

# • Massey's Illustrated •

(PUBLISHED MONTHLY.)

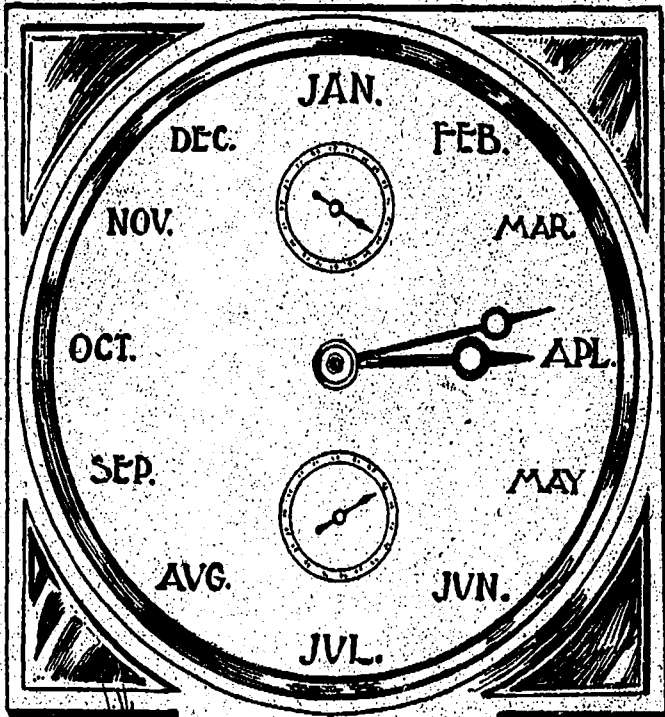
## March Number

New Series, Vol. 7, No. 3.

Toronto, March, 1895.



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# Massey's Illustrated

(PUBLISHED MONTHLY.)

A Journal of News and Literature for Rural Homes

NEW SERIES.]

TORONTO, CANADA, MARCH, 1895.

[Vol. 7, No. 3.

## A Tour through South Africa

INTERESTING LETTER TO MASSEY'S ILLUSTRATED FROM MR. J. D. PATTERSON.

I LAST wrote you just on the eve of leaving for the fruit and grain districts to the south east of Cape Town,

Arriving by train at Sir Lowry Pass, 30 miles from the city, we engaged a Cape cart, a sorry pair of small horses, and a bright boy to drive us through the Pass to Caledon.

We saw a good deal of growing grain in our 30 mile journey by rail, but little of it, however, would yield even fair results when harvested; the shocks were not thick on the ground, nor were the heads well filled.

The vineyards along this line and the small market gardens were well kept and thrifty. The land is well adapted to fruit culture, not grapes alone yielding abundantly, but peaches also and nectarines, apricots, pears, figs, etc., etc., where planted give large returns for the meagre attention the small fruit orchards are apt to receive. Cape Town furnishes a good market for all this fruit, but it is hoped that extensive orchards in the near future will be planted with a view to furnishing fruit for canning, both for the South African market and for export, in addition to any local demand that may be created for the first fruit. One or two canning factories are already in operation, and with most gratifying results.

At the foot of the mountain there is a somewhat heavy growth of small trees and low bushes, but these soon give way to scant grasses, the many brilliant heathers and other mountain flowers. The ascent was tedious but not difficult, and as we went so slowly along we had ample time to look over the valleys below, across Kalk Bay, and out over the Indian Ocean.

The mountains are of volcanic formation, many hued, and quite rugged, their sharp edges standing out with great distinctness against the sky. This district is evidently the home of the *Gladiolus* so often grown in our gardens, and there we picked our first everlasting flowers, the *Immortelles* of commerce. For many years the country around Caledon has derived a large revenue from the sale of these flowers to the buyers for the French markets and the other markets of Europe. While there are many varieties of everlastings—white, pink, bright crimson, orange and light yellow, purchasers are found for the white variety only. Unfortunately I am not able to give you a report of the recent exports, but you will gather something of an idea of the extent of this trade when you know that throughout the day we were continually passing huge wagons piled

high with boxes filled with these flowers, each wagon drawn by from 14 to 20 oxen.

Before we had covered the distance from the railway terminus to Caledon we learned not to despise our ill-kept and ill-looking horses. The road wound away over the huge rolling foothills, but we made this 42 mile journey in seven hours including stops, without at any time urging the horses. A good deal of wheat is grown in the district, but owing to the long continued drought the crops were hardly worth harvesting. The ground received but a minimum of attention and the wonder is that the average results are even as good as they appear to be.

The method of planting is as follows: The available manure is first scattered over the field, and on top of this the grain is sown broadcast by hand when the manure and grain are plowed in together. The ground is then harrowed once, but nothing more is done until the grain is ready to harvest. The following year the ground is again cropped, but after this it is before again being planted allowed to lie fallow for three years.

To the east of Caledon for 20 miles there is a larger percentage of good ground, the crops are consequently more abundant, the flocks and herds larger, and the buildings much better.

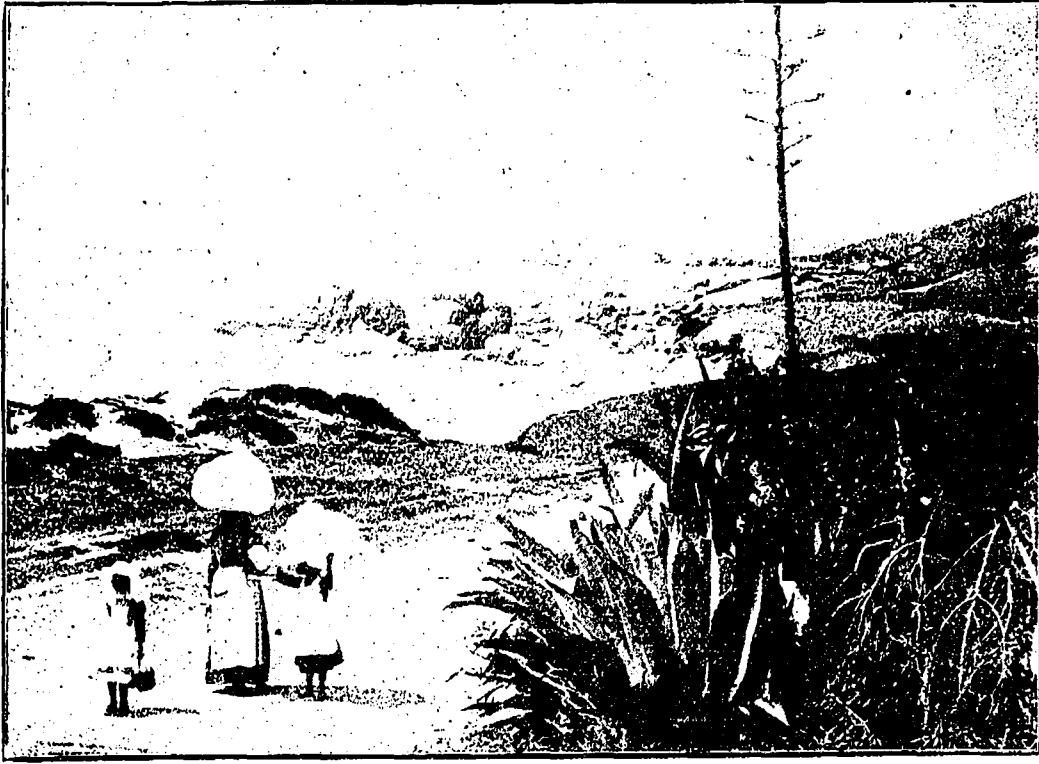
Water was everywhere scarce, the supply for the cattle being collected in drains at the time of the abundant rains, and throughout the dry season the supply is augmented by the heavy thunderstorms, which in South Africa

are not infrequent. Small surface streams are most rare, large areas of the Colony are consequently dependent on the drains for their water. Some of the wheat fields were extensive, and the grain when rubbed out in the hand proved an exceedingly fine sample. Quite as much of the cultivated land was given to the oat crop as to wheat, but the oats throughout South Africa are cut for fodder before the grain is matured. This is not threshed but the bundles of forage find a ready sale at a good price. It is known as "Oat Hay," and at the present time is worth from 5 to 7 shillings per 100 pounds. A much less figure, however, usually rules.

We had the pleasure of spending a night at Apples Krall, one of the best farms in the whole south east district. Few farms in our own western country are better managed or give better results. The buildings were spacious and comfortable, the land was worked and the crop harvested with the most improved labor-saving machinery. An abundance of pure water for all purposes was piped from the mountains to the buildings, young orchard and gardens. We afterwards visited, in company with the owner of this farm, a large area of the surrounding country, and from him we gathered much valuable information in regard to South African farming in general. Our way lay through Swellendam, a very pleasing old-time Dutch town, splendidly shaded with avenues of oak and fir trees, and through Southey's Pass, one of the most beautiful mountain drives



WASHING IN THE RIVER.



A SCENE ON THE SEA SHORE.

in Cape Colony, to the Barrydale district. We saw at work the only Self-Binders that were ever used in Barrydale, and you will be glad to know that there, as elsewhere, the pioneers were Massey-Harris machines. The Barrydale wheat farms are not extensive, most of the good ground being given up to vineyards, while the hills support herds of cattle and numerous flocks of sheep, common goats, and the beautiful Angora goats, from which is clipped the white silky mohair fleece, one of the most valued exports of the country. The district is well suited to Ostrich farming, and although the price now ruling for feathers is exceedingly low, the people admit that they pay, even now, better than anything else on their farms. We were fortunate in seeing many large bands of the ungainly birds. On one farm 230 were together, but, of course, they had many hundreds of acres of feeding ground over which to wander. The breeding birds are usually separated from the larger band, and the chicks, two or three days after being hatched, are, for greater safety, taken from the parent birds and carefully reared.

During the day they feed about some small enclosure, but at night they are carefully housed. If the weather is cold the little fellows are wrapped warmly in woollen blankets. Great care must be taken both in feeding and sheltering the young birds until they are three months old, after which they are usually sufficiently grown to take care of themselves. The first plumes are cut when the bird is seven months old. These have but little value; two months later the quills which have been left in the wing "to ripen," are drawn out with pliers. Two months later still, or four months subsequent to the first cutting, the new plumes appear. At 12 months old the birds begin to show their permanent color, the males gradually turning a glossy black, while the females become a dull yellowish brown. The second cutting is made when the birds are 16 months old, but the plumes are not at their best until the birds have attained their 24th month.

Thereafter the plumes are cut every eight months.

A few years ago when Ostrich plumes were in great demand, it was not uncommon to realize an all round price of £10 for each bird's plumes, even when there were as many females in the band as males. £35 has often been paid for the plumes of one good male. The most valuable plumes are the long white primaries; then follow in value the fancy black and whites, of which there is but one in each wing. The long blacks rank next, and so on down to the short drab plumes of the female birds. A pound of rarely choice white feathers is still worth from £35 to £40, and, of course, a much larger price in the markets of Europe. The best plumes have very slender stems, so slender indeed that when the plume is held in an upright position the tip will bend down all but touching its own base. These plumes are from 15 to 18 inches long, and are not infrequently 12 to 13 inches

across at the widest part. The birds mate at the age of 3 years, the females laying from 12 to 22 eggs, in the incubation of which both birds assist, the male bird usually covering the eggs at night, and the female during the daylight hours. Good birds will nest from 2 to 3 times in 12 months, successfully rearing from 20 to 30 young Ostriches. In the good old days when feathers were in demand, £5 would be paid for a single egg. £10 was the standard price for a chick 3 days old, and though from £25 to £30 was the running price of birds in a band, as much as £500 has been paid for a pair of good breeders. The male birds are very vicious during the nesting season, and it is not safe to go near them even on horseback.

Leaving the Swellendam district we drove through the mountains to the pleasant vineyards of Monhagen, where, in addition to the profitable industry of wine-making, attention has recently been given to the making of raisins and with most satisfactory results.

The largest wheat areas and the most valuable wheat lands in the Colony lie adjacent to and beyond Malmesbury to the north of Cape Town. Although the same primitive method before described of planting the seed is in vogue even there, the lands are much more carefully cultivated before the seed is plowed under and the fields are afterwards harrowed until quite smooth on the surface. Large numbers of binders and reapers are used to harvest the grain, but on some of the farms the sickle is still used. The growing grain is never very thick on the ground, but when rain has been abundant the heads are usually well filled and supported by the stiff straw. I have not seen one field of lodged grain in this country.

The farms, as a rule, are very large, often from 10,000 to 20,000 acres, sometimes 40,000 acres. A man owning not more than 1,000 or 1,500 acres is considered a small farmer.

As the country is all mountainous, only the lower hills and the valleys are suitable for grain growing, the higher ground being reserved for grazing.

Cape Colony has as yet done very little mixed farming, though she is beginning to realize that she has within herself all the elements neces-



AN OX TEAM DRAWING "OAT HAY."

sary to the production of her own food supply and more.

Hundreds of thousands of pounds of butter and cheese are annually imported to this, an agricultural country. Cape bacon is scarcely to be had at any price, while stalled beef is unheard of. Beef, such as it is, is, of course, to be had in abundance, but the Colony depends on Great Britain and America to supply her with butter, cheese, bacon, etc.

Much is being done at the present time to improve the horses, cattle and sheep of the country, by the importation of the best bred animals of other countries to cross with the native stock. The country needs a denser working population, a dividing of the large estates into smaller holdings, and good live white colonists to occupy them. All these matters are receiving the careful thought of the colonists and good results are quite sure to follow.

At the present time the Government is sending out, at heavy expense, capable instructors to give free of all charge, practical lessons in butter making on the most approved methods. Some farms which we had the pleasure of visiting have in use the New Cream Separators, Churns, and Butter workers, with a result that we were given butter of as fine quality and flavor as our own best dairies could produce. The lack of suitable and sufficient water has been one of the Cape Colony's most serious drawbacks. There is, as I have already stated, but little surface water. The rivers, so called, are often mere sluggish streams of blackish water losing themselves in the rushes to re-appear in stagnant ponds, and becoming too often quite dry in the summer months. But this, as well, the Government is doing its utmost to remedy by aiding the farmers in well boring. It is astonishing how near the surface an abundance of good water has, in some localities, been found.

The early Dutch settlers bringing with them from the fatherland the love of sheltered avenues, were great planters of trees, and the districts first settled have splendid groves of oak and fir, while their old towns invariably enjoy the luxury of generous shade. The generations following have been sadly remiss in the matter of planting and the sections most recently settled, look naked and cheerless, indeed, in their all but utter lack of trees.

The roads throughout the Colony, considering its great distance and sparse population are, as a rule, very good. The science of road making has undoubtedly been studied by this people, so that the best possible results are invariably secured through the judicious expenditure of the money granted for the purpose.

The usual, and all but universal conveyance for driving, is the Cape cart, a strong heavy two-wheeled trap admirably adapted to this country of many hills and long distances. Most of the carts have two seats and accommodate four persons, others have three seats, others even four, and according to the size of the cart and the weight of the load, two, four and six horses are driven. Before the start the passengers and luggage are so placed as to balance the cart, so that no matter how heavy the load there is but little, if any, weight on the necks of the horses. The hills are taken at a gallop,

which necessitates giving the horses a short breathing when the top is reached. The teaming of produce and supplies is done on heavy wagons capable of carrying from 3 to 4 tons, and these wagons are drawn by spans of from 12 to 30 mules or oxen. A negro leads the foremost pair, while another boy wields an enormous whip with marvelous dexterity. Each ox has its name, and has as well, good reason to remember it, for the descending lash is its invariable accompaniment.

This country is a most pleasant one over which to drive. The mountains are ever in sight, and such glorious mountains in their gay and somber coloring, bathed always in a mellow haze, and spangled everywhere with wild flowers. Range succeeds range in a delightfully bewildering irregularity. The low bush growth covering alike the mountains and valleys, does much to compensate for the absence of forests. Now and then in the deep kloofs large trees are growing, but in the open they are seldom found.

Small game is abundant, and as we preferred driving in the early morning, we were always sure of seeing plenty of pheasants, partridges, hares, etc., while now and then a splendid buck would flash across the roadway temptingly near us, but it is close season now, and we were compelled to imagine how good the shooting in South Africa must be.

I shall go by sea around the Cape of Good Hope, and to the Orange Free State, and the Transvaal by way of Port Elizabeth.

#### BY AND BY.

Down the stream where the tide is clearer,  
Farther on where the shores are fair,  
Are the gracious forms we would fain be nearer,  
The names we speak in the voice of prayer.  
Be the voyage long they will be the dearer  
When after while we shall greet them there,  
Farther on where the tide is clearer,  
Down the stream where the shores are fair.

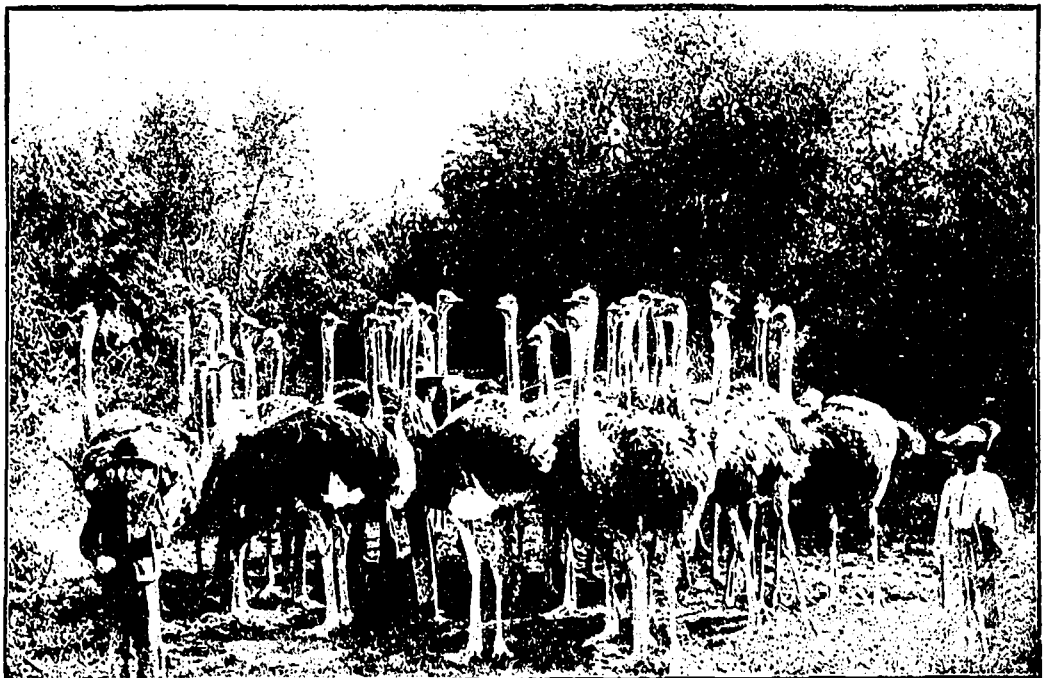
By and by when the sun is shining,  
After while when the skies are clear,  
When the cloud unfolds its silver lining  
And shores of the peaceful isles draw near,  
We shall free our tongues from their dull repining,  
And fill our hearts with the words of cheer—  
After while when the sun is shining,  
By and by when the skies are clear.

## British Columbia.

FOR over eight hundred miles British Columbia lies along the Pacific Ocean; but its coast line in and out the many bays, inlets and channels, and around its numerous islands would measure as many thousand miles.

It possesses one of the most remarkable stretches of inland navigation on the globe, remarkable for its bold shores, deep waters, numerous channels, innumerable bays and harbors, abundance of fuel and fresh water, and freedom from the swells of the ocean. The great outlying islands of Vancouver, 300 miles long, and Queen Charlotte, 170 miles long, and many lesser ones, form nature's gigantic breakwater to protect those thousands of miles of inland waters. The labyrinth of channels around and between the islands, that are in some places less than a quarter of a mile wide, and yet too deep to drop anchor; the mountains rising from the water's edge from one thousand to eight thousand feet, and covered with dense forests of evergreens far up into the perpetual snow that crowns their summits; the frequent track of the avalanche cutting a broad road from mountain top to water's edge; the beautiful cascades born of glaciers, or the overflow of high inland lakes, pouring over mountain precipices, or gliding like a silver ribbon down their sides, the deep gloomy sea-fjords cleaving the mountains far into the interior; the beautiful vistas opening up among the innumerable islets; mountain tops, domed-peaked, and sculptured by glaciers; the glaciers themselves sparkling and glistening in the sunlight, dropping down from the mountain heights like great swollen rivers, filled with driftwood and ice and suddenly arrested in their flow—all go to make up a scene of grandeur and beauty that cannot be adequately described.

The marvellous combination of mountain and water scenery along the coast is equalled, if not excelled, by the wonderful upheavals of the mountains of the interior—for hundreds of miles an endless succession of sharp peaks and deep valleys of precipice and gorge and rocks,



SCENE ON AN OSTRICH FARM.

some of which are still being carved into strange forms, by the great ice sheets which cover them.

Far up into these almost inaccessible mountains during the gold excitement, the government built a wagon road at a cost of two and a half million dollars. Into, over, and under these same mountains the Canadian Pacific Railway finds its way to the Pacific Ocean. Seven thousand men were engaged three years in building sixty miles of railway along the Cañon of the Fraser. Some portions of the work cost \$300,000 to the mile.

In these gigantic mountains very appropriately are born gigantic rivers. From them flow the mighty Yukon, which thousands of miles away is steadily at work filling up Behring Sea; the Liard and the Peace, after draining an empire, three thousand miles away through the great Mackenzie, are lost in the Polar Sea; and the rushing, impetuous Fraser, and the queenly Columbia.

British Columbia is rich in minerals. It would be difficult to indicate any defined section in which gold has not been, or probably will not be found. From 1858 to 1888 the gold production was over fifty one million dollars. The first mines discovered were in the southern part of the province, the next in the Cariboo district, in the centre of British Columbia, and until the recent discoveries in the Kootenay district the richest diggings in work were the Cassiar mines in the far north.

The railway now pierces the auriferous ranges; men and material can be carried into the heart of the mountains, and with each succeeding season fresh gold deposits are being found. In 1893 great progress was made in quartz mining, though placer work was not neglected. Twenty-five certificates of incorporation were granted to mining companies of all kinds representing a capital of eleven and a half million dollars. The greater number of these were hydraulic propositions. The great

hope of placer mining lies in Cariboo, where the old diggings are being prospected and opened up as a field for hydraulicing. Dr. Dawson's prediction made some years ago that Cariboo would yield more gold in the future than it has ever done in the past, is being fulfilled. The silver mines are not now being worked to any great extent.

Now that railway communication has been afforded—heretofore its lack being the great drawback—there can be little doubt of an early mining boom, not less remarkable than occurred in the western and Pacific States.

Bituminous coal has been worked for many years past at Nanaimo, on Vancouver Island, at which place there are large deposits, and indications of coal have been found at several other places on that island. Coal has also been found on the mainland. Last year a strong company with a registered capital of four million dollars was formed for the purpose of developing and working the Crow's Nest coal fields. The total output of coal in British Columbia for 1888 was 400,000 tons; in 1893 it was 850,000 tons.

The mountains and coast are covered with dense forests of valuable timber. Eighty per cent of this is Douglas fir, ten per cent red cedar, and the balance yellow cedar, spruce, white and yellow pine, hemlock, maple, alder, and cottonwood. The timber is very large; the red cedar especially grows to an enormous size. Large tracts of the red cedar are found varying from ten to twelve feet in diameter, with trunks 150 to 200 feet to the first limb. The lumber industry is just now at its lowest ebb. The foreign demand is light and the prices low. The export last year was 45,600,000 feet, worth about \$4,500,000 in round figures.

The rivers, bays, and inlets swarm with fish, among which are salmon, halibut, herring, oolachan, black and rock cod, sturgeon, etc. Of these the most valuable at present is the salmon. They literally teem in the Fraser and

Columbia Rivers, and frequently passengers on the Canadian Pacific Railway are astonished at the sight of broad expanses of river, or deep pools, packed almost solid with wriggling masses of splendid fish, their motions being distinctly visible from the platforms or car windows as the trains pass by. The greater number of the canneries are on the Fraser River, but there are some in the far north.

The salmon make their way for great distances up the rivers. The salmon of the Columbia fill the streams of the Kootenay; those of the Fraser are found six hundred miles in the interior. There are several kinds of this fish, and they arrive from the sea on different dates.

In 1887 there were twenty one salmon canneries which packed 205,000 cases of four dozen one pound cans to the case. The total number of salmon caught, including those salted in barrels, was 1,800,000. The salmon pack for 1898 was 177,000 cases.

In 1893 there were about 570,000 cases packed, which represent a value of \$2,500,000. The importance of this industry may be more properly appreciated by the fact that about \$3.50 represents the actual outlay per case from first to last. To fill the 570,000 cases, over 6,000,000 salmon were required, which at eight cents apiece means a payment of \$480,000 for fish alone. Allowing 350 cases to a car, it would take 1,600 cars, to carry the British Columbia pack of salmon for 1893.

The increase in the fishery output each year has been most marked. In 1892 the total fishery products amounted to \$2,800,000. In 1893 the total product was over \$4,675,000.

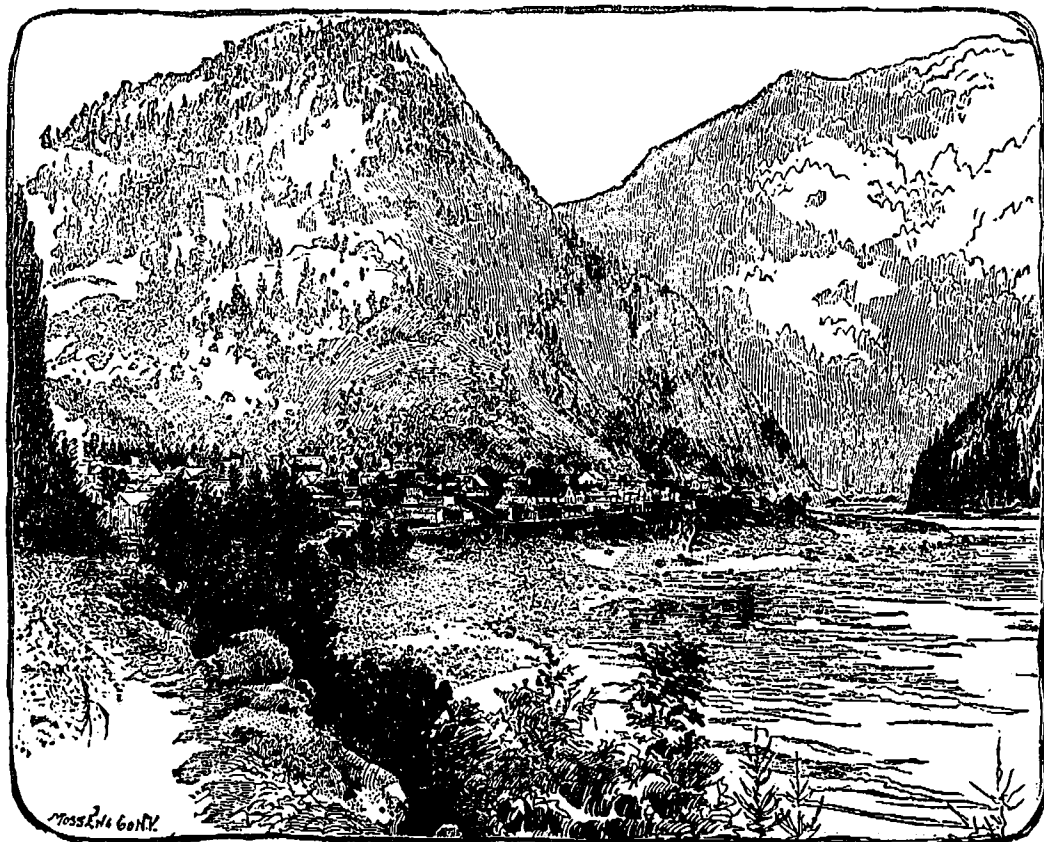
While much of the land is rocky and unsuited to cultivation, there are valleys in the mountains and on the island which have an arable soil suited to the production of the fruits, grains, vegetables, and flowers of the temperate zone. Victoria, on the south end of Vancouver Island, is noted for its beautiful flower gardens, and abundance of choice fruit.

From Vancouver city (the terminus of the Canadian Pacific Railway) there are regular lines of steamers for China, Japan and Australia, which have secured a large portion of the Chinese and Australian rapid transit trade and much of the commerce of the Pacific Ocean.

The climate stretching across a country over 700 miles north and south and from the coast 500 miles inland among the mountains, comprising an area of 300,000 square miles, is very different in different sections. In a general way, however, it may be said to be moist and mild on the islands and coast and drier and colder in the interior. The coast region, warmed by the Kuro Siwo, the great warm current of the Pacific Ocean, has a winter climate as mild as Virginia in the United States. The mild, invigorating and delightful climate of Victoria makes it a pleasant resort.

The Indians, as a rule, are industrious and self-sustaining. They are in demand at the lumber mills, salmon canneries, and fisheries on the coast, and in herding cattle and horses in the interior. They are in all stages of advancement from barbarism upward, in proportion to the time they have been under the influence of the missionaries.

British Columbia, unlike the other provinces of Canada, does not recognize any native owner-



YALE, B.C.

ship in the soil, which they and their fathers for generations have occupied and claimed. The future of the race in British Columbia is not as bright as in the other provinces of the Dominion. But the faithful work of William Duncan, Thomas Crosby, Alfred Green, Bishop John Ridley, and many other missionaries is bearing fruit. From the southern boundary to the far north, even into Alaska, are dotted many mission stations, round which are gathered groups of industrious, earnest, native Christians, who are even now powerful factors in helping to raise up their unconverted fellows to higher levels, and whose influence will doubtless become more potent in the years to come

#### Climbing for White Goats.

A YEAR or two since I was hunting in the Rocky Mountains with a friend who had never shot a goat and I was extremely anxious that he should secure one. Besides that there was no fresh meat in camp, so we had a double motive for hard work. Starting from the lodge one morning with the rising sun, we crossed the stream and set our faces against the great mountain that stood before us. First above the valley's level we were confronted by the talus, above that by a thousand feet of cliff, and then by other slide-rock and more cliffs, in all nearly five thousand feet, if we could climb so far. The slope at the foot of the cliff was, perhaps, fifteen hundred feet high; a mass of small rock fragments, rather firmly compacted with earth and vegetation that lay at an angle of nearly forty-five degrees, so that the climbing was extremely steady and slow. After working our way nearly to the top of this talus we found running along it, under the cliff, a game trail, and we followed this, knowing that it would take us to some point where the precipice which overhung us could be climbed. The trail worked higher up on the talus and led us to a break in the cliff, where there were some

fissured ledges, which promised an ascent for a few hundred feet at least. Everywhere the path showed signs of abundant use; the angles of the rock were worn and rounded by the passing of many hoofs, and no plants grew in the scanty soil in the crevices. The climbing soon became hand-over-hand work; one man standing on a ledge and holding the rifles, while the other went up six or eight feet, and then took the guns from his companion, who now in his turn drew himself up over the ledges. As we proceeded, the climbing grew more difficult, and it was hard to understand how any animal, unprovided with hands or wings, could have ascended. Often the ledges on which our feet rested were only two or three inches wide, and sometimes there were no ledges, and we worked ourselves up the face of the wall, climbing with tenacious grip to projections hardly large enough to support the finger-tips, our feet resting on little roughnesses in the rock which barely supported the toe. Some of the work was trying to the nerves, but at length we had passed the worst places and reached a narrow fissure where the ascent was easier.

After a brief pause for a restful pipe, we resumed our climb, and before very long came out on the crest of the great shoulder we had been ascending. From this we looked out over a narrow alpine valley, beyond which, steep rock-slides and frowning walls rose to a great height, and just across the valley was seen a white patch which could only be a goat. The stream-bed was a little below us, and the trees which grew in the valley furnished good cover for stalking the game, which, however, was as yet too far from the timber for a certain shot. The wind favored us, for it blew up the valley. We waited a little to see what the animal would do, and soon it began to walk slowly up the slide, stopping now and then to feed, and then moving on again. In a few moments it had passed behind some tree-tops and we hurried down into the edge of the timber. The valley was only about half a mile long and ended in a high cliff, over which the stream poured. If hunted and hunters kept along on their respective sides, they come together at its head. Hidden by the trees, we went on, timing our

advance by the goat's progress, and at length when we reached the end of the valley, the animal was on the slide-rock above us and only eighty yards distant.

Soon the shot rang out. The goat gave a bound, and began to scramble along the slide-rock toward the cliff. Another shot sounded, and then another, the animal climbing all the time, but at the foot of a high ledge it stopped, too weak to surmount it. It turned and for a few seconds stood with lowered head looking at us; then it reeled, its legs seemed to give way, and it fell, slipping, sliding, and bounding down the cliff's face and on to the rocks below, and there turning over and over, it rolled down to us.

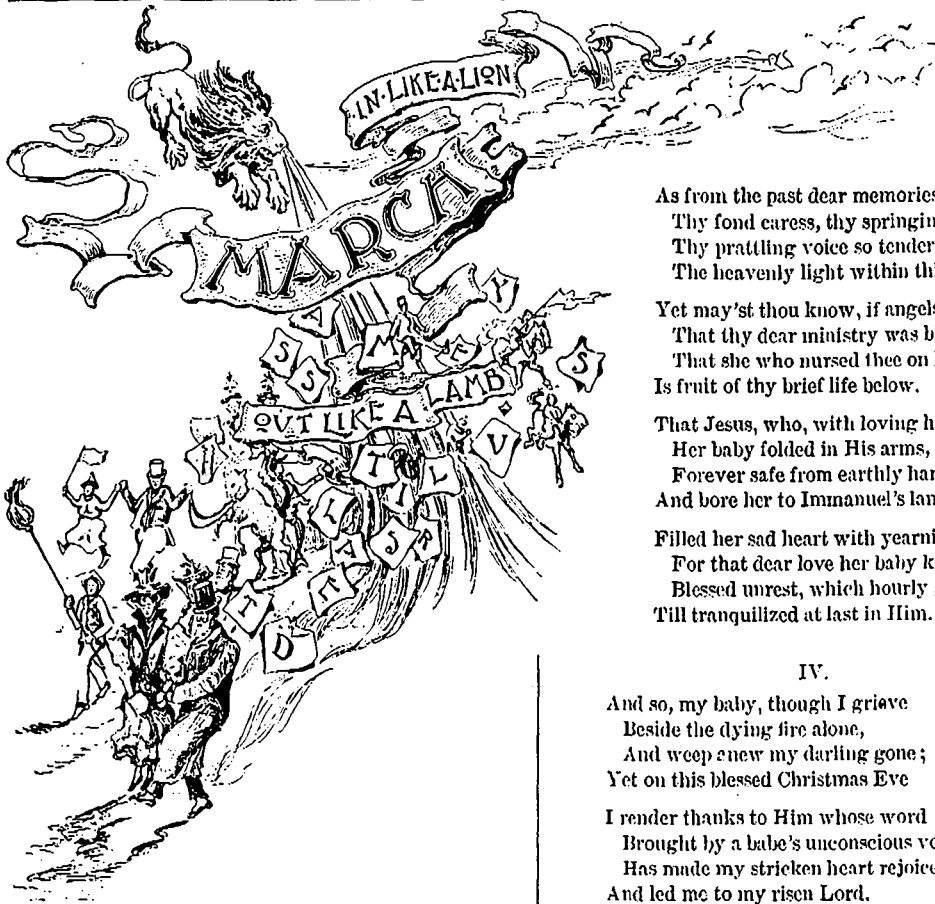
On board the Mediterranean steamer the girls had a startling experience. They went tranquilly to sleep in the berths of their narrow stateroom; but toward midnight the little Anne waked suddenly "in a slop of salt water."

She did not stop to investigate matters. "The ship was sinking. We are all going to be drowned," she said, "and with a wild shriek calling to my sister, I sprang from the cabin and rushed up the companion steps on deck. I thought she called me back, but I paid no heed, as I reached the top of the companion ladder, dripping and almost in tears, with my fatal announcement.

"There I encountered the steward, who began to laugh, as he led me back crestfallen to our cabin, at the door of which my sister was standing. The water was dancing in a stream, and the steward scolded us well as he screwed up the open portholes and got us some dry bedding. Next morning, to my inexpressible mortification, I heard some people telling the story. 'She rushed on deck and declared the ship was sinking,' said one voice to another. I didn't wait to hear any more, but fled."

They knew enough afterward to sacrifice their natural love of fresh air to the exigencies of marine travel, and close their port holes before going to bed.—*Thackeray and His Daughters.*





## En Memoriam.

EVELYN, DIED NOV. 18TH, 1891.—AGED 3 YEARS.

### I.

'Tis Christmas Eve. The lights are low,  
My husband and my babes have gone  
To rest, and here I sit alone  
Beside the firelight's waning glow.

The little church, with loving hands,  
The coming of the holy morn  
When Christ in Bethlehem was born,  
Bedecked with garlands, waiting stands.

The Christmas Bells have blithely rung,  
"Good-will and Peace! Peace and Good-will!"  
The night is calm, the house is still,  
The Christmas stockings round are hung.

All hung, alas, but one: A space  
Left, dear, where thine were wont to be,  
We keep in memory of thee,  
And sacred hold thy vacant place.

### II.

Quick fly my thoughts thro' seasons three,  
To that all-joyous Christmas-tide,  
Before my blue-eyed darling died:  
Again I hold her on my knee:

Again I syllable her name,  
I see her face so pure and fair,  
The ripple of her golden hair,  
And hear a whisper from the flame—

The slowly-dying flame, where seems  
To live a child's voice lisping low;  
The sweet voice that I used to know,  
The voice that comes to me in dreams.

Again in loving tones I hear  
With awe-struck heart my babe unfold  
Her heavenly message, as she told  
Me, "Jesus loves 'ou, muzzer dear."

### III.

O baby in Immanuel's land,  
I cannot stay my falling tears,  
Though time has run through three long years  
Since "muzzer" lost thy clinging hand.

Yet, darling, though thy days were few  
Beneath the earth's encircling sun,  
Yet all-unconsciously was done  
The work which thou wert given to do.

For though within thy mother's heart,  
Dear lamb, is still thy vacant place;  
Still mirrored there her darling's face;  
Still to her eyes the tear-drops start

As from the past dear memories rise,  
Thy fond caress, thy springing feet,  
Thy prattling voice so tender, sweet,  
The heavenly light within thine eyes—

Yet may'st thou know, if angels know,  
That thy dear ministry was blest;  
That she who nursed thee on her breast  
Is fruit of thy brief life below.

That Jesus, who, with loving hand,  
Her baby folded in His arms,  
Forever safe from earthly harms,  
And bore her to Immanuel's land;

Filled her sad heart with yearnings dim  
For that dear love her baby knew;  
Blessed unrest, which hourly grew  
Till tranquilized at last in Him.

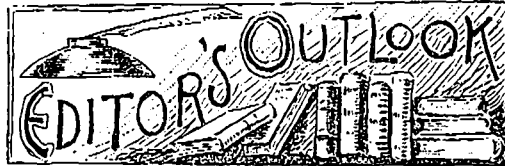
### IV.

And so, my baby, though I grieve  
Beside the dying fire alone,  
And weep anew my darling gone;  
Yet on this blessed Christmas Eve

I render thanks to Him whose word  
Brought by a babe's unconscious voice,  
Has made my stricken heart rejoice,  
And led me to my risen Lord.

For now I know in mansions blest  
I'll meet my darling bye-and-bye,  
I know her golden head shall lie  
Once more upon her "muzzer's" breast.

—IAN—



THE drawn out days and strong sun of March have arrived, and with them the farmer's out of door work after a winter of rest. Looking over the prospects for a fine spring the outlook is bright, and farmers were never more hopeful of a good season. May their most sanguine expectations come true and when the six months of field labor now opening up come to a close may the yeomen of Canada have cause for thankfulness for an abundant year.

EVERY active, up-to-date farmer will find his hands full of work this month getting his machinery and implements in first-class order. It is everything, or almost everything, to be ready in good time, to have the tools sharpened, the implements repaired, the seeds selected, the manure measured, the lands cleared, and everything in readiness for use when the time comes. This saves time and gives the farmer a start which he will appreciate before the spring passes away.

THE evidence given by Dairy Commissioner J. W. Robertson, before the Standing Committee of the House of Commons on Agriculture and Colonization, with respect to his visit to Great Britain and to the work at the extension of dairy work in Canada, has been published in pamphlet form by the Government. The evidence has been placed well before the country by the press and its value has been so well recognized that the form in which it has been issued now will be appreciated by dairymen. It is unnecessary to remark upon the value of the information the pamphlet contains, that being, as has been remarked, well known, but farmers and dairymen ought to lose no time in securing copies of the reports through their members of Parliament.

THE home of the butter industry in the United States will eventually be the far west, if the prognostications of statisticians and experts be taken as true. While this opinion may, at first sight, seem incredible, figures are advanced to show that the eastern States are falling off in their output and the western States are increasing their output. The causes, also, are apparent. The large population of the eastern cities cause a demand for cream which the dairies find it difficult to supply and at the same time maintain the old butter record. Butter can be shipped from long distances, but fresh cream must be produced near the market. The border cities in the United States will thus furnish a market for Ontario cream and this province ought to compete successfully with the western States, in the butter markets of Boston, New York and other large cities.

THE importance of personally conducting experiments is thus urged by the *Rural New Yorker*. It is submitted to the careful attention of the average dairyman:—One thing that must be evident to those who desire to learn how to balance a ration, is that the pupil must do most of the work. Strictly speaking, the "balance" is largely a theory with so many things to modify it in actual practice, that it would be foolish to follow it blindly. The standard proportion for mixing foods is an average of many results, and profit has been found in very wide extremes of feeding. The quality of the food, warmth of the animal, care given it, its capacity for assimilation, and other things, all enter into the calculation. Happily, most of these things are under the control of the dairyman. There is a true and proper balance between the two chief classes of food, and every man who feeds an animal ought to find it out. But that is the very point—he must find it by study and experiment. There is no ironclad rule for him to follow.

IN view of the agitation in Toronto and other cities and towns in Ontario over a better system of milk supply, and more stringent supervision of the dairies, it will be interesting to turn to an article which appeared not long ago in the *Century Magazine*, written by Professor H. W. Conn, on the subject of bacteria in milk. The professor, as usual, packs much good sense, as well as scientific knowledge into the space at his disposal. He does not defend bacteria, but points out that too much importance may be attached to their presence in milk. Yeast is not regarded as deadly although in most cases it is no more harmful to swallow bacteria. He says that mankind has been for ages drinking milk with these bacteria in it, generally without injury. He regards the conditions under which bacteria may do harm more important than the number existing in the milk. The diseases distributed by milk are typhoid and scarlet fever, diphtheria and cholera, as have been demonstrated, and probably tuberculosis. City milk, he says, is unquestionably infected with this germ. It may remain alive in it, but does not multiply, and mixing with other milk in ordinary distribution the germs are less numerous, reducing the danger to the consumer as it requires a number of germs to enter the body at once to become the source of disease. The germs that produce cholera infantum and intestinal diseases do multiply in milk, as these causing the diseases above named do not, and fresh milk is therefore safer as a summer diet. Means of preventing growth or of destroying bacteria are considered. Ice will check their growth, but will not destroy them. Sterilization, subjecting to boiling temperature by steam, is popular, especially in Europe, and is valuable in preventing disease, but physicians object to it, as the high temperature modifies the fats, sugars, casein and albumen, rendering the milk less digestible.



ONE of the most unique sentences ever passed by a regularly constituted court on this continent, and there have been curious ones, was that imposed not long ago by a Missouri magistrate. An illiterate prisoner was brought before him. He was totally unable to read or write, so he was sentenced to imprisonment until he learned to read. At the same time a prisoner who could both read and write was brought up. Him the magistrate sentenced to imprisonment until he had taught the illiterate prisoner to read. We are told it just took three weeks to work out the sentence. Our contemporary observes, "Isn't this the solution of the vexing problem of illiteracy?" No doubt if the "horse sense" displayed by the Missouri magistrate were generally applied, ignorance of one of the R's would almost disappear from the criminal class.

THE movement for improved roads is making headway. The annual meeting of the Association for Good Roads gave it an impetus and the consideration which the subject is receiving at farmers' meetings is evidence that interest is being aroused. The case has been put thus: for eight months in the year when the roads are at their best a 2,000 pound load is about an average for two horses, which in the bad season is reduced to 1,000, while on a good macadam road the average load for two horses is 4,000 pounds. People are also awakening to the fact that the average road has been laid out on too wide a scale to be easily kept, and that width only encourages what is called "dodging." If the roadways were, as a rule, narrower, they would of necessity have been better cared for and kept in repair. But when the present agitation has resulted in sturdy public opinion, there will be improvements on an extensive scale.

AMONG the industries brought to the attention of the Canadian farmer recently probably few are so promising of good returns as the cultivation of flax. The seed and the fibre have a good marketable value. In Manitoba the Mennonites cultivate the plant extensively, but for the seed only; they make no use of the fibre as do the Ontario farmers, who consider the fibre quite equal in value to the seed. The average number of bushels to the acre, in the North West, is about twenty, while the weight is four lbs. less to the bushel than wheat. But the difference of value appears strikingly in the price per bushel. The quotations lately in the Winnipeg papers were a dollar and a half per bushel for flax seed and forty cents per bushel for wheat; one dollar and ten cents more per bushel for the former, or twenty-two dollars per acre, on the seed alone. Then there is to be added the profit on the fibre—no small item. Were the farmers to take advantage of the market for this product more and enter into the cultivation of flax more extensively than they have hitherto done, they would materially increase the value of their acres. In connection with this subject it may be of interest to quote the Irish circular for January; the estimate of the production of flax in Ireland in 1894 has been prepared as usual from the returns of a large number of scutch mills, which contain the actual quantities turned out:

	Acres under flax.	Stones per acre.	Produce in tons.
Ulster	100,205	31.75	21,767
Leinster	980	63.01	141
Connaught	263	52.71	87
Munster	233	39.95	58
Total.	101,081	31.92	22,061
	1893—14,513 tons.		
	1894—22,061 "		

Increase . . . 7,548 tons or 52.00 per cent.

This large increase is mainly owing to the acreage, which has increased 49.77 per cent. The increase in the yield per acre was only 1.42 per cent.

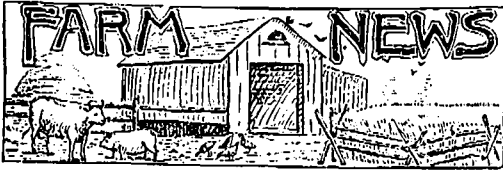
THE Executive Board of the American Clydesdale Association has addressed to its members a statement of the policy it intends to pursue. There had been considerable dissatisfaction among the members under previous management and like the new broom the new Board is to sweep clean. The platform it puts forward is of interest not only to the members of the Association, but also to all interested in the Clydesdale breed, on the continent. Economy will be practised in the secretarial work, the stud books will be simplified, and reduced fifty per cent. in cost, valuable prizes will be offered at shows, sales encouraged, and the purity of the breed maintained. In dealing with heavy teams a tribute is paid to Canada in these terms: "Canada alone could make a showing of this kind that would be a revelation to our people and at the same time be of great service to the farmers and breeders in that early Clydesdale territory." The Clydesdale interest, says the Board, in common with all other kindred interests, have suffered materially from the general depression that has pervaded all branches of business during the past two years, but the hope is confidently expressed by the Board that better days are at hand, and while the extreme prices of the past are not likely to be soon again realized, that prices will obtain which will make the raising of pure bred Clydesdales for breeding purposes and high grades for draft work most profitable. Then comes a paragraph worth quoting: "It is within the past few years that the supremacy of Clydesdales over all other draft breeds has been clearly established in the great breed contests in the leading show rings of this continent. With the same energy, enterprise and public spirit manifested in behalf of our grades that brought our pure-bred animals to the front, we would soon see them conspicuously the favorite draft horses in this country and in active demand at more than three times their present value. With the advantages that a proper understanding and appreciation of the relative merits that our grades possess with those of other breeds we would soon find the production of good draft teams the most profitable branch of our farm operations."

THE death of Mr. A. M. Smith, of Toronto, removed one of the best known and respected of the merchant princes of Canada from our midst. The business which he built up extended far and wide, and carried his name as a capable and honorable man with it. He was a public-spirited man and had been a city councillor, a member of the House of Commons, an elder of the Presbyterian Church, and a director of a number of financial institutions. At one time he was in the 93rd Highland Regiment, which was for four years, nearly 60 years ago, stationed at Toronto, at which time he left the regiment and entered on his successful business career.

THE first session of the eighth Legislature for Ontario opened on the 21st ultimo, and for the first time in the history of the Province three distinct and important parties held the floor. The new comers, who are the Patrons of Industry, are led by Mr. Haycock, whose speech, in the debate on the speech from the Throne, was friendly to the government. It is expected that the presence of the Patrons in the House will result in more attention being paid to questions affecting agriculture, but it does not appear that the government tenure will be rendered in any way precarious because of the introduction of the third element to the composition of the House. Two notable figures were missed from the members' benches. One had been removed by death, Hon. C. F. Fraser, and to his memory a well-deserved tribute was paid. The other had gone to the seclusion and higher dignity of the High Court, Mr. W. R. Meredith, and to his services to the Province, as a legislator and leader of the Opposition very flattering allusion was made by the leaders on both sides.

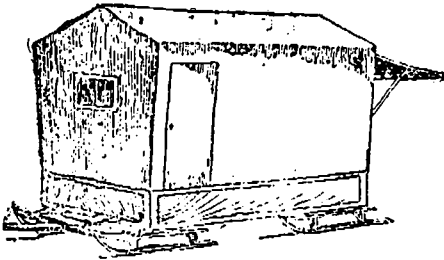


- 1st.—Prince Wolfgang, grandson of the King Regent of Bavaria is dead. . . . Sergt.-Major Smith appointed Chief of Police of Hamilton. . . . The North German Lloyd steamer *Polda*, New York to Bremen, went aground in the River Weser.
- 2nd.—A bomb factory discovered in the lodgings of Ravogliola and Capelli at Rome.
- 4th.—Prof. Alex. McConnell, of Toronto, principal of the Public Schools in Grand Forks, N.D., has been deported under the Alien Labor Act. . . . The trial of Mine. Henri Jouiaux finished yesterday with sentence to death.
- 5th.—Mr. Richard Jary, a well-known resident of Melrose, dropped dead. . . . The annual meeting of the West Elgin County Association Patrons of Industry held at Dutton.
- 6th.—The annual meeting of the Guelph Fat Stock Club held at Guelph. . . . Robt. McClue, a pioneer settler of South Oxford, died suddenly, aged 85 years.
- 7th.—Public reception tendered to the Rev. Wm. Booth, General of the Salvation Army. . . . The first annual convention of the Good Roads Association of Ontario held at Toronto.
- 8th.—The Papal brief appointing Father Langevin to the Archbishopric of St. Boniface, Man., arrived to-day. . . . Collision on the G.T.R. at Weston. Mr. Frank Joseph, barrister, Toronto, burned to death. . . . Collision at Agincourt, G.T.R., engineer killed.
- 9th.—Prof. Reginald Stuart Toole, late keeper of coins in the British Museum is dead, aged 64 years. . . . Ten of the crew of the wrecked British brig *Nelson Rice*, drowned on the coast of the Isle of Man. . . . Trinity College School, Port Hope, completely destroyed by fire.
- 11th.—Sir William Van Horne arrived on the overdue steamer *Tautonic*. . . . The Armenian Leader Hadji Valost condemned to death.
- 12.—Mr. Jas. Cumming, of Lyn, nominated by the Liberals of Brockville for the Dominion House. . . . The convention of the Reformers of South Oxford held at Norwich. . . . The annual meeting of the members of the Toronto Industrial Exhibition.
- 13th.—Mr. Monahan, court stenographer, injured in the Weston collision, died at St. Michael's hospital. . . . A duel fought near Paris, France, between Lieut. Marcel Caurobert and Deputy Hubbard. . . . The Dundas Street Methodist Church, London, completely destroyed by fire; loss about \$30,000.
- 14th.—The body of Wm. C. Wells, supposed victim of the Ilyams Bros. exhumed at Oshawa. . . . Snow fell in New Orleans, La., to the depth of an inch. . . . The annual meeting of the McCarthy Club of Collingwood.
- 15th.—The Prince of Wales held his first Levee of the season at St. James's Palace. . . . A meeting of prominent Italians of Montreal held to consider commercial relations of Canada and Italy.
- 16th.—Twenty-seventh day of the great frost in London, England. . . . The Marquis of Salisbury guest at the Irish Loyalist Club banquet, London. . . . A cabinet council held at Ottawa.
- 18th.—The Governor-General and Lady Aberdeen left for Montreal. . . . The Butter and Cheese Association held a meeting at Montreal.
- 19th.—Public dinner to Mr. John Costigan, Minister of Marine and Fisheries. . . . Dr. Fulke, President of the English Royal College of Surgeons, is dead. . . . The Queen held a drawing room at Buckingham Palace.
- 20th.—The annual meeting of the Grand Lodge of Ontario A.O.U.W. met at Toronto. . . . The bill to repeal the anti-Jesuit law passed the German Reichstag.
- 21st.—Mr. W. B. Ives and Mr. N. Clarke Wallace addressed two meetings in Collingwood. . . . The first session of the Ontario Legislature was opened. . . . Influenza epidemic broke out in London, Eng.
- 22nd.—Birthday of George Washington celebrated in the United States. . . . British Columbia Legislature prorogued. . . . Sir Henry Brougham Loch, recalled from the governorship of Cape Colony owing to long standing differences between himself and Mr. Cecil Rhodes, Premier of the Colony.
- 23rd.—Hon. M. Joly de Lotbiniere offered the Liberal candidature in Port Neuf, Que. . . . Mr. Theodore Davie, Premier of British Columbia, appointed Chief Justice of the supreme court of that province. . . . The Japanese threaten to attack Formosa.
- 25th.—Annual gathering of the Clan Fraser in Canada took place at Toronto. . . . Opening of the Methodist Convention at Toronto. . . . Fred. Villier's appearance in Toronto.
- 26th.—Knights of Pythias grand reception at Toronto. . . . General Herbert left Canada for a prolonged absence. . . . The Manitoba school case given a hearing at Ottawa. . . . Mr. J. R. Dougall unanimously elected president of the Quebec Branch of the Dominion Alliance.
- 27th.—Members of the Ontario Legislature visited the Agricultural College, Guelph. . . . M. de Stael, Russian ambassador to Britain, offered the post of Foreign Secretary vice M. de Giers.
- 28th.—Great mass meeting held at Aurora in the interests of Mr. Mulock, M.P. . . . Henry George addressed a large meeting in Toronto.



**Winter Farm Wagon.**

THERE is comfort in a well protected farm wagon that should not be despised. To withstand wind and rain when going to and coming from market, calls for an expense of energy that may as well be turned to more useful account. It is an easy matter to make a light, but strong frame work, and cover it with duck, or very heavy cotton cloth. The illustration shows how to make it convenient both to get into and to get produce out of. It is especially handy when

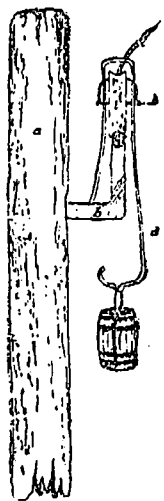


COVERED MARKET SLED.

hauling potatoes, apples, etc., in freezing weather. An oil stove can be fastened securely behind the seat on the floor, and in the coldest weather the most perishable of articles can be carried safely—and with comfort.

**For Carrying Water.**

In the mountain regions of Virginia one ingenious contrivance is used to bring water from distant springs to the house. The springs are often at a long distance down very steep hills, but as the water is very pure and good, they are preferred to wells close by, which would have to be deep. The illustration, from sketches by J.



WATER TELEGRAPH.

Osborn, shows the different parts of this "water telegraph," as it is called. A large post, *a*, is set in the ground near the house. A bent rod, *b*, is fastened to the post, and to the upper end of this rod is attached a strong wire, *c*, over which runs an ordinary sash pulley, *i*, which is attached at *h* to carrying arms, *d*, which are so bent that the bucket of water will swing under the pulley. The other end of the wire is attached to a similar post at the spring. To a bale on the pulley is attached a small rope which is wound upon a windlass at the house, and being unwound allows the bucket to go down hill on the wire, and reach the spring, into which it dips by its own weight and is filled. The windlass is turned, and winding the rope brings the bucket full of water up to the house.

**Pointers on Plowing.**

THERE are some points in the cultivation of the corn crop that are understood but imperfectly by most farmers. In the Eastern States it is customary to raise corn almost exclusively on sod ground. When the ground is neatly



FIG. 1. SECTION OF PLOWED SOD GROUND.

plowed each furrow slice lies with one edge on the bottom of the furrow, and the other rests on

the adjacent furrow slice. Fig. 1 shows a cross section of land plowed in that way. The next operation is harrowing, by which the soft earth is scratched from the upper edges of the furrows, and the grass, being on the under side, is completely buried and hidden from sight. The field now presents a smooth and mellow surface, seemingly an excellent preparation for a planted crop. But there is another condition just underneath and completely hidden from view.

This is shown in Fig. 2, where it is seen that although the upper edges of the furrow slices, have been harrowed down smooth and mellow, they still rest on their edges underneath, thus leaving a succession of cavities under the surface of the whole field. In fact, the soil suspended above the earth, and its connection with the subsoil is nearly destroyed, or, at the best, becomes very imperfect, resting, as it does, on the edges of the inverted sod. The resulting damage is seen if planting is followed—as is frequently the case—by a dry spell. There is usually, at this season, abundance of moisture in the subsoil, but the surface becomes dry because it is isolated and cannot absorb by contact, nor send the roots of plants downwards.

Under better conditions, as seen in Fig. 3, the soil is supplied with moisture by means of capillary attraction, which draws it up from be-



FIG. 2. INSUFFICIENTLY HARROWED GROUND.

low; and when the plants begin to grow they send their roots easily down into the moist earth, insuring a continuance of the supply through the season. The soil may be perfectly prepared by some instrument that will pulverize it to the full depth before planting. If it is not too stony this is accomplished by any of the revolving harrows, such as the "disk," "spading," or "cut-away." But there are times when, owing to coarse manure plowed under, or the presence of quack grass, it is desirable to leave the buried material to rot for a few weeks. When this is done it is imperative that the breaking up and pulverizing of the sod to the full depth of the plowing should be done at the first cultivation. To do this use at first a cultivator with long, narrow blades, that will run deep,



FIG. 3. PROPERLY HARROWED GROUND.

without throwing earth on the young corn. After the rotted sod is well torn to pieces the subsequent tillage should be shallow. This will destroy weeds, and while keeping the surface mellow, will allow the corn roots to fill the soil between the rows, and gather plant food from the decomposing manure and sod. We care not to break and injure the corn, this shallow cultivation may be continued with profit until after the corn is tassled out.—E. B. CHARLES, in *American Agriculturist*.

**Farm Barn.**

THE winter season affords the farmer time and opportunity to study improvements in his

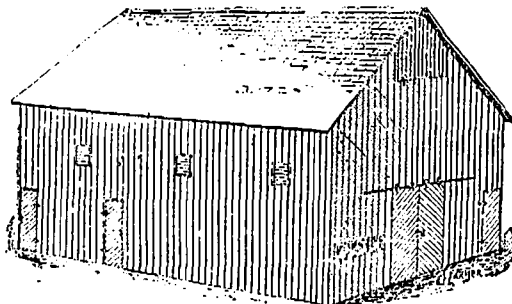


FIG. 1. FARM BARN

barn. The barn described in the accompanying is 50 feet long by 38 wide and is 18 feet under

illustration has proved handy and complete. It the eves with well slanted roof. In the ground plan are shown the tool room and work-shop, oat and corn bins and horse stalls. A, is the passage way 10 feet wide, in which a wagon may be driven for unloading grains, hay, etc., if so desired. B, is the feedway in front of the horse stalls on the end of the barn. C, is a square chute, through which hay is thrown from the mow. D, is a stairway leading from the ground floor to the mow. The single doors are

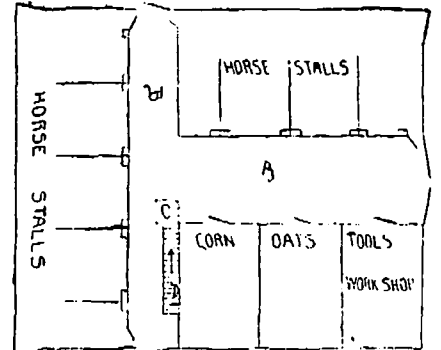
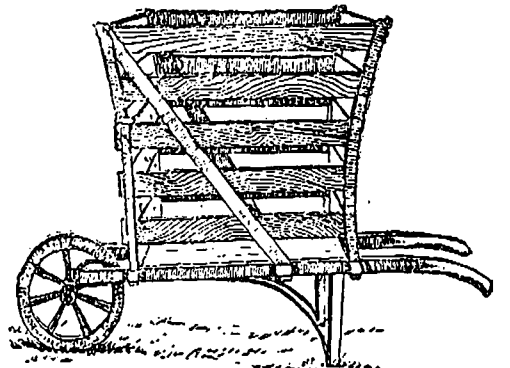


FIG. 2. GROUND PLAN.

3½ feet wide, the double doors opening into the driveway 5 feet each. The hay is taken into the mow from the outside by means of a hay fork, which runs along a track underneath the roof. The frame and siding are made entirely of pine. The roof is redwood shingles; stalls, mangers, feed boxes, etc., are all of hardwood, which makes it impossible for them to be decayed or destroyed by horses or mules eating the wood. The stalls are floored with 2-inch timber. This, of course, is at the option of the farmer, and he can floor his stalls or not as he chooses. This barn was planned out with a great deal of care, and after careful observations of many other similar structures. As will be seen in the illustration, it is very conveniently arranged. The total cost, including that of erection, grading, etc., is about \$1,000. The material throughout is the best that could be obtained; no inferior timber or lumber being allowed.

**Improved Wheelbarrow.**

It is often desirable to wheel away from a lawn or garden, light rubbish, straw, hay, or vines, for which purpose the ordinary wheelbarrow does not give sufficient accommodation. So often is it desired to wheel away light but bulky loads of this sort that such an arrangement as is shown in the illustration will be



WHEELBARROW WITH RACK FRAME.

found very serviceable. It is simply a light rack frame that can be attached to the barrow in the same way that the ordinary sides are attached, the addition of a couple of sockets near the handles being the only necessary addition to the barrow in order to accommodate the rack. The construction is so plainly shown in the sketch that added explanation is not needed.

TAKE no unnecessary risk in seeds; get the best.

LET nothing go to waste for want of a little care or labor.

## Livestock.

### Anti-Kicking Device.

THE accompanying illustration shews a contrivance for breaking kicking cows and young heifers. A farmer can make one in an hour and it will often save him many hours of time and many pails of milk:—"Take a strip of hard wood 1½ inch thick, 1.1/2 inch broad and 20 inches long. Dress it smooth with a plane and

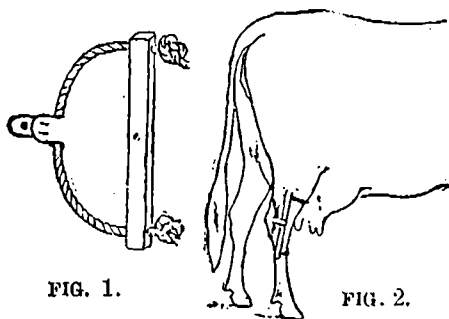


FIG. 1.

FIG. 2.

ANTI-KICKING DEVICE.

bore a hole in each end the narrow way of the board. Pass through the hole a small rope or stout cord and tie a hard knot in the end. Put the other end through the other hole and draw up the rope until it is just long enough to go over the hock joint when in position, and then put a knot in that end also. Sew or rivet on a strap on the middle of the rope, as shown in the illustration. In the middle of the board on the flat outside put in a common wood screw and have a hole in the leather strap large enough to slip over the head of the screw. This completes the device, which is shown in figure 1, and figure 2 shows it applied to the animal."

THE meat of hogs fed on cooked grains surpasses that of hogs fed on slop or uncooked food.

THE most profitable hog is the one fattened quickly and marketed at from 8 to 10 months old.

IN order to make good feed and market early, it is very essential from the first to feed the most suitable food.

WHILE large size is not necessarily important in the raising of beef cattle, quick growth and early maturity are.

NOW is the time to give the fowls extra feed as they cannot pick up outside. An occasional feed of buckwheat is warming and stimulating.

LET your hogs have free access to salt, wood ashes and charcoal. A mixture of these in equal parts is excellent for the health of swine.

THE best kind of roots for feeding cows are those that have no strong taste or smell, such as carrots, mangels, beets and parsnips. Avoid growing turnips as food for cows giving milk.

THERE is actually no danger of the early lamb business being overdone for many years or ever, because it is not necessary that they should be forced on the market as soon as they are large enough to kill.

A LIVE stock writer says there are very few farms upon which it will not pay to keep a few sheep—say about one sheep to every three acres of land. Their value as gleaners and in ridding the lanes, roadsides, fence corners and pastures of noxious weeds is not half-way appreciated as it should be.

## The Poultry Yard.

A GOOD cure for roup is to smoke the hens with a little sulphur twice a week.

HALF hearted attention to fowls will not make a success in poultry raising.

To get good, pure and healthy eggs, the hens must be given clean food and drink.

IT is time now to weed out all the superfluous cockerels, and if hens are to be set in March, pens should be prepared now.

UNLESS eggs are dirty it is better not to wash them before sending to market, as washing to an extent takes away the fresh appearance.

ALTHOUGH wood ashes is an excellent thing for fowls to wallow in, it is not good to mix it with the manure as it liberates the ammonia and is not good for the birds.

THE best food for poultry is buckwheat; it is very fattening and stimulating; it is not so largely used by poultrymen for fowls, being somewhat scarce in many parts of the country, but in Germany it forms not only an important part of poultry food, but is much used for culinary purposes.

IF you have a notion of beginning the poultry business, commence with a small flock and learn the ins and outs—from the ground up. It is a mistake that there is nothing to learn in the successful handling of fowls; that any one without experience can start in the business wholesale, at once, and make it profitable. Many have tried it and failed. If you find that you can make a few hens pay you and you like the business, then enlarge the flock.

FOWLS swallow their food, broken or not, and it enters the crop or first stomach and remains in it until it has become softened, more or less; when a small quantity at a time, just as grain runs into a grist mill, is forced into the gizzard among the grit. The gizzard is a strong, muscular stomach, and it is at work night and day, when there is a grist to grind, similar to bellows—contracting and expanding—and thus forcing the grit into the grain and triturating the whole mass, after which it is in a suitable condition to be quickly digested.

EGG-EATING hens are often the result of a habit formed by having access to broken eggs though in other cases the habit comes from an innate hunger born of the lack of proper food elements containing the nitrogen and the phosphate, and they eat the eggs to obtain them. *The Poultry Yard* says: "The habit of egg-eating by the hen is at times a very serious one with which to deal, though I have never been troubled with it but once, and then for a short time only. As I breed no fowls but partridge cochins I presume I am not troubled as much as those who breed the smaller kinds of fowls, for I think the Asiatics are not as apt to acquire the habit in question as are the smaller breeds, for the former are generally possessed of a quiet disposition while the latter, especially leghorns, are very active. As preventives are better than cures. I will suggest a few which I practice. According to my judgment, the habit of egg-eating is the oftenest formed by having soft or thin shelled eggs laid in the nest. These are almost sure to be broken by the hen while on the nest, and she will be very apt to eat the broken egg. Then, first, feed your hens shells

meate and such a variety of food that all the eggs will be likely to have hard shells. Occasionally there is a hen that never lays other than soft-shelled eggs, and she will soon acquire the habit of eating eggs. The best remedy for such an egg eater is to give your hens plenty of work, especially the smaller breeds, for "Satan finds some mischief still for idle hens to do." Straw thickly over the hen house floor, or small yards, leaves from the woods, or chaff from the hay loft, in which scatter oats, wheat, screenings or the coarser parts of cracked corn. To find the food thus scattered, and partly hidden will give the hens capital employment during the close confinement of the winter time, and is most excellent to keep them out of mischief.

## Dairy.

IF you cheat a cow out of her full ration one day her milk supply will be correspondingly short the next.

Do you realize that a deodorizer and cooler for milk is almost invaluable to you if you sell milk to peddlers or factory?

No cow can do herself justice unless she is kept warm. As soon as the nights begin to get cool put her in the stable.

IT is not wise to raise fattened calves, as they rarely grow up to be of practical value. Keep stock calves growing and not fat.

THE best separator or creamery, the most excellent churn or butter worker cannot get fat out of milk which is not fed into it.

SOME farmers think to leave the cows out in the cold makes them hardier. This idea is held by men who think "famin' don't pay."

NOW is the season in which you should be able to pick up a choice bull; one that has progeny in the dairy showing what they are worth. Buy a good one or none.

SOME cows are more generous in their return for feed than others; but there never was a cow which could or would put into the pail more or better milk than was to be found in her feed.

AFTER all, the bull is the dairyman's hope. He may have the finest cows in the world, but if he uses a scrub bull his stock will rapidly deteriorate and soon bring him to the wall.

IF you wish to make your dairy pay you must hold your cows up to full yields of rich milk for the greater part of the year. And to do this you must feed good, nutritious feed, and enough of it.

THE cause of white specks is not always the same, there is one to get at most of the trouble and it may be described as follows:—"Always stop churning when the butter first begins to break or granulate into grains the size of pigeon shot. Then throw in a pail of cold water in which a handful or so of salt has been mixed and wash out the buttermilk with two or three applications of this kind until the water runs from the churn free of buttermilk color. The white specks being heavier than butter will sink to the bottom of the water and be drawn off. One needs to use a barrel or box churn to draw off the buttermilk.



### ARMENIA.

THE first ruler of Armenia was King Dikran, who assisted at the taking of Babylon. It is recorded that at the time of Christ one of the Armenian kings reigned at Odessa, and it was of him that Eusebius related the miracle of the handkerchief upon which a portrait of Christ was impressed by divine power. He was also converted to Christianity and baptized by Thaddeus, who was sent by the Apostle Thomas, by direct command of Christ. The Armenians were converted to Christianity in the second century, and are strongly religious in character. They have peculiar forms of baptism, and do not believe in purgatory. Every morning at daybreak there is a call to prayer, a priest going through the streets of the village and calling aloud in sonorous tones, that penetrate every dwelling, "Come to prayer, and receive the blessing of God." There are many priests and monks, and a tourist tells this amusing story of a village where the people were ignorant but zealous in their religious belief: Dark blue is the color of the priests' robes, and one day a man habited in this color appeared at Boornaz in the district of Harpoot. The people were without a priest, and they hailed the advent of the stranger, supposing him to be one, with delight, and at once begged him to officiate. They took him to the church, put him into a surplice, and asked him to perform the service, which he did by intoning with great solemnity a chant—"Samson-yellah-yessah-Trebizond." The people were perfectly satisfied with the godly tone of his voice, and he ministered to them until a genuine priest came, who indignantly exposed him as an impostor, and made him explain to the people that his wonderful chant was: "I left Samsoun, and arrived at Trebizond." The people were very angry, not with the imposture, but with its exposure, for they loved the genial chanter whom they had forced into the church, and they would not believe anything against him. He was a genius, too, in a way, and when the genuine priest had expended his wrath, he told the people he was a saint.

"Go to him," said the chanter, "pluck a hair from his beard as a relic, and ask him to give you a blessing."

They did so, and the poor priest, believing them mad, hurried away, leaving his beard in their hands, and the false prophet in undisturbed possession.

The Armenians are a strange, romantic people, dark-skinned, with Egyptian features, who live in the most primitive way in houses built of stone and mud, but in which may be found rich stuffs of silver and gold, Persian rugs, gems and other evidences of wealth. The men are bright, know what is going on in the world, are natural linguists and fond of telling stories at which they laugh heartily. The women are rather taciturn, and believe that they have only one mission in life, to get married and through the position of matron, gain a certain importance as well as acquire new burdens.

An Armenian village is a curious aggregation of huts, for regarding the dwellings in an architectural way, they cannot be called houses. The walls, which are seldom higher than six feet, are made of mud and stone. The roofs of the houses join and slope to the ground in such a fashion that they form a highway over which cattle and people wander at will. The roofs are made of branches of trees, and the trunks are used for pillars to support them. The inside of the houses is blue with smoke, either from the fireplace at one end or cigarettes and pipes which every man smokes. There are coarse

felt carpets laid over hay on the floors, and these are covered on festal occasions with rugs that are coveted articles of luxury in the outside world. Horses, sheep and dogs are kept in such close proximity that it is sometimes difficult to decide which is the stable and which the house. The entrances are dark, and this aids the delusion. But once within, the visitor will find both hospitality and good cheer, although it is a common saying that every Armenian has written in the palm of his hand this perverted text, "It is more blessed to receive than to give."

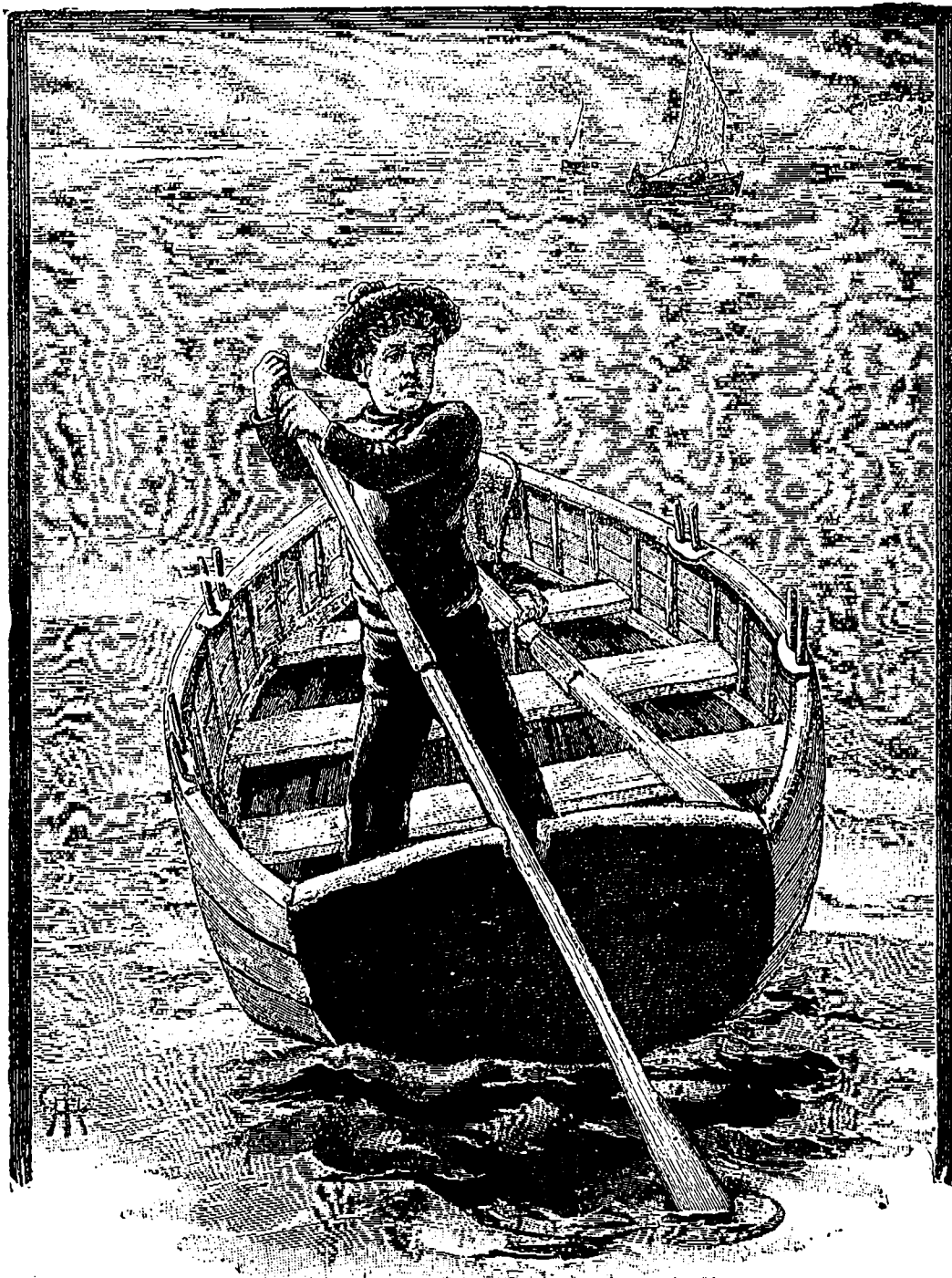
The Armenian hostess serves her dinner in courses, using tea, sugar, eggs, milk, fowls and other civilized food freely, with some dishes not so appetizing; wine and sweetmeats are plenty, and the cooking is often very good, so that the most fastidious guest need not leave an Armenian table in hunger.

The women of Armenia are exceeding attractive in their youth, but constant exposure to the weather makes their complexions bad in later years. From 14 to 25 they are beautiful, their skins being fresh and soft like an infant's, and their eyes large and tender. They have also fine hair of a blue-black color, that is most becoming. They wear costly stuffs of brilliant hues, adorned with fine embroideries. Both the men and women wear wide trousers and jackets, but the women add a trailing robe-like overdress, which is drawn up on one side in a shawl shape. A jaunty cap covers the hair. It is embroidered in gold, and a large veil is

thrown over it. All wear a chain of coins, which is the national ornament.

The men are fond of hunting and of athletic sports. The loyalty of an Armenian to his country and his faith is a magnificent trait in his character. When it was a question of compelling them to change their adopted religion for the worship of Ormuzd, the gospel of Christ for the Zend Avesta, they rose up all—men, women and children—and shook the throne of Yezdigerd to its foundation.—*Selected*

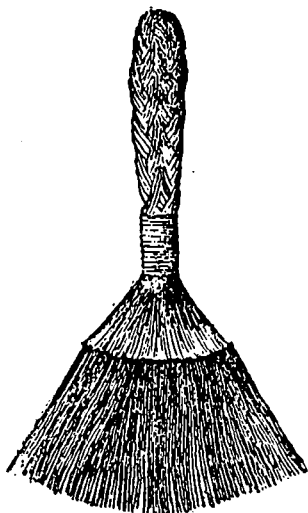
THE *Dairy World* reproduces the following excellent advice:—"The dairyman should be an exact man. He must drop all mere 'guess work.' Guessing too often proves very expensive. The book and pencil should be held in constant requisition. Accounts are as important and necessary to the dairyman as to the banker or merchant. Exactness should apply to every detail. Having formulated a good ration for a particular cow, let the same amount by weight or measure be fed to her regularly at each feed. Always feed and water at the same hours as far as possible. A dairyman near here boasts that if he should enter his cow stable ten minutes before time for watering, not a cow would rise from the floor, but on the arrival of the proper hour every cow would promptly jump up upon appearance of the attendant. This is certainly a good illustration of what strict adherence to method will do."





**Make a Hearth Brush.**

It is made of fine manilla rope, about the thickness of a slate pencil, in this way: Braid four strands of the rope 28 inches in length together in the middle to form a braid eight inches long. Fold this together for the handle and bind the rope around the ends for the space of two inches. Untwist the remaining length



HEARTH BRUSH.

or ends of rope and comb them out. Lay the brush on a flat surface, daub light blue oil paint on the upper part of the fringe to stiffen as well as ornament it. A heavy line of the same two inches below defines that section of the brush. Gilt or silver paint dashed over the blue in fine lines and on the portion that is bound around will enhance its beauty. Again comb the fringe out and turn it. Although this description may sound rather complicated I can assure you it will not prove so, as you will assert after making one of the brushes. They sell readily at fairs at a large profit, as the cost of material is little

**Match Holders.**

ATTRACTIVE match holders are always in order, and those who cannot buy gems in Cloissone or Sevres ware may be pleased with the two here illustrated, after sketches by

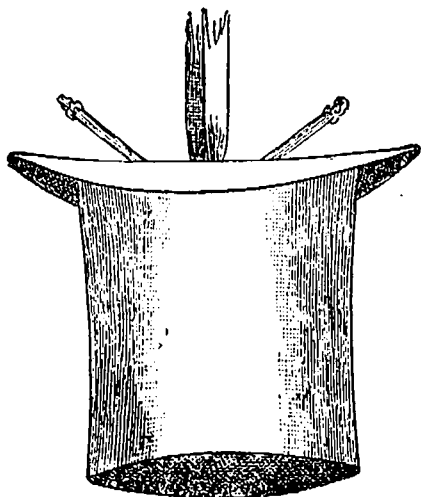


FIG. 1. A HAT MATCH RECEIVER.

Dorcas Eyelet. For the unlighted matches make a little hat of cardboard like Fig. 1. Cover it with silk or satin, or crochet with ecru cord, and stiffen with shellac and varnish. Or stiffen first with glue and then gild or silver it, or enamel black, when it will resemble Neapolitan

straw. Place inside a little glass jar or a tin baking powder box, and hang up by ribbons.

For the burnt match holder, cut two pieces of card board, canoe shaped like Fig. 2. Glue

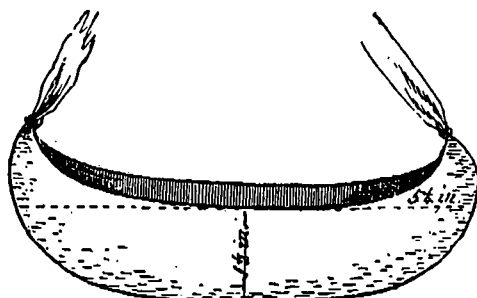
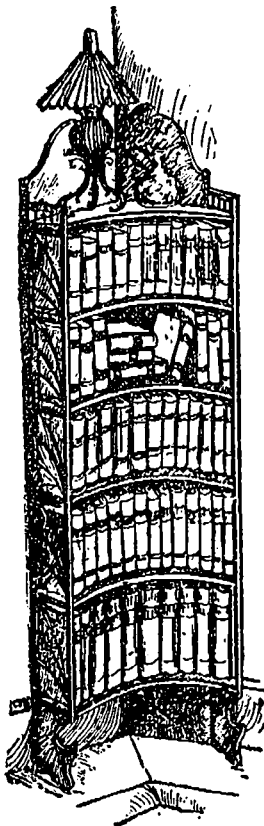


FIG. 2. A CANOE BURNED-MATCH RECEIVER.

birch bark neatly on the outside. At the under-line, overhand together and fasten on ribbons for hanging it by. Inside put a miniature canoe of tin, made by simply fastening two pieces of tin together at the bottom like an inverted V

**A Corner Bookcase.**

Corners are as convenient as they are essential, and the more we can tuck away into them the better—always providing we tuck away good things in a goodly fashion. Books are surely good things, and fortunate is that home that overflows with them. But it is often a problem where to stow them all if one is not the proud possessor of a big library. The revolving bookcases that are so roomy unfortunately demand a good deal of space for themselves, and so are unpopular in small rooms



where every "foot of land" is precious. The most space-economizing bookcases fit snugly into the corners, and perhaps the one in the accompanying illustration might take precedence for economy of room, as its concave lines of shelves allow the most possible room for other furniture about it. It may be made as plain or as ornate as one wishes—the one in the sketch being very simple and easy to construct. It has a shelf at the top for a lamp and pitcher, or vase of flowers. The in-curving rows of books have a very pretty effect, that does away with much of the stiffness and starchiness of unbroken rows of books that are made to "toe the mark." The idea was suggested by the necessity—that mother of such a large family of inventions—of using an old-fashioned rectangular "what not" as a bookcase. It was

placed "cornering," and the books arranged much like those in the illustration, with a very satisfactory result. Anybody with a talent for saws and planes can easily make a pretty and artistic home for his books.

**Hints to Housekeepers.**

Clean willow with salt water.

Rice flour wafers, slightly sweetened, are a nice dainty for afternoon teas.

If crackers are stale or moist, sprinkle slightly with salt, and heat in a moderate oven.

When soot is dropped upon a carpet sprinkle liberally with salt, and sweep up at once.

When ironing starched clothes have a bit of beeswax tied in a piece of muslin to rub the sad-irons.

Hang in the kitchen in a convenient place for reference, a slate, with tape, pencil and sponge attached.

Dry the leaves and left over stalks of celery, and keep them in a self-sealing glass jar, to flavor soups with.

When the contents of a pot or pan boil over, throw salt immediately on the stove to prevent the disagreeable odor.

Don't pay five cents more for flour in a cloth sack, when you can buy more and better cloth for the same amount of money.

Scour the butter bowl and paddle once a week with coarse barrel salt, and use sal soda instead of soap to clean dairy utensils.

When baking fruit pies, to prevent the juice running out, insert a small cylinder of brown paper through an incision in the upper crust.

Make covers for holders leaving one side open slip in the holder and baste the open side. When soiled, slip out the holder and wash the cover.

On ironing day select one rod or bar of the clothes-rack upon which to hang all garments with missing buttons, and those that need mending.

When ink is spilled upon a carpet, cover the place immediately with fine salt. When this becomes black, carefully remove it and put on more.

Cut warm bread with a long, thin, sharp knife, dipped in boiling water and wiped quickly. Cut the slices rapidly, and dip again as the knife cools.

The syrup left from sweet pickles or canned fruit should be kept and added to mince-meat. The syrup from pickles needs no further preparation, but that from fruit should be scalded, and put in a glass fruit jar. Several kinds can be mixed together.

**REVIEWS.**

A TRENCHANT article on "Literature and the English Book Trade" from the pen of Ouida, appears in the *North American Review* for February.

*McClure's* for February continues the history on Napoleon with illustrations. It is a special Stevensonian number, having special articles on the late Scotch novelist.

An excellent portrait of Rubenstein forms the frontispiece of the February *Review of Reviews*. The same magazine contains a brief sketch of the dead musician.

*Scribner's* for February has a good article "The End of the Continent" describing a recent voyage in the wake of old time pirates along the coast of Patagonia and the Cape Horn archipelago.

"The New life of Napoleon," by Prof. Sloane, of Princeton, which is now running in the *Century*, reaches the stage of the mission to Genoa and the fall of Robespierre in the February number.

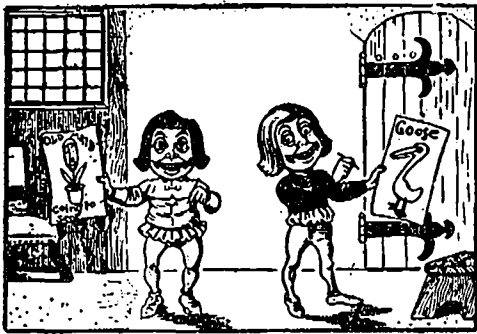
FEUDAL India is the most splendid survival of another age to be seen anywhere, and Edwin Lord Week's article on "Oudeypore," in the February *Harper's* reads almost like a description of fairyland.

*Outing* for February has a choice variety of seasonable reading. "Leuz's World's Tour Awheel," lends special interest just now while the fate of this young traveller remains unknown, all trace of him having been lost since he arrived in Armenia.

The *Illustrated London News*—the great English pictorial weekly—keeps fully abreast of the times in reading matter and illustration. The war in the East and the *Elbe* disaster have received special treatment in the last numbers.

All the above first-class magazines are on our Clubbing List. See list on another page.

LOVE'S THORNY PATH—A STORY OF SAINT VALENTINE'S DAY.



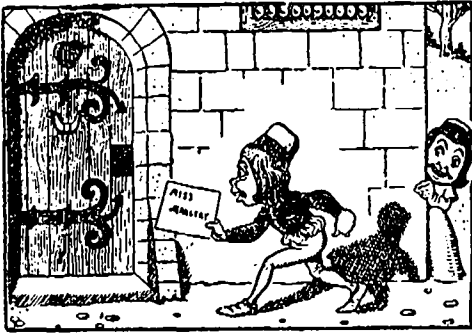
Peter and Rudolph make valentines for their sister.



"Put it under the door, Peter; pull the knocker, and come back here."



"Father! Mother! See this insulting valentine some one just left at the door!"



"Do just as I did, Rudolph. Oh! ain't this sport?"



"Oh! Oh! Another one! There is a vile conspiracy on foot."



"Hark ye! We will wait at you window that overlooks the road, and we will give the next conspirator a warm reception."



"This sweet valentine will convey to my darling Margery thoughts that my tongue could never express."



"Send insulting valentines to our daughter, will you? Well, that will teach you a lesson, young man."



(Unholy mirth of the real culprits).



It is probably the number of tars on board which makes a vessel pitch.

Teacher—"Now, Willie, you may name the five senses and how they are to be used." Willie—"Nickels, and they're to buy gun and street-car rides."

Judge—"Your innocence is proved; you are acquitted." Prisoner (to the jury)—"Very sorry, gentlemen, to have given you all this trouble for nothing."

"Hello, Billy! Still in the patent fire extinguisher business?" "No, the fact is, Snipes, the building we were doing business in burnt down. We lost everything."

"Are you a district messenger boy?" asked the near-sighted old gentleman of an urchin on the street. "No, sir, was the reply; "it's my sore toe that makes me walk that way."

"Could you use a little poem of mine?" asked the poet. "I guess I could," replied the editor. "There are two broken panes of glass, and a hole in the skylight. How large is it."

The burglar almost burst with rage And smote himself upon the head. When he tried all night to crack a safe, And found it was a folding bed.

"I told you you would never get along till you learned the art of making a dollar go farther than you usually do." "Me? make a dollar go farther? Why, I make them go so far now that none of them ever get back."

"I tell you," said Mabel's father, "Charley Slogo has a level head." "Very likely," replied Mabel, sweetly. "Probably that's what makes his conversation so flat."

Author—"Why do you persist in abusing my book? I have been told by many people that it is an exceedingly rare work." Critic—"Exactly. So rare that it needed roasting."

Cori—"Miss Newrich has a new maid that is a great deal better than her old one. Did she tell you?" "No, but the last note I had from her was spelled, every word of it, correctly."

First little girl—"I heard that your papa is a senator. Is that so?" Second little girl (who stutters)—"Why, ye-ye-yes." First little girl—"Oh, you needn't be afraid to speak up. I won't tell."

Timmins—"What do you think of my new desk? Bought it second-hand; made the money all from my jokes." Simmons—"Well, that is as it should be—the jokes were all second-hand, were they not?"

She was eight years old and I said she looked ten, And the little maid was glad; But at eighteen I took her for twenty, and then That same little maid got mad.

Fogg—"Poverty is a misfortune, not a crime." Figg—"I don't know about that; at any rate poverty has been the cause of much poetry writing." Fogg—"You mean the writing of poetry has been the cause of much poverty."

Flossie (disputing with her brother as to the equality of sexes)—You superior to me? Why, I could marry and become a countess, or a duchess, or a baronet's lady, but you can only be plain Jacky Brown all your life long. Pooh!

"What's the judge going to do now?" asked the green juror, in a whisper. "He's going to charge the jury," said the foreman. "Charge the jury? Charge us? What for? We don't have to pay nothin' for the privilege of sittin' on jury, do we?"

Mamma—"Did you know that little Tommy Jones had ears frust-bitten yesterday?" Johnny—"Yes; his mother always lets him stay out as long as he likes."

"I call him a bouncing baby," said the father, tossing the infant in the air, "considering the fact that we're raising him on the bottle." "How else do you raise babies, sah?" inquired the Kentucky colonel, eyeing him sharply.

First lobster—"It's getting lonesome here now, with all the society bathers gone." Second lobster—"Never mind; we are liable to meet them after supper this winter, and then we'll get the rest of our fine work in."

"Here's somethin' great—simply great!" exclaimed the street fakir, as he blocked the path of a portly citizen. "I don't doubt it," was the reply. "But I belong to the class of people, sir, who object to having greatness thrust upon them."

Gent—"Where were you employed last?" Man servant—"At a writing master's." Gent—"What were you required to do?" Man servant—"I had to keep shaking the table when a new pupil wrote the words, 'This is my handwriting' before commencing to take lessons."

"Man, Sandy," exclaimed a Scotchman to his friend as he stepped ashore at the wharf, "I'm glad to see you safe across. Had ye had a fine passage?" "Oo, ay, capital," replied Sandy. "We hae got owre safely; the only accident I heard o' was that the ship had broken her record."

"Whither, dear friend?" "To Africa." "Are you crazy? One hundred and thirty degrees in the shade!" "But I need not go in the shade."

She—"It takes two to make a bargain, you know." He—"Yes; but only one gets it."

"Yes, my daughter married an artist," said the old lady. "You don't say! Have you any of his work in the house?" "Lands, no. He's got a shop of his own. Tonsorial artist, you know."

# Tempered Steel Parts OF FARM IMPLEMENTS.

CULTIVATOR TEETH, HARROW SPRING TEETH, HARROW DISKS, RAKE TEETH, KNIFE SECTIONS.

How These Vital Parts Are Made for Massey-Harris Machines.

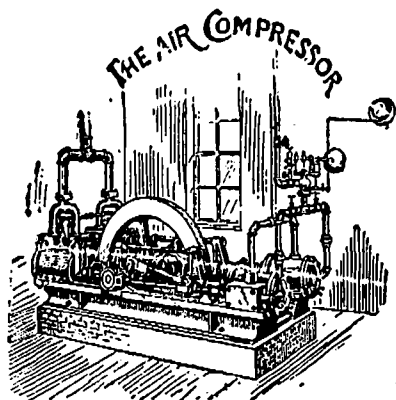


FIG. 1

The majority of implement manufacturers buy the parts enumerated above from steel makers here and there. These steel makers have no interest whatever in the reputation and the good working of the machines of which they are to form a part. Nor is this the worst of it, for in addition to having nothing at stake in the reputation of the finished implements, the steel makers are forced to sell these most

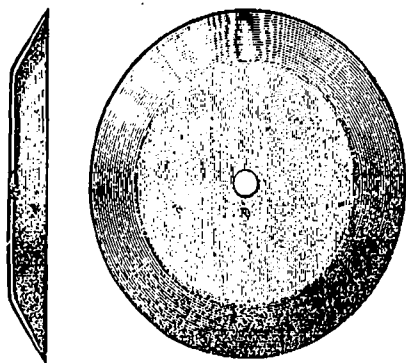


FIG. 2.—SLICER DISK—TEMPERED—HAVING HARD EDGE AND SOFT CENTRE.

important parts at the lowest possible price, and consequently use cheap steel, which cannot be properly hardened and tempered at best, while it is usually unscientifically and carelessly worked. Further, steel manufacturers know little or nothing of the working of implements, while, on the other hand, implement makers who are progressive and who are constantly experimenting in the field, know exactly what is required of these various steel parts. The staff of MASSEY-HARRIS Co., after

years of faithful work, have devised entirely new and unique processes of making steel parts for implements. The Toronto Steel Plant of this Company is unquestionably the best equipped of any in the world for this line of work, and many patents have been taken out to protect the various devices. The cost of putting in this plant was enormous, this being another reason, in addition to the fact of its being patented, why competitors do not make their own steel parts.

The source of heat is fuel oil, which is stored in an enormous underground iron tank. Thence it is pumped to the pressure tank, from whence it is forced through the pipe system to the numer-

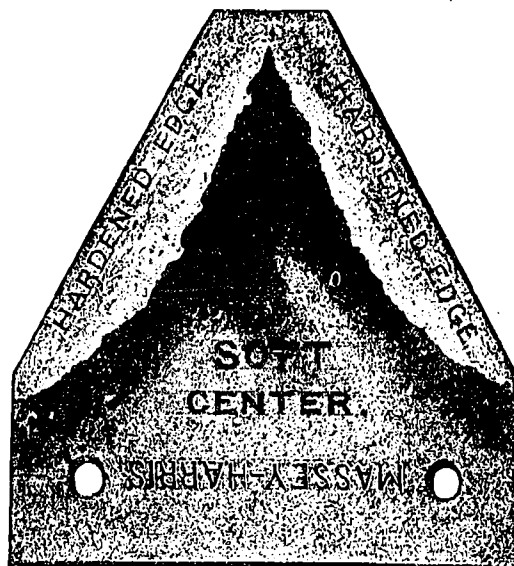


FIG. 4.—A MASSEY-HARRIS KNIFE SECTION IN THE ROUGH JUST AFTER THE HARDENING AND TEMPERING PROCESS AND BEFORE BEING FACED AND GROUND. THIS IS AN EXACT REPRESENTATION AND SHOWS THE TEMPER LINES.

ous furnaces and ovens. A powerful air compressor (Fig. 1) aerates or atomizes the oil through patented jets at the furnaces. It can be so controlled that any degree of heat desired can be maintained at a perfectly uniform temperature—an advantage which alone can insure a uniform grade of teeth, disks, sections, etc. The several furnaces are each specially designed for a particular class of work, and it has taken years to perfect them.

The manufacture of cultivator teeth also teeth for seeders, harrows and hay rakes requires the closest scrutiny and the best of material to produce good results. The peculiar work required of these implement teeth demands great elasticity, toughness and hard points to withstand the wear. If too hard they break, and if too soft they stretch or "set." To get them just right is a science which it has taken the MASSEY-HAR-

FORM OF IRON TABLE ON WHICH ALL RAKE TEETH, CULTIVATOR TEETH AND HARROW TEETH ARE EACH SEPARATELY TESTED AT GREAT STRAIN.

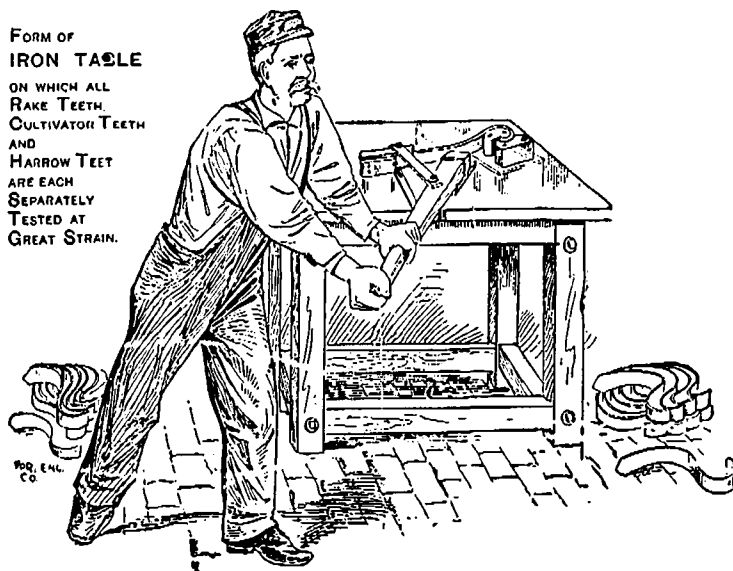


FIG. 5.—MANNER OF TESTING CULTIVATOR TEETH. DOTTED LINES SHOW NORMAL SHAPE OF THE TOOTH.

RIS Co.'s staff a good many years to find out, but now the trade mark <M.-H.> stamped on a tooth is a guarantee of its perfection. The pointing is done by drop hammers after heating in oil furnaces (Fig. 6). The very important process of forming, hardening in cooled oil vats and tempering in an oil heated oven is meagrely illustrated in Fig. 7.

The final individual tooth test is most severe and quickly discovers the slightest flaw (Fig. 5). All the varieties of teeth are treated in this way, and no method was ever devised which gave such magnificent results and produced such tough, flexible teeth.

### ABOUT REAPER AND MOWER KNIFE SECTIONS.

Your forefathers sought out a good tough sharp sickle to reap their crops, for the tougher and the sharper the sickle the easier their work. It is reasonable, therefore, to suppose that a mowing or reaping machine with good tough, sharp cutting apparatus, well fitted and perfectly made, will do better and faster work, to say nothing of lasting much longer. People who want the very best buy knives and knife sections bearing the trade mark "MASSEY-HARRIS." There is a good reason why. The Toronto Steel Plant of the Company is equipped with processes and devices for mak-

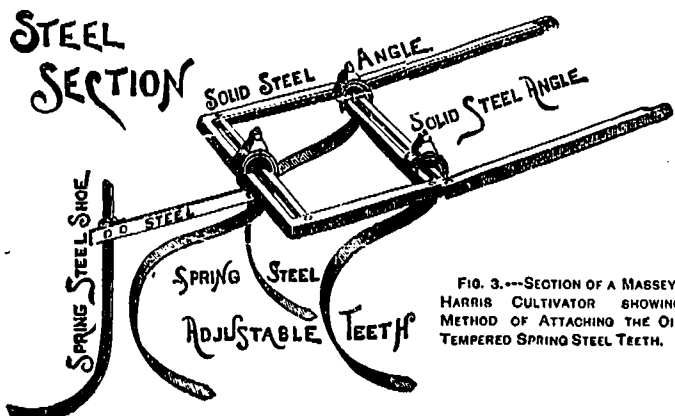


FIG. 3.—SECTION OF A MASSEY-HARRIS CULTIVATOR SHOWING METHOD OF ATTACHING THE OIL TEMPERED SPRING STEEL TEETH.

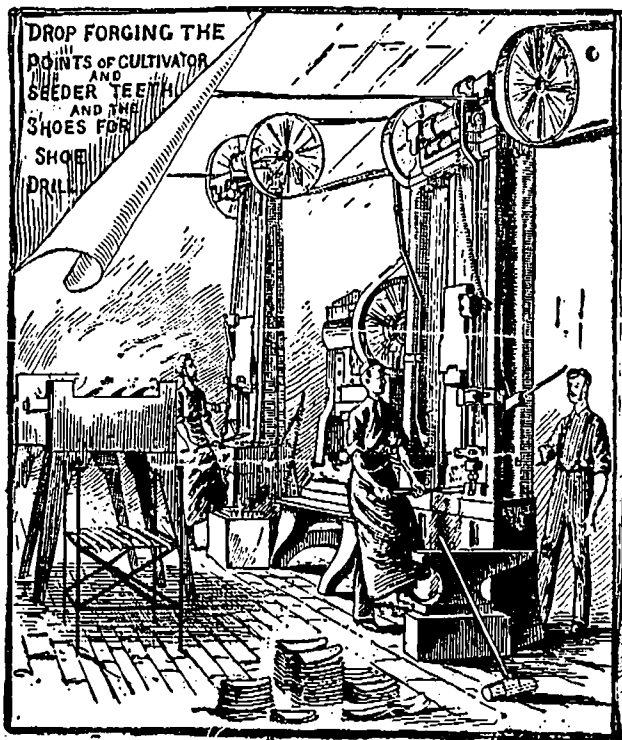


FIG. 6.—DROP FORGING THE POINTS.

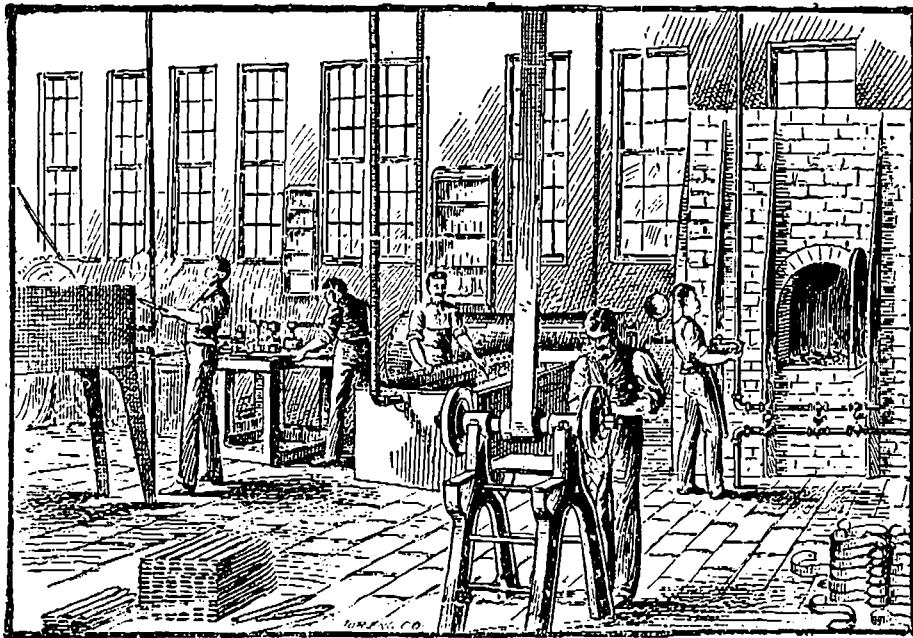
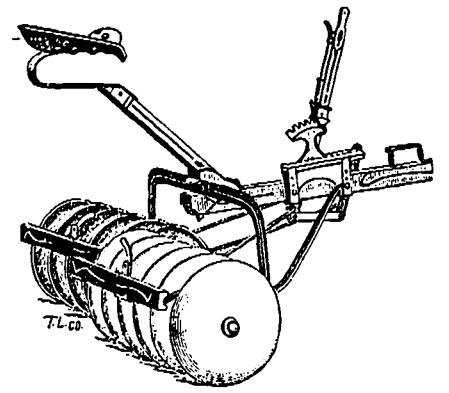


FIG. 7.—PLANT FOR HARDENING AND TEMPERING SPRING STEEL CULTIVATOR AND SEEDER TEETH, ALSO SHOWING FORMING AND POLISHING MACHINES.



MASSEY-HARRIS CORBIN DISK HARROW.

ing reaper sections, designed and perfected after fifteen years' experience, which are entirely unique and altogether the best known. These are fully protected by patents and cannot be used by any other concern. The aerated fuel oil furnace with its unfailing and perfectly uniform heat, acts with marvellous accuracy as to degree of temperature on the sections required to be hardened, and again in the second process of tempering. The sections pass through the heat with exact and absolute mechanical precision, avoiding any chance of variation, and the additional treatment in chemically prepared baths produces a knife section the toughness, the quality and keen cutting edge of which is impossible to duplicate by any other known process. All MASSEY-HARRIS Reaper and Mower Sections and Ledger Plates have a hard edge and soft centre. The illustration on previous page (Fig. 4) shows the section in the rough just after hardening and tempering. It is an exact reproduction and shows the delicate lines of temper and the effect of hardening of the edges. After this it is faced, bevelled, polished and oiled—thus making a handsome and perfect piece of work.

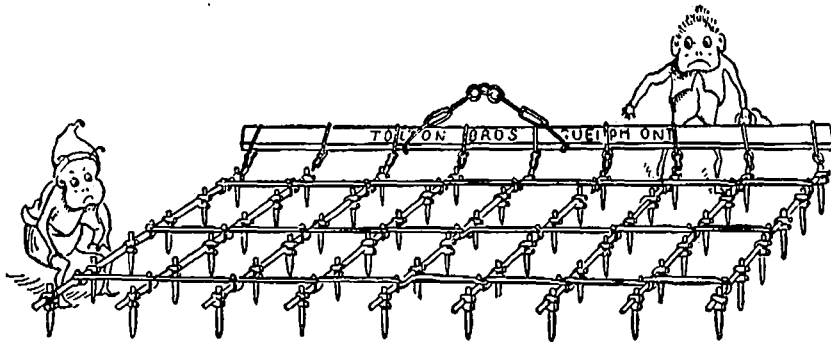
**A WORD ABOUT HARROW DISKS.**

By a newly patented process, we are enabled to produce soft-centre disks, with very hard cutting edges. These **TEMPERED DISKS** greatly enhance the life of the Harrow, to say nothing of doing better work. Like a mower or binder knife section, they are made soft in the centre and hard on the edges. If soft all over they soon wear out, and if hard all over they soon break to pieces. The same principles apply to a disk. With the centre left soft, the strength and elasticity of the steel is retained, while the cutting edge can therefore be made hard without danger of rendering the disk brittle, and the hard edge will then do double the amount of work without dulling and wearing.

Steel Springs and all other steel parts of MASSEY-HARRIS Machines are all made by new and special processes calculated to produce the best possible results.

**6,837,656 lbs.** of raw steel were used by MASSEY-HARRIS Co. in making their output for the season of 1894. A phenomenal record in view of the general business depression.

**Why** in these hard times is there such a great demand for this **All-Steel Flexible Harrow?** **Because**



the flexibility of the Harrow enables it to adapt itself as readily to rough and uneven ground as to smooth, and the oscillating motion produced by its flexibility pulverizes the ground, and leaves it in a loose and more porous condition than any other Harrow, and it is made of the very best material money can buy for the purpose.

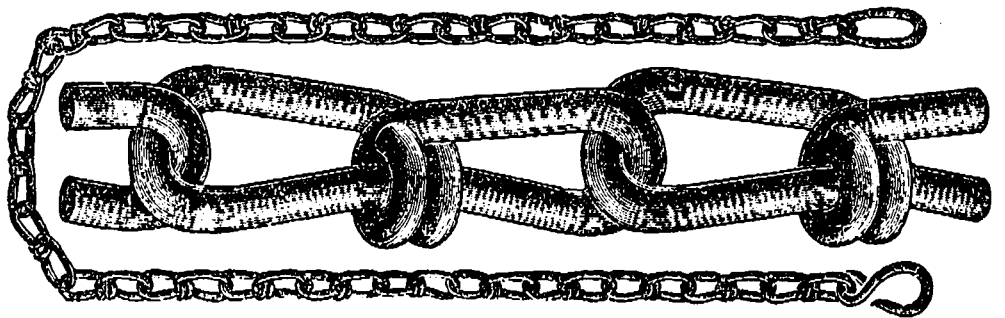
The Bars are made of **HARD SPRING STEEL**, very stiff and strong, the Hinges and Teeth being of **SOLID STEEL**, all of which are of a higher grade than is possible to use in any other make of Harrows, being too hard to permit of the Bars being punched;

also, the Clips are malleable and Staples Lowmore iron, highly refined, with special forged nuts, making the Harrow first-class in every respect, therefore we can guarantee more than double the strength and wear in this Harrow than there is in any other make. We claim for this Harrow no equal in its class.

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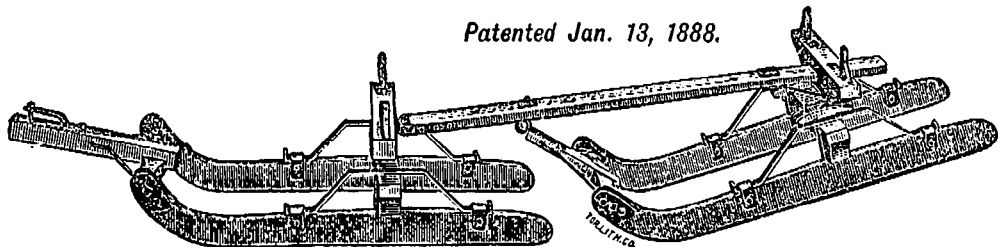
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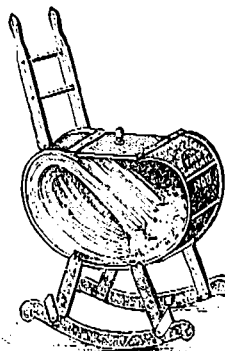
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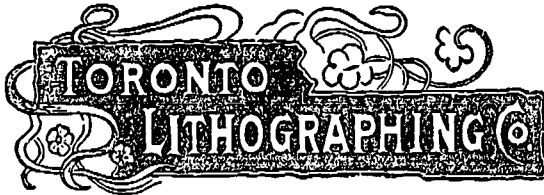
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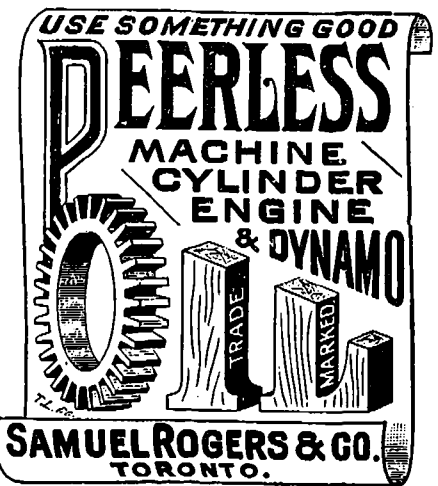
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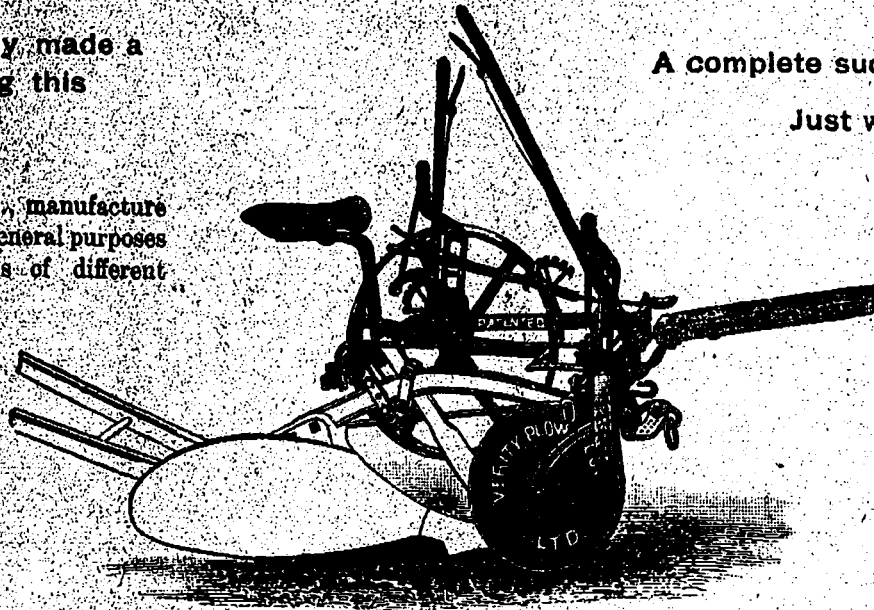
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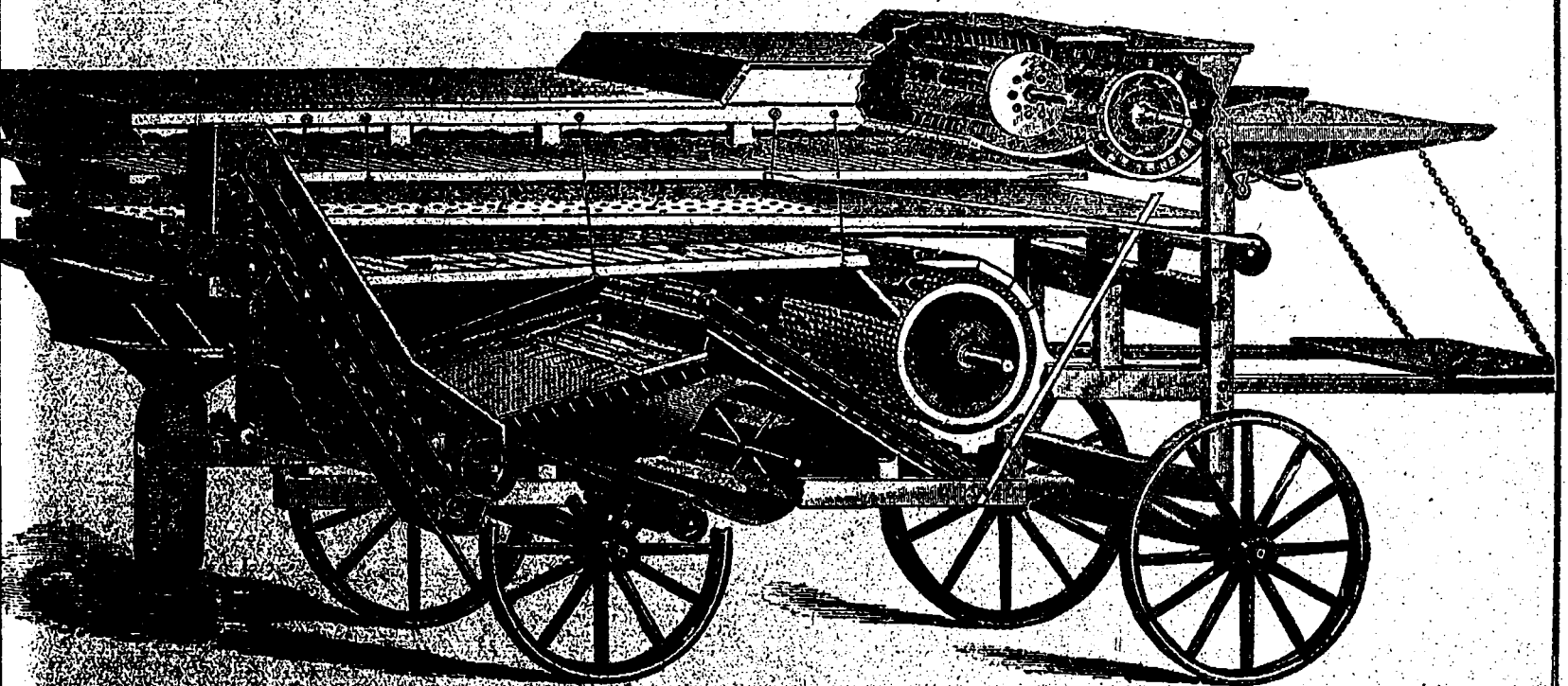
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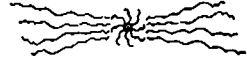
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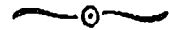
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