

THE FARM

FARM MACHINERY

What Farmers Have Done to Lighten Their Work

As compared with other industries in regard to the amazing developments of the last few years agriculture has no occasion to "take a back seat." For while it is the first industry in importance, it has been helped, and aided by the brain and hand work of all the others, and the mechanic, the inventor, the chemist, in fact every man whose hand or mind is engaged in work of any kind, is either directly or indirectly a contributor to the farmer.

Fifty years ago, when it may be said the present era of amazing mechanical development began, the farmer had a poor plow, made chiefly of wood, the hoe, and the scythe for his tools, and very little else was needed, after that, to run a farm. Then the farmer was everywhere, but he was as much as a packhorse might be compared to the flying railroad train or the great steamship of to-day. But about that time the inventor and the mechanic began to put in their work, and improved plows led the van of

A WONDERFUL COURSE

of improvement. Then came the seed drill, the corn planter, and other like machines for sowing and planting the seed in the better prepared soil.

The increased crops call for something better than the scythe for himself, and the better cradle, and these were quickly displaced by the mowing machine, the horse rake, and later by the hay loader and the hay elevator, by which the crop is now put in the barn without the touch of a hand. The harvester, improved year by year, has led to the self-blender, a machine as intricate and effective as the woman's sewing machine, and which, as it goes through the great wheat fields with its wide sweep, cuts the grain, gathers it, and binds it into sheaves, as nimbly and knots the twine as tightly as the strongest human fingers can do, and then tosses the sheaf aside, taking twenty acres for its day's work, and thus doing the work of twenty men. And thus with gang plow, the modern harrow, the seed drill, and the corn planter, the wheat is grown for 13 cents a bushel, or one-eighth the cost of the former method of raising it, and the cost of the grain being now reduced to that of the plowing alone under the methods of fifty years ago.

Farming is not now clopping. The workman rides and merely guides his machine, holding the reins, as the engineer the lever in his hands; and he may, if he will, hitch the locomotive to the plow and cover twenty-five acres a day. The

PERFECTION OF MACHINERY

is now almost complete for machines are in use on which the driver does nothing but guide it while a feed it with plants, and a big finger takes these and sets them in the ground, and others that turn the soil while something else spalls a quart of water on the plant, and a hundred plants are thus set while the story of it is read. Or another takes the whole potato and cuts them, and drops and covers the cuttings and a quantity of fertilizer all ready for the young plants. Thus the tobacco, the cabbage, and the potato crops are planted, or may be, at least one-tenth of the former cost and with ten times the rapidity.

The harvested crop is taken in hand, so to speak, by machinery, is separated from the straw, cleaned, drawn into spouts, stored in elevators, run into cars, carried 2,000 miles in the time it formerly occupied in carriage for a hundred, and is in a constant stream like a river pouring itself out over the breadth of a continent. And it is never touched by the hand of a man, except that the engineer who controls the whole work touches a magic wand, which sets in motion all the various machinery by which the work is done. And it is for this that railroads have been built, reaching out gigantic arms embracing the whole world, and gathering in all this wealth of food and farm. These powerful steamships, by which the ocean is transformed into a mere way for other railroads, are but different vehicles for all the commerce set in motion by the new agriculture, as different from the old as the reasoning animal of the present is from the original germ from which by gradual evolution he has grown to his present state. The powerful steamship, which makes up the work of many of the present, is a direct descendant of the first, and it is never touched by the hand of a man, except that the engineer who controls the whole work touches a magic wand, which sets in motion all the various machinery by which the work is done.

NEEDS OF THE SOIL

The use of artificial fertilizers and the manufacture of them are by no means small accounts in this story. Millions of tons of phosphates from various sources are gathered, and not a small part of them is procured from the slag of the iron furnaces, and farmers owe that much at least, to the skillful inventors of new and improved methods of making iron and steel, by which the injurious phosphoric acid is taken from the iron and saved for the use of the farmers in growing increased crops.

And the potash which is needed to replace the thousands of tons of it removed from the land each year in the form of wheat and other food crops, is now almost wholly supplied by the salt mines, of which it is a refuse and a waste otherwise. In fact there is not an industry which has any refuse or waste that does not supply something for the use of the farmer. He feeds the world, but the world is contributing its share of work and material to enable him to do this. This mutual dependence of man upon man, and interest upon interest, is not by any means to be ignored in this connection, for as each becomes more highly developed it is perceived how each one is called upon to assist the other, and the more intricate the new methods are the more it is that mutual aid becomes an absolute necessity.

In a thousand ways, the intelligent work of brain and hand helps the farmer and enables him to supply food and clothing to the world all the more cheaply for this help. The garden is cultivated by a variety of labor-saving tools, the dairy is completely remodeled by new inventions of the most surprising kind. Among these the cream separator and the butter extractor are

THE MOST STARTLING

in their novelty. A rapidly-rotating drum, spinning around and humming with 8,000 revolutions every minute by the mere slight difference in the specific gravity of the milk and cream, causes them to separate, and the cream falling into the other drum is quickly gathered into butter. Thus the many previous operations between the milk and its final product are done away with in an hour from the cow the milk yields up the golden butter.

Scientific study and mechanical ingenuity have shown revolution in this department of affairs, while the cow has been increased

HONG KONG'S BOAT DWELLERS

New Hundreds of Thousands Live in Floating Homes on the River

One of the most interesting sights around Hong Kong is the river population and its city of boats. This floating city is estimated to number something over 300,000 people who recognize no other home than these boats, and whose lives are spent from birth upon the river; in fact, they are not permitted to know any other habitation. These boat houses are of different sizes, and of various shapes, the larger number being sampans or slipper boats, about 20 feet long, with movable telescopic roofs of bamboo covering them for about one-half their length. As small as these boats are, they not only accommodate one family, but frequently that of one of the sons, space being economized in the most ingenious manner, and in decided contrast to the dwellings on shore, they are kept scrupulously clean.

A great majority of the men go on shore during the day for employment, leaving the wives and children to work the oars and pull the trade of boatmen, and it must be said they do it with great satisfaction to those who have the need of water carriage. The mother of the family is found frequently rowing with one baby strapped to her back, while alongside of her is the next in age, learning to row and preparing to add to the resources of the family. The children of the family, many of whom are babies, play around the boats as carelessly as though they were in a nursery on shore, and to prevent accident from drowning among the very young boys they have a float attached to their waists, in the shape of a small piece of bamboo, so that if they fall over and drop into the river they may be easily fished out again. Since girls babies are not considered of very much importance in China, it is rather a matter of indifference as to whether they drown or not.

About Weevils

An entomological authority says that the pea weevil is known to scientists as bruchus pisi, and is not much larger than a plump flea. It is of a rusty black color, with more or less white on the wing covers, and the thorax. The beetle begins to appear about the time the peas are in blossom, and when the young pods form the female weevil lays her eggs on the surface. These eggs are a dark yellow in color, three times as long as wide, and larger anteriorly than posteriorly. Some times 15 or 20 are laid in a single pod. But only one of them hatches or survives. The newly-hatched larvae is yellow with a black head. It gnaws through the pod and enters the nearest it can find in the pod. Before pupation, it cuts a place in the pea, the thickness of a mere membrane, cleans out the place and lines it with a sort of paste. Some of the beetles issue in the fall, but generally not until the next year, being planted with the peas. They never lay eggs on the surface of dry peas. Hence, if seed is kept over two years, the beetles die without issue. If thrown in water, the buggy peas will float and may be thrown away. Careful experiment has shown that not more than 2 to 4 per cent. of these will grow. Different insecticides will kill them, such as camphor, chloroform, ether and bisulphide of carbon, if the peas are closely shut and submitted to the fumes of these ingredients, the best of which is the carbon sulphide, which is inflammable and must be used with care. The pea weevil, known as bruchus fabae, resembles the pea weevil. It is said to be native, and to have been seen first in Rhode Island. The general color is tawny gray with more or less dull yellow. Whereas only one pea weevil will live in a single pea, several bean weevils find a home in the larger bean. They breed in the dry bean as long as a bean is left to feed on. The eggs are laid on the bean pod and the pupa gnaws through to its home in the bean. Some issue in the fall, and others go through the winter to begin their work in the spring. A new generation is soon hatched the next spring in the dry beans, ready to repeat this operation in the field. A very small per cent. of affected beans will grow. The same remedies are applicable as for the pea weevil, except that of keeping the beans over to the second year.

Rye a Good Crop

E. S. Henry writes about the value of rye, and giving his system of rotation. He grows rye after ensilage corn, and his plan is thus stated: I have for years grown rye after ensilage corn in this manner: Immediately after cutting corn harrow thoroughly with spring-tooth harrow, sow one bushel rye per acre, harrow again and roll down with heavy field roller. Growth in this way, in one of the most profitable crops upon the farm representing the largest return with the least labor. In southern New England to obtain the best results, rye should be sown from September 15th to October 15th; sown earlier, unless fed down, it is apt to make too much growth before winter; sown later, not growth enough to prevent winter-killing. Sown by September 15th it can be pastured in late fall without injury. Treated in this manner after corn a very heavy growth is obtained without additional fertilizers. The yield should average from 25 to 30 bushels of rye per acre—this with very little labor except for harvesting; withal the rye leaves the land in most excellent condition for stock, down, and this can be safely done with clover, prior to August 1st. To obtain best results, stocking should be top-dressed in late fall. With such treatment, have just finished cutting nine acres of very heavy clover, averaging over two tons per acre, from stocking sown the last day of July, 1891, and recent rains justify hopes of a fine aftermath. With me the rotation was, corn, rye, clover, etc., is excellent and profitable; the result being not only heavy crops, but the continuous improvement and increase in the productive capacity of the lands so treated.

Plants for Autumn

Many of your plants will require re-potting before you take them in for the winter, writes Eben Rexford in the Ladies' Home Journal. Begin to get material ready now. You will find it a pleasant task to go into the woods and pastures with a basket and a trowel, and gather turfy matter and leaf mold from about old stumps and in the corner of the fence. And while you are getting soil together for re-potting plants this fall be sure to get more than you need for that purpose, and store it away for winter use. There will always be plants that need top dressing with fresh soil, and some will require an entire change of earth, and there will be new ones, and so a supply of potting material will come handy all the year round. Don't wait until cold weather is at hand before you begin the work of re-potting. Do it while you have warm and pleasant days, and the work will be done better than it would be in cold, raw weather. Another reason why it should be done now is: It will give your plants a chance to get established before it is time to take them into the house. If you wait until the last moment, they will not have recovered from the disturbance which their roots must undergo, and they will go into winter quarters in a condition far from what it ought to be.

Industry, temperance and piety are the only means of present enjoyment, and the only true sources of future happiness.—B. R. Haydon.

LATE BRITISH NEWS

Care of the Stove

The various parts of a stove require careful treatment if it is to be kept shining and bright in all its parts, like the steam-engine of an expert engineer. Nothing shows more prominently the slovenly house-keeper than an ill-kept and untidy stove. Careless workmen black the stove all over, regardless of the nickel work, polished eighs, mica, or anything else, and sometimes they use blacking so freely that it fails to cling to the stove, and flies about the kitchen, covering all other things with its untidy dust.

Once a month is often enough to apply blacking to a stove, provided the kitchen is kept clean. It is easy enough to clean a kitchen, but the only in a model house-keeper who keeps her kitchen clean. This implies continual care, especially of the stove; care, and of the very blacking that it does not become a source of dirt. If, by some untoward accident, something is spilled on the stove, it should be cleaned off at once, and not allowed to burn into the stove. A heavy flannel rag should be kept on hand for this purpose. In case a very obstinate grease-spot, kerosene, a very little may be used. Where syrup, or anything of a sugary nature, is spilled, it is very difficult to take it up, and it is probably the best way to let it burn to a char and then take it up.

All these cases are unhappy, untoward accidents. The expert housekeeper does not allow such accidents to happen often. It is unavoidable that a little grease should fall on the stove in broiling, unless there is a regular broiling arrangement attached to the stove. In such a case the grease must be wiped off the instant the broiling ceases, with a heavy flannel cloth kept for the purpose. Otherwise it will burn in and make an ugly and unseemly stain. But all the other accidents are easily avoidable.

In blacking the stove at the monthly blacking, remove the nickel work. This is easily done, as it is merely screwed on. Black the stove thoroughly, dampening the blacking, if convenient, with a little coffee rather than water. After applying the wet blacking with one brush to a small portion of the stove, polish it off with a dry brush, and after the whole stove has been polished in this way, rub and polish it with a chamois, kept for the purpose, or a clean cotton cloth. This last process removes the dust of the blacking. No patent blackings, which have been invented to do away with the labor of polishing, can be recommended as durable. They require to be continually renewed, and do not take the place of the old-fashioned blacking.

Golden Thoughts for Every Day.

God sets a still small voice
Deep every soul within
It guideth to the right,
And warneth us of sin.

If we take voice obey,
Clearer its tones will be,
Till God's will for us
Clearer than noonday we see.

If we take voice neglect,
Fainter will be its tone;
If still unheeded it
Will leave us quite alone.

O grief! to be allowed
To go our own wild way,
To hold my children back,
Lost we so madly stray.

And help us to attend
To Thy sweet voice divine;
Then in the judgment
Own us, good Lord, as Thine.

(Anonymous)

Tuesday—They have defied barriers of time as of national boundaries. Chrysostom, Augustine, Savonarola, Huss, Wycliffe, Luther, Cranmer, Whitefield, Wesley, Finney, Beecher, Bushnell—how on these and many scores of other such tongues of fire, consumed the evil and enlightening the good with a noble warmth and illumination that has been the history of the church.—[Lyman Abbott.

Wednesday—
A thought is but a little thing,
That nobody can see;
Yet a joyful or sorrowing
Thought may come to be!

A word O, what can well be less
And yet by every one
There comes sweet peace or bitterness,
And good or ill is done.

An action! all the little deeds
That ripple through the day,
What right or wrong from each proceeds
Before they pass away!

Great God, my actions, words, and thoughts
Are all observed by Thee;
May I by Thy good Spirit taught,
Live always carefully.

(H. Patman)

Thursday—You may take any part in Livingstone's character and analyze it carefully, and I will challenge any man to find fault with it. His religion is a constant, earnest, sincere practice. It is neither demonstrative nor loud, but manifests itself in a quiet, practical way, and is always at work. In his religion exhibits its loveliest features; it governs his conduct not only towards his servants, but towards the natives, the bigoted Mahomedans, and all who come in contact with him. Without it, Livingstone, with his ardent temperament, his enthusiasm, his high spirit and courage, must have become uncompanionable and a hard master. Religion has tamed him and made him a Christian gentleman, the most companionable of men, and the most indulgent of masters.—[H. M. Stanley.

Friday—
O weary feet! that many a mile
Have trod along a sorry way,
At last you reach the resting stile;
No longer fear to go astray.

Rock the young birds in the nest,
And softly sing the quiet breeze:
"The time for rest!" "the time for rest!"

(Ray Palmer)

Saturday—And so our nover lie hren and sisters, held down by those galling chains of want and toil, and ignorance and vice, and misery unspokeable; for them no philosophy, heartening or consoling, has any echo in their hearts, touches any chord in their lives. While things are as they are, the utmost that can be expected of them is the stolid patience of dumb driven cattle. Their consent to live on in their misery is because of the instinct of self preservation, and perhaps because of the social and parental instincts as well. But the latter of these two is not the power we find among educated and well conditioned people, who have more to live for and more to leave in relation to their offspring. Nothing but the tremendous force of habit keeps these miserable creatures in their fearful groove of unalterable wretchedness.—[Washington Gladden.

Signs of Greatness.
Gravely—"I have been examining your boy on the results of his schooling. I think I can say that he has, beyond question, the germs of greatness in him."
Wantonly—"Indeed I am delighted to hear you say so. But what was there in the examination that emphasized the conclusion you have drawn?"
Gravely—"The illegibility of his handwriting."

That Was a Bluff.
Professor—"Robert, do you know the meaning of the word precipice or bluff?"
Robert—"Yes, sir."
Professor—"You may give me an example."
Robert—"I can lick you with one hand."
Professor—"Sir! What do you mean?"
Robert—"That's a bluff."

LATE BRITISH NEWS

Thirty-three million seven hundred thousand passengers were carried by the London Tramways Company during the past half year.

It is reported that Mr. Labouchere lost fifteen new hats over bets upon the general election, and won nine.

The British Medical Association have resolved to admit duly qualified women doctors as members.

A butcher fishing in the Grand Surrey canal, caught with his hook and line a hand-bag containing thirty-nine gold rings and gold and silver coins worth more than £20.

On one of the light Irish railways locomotion is successfully performed by an engine constructed to burn oil as fuel.

Mr. Nichols, the husband of Charlotte Bronte, is said to be still living in a remote part of Ireland.

Mr. Naraji, the Parsee member of Parliament, appeared with a copy of the Zend Avesta, on which to take the required oath of office. He was told that he must either take the oath on the New Testament or affirm, and he chose the latter method.

Miss Ellen Terry recalls that she once told a stage-struck woman that it was useless for a novice to attempt to make her mark as an actress unless she was possessed of extreme beauty or genius. "She replied," says Miss Terry, "that my advice made her the more resolved, because she had both."

A woman recently made her 48th appearance in a London police court, accused of being drunk and incapable. She pleaded that she had found it a long time between drinks having come out of prison on the previous day after a month's confinement. The magistrate took the same view and discharged her.

The last giraffe in the London Zoological gardens recently died, and the institution, for the first time since 1836, without a living specimen of this animal. It has had in all thirty specimens, of which seventeen were born on the place.

Replying to a correspondent, Mr. Chamberlain's private secretary writes:—"The question of old-age pensions is certain to be introduced in the next Parliament. If no one else does so, Mr. Chamberlain will himself bring the matter forward."

The Duke of Aosta has signified a desire to be present at some of the larger sales of horses which take place in Ireland at this time of the year, and arrangements have been made accordingly for him to visit that country.

Mr. M. A. Manning, of Waterford, Ireland, has the distinction of being perhaps the tallest and heaviest cyclist in the world. He stands 6 ft. 6 in., weighs 308 lbs., and rides a solid-tired safety bicycle specially constructed for him, and which only weighs 47 lbs.

A London schoolboy brought to his teacher the other day a letter from a physician stating that "this boy is unfit to attend school for 304 days." The long and rather exact period named aroused the teacher's suspicions and he discovered that the physician had written "3 or 4 days." This the boy had changed to "304 days."

One of the most curious incidents of the late election occurred in the Bermondsey Division, when a boy of fourteen recorded his vote. To every one's astonishment he walked boldly into the booth and calmly demanded his ballot paper. His name was found to be duly on the register, and he took the oath that he was the identical person without the least hesitation.

MIZON'S DISCOVERIES

He Solves the Problem of the Water Parting Between the Congo and the Niger.

A banquet was given in Paris recently, at which over 400 persons assembled, in honor of Lieut. Mizon, who had just returned from his explorations. Each guest had before him a map of the region between the Congo and Lake Tchad containing the itinerary of the explorer. Mizon's chief discovery is that he has solved the question of the water parting between the Niger and the Congo basins. He has followed from its source to its mouth the Sanga River, and has proved that it is one of the most important affluents of the Congo. It empties into the Congo not far from the equator, comes from the far north, and its head waters are near those of the Benue, the greatest tributary of the Niger. Mizon has shown that this river is about 1,000 miles in length, and ranks in importance fourth among the Congo tributaries, the Mobangi, the Kasai, and the Lomami alone surpassing it.

Another fact which makes Mizon's journey conspicuous is that he succeeded in pushing his way entirely across the great country of Adamawa. He says it comprises a succession of elevated plateaus, and is certain to have a great future. Its altitude of 4,500 to 7,500 feet makes it a very healthy region, and a large part of it, Mizon says, can be colonized by white people. Its population is largely composed of the great Fula people of the Soudan, who are farmers and cattle raisers. Mizon says Adamawa extends further toward the south than has been supposed. In this great region Mizon found that the important commercial centre of Gaundere, which was known only vaguely, is a large and picturesque town, well fortified, and having from 20,000 to 25,000 inhabitants. Mizon crossed the large territory of the Sultan Tibati, who is a vassal of the Sultan of Adamawa and whose country had never before been visited by a white man. He also visited the large market of Gaza, whose name was known, although it has never been possible before to place the town on the maps with approximate correctness.

Pat's Reply Convincing Him.
"When I was in Ireland," said Major A. to the other day, "most of us were careful to keep clear of the dram-shops in out-of-the-way places, because of the vile stuff they sold."
"But one hot day, when a company of us had to ride five-and-thirty miles, and had already done twenty, we came in sight of one of those ribs. The colonel twigg'd it standing a little off the road and made towards it."
"Lolling up against the doorstep stood an Irishman half-seas over, and the colonel shouted to him:
"Well, Pat, what sort of stuff do they sell here?"
"Shure, then, captain it's foine! Look at me for eightpence!"

Women were Countless in the Old Days.
Once an inhabitant of this continent from the Arctic slope to Mexico, and from Virginia to Oregon, and within the memory of men yet young, roaming the plains in such numbers that it seemed that it could never be exterminated, the buffalo has now disappeared as utterly as has the bison from Europe.

The early explorers were constantly astonished by the multitudinous herds which they met with, the regularity of their movements, and the deep roads which they made in travelling from place to place. Many of the earlier references are to territory east of the Mississippi, but even within the last fifteen years buffalo were to be seen on the Western plains in numbers so great that an entirely sober and truthful account seems like a fable. Describing the abundance of buffalo in a certain region, an Indian once said to me, in the expressive sign language of all old frontiersmen, "I have some knowledge." "The country was one robe."

Much has been written about their enormous abundance in the old days, but I have never read anything that I thought an exaggeration of their numbers as I have seen them. Only one who has actually spent months in traveling among them in those old days can credit the stories told about them. Once, in the country between the Plate and Republican Rivers, I saw a closely massed herd of buffalo so vast that I dare not hazard a guess as to its numbers; and in later years I have travelled for weeks at a time, in northern Montana, without ever being out of sight of buffalo.—[September Sorbner.

Spare the Woodpecker.
Dr. E. Sterling, of Cleveland, in correspondence with Insect Life, describes the attack of some insect on the elm along an avenue during the summer of 1890, and says: "Fearing a repetition of the trouble, numbers of us fought the cocoons in the fall and destroyed thousands, but when winter set in tens of thousands still remained on the outer branches beyond reach. About the 1st of September a pair of hairy woodpeckers made their appearance and fed daily on the grubs. In the course of that month and the next over a dozen of these birds were added to the number, and by their industry on this particular pest attracted the attention of all who passed. Suffice to say that when March came a cocoon was to be seen in those places where the branches were literally white with them before. The woodpeckers did the work for us, as they have never troubled the trees here since. I have always found the native woodpecker family the greatest destroyer of insects in every stage of their development, and these birds should be protected by the farmer and orchardist in particular, be it the malignant 'sap-sucker' or the more conspicuous yellow hammer. A few old ham or beef bones with a little meal on them hung up on the orchard trees in winter time will keep these birds in the neighborhood during the season."

Various Modes of Burial.
The Mahometans always, whether it be their own country or in one of adoption, bury without coffin or casket of any kind. During the time of the old Roman Empire the dead bodies of all except suicides were burned. The Greeks sometimes buried their dead in the ground, but more generally cremated them in imitation of the Romans. In India, up to within the last few years, the large and early according to her wishes or otherwise, was cremated on the same funeral pyre that converted her dead husband's remains to ashes. When a child dies in Greenland the natives bury a live dog with it, the dog to be used by the child as a guide to the other world. When questioned in regard to this peculiar superstition they will only answer—"A dog can find his way anywhere." The natives of Australia tie the hands of their dead together and pull out their nails; this is for fear that the corpse may scratch its way out of the grave and become a vampire. The prime Russians place a certificate of character in the dead person's hands, which is to be given to St. Peter at the gates of Heaven.

Stub Ends of Thought.
Women under 20 and over 70 tell their age.
Men and women in love imagine themselves as pretty much everything else that is unselfish.
Sorrow adds beauty to the character when taken in broken doses.
A widow's weeds may blossom as the rose.
Tears are becoming to some eyes.
Truth has more enemies than friends.
The best cooks are not always the sweetest-tempered wives.
The man who thinks only of No. 1 forgets how many millions and millions there are between that and infinity.