THE MOTHER OF INVENTION.

TOURIST.—What in thunder does that mean? DAKOTA FARMER.—Them's our new cyclone safety pins.

How is a man going to learn how to gain wealth from a hen when she is robbed of her productions every day?

SUE (reading the paper).—Another cyclone out West! It has swept dozens of farms clear of everything. He,—I'll bet the mortgages didn't budge an inch.

WAITER (reminiscing with old customer).—Time flies, sah. Old Customer (removing fly from the cream).—Yes; time flies were gone.

YOUNG SLIPJACK.—Ah, I would like to cross that field; do you think—Ah—that cow would hurt me? Farmer.—Did you ever hear of a cow hurtin' a calf?

MISTRESS.—Here is a three-minute-and-a-half glass, Bridget, you may boil the eggs with it. Bridget (five minutes later).—The eggs is done, mum, but Oi hev me doubts about the glass.

TEACHER (to class in geography).—If I should dig a hole through the earth, where would I come out? Small boy.—Out of the hole.

MISS ANGELA SILLIBILLY (fresh from the city).—Oh! oh! Just look at those dear little cows. Brutal Rustic.—Aw, them ain't cows. Them's calves. Miss Angela Sillibilly.—Indeed! How awfully nice! And can't we all go out and remove the jelly from their feet before it spoils?



What the Old Cow said.

THE old cow walked by the dairy shed, And she said, in her ruminant way, she said; "I'm feeling about as fine as silk; But I'd like a drink of my own good milk." And, looking around, she presently saw A pail a-standing beside the door— It was buttermilk, about two days old; But the aged vaccine hadn't been told; So she only remarked: "It's mean to bilk An industrious cow of her own good milk." And she took a drink, and she looked surprised, And she walked away, and that cow surmised. She surmised about half way down the lane, And said with astonishment mixed with pain: "To judge by the flavor of that there milk, I can't be feeling as fine as silk, I must be bilious, I'll bet a hat, When I get to giving down milk like that!"

A kicking gun is rarely discharged cured.

THE records of Noah's voyage were kept in the archives.

A CROWBAR a hundred years old is just as pry as ever it was.

SOCIETY lions are generally men who are able to lie on their roars.

UNMARRIED carpenters are anomalies. Carpenters should be joiners, too.

THE washerwoman has better luck than the farmer nowadays in getting a living out of the soil.

A MOTHER may have taper fingers, but her little boy when corrected does not consider her hand the lighter on that account.

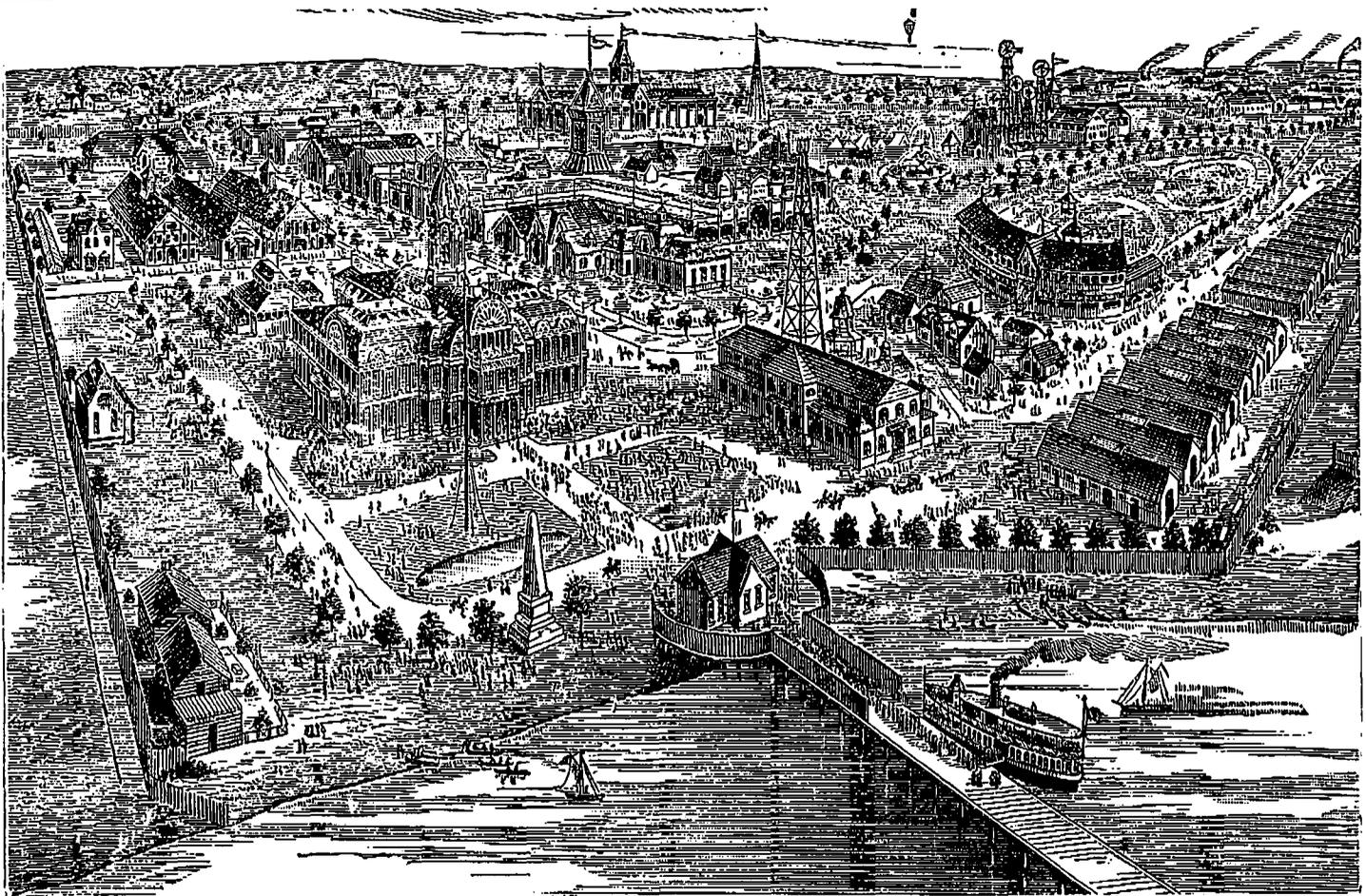
FIRST Benedict.—"When my wife lets down her hair it almost touches the floor. Second Benedict.—"When mine lets hers down it falls to the floor."

FARMER'S daughter.—I suppose you want father to take you in for the winter." Tramp.—No, Miss; I only ask you to sew a shirt on this lonesome button."

A POPULAR soprano is said to have a voice of fine timbre, a willow figure, cherry lips, chestnut hair and hazel eyes. She must have been raised in the lumber region.

BOYS are curious contradictions. Take a boy and fit him out with lots of new clothes, and he is happy. Let the same boy get entirely out of clothes, and he will be wildly, deliciously happy—if the water is warm.

IN THE SAME BUSINESS.—Inventor.—I would like to interest you in a little invention by which sheep can be shorn by electricity. Broker (turning to the ticker and looking at the quotations).—My dear sir, that's just what I am doing.



VIEW OF THE BUILDINGS AND GROUNDS FOR THE TORONTO EXHIBITION, TO BE HELD FROM THE 8TH TO THE 20TH SEPTEMBER.



CONDUCTED BY AUNT TUTU.

(Communications intended for this Department should be addressed to AUNT TUTU, care MASSEY PRESS, Massey Street, Toronto.)

A Comfortable Hood of Cashmere.

THE exceedingly pretty and becoming hood, shown in Fig. 1, is made of white summer cashmere, lined with white Japanese silk, and has an interlining of soft crinoline. It is faced across the front with a bias strip of cashmere three inches wide, and is finished on the top with a heavy white silk cord, with pompons. A like cord serves to tie



FIG. 1. HOOD FOR ALL SEASONS.

it under the chin. To make one, cut a pattern according to the diagram Fig. 2, which gives one-half of it. It should be twenty inches high in the back or middle, measuring from forehead to neck. The bottom edge, from the middle of the back to the front, should be eighteen inches wide. Cut the front in a curve measuring thirty inches from middle of forehead to the bottom of the front edge. The material, however, has to be folded through the middle and cut double. After the lining and interlining are sewed in and the facing finished, sew, about three inches above the outer edge, a shirr,

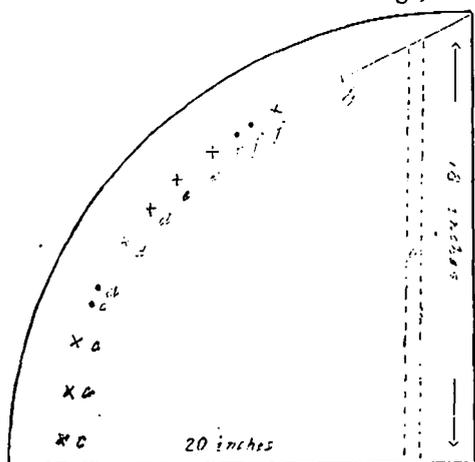


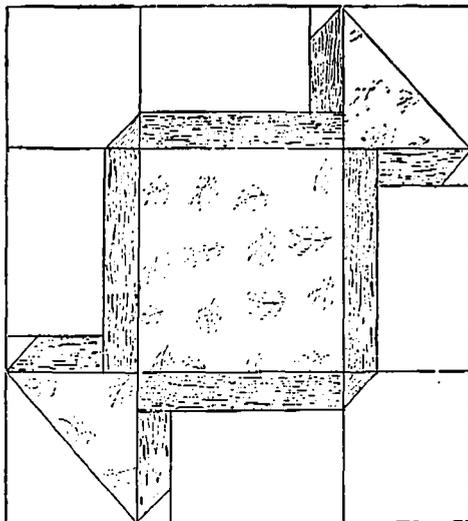
FIG. 2. PATTERN FOR HOOD.

through which draw narrow white silk ribbons, and tie the same in the middle of the back. The dotted lines *a* in the diagram indicate the lines for the shirr, and the short, inclined line *b* shows the crease where the front edge is turned back. Then make the folds across the front, about three inches below the edge, by plaiting in two-inch folds the

crosses *c*, upon the dot *c*; the crosses *d*, in one and one-half inch folds, upon dot *d*, and the crosses *e*, also in one and one-half inch folds, upon dot *e*; and last, make a three-quarter inch deep fold by plaiting cross *f* on dot *f*. Then arrange the box-plaits thus formed, as shown in the illustration, and with a few stitches fasten them back upon the hood, and finish it by sewing the heavy white silk cord and pompons in loops and ends over the seam.

The Vase.

THIS unique and seemingly difficult design for a patchwork square may be very easily cut out and pieced by making each one of the nine regular sections of which it is composed separately, and seaming them together afterward. As here represented, the centre-piece is six inches square and is all of one material—rich brocaded velvet. The four side pieces are each four by six inches when completed; and there are two pieces each of two kinds of material—plain silk and watered ribbon or silk, in every one of them. The corner pieces are each four inches square; two of them—forming the top and bottom of the vase—are composed of equal triangles of the plain silk and material like the body or centre square; the other two are chiefly of the plain silk, but small triangular pieces of the watered silk are fitted to one corner of each. It is well to make each section on a cambric or muslin lining if rich materials are used, but if prints or cambries are chosen, it may not be necessary.



THE VASE.

Squares pieced by this or similar designs are pretty to combine with crazy patchwork. Four finished squares, somewhat smaller than the one described, put together so that the vases all point from the centre to the corners, make a pretty cover for a lounge or chair cushion.

Helpful Household Hints.

SPONGE or bread set to rise the first time will rise much more rapidly in a close vessel.

It is a good idea to keep large pieces of charcoal in damp corners and in dark places.

To polish a copper kettle rub with lemon and salt. Cut a lemon, dip in salt, and rub over the copper surface.

Cut a cucumber into strips and put into all places where ants are found, and it will surely drive them away.

A strip of flannel or a napkin wrung out of hot water and applied round the neck of a child that has croup will usually bring relief in ten minutes.

It is just as necessary to keep salt from absorbing bad odors as cream. A sack of best salt standing where there is a smell of fish or any objectionable odor will absorb the flavor.

One of the best things to cleanse the scalp thoroughly is to dissolve one-half teaspoonful of borax in a quart of water and apply it, rubbing it in well. Rinse thoroughly in clean water.

Telegraph wire of galvanized iron is much better to hang clothes on in winter than rope, as the clothes will not freeze to it. Have it hung by a lineman, and it will never "give," no matter what the weather may be.

Many housekeepers need warning against the frequent use of feather dusters. These dusters simply chase the particles from the furniture into the air, where they are inhaled. A soft cloth is good, and a chamois skin is sometimes better, for a duster.

Napkins and tablecloths, if mended carefully when they commence to show tiny breaks, will last much longer. Traycloths, made of butcher's or momie linen, will save the tablecloth greatly, and they can be made at home very easily, and either fringed or hemstitched.

If you have painting and calcimining to be done, the spring is decidedly your best time. Hard-finished walls may be washed with soapsuds and wiped dry. A bit of pumice stone will remove stains from them. White paint may be washed with ammonia water or with whiting and water, which is not so trying to the hands as the ammonia.

An easy way to make a pudding, and at the same time save cold rice that may be left from another meal, is to take one cup of the cooked rice, one pint of sweet milk, two eggs, lump of butter as large as a walnut, sugar to taste, a cup of raisins, and nutmeg to flavor. Beat the eggs, sugar, and butter together, then add the other things, and bake or steam until done.

Borax water is excellent for sponging either silk or wool goods that are not soiled enough to need washing. In washing cashmere or wool goods, put a little borax in the water. This will cleanse them much more easily and better, without injury to the colors. Do not rub them on a board, but use the hands, and throw on a line without wringing. Press them on the wrong side, and they will look almost like new.

All grained work should be washed with cold tea and wiped with a soft flannel cloth. For windows and picture frames soft flannel cloths with soapsuds, and, after wiping dry, polished with chamois leather, is far better than anything else. They leave no lint and are better than paper, which often scratches glass, and if you would best rid your walls of dust, wrap a cloth round a broom, while a solution of hot salt water or hot alum water will drive away insects of all sorts.

If the coffee is not ground home when needed it must positively be kept in a tight can. Beat an egg thoroughly, and add to it one teacupful of cold water. Wet the coffee thoroughly with a few tablespoonfuls of this mixture, and add it to the boiling water ten or twelve minutes before needed. The water should have just come to the boiling point; continued boiling injures its flavor. After adding the coffee draw the pot near the edge of the stove, where it will be six or eight minutes in coming to the boiling point. As soon as it reaches this point remove it to the back of the range.

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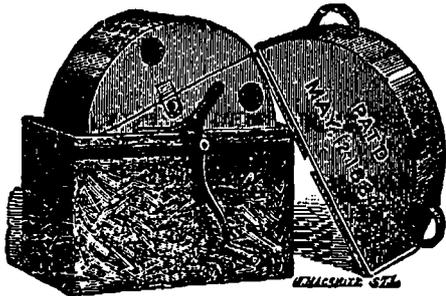
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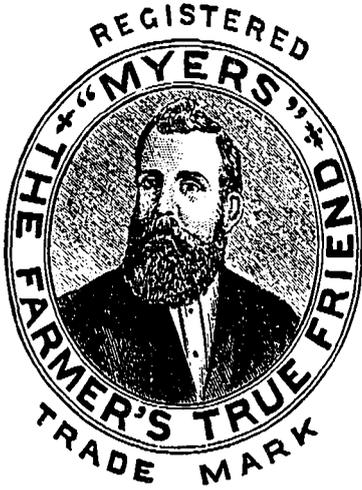
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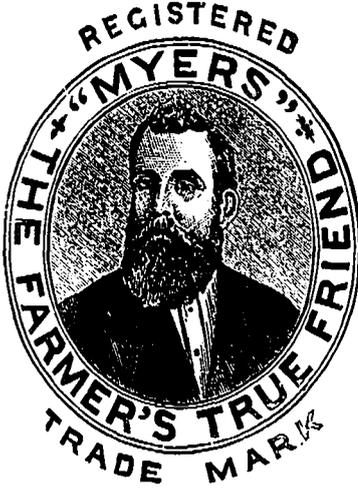
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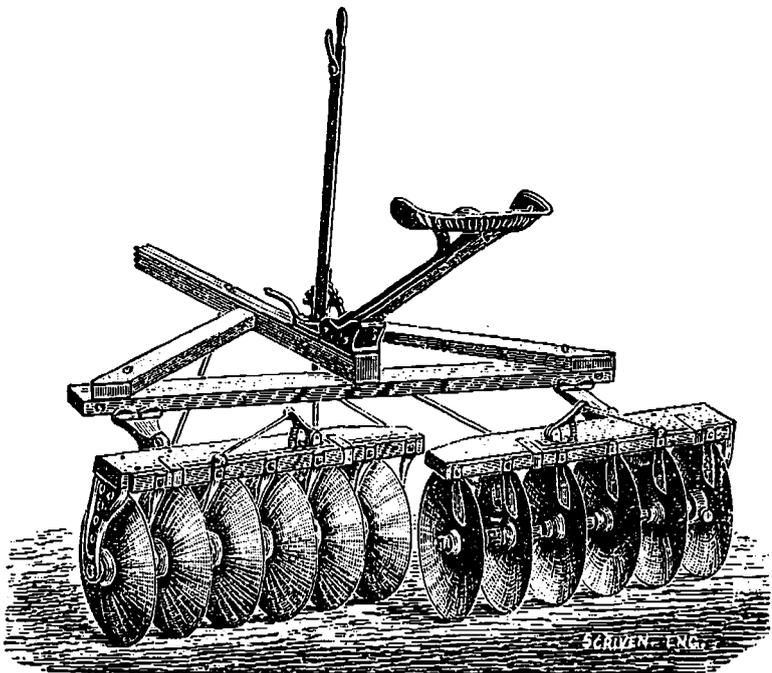
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FIG. 1.



FIG. 2.

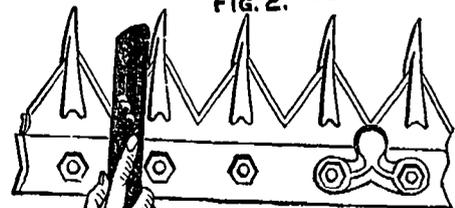


FIG. 3.

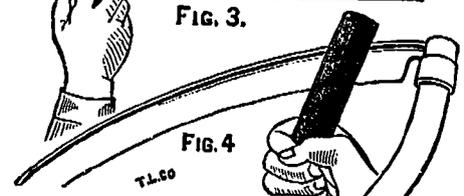


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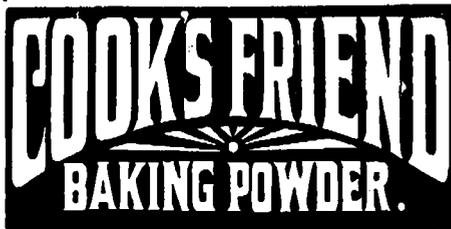
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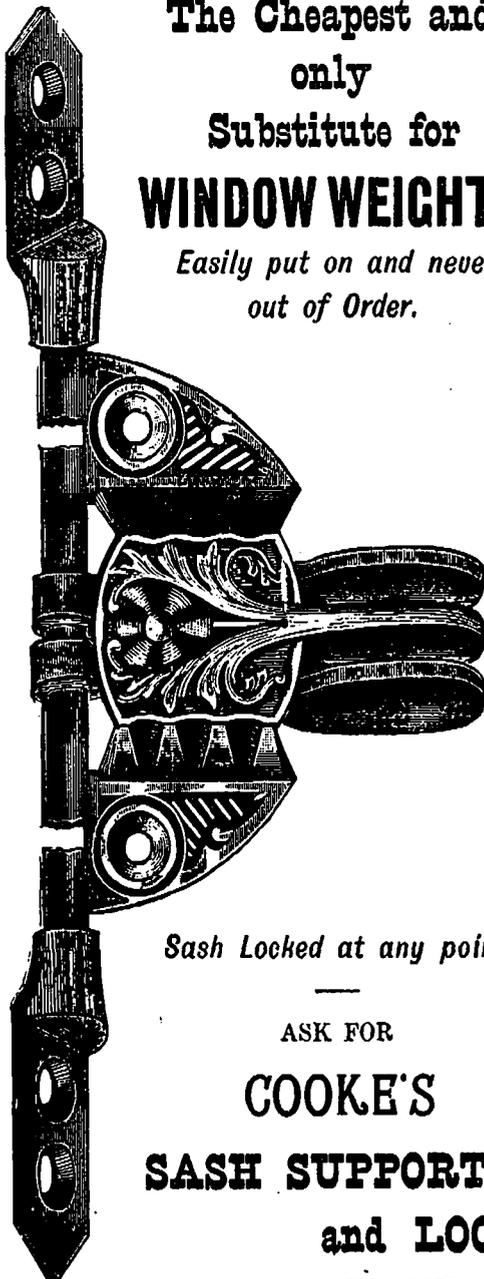
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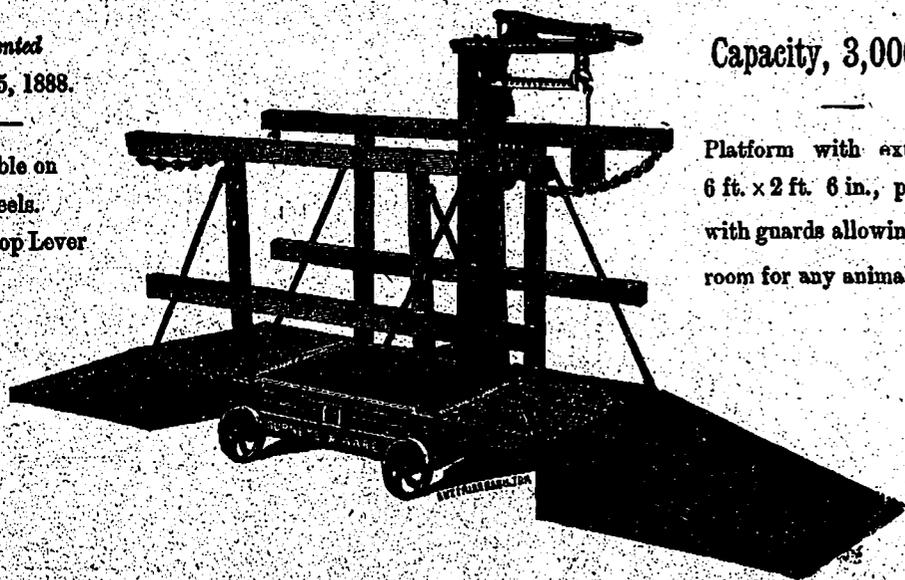
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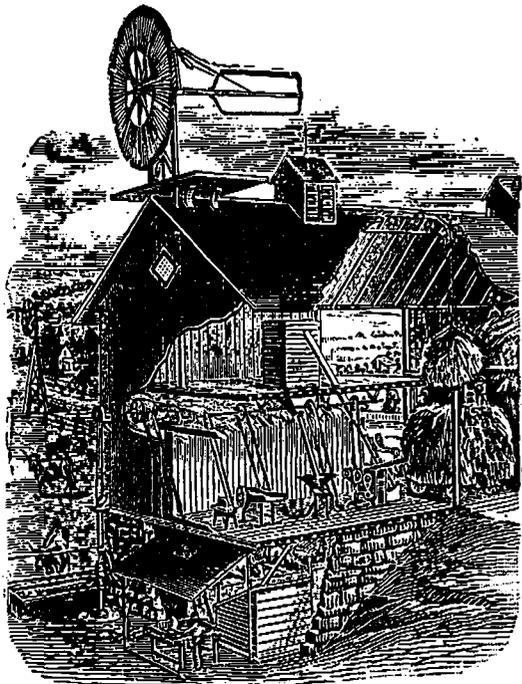
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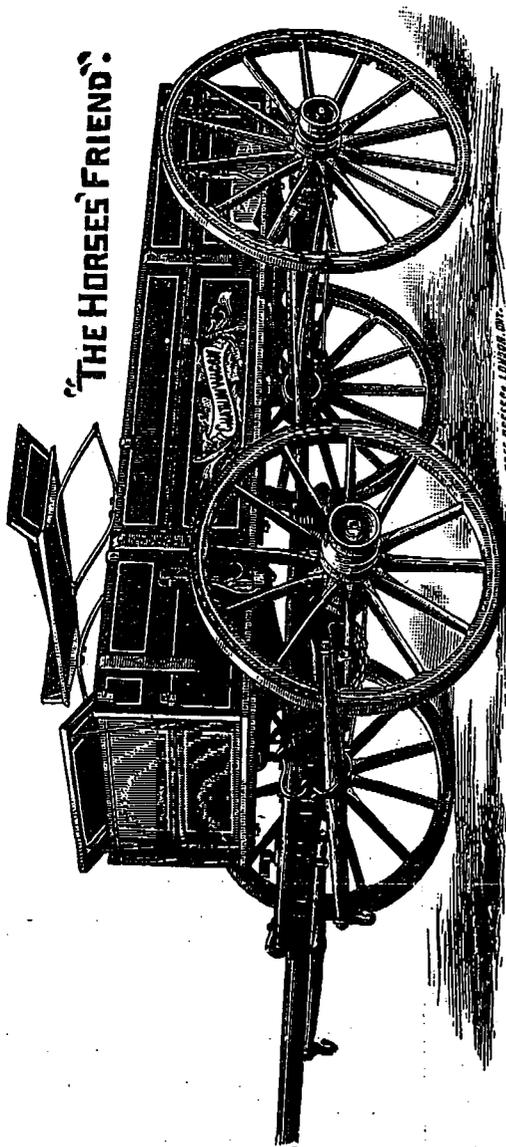
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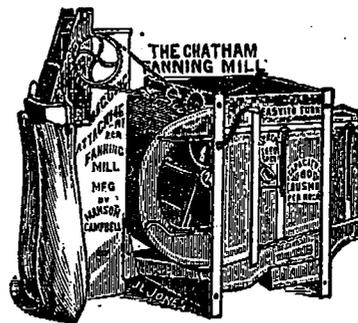
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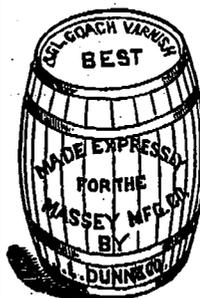
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