

THE GRANGE VISITOR

"THE FARMER IS OF MORE CONSEQUENCE THAN THE FARM, AND SHOULD BE FIRST IMPROVED."

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Making Good Butter.

Butter is finished in the dairy, but not made there. The stamp of the dairy woman puts the gold in market form; but the work must be commenced in the field or in the feeding stables; and this leads at once to the consideration of feeding for butter. During the early summer months, when nature is profuse of favors there is little to be done beyond accepting her bounty. The tender grasses are full of the needed nutrition, and they afford the constant supply of moisture, with out which the secretion of milk is greatly lessened. Yet, at this season, as well as all others, a pure supply of water is absolutely necessary. It does not meet the requirement if cattle have a wet hole full of surface drainage in the pasture, or a frog pond. While it is not probable that the tadpoles and wrigglers, sometimes found in city milk, have been drunk by the thirsty cow, many infusions do exist in such pools that are hardly eliminated or rendered entirely harmless by the wonderful milk secretions of the animal. The cattle should drink from spring fed boxes; and as often as these, under the hot sun, are seen to produce green growth or floating scum, a pail of coarse salt may be put in, and the current checked until the fresh water growths are killed; the salt water is then drawn off and for a long time the trough will remain pure and the water bright.—Breeder's Gazette.

To secure early lima beans, and an abundant crop of them, train them on comparative low poles, not more than four or at most five feet high, and cut the vines when they reach the top of these poles. This attempt upon the life of the vine stimulates into early and abundant fruiting.

Agricultural Department.

A HOME WITH FOUR SIDES.

A city home has its walls of stone, And its windows clear and fair; Its solemn parlor richly clad, Its hall and its dizzy stair.
But it has no sides, where the loving sun May peep here and there all day; Its windows back look on gardens small, And in front look—across the way.
But the little home where roses run At will over angles four, And a double share of the sunshine comes To lie on the cottage floor;
A home with its fragrant orchard side, And a side toward the forest, too; An outlook over the winding road, And one for the mountain blue.
Its trodden paths, quite around the house, Where the patter of childish feet In a mimic hunt, or a quick surprise, Shall be sure the round to meet.
Its side lights dim through the trailing vines That brighten the walls within; Its nooks where moonlight peeps awhile, And the crickets softly din.
Ah! twice a home, as it seems to be, Is the country-built nest, Where its windows open north and south, And open, too, to the east and west.

Farming 1800 Years Ago.

"To drive cattle it is not enough to have skill, he must possess hugeness of voice and bulk of body to make him formidable to the cattle. He must be more terrible than cruel, that the oxen be not worn out and hold out for more years. Tailness and strength of body is of very great importance for a ploughman for he leans almost erect upon the plough-tail.
Wicked fellows are of a more quick and active spirit. There is nothing that a sober man, of the same nimbleness and activity will not do better than a rogue." Here follows more about plowing and the management of cattle.

"When at work, the oxen should be yoked close to one another, that they may go the more gracefully, with a lofty air, and their heads elate; and that their necks may be the less weakened and the yoke fit the better upon their necks; for this way of yoking is most approved; for that which is in use in some provinces, or fastening the yoke to their horns, is rejected almost by all. Cattle can exert themselves and use greater efforts, with their necks and breasts, than with their horns; they try and strain with the whole bulk and weight of their body." "The ploughman, who governs the oxen, must walk upon the ploughed ground, and at every other turning, hold the plough obliquely, and, by turns, to furrow with a strait and pull plough, so as not to leave in any place the ground unplowed and unmoved, which is what husbandmen call a balk. When the oxen come to a tree, he must keep them in strongly, and make them step slowly, lest the ploughshare, being driven with greater force against the root, give a shock to their necks, or lest the ox strikes with violence with his horn against the stock of the tree, or touch the trunk with the yoke or break off a branch. Let him rather terrify them with his voice, than with blows; and let strokes be the last remedies when they refuse their work. Let him never provoke a steer with the goad; for it makes him pull back, and gives him a custom of kicking.
Nevertheless, let him sometimes put him in mind with his whip. Neither let him stop half way before he comes to the turning; but let him give them a little rest at the end of the furrow, that so the ox, in hopes of resting, may, with greater agility pull the whole length. But to draw a longer furrow than one hundred and twenty feet is hurtful to the cattle; for when it exceeds this measure they are fatigued more than they ought to be."

"As soon as the ploughman has unyoked the oxen from their work let him rub them down while they are quiet and press their backs strongly with his hands and pull their skin once again, and not suffer it to stick fast to their bodies, for this kind of disease is very hurtful to oxen." You see they must not be permitted to get hide bound. "Let him rub their necks strongly and pour pure wine into their jaws if they be extremely hot. It is not proper to tie the oxen to their cribs till they have left off sweating and panting. Feed them a little at a

time, in parts, which when they have eaten up they must be led out to water and enticed to drink (from the goose pond we suppose) by whistling, that they may drink the more willingly." Our ancient agricultural writer gives some quite correct notions about the different kinds of soil. "There is no kind reckoned worse than that which is dry, and likewise dense and low; because it is both cultivated with difficulty, and when it is cultivated it does not so much indeed as thank you. Whether it be tilled, or lies fallow, it will always give the husbandman reason to wish he had never meddled with it."

He speaks of drainage by ditches that are blind or hidden and open. For blind ditches a furrow is sunk three feet deep, and then half filled with stones and gravel or a rope of sprays tied together. He places great stones at the inlet and outlet to prevent the bank from caving in.

He discourses on the time and manner of plowing, the need of reducing the soil to dust by plowing over and over again. There should be no hidden balls. "We must never touch land when it is miry and dirty, nor when it is half wet with small showers, for such lands are not in a condition to be handled the whole year after. In lands that must be plowed let us chiefly follow a middle temperature, that they may neither want juice, nor abound in moisture. He knows that it is easier to plow hilly land across the hill." He thinks it best to drag low land when the moon is declining, for this frees corn from weeds. Newly manured land should be plowed at once.

He describes the different kinds of seeds they used; wheat and bearded wheat, red wheat and white wheat, preferring the red as it excels in weight and in brightness. He speaks of four sorts of bearded wheat and names the Clusmia, trimestrian, hail-castrum. He speaks of beans, lentil, peas, kidney-beans, tares, hemp seed, millet, panic, sesame, lupins, linseed barley of six rows and barley of two rows, also for fodder; the clover grass, jenergreek and vetches. He has several chapters on the mode of cultivating each species. Certain seeds were likely to fail but if the seed basket were covered with the skin of a hyena the seeds will grow up and come to perfection.

Here is one idea quite in advance of the common practice of our farmers the present day. The reader must remember in the following quotation that "corn" does not mean Indian corn, but wheat, barley, etc. "When the corns are cut down and brought into the threshing floor we should even then think of making provision of seed for the future. Where the corn crop is but small we must pick out all the best ears of corn and of them lay up our seed. On the other hand when we shall have a more plentiful harvest than ordinary, and a larger grain, we must save the largest grains for seed. They believed that beans consumed the strength of the earth less than other seed, and placed great stress on the influence of the moon in various operations. "We lay it down as a precept from our own experience, viz: At the change of the moon pull your beans before daylight. Then, when they are fully dried, before it be full moon, beat them out of their pods and after they are cooled bring them into the granary. When they are laid up in this manner they shall suffer no damage from the weevil. It is proper that the lentil be sown in the middle of the seedtime when the moon is in her increase till the twelfth day." "Linseed must not be sown unless it brings a great increase and the price it bears invites you, for above all other seeds it is hurtful to lands. Vetches must not be committed to the earth before the twenty-fifth day of the moon, otherwise we commonly find that the snail hurts it after it is sown."

W. J. BEAL.

Wash for Fruit Trees.

The Practical Farmer, speaking of a wash for bodies of fruit trees, recommends the following: One ounce of copperas to eight or ten gallons of water forms a good wash, and is advised for trial as a preventative against blight. One pound of bleacher's soda and one gallon of water forms a wash that cleans off all insects, and leaves the trees with fresh, young looking, healthy bark.

Ungathered Wealth.

The utilizing of waste farm products is a subject that should claim the attention of all those engaged in wresting from the hidden storehouse of a rich soil an abundant harvest of grain or fruit or vegetables. The wealth of the farmer does not consist in the abundant crops his land produces, but in proper management of every crop that nothing is wasted or lost, and every product of the farm brought before the market in the most attractive manner. We often see this rule observed in securing one product from waste, while others equally valuable are left an unsightly waste for the revel of pigs, poultry and insects. How common the districts where nature has weighed down the branches of fruit trees with an abundant crop, and man has done so little. He does not even put forth his hand to gather what is thus brought to him, when in the near winter months his own table's supply is almost limited to a prisoner's fare of bread and meat, and the village market is robbed of a supply of enticing fruit which at this time would be eagerly sought after and bring a high price.

We wish to call the attention of the thoughtful farmer to the great waste of fruit. There may have been a time when it was thought the only use of fruit was to feed the capacious maw of the distillery, and when no channel appeared to be open to carry off this abundance of summer and fall fruit, and change these wasting apples into "apples of gold" to the credit column of the producer. But this time has passed, and through the application of invention the problem is solved and a way opened for us to utilize our wasting fruit and gather a rich harvest. How slow we are to grasp opportunities to accumulate wealth which are often thrown in our way and pass by unimproved. We cannot in our short article speak of the treatment of each variety of fruit or vegetable, but will only mention the apple because most common and useful, and will attempt a comparison between its treatment and what can be accomplished with the same supply of fruit if properly handled.

We hear the fruit grower exclaim, "What shall I do with this fruit? I cannot afford to have it waste, but the market is so low it will not pay for handling. The season is too early for cider, besides in the bustle of saving the wheat and corn the apple cannot be attended to or a few of the best might be gathered for drying on boards or strings to give us some for the coming winter, and in a few short months we hear the provident housewife say, "What shall we have for dinner? Nothing but bread, meat and potatoes. And we hear the farmers say that the orchard must be cut away to furnish room for a more profitable crop. This we find the rule in many places and has been for years.

Is it possible that this most valuable of all fruit shall continue to be a useless waste, or used for a base purpose, or shall we abandon the time-honored pursuits of fruit growers, because for want of attraction we have not found it profitable. Let us reflect, turn over a new leaf, search for information in books and papers and learn from the experience of our most enterprising neighbors what they are doing.

The time has come when an abundant fruit crop can be made to pay a large dividend on the investment and the inquiry is, how shall I save my wasting fruit.

The evaporator is fast coming into general use to save crops as well as the surplus.

In 1880 there was a full crop of fruit east, west, north and south, in Canada and in Europe, so much fruit everywhere that apples were almost of no value in the orchard. The farmer could find no market that would pay more for apples than cost of gathering and marketing.

Many men in New York State put in evaporators and worked up their entire crop, held the evaporated fruit till July or August, 1881, and received 12½ to 14 cents per pound. While the best apples were worth only 10 cents per bushel delivered at the evaporator, in 1880 they made seven pounds evaporated fruit, at a cost for evaporating of 10 to 12½ cents per bushel. Seven pounds at 13 cents equals 91 cents. After taking out 10 cents for apples and 11 cents for evapo-

rating, there was a net of 70 cents per bushel for the crop of 1880.

In 1881 evaporator men paid 30 cts per bushel for apples to evaporate; received same fall at from 12½ to 14 cts per pound. If they had held their fruit (as they did the year before) till 1882 and received 16 to 18 cents, say an average of 17 cents, equals \$1.19 or 79 cents per bushel net profit.

In 1882 evaporator men in Michigan paid from 15 to 25 cents per bushel for apples to evaporate, and sold their evaporated fruit at 15 cents per pound at home. A child can figure their net profit. The cores and skins are worth enough when dried to pay cost of evaporating the fruit. They are used for jelly, champagne, vinegar and apple brandy.

The world is the market and the fruit producing part is small as compared with its whole. The demand for evaporated fruit is increasing every year and will continue to increase. There was more fruit evaporated in 1880 than in 1879, more in 1881 than in 1880, more in 1882 than in 1881, and still there is no surplus. Every pound will be used before more is made.

Extravagant Praise.

A leading journal says: "One of the great evils of the day is extravagant praise." There are certain people who, whenever they have a new variety of grain, fruit or plant, go into the superlative in describing the superior excellencies of the particular article they wish to sell. From a new kind of strawberry to "improved stock" they are extravagant in extolling the merits of whatever they wish to put into the market." Their statements are often found to be gross exaggerations. Take the catalogue of some of our seedmen, and all that the farmer has to do, if the statement is true, to double his crops, is to get some new variety of corn, oats or potatoes that are advertised in their columns. One advertises his corn as "the most carefully bred Indian corn in existence." Another has "the earliest dent corn growing in the land; ordinary yield 80 to 100 bushels per acre." Another has "corn that will yield 15 to 20 bushels more shelled corn per acre than any other variety in the country." And another has a kind of potato "by far the most productive now in existence." Consider one moment. Did you ever find such statements to be true? Who has found corn ordinarily yielding 80 to 100 bushels per acre? Or who has a kind of corn that will yield 15 to 20 bushels per acre more than any other corn in existence? An enthusiast in strawberry culture speaks of a new variety that is "infinitely ahead of any other kind that grows." This is full as reasonable as the boy's statement about the cedar fence; "it would last a thousand years, for his father had tried it twice!" Now it is much better to tell the truth about strawberries and cedar fences; for although you may be misled by these hyperbolic statements, the first experience you have in the matter will bring you to the real truth in the case, and convince you that these things that are praised so wonderfully high are very often nothing but common products, that have received an undue importance by exaggerating their qualities. "I bought a remarkable productive variety of corn," says a farmer, "according to the seedman's estimate of it; but I found, on planting, that the corn was honest and told another story; and though it was a very good kind of corn, it proved that he lied, for it did not produce one-half as well as he declared it would."

It is true that some varieties of grain and plants are better than others; and that great good comes from competition and the desire to improve grain and seed generally. That is right and most desirable. But, on the other hand, much evil comes of this excessive praise and false statement in advertising, particularly any new or excellent variety of grain or product we may wish "to put on the market." With this class plain truth will not do. They must start with the superlative, and, as a matter of course, end with most extravagant exaggeration. A good kind of potato, or corn or fruit, will tell its own story the best. They do not need falsehood or exaggeration to bring out their merits and make them known to the public. Just tell the simple truth about them and

leave all the rest to them—the crop will do its best praising.
V. B.
Galesburg, May 16, 1883.

Feeding Chickens—Question.

J. T. Cobb.—Will some reader of the GRANGEVISITOR tell me what to do for my chickens. I put about 25 with one hen and fed them mostly on meal. For a while they did well then two or three at a time would act as if they were choking, and would gasp around a day or two and then die. Out of the 25 I have only got about six or eight left. I let them run at large and do not feed them but very little now. What is a sure remedy for the gasps?
M. C. NYE.

Dowagiac, May 11, 1883.

Value of the Sunflower.

It is the egg-producing food known for poultry, keeping them in a thriving condition and largely increasing the production of eggs. Every poultry raiser who tries it will find that this seed is the best food known for glossing the plumage of fowls, and is almost indispensable to those who want to fit their birds for exhibition to the best advantage. The Russian sunflower is easily raised, requires very little care, can be grown in fence corners or other places difficult to cultivate. Its production of seed is immense, yielding often at the rate of one hundred bushels to the acre. It should be planted in hills four feet apart, any time from the 10th of May to the first of July. Three quarts of seed will plant an acre.—Iowa Home-stead.

SORCHUM CULTURE.

Its Use in Improving Sandy Soils.

Prof. Kedzie of the State Agricultural college communicates the following to the farmers of our state:

I wish to call the attention of farmers on light sandy soils to the amber cane, or sorchum, as a plant of full promise in this direction. It is a plant that grows well on soils too light to produce a good or paying crop of corn, will withstand the effect of summer drought, far better than corn, so that it will grow and ripen in circumstances where corn will burn up, and its value as a source of syrup and sugar, and as a forage crop is only beginning to be appreciated.

While sorchum will make a large and vigorous growth on heavy soils and those containing abundance of organic matter, the value of the sugar products from such soils is less than on sandy soils which are deficient in vegetable matter. The syrup made from amber cane raised on such light soils is lighter in color and superior in flavor to that made from cane raised on rich soil. The roots of the cane penetrate deeply in sandy soils and it is thus able to withstand dry weather in summer much better than corn.

As a forage crop, it is of great promise because it is a very nutritious, and is eagerly consumed by stock of all kinds. The seeds of cane are equal in value, pound for pound, to oats or corn.

The plant being so well adapted to sandy soils, and of so much value in itself, it remains to be determined whether it can be successfully raised on light sandy soils, and especially on "the plains." I do not ask anyone to make a large outlay to determine this question, but ask as many as will to raise one or two square rods of sorchum, on various kinds of sandy soil and especially very light sandy soils, and let me know the result at the end of the season or when the seeds are ripe. Let me know how many pounds of stalks grow on the square rod, and let me have two or three joints of the stalk for analysis, that I may determine the value for sugar-making, and I will publish the result of the whole inquiry, giving each one credit for his work.

I want the canes to be raised without manure, except the use of a small handful of wood ashes to each hill, or a tablespoonful of superphosphate to the hill. In the report I want it distinctly stated what manure, if any, was used.

The seed should be planted by June 1, if possible, in hills three feet apart each way, and four stalks left in each hill. Plant shallow, and cultivate the same as corn. When the stalks are ripe and the seeds black, cut off the stalks close to the ground, cut off the head with about one foot of the top of the stalk, and weigh the canes in this state.

If it can be shown that amber cane will make a good growth on these very light and unpromising soils; if we can raise a forage crop when the grasses fail; and if we can turn these glittering sands into bright crystals of sugar, we may sweeten the lot of the pioneer in more senses than one. Let each one contribute something to this end and definitely settle, if we can, the possibilities of these unpromising soils.

A FRENCH authority gives the following old receipt for testing the age of eggs. Dissolve four and one-half ounces of common salt in a quart of water. An egg placed in this solution on the day it is laid will sink to the bottom; an egg three days old will swim in the liquid, while one more than three days old will swim on the surface.

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Secretary's Department.

J. T. Cobb, - - - SCHOOLCRAFT

MONOPOLY IN THE NORTHWEST.

The tyrannous exactions of railway corporations on the Pacific coast is a matter of history, and it is such history as will associate with the names of its railway kings a greed as heartless and grasping as its enterprise was bold and successful. With such an example it is not perhaps a matter of surprise that to-day the new Northwest finds itself at the mercy of railway corporations that hold absolute dominion over the material interests of settlers.

In northern Dakota the Northern Pacific and the Manitoba companies have ruled the country as if they owned it all and until quite lately the people have seemed to acquiesce, almost without a complaint. These corporations have indeed been regarded as, in a certain way, the rightful owners of the soil. The development of the country depended largely upon their energy in extending new lines of track into the unsettled portions. They were the owners in fee of vast tracts of land, and it was only by their permission that any town could prosper or accumulate wealth. The people have seemed to regard all their wealth and prosperity as if not a free gift from these two companies at least wholly dependent upon them, and such has been the loyalty of the public that the most extravagant rates of transportation have been paid without a murmur.

The press and the people of Northern Dakota have been kept quiet also by other considerations. They have been in a constant state of exultation over the cheapness and fertility of their lands and their marvelous growth in population and wealth. It was therefore natural to conceal any facts that might tend to darken the picture of their prosperity. The rigors of their arctic climate were seldom referred to. From Fargo northward, down the Red River Valley, is the coldest place in the United States, and, in fact, one of the coldest regions in the inhabited part of the world. The winter temperature of Grand Forks is probably lower than that of St. Petersburg and the severity of the climate is surpassed only by a few remote towns in Northern Siberia and by the places farther north in the same valley. The whole Red River country is a part of the great Arctic slope which extends northward to the frozen ocean, and as it is wholly removed from the influences of the oceans on the east and the west, its climate in winter is only a slight modification of that which prevails in the solitudes of the Frigid Zone.

Such disadvantages as these, however, are mere trifles, when it is known that the summer, though short, is sufficient to develop enormous crops of wheat, and that the soil while in its virgin state seems almost inexhaustible, and above all that the railroads furnish ready transportation to the markets of the world. The latter consideration, regarding transportation, is the foundation of the whole structure. No matter how cheap the lands, or fertile the soil, all advantages are valueless without the railroads. A climate like that of Greenland is hardly noticed by people who are making themselves rich.

Such a country is peculiarly dependent upon cheap transportation. Its agricultural wealth is all that it possesses and that is largely concentrated in one crop. Almost the entire product of labor and capital must be transported over great distances and nearly all supplies except what is derived from the one crop must be shipped back over the same route. In many parts of the country even the wheat which the producers consume must undergo a double

transportation before it can be made available for use. Many of these difficulties will doubtless be obviated in future years. The newspapers of the territory answer all objections about the lack of fuel by pointing to their undeveloped coal mines. The absence of lumber is sometimes to be made up by brick made from their clay-beds, and perhaps by artificial boards made from straw. Flouring mills are to be built and steam produced by means of their latest supplies of coal, is to take the place of water-power which the sluggish prairie streams do not afford. So every evil has its antidote in the minds of the real estate and newspaper men, except what may arise from the greed of the railway corporations. For such difficulties no remedies have been proposed, and the ingenious journalist contents himself by ignoring them as long as possible in the vague hope of relief by means of competing lines.

Within the last few months the Fargo *Republican* and other leading journals have been forced to discuss this subject. The thriving city of Fargo showed ominous signs of reaction and even of business collapse. The burden of extortionate freight and passenger rates had become simply unendurable. The *Republican* had frequently boasted of the increasing wealth of the Northern Pacific as an indication of the country's greatness, but it discovers now that these excessive profits have been obtained at the expense of the people and that the gains secured by business men are merely a kind of residuum which the Northern Pacific has been pleased to leave as a temporary encouragement to them, while it has absorbed to itself the substantial product of the country's growth. Grand Forks is in a still worse position. The rates are bad enough to Fargo, but from Fargo to Grand Forks they amount almost to confiscation of the goods transported.

As a last resort a southern line has been proposed, connecting with Chicago without touching St. Paul. It is claimed now that this project will be a success and that Fargo and Grand Forks may thus escape destruction at the hands of their railroads. In the meantime the Fargo *Republican* sorrowfully acknowledges that the boom is over and advises the people not to attempt to deceive themselves longer. Rents and real estate must get down from their stilts in order to save the life of the city.

After all, it is the same old story. The quick settlement of a new and fertile country must produce an immense addition to the world's wealth but, under our present railway system, the greater part of that wealth must be absorbed by the transportation companies and it will finally form a part of those colossal fortunes which are so dangerous to the peace of the country.

THE FAIR AT SCHOOLCRAFT.

We put in a little time at the Schoolcraft Fair and were much pleased with the fine exhibit of agricultural implements. The prominent makes of reapers with binding attachments were on the ground and at work each having its friends. Of threshing machines only the Three River make was on the ground. A new compact device was attached to this machine for measuring, registering and bagging the grain as fast as threshed. The best thing of its kind that we have seen. A Beardsley cloverhuller was on the ground. Of its merits we know nothing but whenever we see one of his machines we always think of the extortion he practiced on farmers who chanced to own or use any of his old hullers a few years ago. I think if I ever put any money in a clover huller it won't be a Birdsall. B. F. Swain representing a company that manufactures goods at Bryan, Ohio, had a good show of plows including sulky iron and steel plows. We have elsewhere referred to the Keller Drill and for a tooth drill we don't see how it could be improved. The Champion creamery manufactured at Bellows Falls, Vermont, and the Acme creamery manufactured at this place were objects of especial interest to the ladies, and we were glad of it for it is a fact if farmer's wives don't make better butter than a large proportion of the article sold at the village store for butter, we do not wonder that the inventive Yankee will force a substitute on to the market as butter that never saw a cow. This poor butter business is not all to be charged up to the farmer's wife by any means. We are glad to see creamers and wont even find fault with new kinds of churns. The whole subject needs agitating by churning or otherwise until less of the product of the cow is ruined by butter-makers. A new fruit evaporator, the American, gave us a favorable impression as practical for farmers' use on comparatively a small scale. We have referred to churns but not in a descriptive way, and shall not only to say there were two, quite unlike the old dash churn that we used to work under protest in our boyhood. One of these was a swing churn, and the other a sort of spring churn, and if the owners want us to say anything more about them they will, of course, advertise with us. There were many other things that we cannot stop to mention. Among the rest an Auto-

matic Gate that we thought a good thing, but then if we quit using fences we shall need fewer gates.

We expect to attend the implement trial at Grand Rapids on the 5th and 6th of June, and hope to see a good many of our friends from that part of the State.

THE DRIVE WELL CASES.

Wm. D. Andrews & Bro., of New York, are the parties known to the public as responsible more than any other party for sending out an army of cheeky fellows to collect royalty on Green's patent for driven wells. Their business in Michigan was brought to a close more than a year ago and for about that length of time we have not heard of one of them in the State. The case brought before the United States District Court at Grand Rapids after two or three adjournments has not been heard from. After the decision rendered by the United States Supreme Court, although the evidence of the judges furnished little comfort to claimants of royalty, we thought the complainants in this case might conclude to go on with their case. But the low decision has given these persecuting prosecutors such a setback that we now incline to the opinion that the case will not be called by plaintiffs' attorneys at all. At all events they are likely to wait until the case from New Jersey referred to by Judge Harlan, in his opinion has been passed upon by the Supreme Court. It is a matter of great satisfaction to know that at last this matter came before a District Court that had more regard for the rights of the people whose interests were involved, than for the courtesy which assumed that judges of concurrent jurisdiction must not presume to render a decision adverse to one already rendered where the same question was involved. No matter how much additional testimony might be produced or offered in later cases it is all went for nothing. The first decision must be respected even if obviously true that such first case was made up by the plaintiff and conducted by an arranged program to win the case. This Iowa case was no doubt tried on its merits with no regard for previous decisions of courts of concurrent jurisdiction. The testimony used by the defence in the Iowa case has been offered us to strengthen a mass of testimony collected last year preparatory to the trial now on the calendar of the United States District Court at Grand Rapids. With all the accumulated evidence collected for the defence and with no probable embarrassment for want of funds the users of driven wells in Michigan we think may feel secure from farther annoyance on account of the claims of Col. Green, or any other person or persons assuming to control or derive advantage by ownership of Green's patents.

THE OSBORN TWINE-BINDER.

It will be recollected that one of the binders that entered the field trial on the farm of Martin L. Sweet, at Grand Rapids, Michigan, was the "Osborn Twine Binder. The place in which the trial was held, had every variety of surface soil and condition of ground. The machines traversed up and down or along steep side hills through tall, short lodged and tangled grain and through beds of sand. It was admitted that any machine that would cut and bind in that field would cut and bind anywhere that grain could be sown. The Osborn cut and bound well under all these circumstances. These binders together with a full line of reapers and mowers are manufactured by D. M. Osborn & Co., Auburn, N. Y., with extensive ware rooms in Grand Rapids, Michigan, and all other important points in this country.

The Osborn has in the last year made several important improvements in the binding apparatus that has overcome the several annoyances to which all machines have heretofore been subject. Their new Appleby Binder has been improved and perfected by the various appliances and inventions of Mr. Osborn. Thus by a simple movement of a single lever the binder is shifted back and forth. The driver in his seat while the twine is in motion is able to change the binder in an instant so that it will bind long or short grain in the middle of the bundle any grain that can be elevated.

Another great advantage is that the space at which the bundle is discharged, is greater than that at which it is received, making the discharge easy and unobstructed. In case there should be any clogging at that point from extraordinary circumstances, the packer, acts as a second trip, at any degree I presume greater than that required to operate the trip proper. Another advantage, a spring is so arranged that if any obstruction prevents the point of the needle from reaching the position necessary to the perfect binding of the bundle, the spring will so relieve the pressure that the needle will readily reach the required position and will not fail to bind.

One difficulty with all machines has

been that under certain circumstances the heads of the grain hang and prevent the timely discharge of the bundle, to avoid this the Osborn has an adjustable discharge arm and table that will without a possibility of failure cause the heads to escape as freely as the butts of the bundles.

In short the Osborn seems to have overcome every possible imperfection heretofore annoying the operators of self binders, and it seems that with these improvements it must do all the work desired and do it perfectly.

The Osborn will be on exhibition at the great West Michigan Farmers Club Exposition June 5th and 6th where representatives will explain to farmers more clearly all the latest improvements. They will also exhibit their No. 8 reaper and Nos. 1, 2, 5, 7 front and rear cut mowers. The No. 7 cuts with the cutter bar in every position from perpendicular to horizontal. These goods can all be seen and purchased at any time at No. 79 Canal street, Grand Rapids.

PICNICS.

The season for farmer's picnics is near at hand. There will be preparation of one kind or another. There will be enough to eat—enough to drink, but in no case will the vile compounds that fly to the brain have place in these meetings. Good order will prevail, and generally the exhilarating influences will be most wholesome in character. These meetings grow out of the Grange. They are the overflow of commendable enthusiasm in the good work that the Grange has planned to serve. They relieve the tedium of plodding labor. When managed without jealousies or selfish purposes—as they are almost without exception—they do a great deal of good. Sometimes they are too costly, but they should not be so planned as to put hardships on any persons concerned. When too large cost is made it is to induce a passion for display. Let this be pressed as useless, or even worse—unwholesome. Music is good, vocal or instrumental, but brief speeches, if desired, are admissible, and home talent is the best usually. Let those who doubt try it. Bring out the neighbors who have something to contribute.—*Hus bandman*

This is good sound advice. You can have a good picnic without sending to town for a lawyer to talk to you, or even without sending a hundred miles or so for a talking Granger. The Grange is pre-eminently a social organization, and more—it is that kind of a social organization that generally has an educational direction given to its social feature.

THERE is much of valuable truth, boiled down, in these few sentences which we find in an exchange.

"Grange meetings offer opportunities that, used to the fullest advantage, may have great value in promoting the welfare of all who participate. 'For sake not assembling yourselves together' was the injunction to a people whose spiritual good was the object sought. So in temporal affairs, conference, counsel, suggestion proceeding from the association of persons whose pursuits run to a common end, make the way open, plain and easy. The chief use of the Grange is to expand thought, and in these meetings the humblest member may have some idea quite as useful as any contributed by the highest in position. There is in the Grange no aristocracy of thought. Each person has free and equal opportunity to add something to the common stock of knowledge, and all are free to draw therefrom, for the taking does not impoverish, nor diminish the stock. Thought expands by exercise, and knowledge is the sure product."

The Master of a Grange, whose thoughts are not sufficiently expanded to comprehend the object of the Order, and possibilities for improvement embraced in its purposes, is not likely to very much aid in the educational development of members. Success in such a case must depend on other members who are unwilling that time and opportunity shall be lost. Never lose sight of the fact that the farmer has much to learn about his own special work in its several departments. To the thoughtful man, the great unexplored field in this domain of discovery stretches out to the horizon of sight, and the Grange presents an open door through which all are invited to enter and by an exchange of ideas contribute to the improvement of the individual, the Order, and the State.

THE Newark Machine Company represented by H. B. White general agent, had on exhibition at the Schoolcraft fair May 24 and 25 the improved Keller drill. This is a very complete machine, sows seed as small as onions to the size of beans without change of gear. It has a force feed and its most remarkable features are simplicity of construction and effectiveness of work. There is also a fertilizing attachment that must be valuable for the purpose designed. The same company had on exhibition a hayrake that looked like a good implement. The Victor clover huller that is recognized as the best machine of its kind is manufactured by this company, and with Grubbs patent seed cleaner a new attachment seed is cleaned fit for market as fast as threshed.

On our first page is an article from Prof. Kedzie of the Agricultural College that, like the season, is a little late. We did not see it in print until after our issue of the middle of May. The lateness of the season may justify planting sorghum later than the first

of June this year. At all events if later planting is not as well it will determine to a considerable extent the practicability of planting cane on the sandy soils of Northern Michigan. We hope many farmers who read this will send for a little seed and try a small patch. By doing so they will reach some conclusions that will be of advantage in determining what to do next year. We predict that in 1890 Michigan will make sugar enough for all her people. Every man who plants a little sorghum whether he succeeds or not contributes something to this end. Try it.

THE JUNE ATLANTIC.

It is but a poor compliment to say, that the *Atlantic* for June is a good number, for every reader of this popular monthly knows that while one number may be better than another, none are poor. We give a brief extract on another page from an article by Oliver Johnson that has our cordial endorsement.

We find upon our table the *Biographer*. Journalism is always seeking something new. This monthly has certainly found unoccupied ground where there is room. The *Biographer* is a promising venture in monthly periodical literature. It gives a large number of concise, but by no means dry, biographical sketches of men and women eminent in all departments of activity. Subjects are chosen with the view to gratify the public curiosity for particulars of the life and career of people whose names are appearing in the public prints. In a word, their selection is timely. The sketches are ably written, and their interest is heightened by accompanying faithful and well-executed portraits. In quality of paper and printing and tastefulness of appearance, the *Biographer* is among the best periodicals we have seen. We anticipate that its enterprising publisher will be rewarded with a large sale of his unique magazine, which supplies a need hitherto felt. The *Biographer* is sent to any address at 25 cents a copy, or \$2.50 a year; and to foreign addresses for \$3 a year. New York, 23 Park Row.

THURLOW WEED'S Autobiography is announced for early publication, by subscription, by Houghton, Mifflin & Co., of Boston. This can hardly fail to be a work of permanent value and of engrossing interest. Mr. Weed knew everybody of prominence; he was a man of remarkable personal fascination, even for those whom in politics he opposed most energetically; he was the trusted advisor of presidents and governors; and his career was peculiarly American.

From the autobiographical papers which he published from time to time we infer that his "Autobiography" will be strikingly rich in anecdotes and reminiscences of the growth of the country and of its public men. It must be every way an attractive work, and one for which agents will find ready purchasers.

We take pride in calling the attention of Patrons to the advertisement of Messrs Spring & Co., Grand Rapids, Mich., in this issue of the *Visitor*. They are doing a magnificent business, and offer to families the opportunity of purchasing as fine fabrics at as moderate prices as can be purchased, and the attention of their army of assistants is most polite and thoughtful. That goods can be ordered by sample and by mail at the same prices, as at the counter, is a feature that our friends from abroad will fully appreciate.

A CARRIAGE maker of established reputation authorizes us to say that he will supply the Patrons of Michigan with his goods at his very lowest wholesale prices. Covered or open vehicles with springs of different styles as desired will be furnished. For circulars of styles and prices write to me. Orders under a Grange seal will be recognized as good. We are confident the goods will be as represented and are glad to aid our friends in this way. Any information in relation to this matter furnished on application.

THE wool circular of Fenno and Manning of May 19, presents no new features. Stocks in the hands of dealers are reduced to a small compass. The late spring has delayed shearing, so that but very little new wool had been sent forward. The advice with regard to putting wool up in good order and forwarding as early as possible, with a prospect of striking the best market is again repeated, and it would seem to us to have some good reasons for its support.

A FRIEND has suggested that a new department be added to the *Visitor*, The Postal Card Department. We like the suggestion. Send us not later than the 10th and 25th of the month on postal cards, crop prospects; little items of general interest, such as experiments and results; what we are doing, and how we do it; smart sayings of Brothers and Sisters in the Grange, postal card essays on political economy etc. This department, with 50 to 100 contributors; devoted to facts, fancy, and more especially to reliable retrospective, and prospective crop reports will be valuable.

Do not forget that the West Michigan Farmers' Club will hold their Second Grand Exposition on the fair grounds at Grand Rapids, June 5th and 6th. It is expected that this will be one of the finest exhibitions of this kind ever held in the State. Senator Palmer delivers the address on Tuesday, June 5th, and a race of Traction Engines on Wednesday, the 6th, will be a novel spectacle. Governor Bagole and Representative Horr are expected to talk on Wednesday. These field trials and exhibitions in their seasons certainly give our farmers better opportunities to examine and select the best implements for their future use. We shall expect to meet many of our old friends from distant parts of the State at the exposition on that occasion.

Thurlow Weed's First Shilling.

My father was a hard-working man, with a kind heart, and an earnest desire to do the best he could for his children. He was with a strictly honest man. But he was doomed to earn his bread by the sweat of his brow, in its most literal sense. He was bred a farmer, but in 1785 removed from Cairo to Catskill, and became a carman. But everything went wrong with him. Constant and hard labor failed to better his condition. If at times he succeeded in getting a little ahead, those for whom he worked would fail to pay him, or his horse would get lame, or fall sick, or back off the dock into the river. The consequence was that we were always poor, sometimes very poor. This, however, was the misfortune rather than the fault of my parents; for they were always struggling to promote the welfare of their children. They were very anxious that I should enjoy the advantages of education. I cannot ascertain how much schooling I got at Catskill, probably less than a year, certainly not a year and a half, and this when I was not more than five or six years old.

I felt the necessity, at an early age, of trying to do something for my own support. My first employment, when about eight years old, was in blowing a blacksmith's bellows for a Mr. Reeves, who gave me six cents per day, which contributed so much towards the support of the family. I stood upon a box to enable me to reach the handle of the bellows. My next service was in the capacity of boy of all work, at a tavern in the village of Jefferson, two miles from Catskill, kept by a Captain Baker, who had, I remember, made a great mistake in exchanging the command of a ship for a tavern. After the sheriff took possession of Captain Baker's wrecked hotel, I got a situation as cabin boy on board the sloop *Ranger*, Captain Grant. This gratified a desire I had to see the City of New York. I was then (1806) in my ninth year. I remember, as if it were but yesterday, after carrying the small hair trunk of a passenger from Coenties Slip to Broad street, finding myself in possession of the first shilling that I could call my own. I remember, too, how joyfully I purchased with that shilling three two-penny cakes and three oranges for my brother and sister, how carefully I watched them on the passage back, and how much happiness they conferred.

From the autobiographical papers which he published from time to time we infer that his "Autobiography" will be strikingly rich in anecdotes and reminiscences of the growth of the country and of its public men. It must be every way an attractive work, and one for which agents will find ready purchasers.

Dr. Loring's Mistake.

Dr. Loring owes his place as commissioner of agriculture in Washington to political influences, and as evidently uses it for political ends. When he went into the department he found Prof. Peter Collier at the head of the chemical department, and he is one of the most skilled, competent and thorough practical chemists in the land. We knew him personally when he occupied the chair of chemistry in the University and Agricultural College of Vermont. He was at that time also secretary of the Vermont board of agriculture, when the body was second to none in the country, and so small amount of its efficiency and popularity was owing to Prof. Collier's energy, ability and skill. While on the board he made many analyses of commercial fertilizers offered for sale in the State, published his reports, and saved the farmers of Vermont thousands of dollars by preventing the sale of spurious or adulterated fertilizers. As a popular lecturer at farmers' meetings on all topics pertaining to agriculture, he was clear, instructive and popular. The report that Prof. Collier was to lecture would fill any hall in any town in the State.

When he resigned his professorship in the State University, largely from the meagre salary attached to it, Senator Edmunds, who knew him and his worth, commanded him to Gen. Le Duc who made him chemist, which position he has filled to the entire satisfaction of everybody, till he was summarily dismissed a few weeks ago by Dr. Loring, and we understand Prof. Collier knew nothing of the change till he heard the announcement of his successor. Dr. Loring's mistake is in forgetting that while President Arthur cannot prevent Dr. Loring dismissing Prof. Collier, or any subordinate officer of the department, President Arthur can dismiss Dr. Loring unless he restore Prof. Collier to his position, and that is what every agricultural paper and farmer in the land should demand. We do not want politics mixed up with these national agricultural matters, least of all the machine kind which Dr. Loring seems to have introduced. The farmers have a right to Prof. Collier in his old place, which he filled so well, or to have a new man in Loring's place. The Department of Agriculture was organized for the farmers of the country, and we only demand that it shall be so used, and not to forward the political ambition of any man, for so far as we know Dr. Loring has not given any valid reason for dismissing Prof. Collier. Dr. Loring has the floor.—*Farmers Review*.

BEWARE of the man of many promises. Promises to pay, and paying according to promise have no necessary connection with each other. The former frequently exists independently of the latter.

Boys, remember that the farm has been the nursery of most of our great men.

Ponths' Department.

THE LADDER OF LIFE.

Heaven is not gained at a single bound;
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to its summit round by round.

count this thing to be grandly true;
That a noble deed is a step toward God—
Lifting the soul from the common sod
To a purer air and a broader view.

We rise by things that are tender foot;
By what we have mastered of good and gain
By the pride of deeds and the passion slain,
And the vanquished hills that we hourly meet.

We hope, we aspire, we resolve, we trust,
And think that we mount by air on wings,
Beyond the reach of sensual things,
While our feet still cling to the heavy clay.

Wings for angels, but for men
We may borrow wings to find the way—
We may hope, and resolve, and aspire, and pray,
But our feet must rise or we fall again.

Only in dreams is a ladder thrown
From the weary earth to the sapphire walls;
But the dreams depart and the visions fall,
And the sleeper awakes on his pillow of stone.

Heaven is not reached by a single bound,
But we build the ladder by which we rise
From the lowly earth to the vaulted skies,
And we mount to its summit round by round.

—J. G. Holland.

Extracts From Aunt Pru's Note Book.

Dear Nieces and Nephews—I accidentally brought to light, the other day a long forgotten note book, from which I have selected a few notes for our department, hoping they might be of interest to you.

We talk of the sensible manners and customs of our ancestors, sometimes perhaps envy their simplicity, yet we read of a lady whose childhood dates back only one hundred years, that were every day from the time she was six years old until she was thirteen, an iron collar around her neck and a back board strapped to her shoulders. That she generally learned her lessons standing in the stocks, and never set on a chair in the presence of her mother.

Her library consisted of a volume of "Robinson Crusoe" and "Aesop's Fables." In winter her dress was lined with a white muslin for best. Before she was thirteen years old she was obliged to translate every morning fifteen lines of "Virgil," and when she was seventeen her first book was published.

Although she compares favorably in point of intellect with the children and youth of today, her lot hardly seems an enviable one to us.

On my way from H. to C. yesterday I became interested in two boys—young men perhaps they would rather be styled—occupying the seat in front of me. I gathered from their conversation, which I could not help overhearing, that both were graduates from the same Union school, and that one had selected the law for a profession and entered a lawyer's office as student, while the other was on his way to Lansing to enter the Agricultural college having chosen farming for a life work.

The capital of both I concluded consisted solely of ambition and energy.

After a short silence on the part of the young men, the law student said: "Do you think you will be satisfied to always live the life of a farmer?"

"Yes," replied his companion, "I have never known any other."

"Well, neither have I," returned the student, "but I have determined that from this time forward I will. And I will tell you Frank what brought me to this decision."

My father you know, is an honest hard working farmer. He began life without capital like your humble servant, and for thirty-five years has worked hard early and late. And the result—he is an old man before his time, has laid up nothing, and though his family is small, has not been able to educate them as they should be.

Now I know that lawyers invariably make money and they are the men that go to Congress, and fill most of the positions of honor; anyhow, they keep up with the times, and farmers are so apt to go down hill."

At this juncture the blackman announced any station in stentorian tones, and as I slipped my note book in my pocket, I wished I might have been in the future.

As I had not seen their faces, I glanced back upon reaching the car door to see if they were indicative of success, but they had reversed their seats and I saw again only the back of two closely cropped heads.

Now nieces and nephews all—suppose you contribute to our department your views upon the subjects introduced from my old note book.

Let us know what you think of the past, its people, and their habits as compared with the present. And do not forget these young men who have just started out on different roads to reach the same goal—success in life.

Dear Aunt Nina:—What befell my "May Offering?" It was lost on the way, or in the co-uppositor's drawer, or did it find the "waste basket." How the cousins did respond, aren't we a

Communications.

A Michigander's Idea of Iowa.

April 26 found our correspondent on one of the docks at Chicago, with his notebook on the head of a barrel, jotting down the first items of his trip, amidst the shrieks of tug-boats and the interested looks of loafers who were wondering what that reporter chap "had hold of now." We think the following summary will be readable:

On the 27th we left the city, already running over with emigrants, passed through fine country which grew very rough as we approached the Mississippi; it contains more scattered timber than I supposed.

Arrived at Waterloo, Iowa, at 11 A. M. The country is rolling prairie, diversified with the ever present slough. They (the sloughs) run in all directions and the plowed fields are shaped accordingly. Very often they commence on the high land which at a distance looks all right, but when you get on them they are soft and springy. Undrained, they can be mowed and pastured while a few tite makes them the best of land. Many claim they are no detriment, but I am not satisfied on that point. They do not appear on the black sand east and north of the town. This sand is very deceptive to a Michigan man until he examines it, it is unlike the sand of his State. They tell me that as a general thing, the land is better and heavier on the west side of streams. There are some stony places with occasional bowlders cropping out. The buildings are middling. The law allows people to fence or not as they choose; the prevailing custom being to fence with barbed wire. Wheat raising is almost given up, neither spring nor winter doing very well. Cows average 40 pounds of milk per day, which brings at the creameries \$1.25 per hundred in the winter and 80 to 90 cents in summer. Planted groves of poplars, soft maples, cottonwood, etc., supply a small portion of fuel. The rest is coal, although nothing is wasted. You see no twigs, branches, cobs nor anything of the kind lying about, everything is used. On the streets of Waterloo I saw loads of old rails sold at prices which we would think enormous. The price of land varies from 20 to 60 dollars per acre according to location and improvements. The farm buildings will not average with these in Michigan, but those of the city will. On the east side of the river, the average depth of wells is 30 to 40 feet, on the west side 100 or more; some go down through 65 feet of rock. A man able and willing to work could enjoy life here in spite of the much-talked-of winds, which are no worse than those of Michigan, according to my observation.

May 1.—Having seen that oats were sowed, I left for Ackley, a German town. Until now I have had dry roads to travel, but last night's rain developed a mud superior to any on Prairie Route. During the storm, people seemed nervous, and it wasn't much of a storm either. They tell me they can for the cellars when they see a big storm approaching. As cellars are rather scarce, a friend here received eighteen of his neighbors in his, just before the advent of a small tornado accompanied by rain, and they all splashed around in the water that ran into the cellar, very sociably until the storm was over. As it was a day soil the water will stay in the cellars unless they are drained. This part of the State, Hardin county, is very similar to our own in climate.

May 2.—Cold enough for snow, begin to believe the winds are worse than those at home, but not so bad as they are usually represented. Here they do not say "Come in out of the rain," but "Come in out of the wind." I see fine cattle here, Holsteins being the fancy breed. Have not seen a poor horse yet, such is the abundance of feed. Hogs vary from the old-fashioned rooter to the old gold Jersey. Sheep are few, the country not being sufficiently fenced. Wells are 20 feet deep; water good, occasionally impregnated with sulphur. I have been looking at a young orchard of thrifty looking trees. On peeling the bark, they are black and seem dead. It is the general opinion that the trees are badly hurt by the winter. Iowa farmers are getting seed-corn from Nebraska, at \$1.50 per bushel.

A talk with some of the teachers brought out an explanation of their school system. Each county has a superintendent, each district a sub-director. These directors meet in the center of the township, and arrange for the running of the schools. There is no lack of teachers; wages here, Felix, Grundy county, are from 30 to 40 dollars per month, while in an adjoining township of Hardin county, they are 27 to 30 dollars. A house in the former township situated on the open prairie is sided up with black walnut; in fact all the lumber it contains is walnut which was cheaper than any other kind they could cut, among the sparse timber along the river, eighteen years ago. Went on foot across some very picturesque country, nice prairie, scattered belts of timber, and in the

distance the inevitable school house, which by law are just two miles apart. From Iowa Falls to Fort Dodge the land is low, wet, fit for nothing but grazing, in my opinion; a dry patch of ground being the exception not the rule. Cattle from the adjoining counties are driven in to graze during the summer. Between Sioux City and Council Bluffs, the railway runs for miles with the sluggish waters of the Missouri on one side and magnificent bluffs on the other. Of course at times the road is submerged. In this beautiful country it is all corn, grass, grass, and cattle, no wheat at all.

Reached Malvern, Mills county, May 6.—Should think the season considerably ahead of ours, grass having a large growth and fruit trees in full bloom. There are fewer sloughs here than in the northeastern part of the State. Here they use what is called a "hister," or double mould board plow with drills in connection by means of which the earth is thrown both ways from the center, the corn dropped and covered. Ten acres per day can be disposed of in this way. Driving across country, I saw a wolf trotting off to the woods, but the sight is rare. I should judge that the summer here is one month longer than ours, and to me it looks as though it would be a grand fruit country in time. May 9 found me at Weeping Water, Neb., in the midst of a splendid country. The swindler is here also. He buys a farm, gets a wagon on the strength of that bargain, sells out to another party and skips with the money. Happily this particular one was arrested.

Instead of getting out of the woods as in Michigan, they are just getting into the woods. I was surprised. It hardly looks like prairie. They raise apples, peaches, and other fruits; clover and other tame grasses do well, and the roads are as good as ours. The mud dries up faster than at home. An able man with plenty of help can make money faster on the same capital here than in Michigan, but the worn out plow horses better stay where they were.

G. L. S.

Sheep—Men

When made a story, one of the most peculiar of wild or domestic animals is the sheep. Their modes of life, their utter helplessness in case of attack, their habit of massing themselves for protection, and their utter confusion and demoralization when pressed by their enemies, their timidity at entering strange fields through unusual openings, especially when driven, and their susceptibility to be led into captivity by a basin of salt or a measure of oats.

Who has not in attempting to get a flock through a strange gateway, immediately found themselves confronted by the faces of these timid animals, until finally pushed to the wall some reckless old buck makes a desperate leap through some opening and lands himself, as the case may be, in water, mud or brambles, and is immediately and fearlessly followed by the entire multitude utterly regardless of any impending injury to life or limb. Not unlike these simple innocent creatures in several respects is their supposed to be more intelligent masters, man. This similarity is discoverable in more than one direction, but the direction it is now our purpose to pursue is the inclination of the masses of men to follow the leader of any adventurer or speculator who may make the all-important leap ahead. It is the possession of the knowledge by a few cunning speculators of the proclivity of the many to blindly and thoughtlessly follow such lead, that enables them to speculate on the indigent and weak and thereby make themselves wealthy and strong. As illustrative of this disposition we will not elaborate but will simply instance the circumstance of the vast emigration of the people of the State of Michigan, to the frigid and inhospitable territories of the north-west; Dakota and its associate icebergs.

Blessed as Michigan is with every conceivable surface and soil, having a comfortable climate, with its beautiful groves and woodlands, its rivers, rivulets and its clear crystal lakes, teeming with fish of every form and flavor, its forests with furs, flesh and fowls, and its fields full of flowers, with superlative facilities for every diversity of agricultural employment; with veins for the miner, power for the miller, material for the manufacturer, protected by the great Lake system from extremes of either a high or low temperature, with no soil and climate on earth superior, for the product of wheat and cereals, vegetables and fruits, with unequal facilities for growing stock for market, wool, or dairy; with every advantage of railroad and steamboat transportation of persons and commodities from the most remote portions of the State to the best markets of the world, with as advantageous freight rates as any enjoyed by the producers of any State in the Union.

With these choice lands almost free to actual settlers and purchasable at minimum prices alike from railroad companies and the State, with but short distances to travel in order to occupy these awaiting gardens with reduced fares to actual settlers over all

our various transportation lines. And yet in view of all these superlative advantages offered by Michigan, it seems only necessary for a few speculating capitalists to purchase up large tracts of western territory, and hurrah for Dakota or some other frozen land. When but few industries present themselves to the farmer, and at night way like the scene from the mountain a whole herd, if able to hire, beg or borrow the requisite amount to pay their transportation, make a lunge for Dakota, there, without the means to return, to become the serf of the speculator for such meagre pittance as he is disposed to bestow upon them.

If the thousands of disappointed men now in the great Northwest were well returned to the comfortable homes they left in Michigan, it is our belief that more than one speculating bell wether would have to leap out of comfort and civilization before they would leave the rich field and varied industries afforded them in Northern Michigan, to enjoy the questionable luxury of a western blizzard.

New York State Grange.

Bro. Cobb:—The Patrons in Oswego county, N. Y. are very much like you Patrons in Michigan. Some few seem to be ever ready for work, while others constantly want prompting and encouraging. We had a very enjoyable time last Saturday night. Four candidates took the 4th degree, and what a feast we did have, just such an one as all good go-ahead Granges have every little while. We have over 60 members in Grange No. 98, and meet every week. Have a County Council once in three months, for the good of Patrons and the good of the Order.

J. B. S.

The June Century.

Several of the pictorial features of the June Century are of uncommon interest, like the frontispiece portrait of Tennyson after Woolner's bust, and the other full-page pictures in the profuse illustrated paper by Edmund W. Gosse on "Living English Sculptors," also Severn's sketch of Keats in his last illness, accompanied by a sonnet by Miss Edith M. Thomas, and a portrait of the artist-friend Severn. Of descriptive interest, beside, are the sixteen or seventeen cuts which reinforce H. H.'s concluding paper in her history of the ruin of the Franciscan Missions in California, and the illustrations with George W. Cable's account of the commercial growth of New Orleans since 1814, under the title, "The Great South Gate."

Most readers will probably turn with a lively interest to the three or four papers by authoritative writers, on subjects which now lead in the current of public discussion. What Professor Bryce has to say about the relations of "England and Ireland," is of first importance, both from his point of view as a Liberal commoner and as a student of political history. He sets Irish idiosyncrasies over against English pride and stubbornness, and weighs the past causes and the future outlook of the Anglo-Irish situation with admirable fairness and attractive fullness of knowledge. He makes the Irish question, comprehensible, which is saying a great deal, and is discreetly silent as to what the policy of England ought to be. Henry James, Jr., in a critical essay on "The Correspondence of Carlyle and Emerson," evolves out of their letters two well rounded and charmingly characterized philosophers. And another article which also shows that literary subjects will not be neglected in the Century, though it has given up set reviews of books, is the first of two papers by James Herbert Morse on "The Native Element in American Fiction." At this time when the methods of some of our modern novelists are being called into question, this discussion of the faults and merits of early American story writers has a special value. Albert Stickney's attack upon the jury system, in last November's Century, meets here with contravention in several letters grouped with a brief rejoinder by Mr. Stickney, under the title, "Both Sides of the Jury Question."

North American Review for June.

The June number of the North American Review opens with an article by Joseph Nimmo, Jr., Chief of the Treasury Bureau of Statistics, on "American Manufacturing Interests," in which is given a singularly full and instructive historical sketch of the rise and progress of manufactures in the United States, together with a very effective presentation of their present condition, a d of the agency of tariff legislation in promoting diversified industries and encouraging the inventive genius of the people. Should this author's advocacy of protective legislation prove distasteful, the reader finds the needed corrective in an article by the Hon. Wm. M. Springer, on "Incidental Taxation," which is an argument for Free Trade. D. C. Gilman, president of Johns Hopkins University, writes of the "Present Aspects of College training," as effected by the increase of wealth and luxury, the development of natural science, and the influence of a larger religious liberty. Edward Self preser is some weighty considerations on the "Abuse of Citizenship," as exhibited in the machinations of the dynasties against a friendly power, in disregard of the obligations of American neutrality. Prof. Isaac L. Rice criticizes some of "Herbert Spencer's Facts and Inferences" in social and political science, and Christine Nilsson contributes "A few Words about Public Singing." Finally there is a symposium on "The Moral Influence of the Drama," the participants being, on the one side, the Rev. Dr. J. M. Buckley, well known as a proponent of the stage, and on the other, John G. Barry, the actor; A. M. Palmer, theatrical manager; and William Winter, dramatic critic. 50 cents a number; \$5 a year. Published at 30 Lafayette Place, New York.

One day is worth three to him who does everything in order.

THE MARKETS.

Grain and Provisions.

LIVERPOOL, May 29.—Wheat, No. white dull, 8s 9d; new western winter, steady, 8s 10d. New York, May 29.—Flour, sales 13,000 bbls.; quiet, prices generally without decided change. Wheat, 4 1/2% lower, heavy and unsettled, active speculative trading; No. 1 white, \$1.16; sale, 240,000 bu. No. 2 red, June, \$1.23; No. 2, 1,000,000 bu. July, \$1.25; No. 2, 1,000,000 bu. Aug. \$1.27; No. 2, 1,000,000 bu. Sept. \$1.29; No. 2, 1,000,000 bu. Oct. \$1.30; No. 2, 1,000,000 bu. Nov. \$1.31; No. 2, 1,000,000 bu. Dec. \$1.32; No. 2, 1,000,000 bu. Jan. \$1.33; No. 2, 1,000,000 bu. Feb. \$1.34; No. 2, 1,000,000 bu. Mar. \$1.35; No. 2, 1,000,000 bu. Apr. \$1.36; No. 2, 1,000,000 bu. May \$1.37; No. 2, 1,000,000 bu. June \$1.38; No. 2, 1,000,000 bu. July \$1.39; No. 2, 1,000,000 bu. Aug. \$1.40; No. 2, 1,000,000 bu. Sept. \$1.41; No. 2, 1,000,000 bu. Oct. \$1.42; No. 2, 1,000,000 bu. Nov. \$1.43; No. 2, 1,000,000 bu. Dec. \$1.44; No. 2, 1,000,000 bu. Jan. \$1.45; No. 2, 1,000,000 bu. Feb. \$1.46; No. 2, 1,000,000 bu. Mar. \$1.47; No. 2, 1,000,000 bu. Apr. \$1.48; No. 2, 1,000,000 bu. May \$1.49; No. 2, 1,000,000 bu. June \$1.50; No. 2, 1,000,000 bu. July \$1.51; No. 2, 1,000,000 bu. Aug. \$1.52; No. 2, 1,000,000 bu. Sept. \$1.53; No. 2, 1,000,000 bu. Oct. \$1.54; No. 2, 1,000,000 bu. Nov. \$1.55; No. 2, 1,000,000 bu. Dec. \$1.56; No. 2, 1,000,000 bu. Jan. \$1.57; No. 2, 1,000,000 bu. Feb. \$1.58; No. 2, 1,000,000 bu. Mar. \$1.59; No. 2, 1,000,000 bu. Apr. \$1.60; No. 2, 1,000,000 bu. May \$1.61; No. 2, 1,000,000 bu. June \$1.62; No. 2, 1,000,000 bu. July \$1.63; No. 2, 1,000,000 bu. Aug. \$1.64; No. 2, 1,000,000 bu. Sept. \$1.65; No. 2, 1,000,000 bu. Oct. \$1.66; No. 2, 1,000,000 bu. Nov. \$1.67; No. 2, 1,000,000 bu. Dec. \$1.68; No. 2, 1,000,000 bu. Jan. \$1.69; No. 2, 1,000,000 bu. Feb. \$1.70; No. 2, 1,000,000 bu. Mar. \$1.71; No. 2, 1,000,000 bu. Apr. \$1.72; No. 2, 1,000,000 bu. May \$1.73; No. 2, 1,000,000 bu. June \$1.74; No. 2, 1,000,000 bu. July \$1.75; No. 2, 1,000,000 bu. Aug. \$1.76; No. 2, 1,000,000 bu. Sept. \$1.77; No. 2, 1,000,000 bu. Oct. \$1.78; No. 2, 1,000,000 bu. Nov. \$1.79; No. 2, 1,000,000 bu. Dec. \$1.80; No. 2, 1,000,000 bu. Jan. \$1.81; No. 2, 1,000,000 bu. Feb. \$1.82; No. 2, 1,000,000 bu. Mar. \$1.83; No. 2, 1,000,000 bu. Apr. \$1.84; No. 2, 1,000,000 bu. May \$1.85; No. 2, 1,000,000 bu. June \$1.86; No. 2, 1,000,000 bu. July \$1.87; No. 2, 1,000,000 bu. Aug. \$1.88; No. 2, 1,000,000 bu. Sept. \$1.89; No. 2, 1,000,000 bu. Oct. \$1.90; No. 2, 1,000,000 bu. Nov. \$1.91; No. 2, 1,000,000 bu. Dec. \$1.92; No. 2, 1,000,000 bu. Jan. \$1.93; No. 2, 1,000,000 bu. Feb. \$1.94; No. 2, 1,000,000 bu. Mar. \$1.95; No. 2, 1,000,000 bu. Apr. \$1.96; No. 2, 1,000,000 bu. May \$1.97; No. 2, 1,000,000 bu. June \$1.98; No. 2, 1,000,000 bu. July \$1.99; No. 2, 1,000,000 bu. Aug. \$2.00; No. 2, 1,000,000 bu. Sept. \$2.01; No. 2, 1,000,000 bu. Oct. \$2.02; No. 2, 1,000,000 bu. Nov. \$2.03; No. 2, 1,000,000 bu. Dec. \$2.04; No. 2, 1,000,000 bu. Jan. \$2.05; No. 2, 1,000,000 bu. Feb. \$2.06; No. 2, 1,000,000 bu. Mar. \$2.07; No. 2, 1,000,000 bu. Apr. \$2.08; No. 2, 1,000,000 bu. May \$2.09; No. 2, 1,000,000 bu. June \$2.10; No. 2, 1,000,000 bu. July \$2.11; No. 2, 1,000,000 bu. Aug. \$2.12; No. 2, 1,000,000 bu. Sept. \$2.13; No. 2, 1,000,000 bu. Oct. \$2.14; No. 2, 1,000,000 bu. Nov. \$2.15; No. 2, 1,000,000 bu. Dec. \$2.16; No. 2, 1,000,000 bu. Jan. \$2.17; No. 2, 1,000,000 bu. Feb. \$2.18; No. 2, 1,000,000 bu. Mar. \$2.19; No. 2, 1,000,000 bu. Apr. \$2.20; No. 2, 1,000,000 bu. May \$2.21; No. 2, 1,000,000 bu. June \$2.22; No. 2, 1,000,000 bu. July \$2.23; No. 2, 1,000,000 bu. Aug. \$2.24; No. 2, 1,000,000 bu. Sept. \$2.25; No. 2, 1,000,000 bu. Oct. \$2.26; No. 2, 1,000,000 bu. Nov. \$2.27; No. 2, 1,000,000 bu. Dec. \$2.28; No. 2, 1,000,000 bu. Jan. \$2.29; No. 2, 1,000,000 bu. Feb. \$2.30; No. 2, 1,000,000 bu. Mar. \$2.31; No. 2, 1,000,000 bu. Apr. \$2.32; No. 2, 1,000,000 bu. 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Jan. \$3.49; No. 2, 1,000,000 bu. Feb. \$3.50; No. 2, 1,000,000 bu. Mar. \$3.51; No. 2, 1,000,000

FREE DRIVE WELLS.

GREEN'S PATENTS ALL VOID.

The Reissue Irregular and the Device not Patentable by Nelson W. Green—United States Courts.

From the Chicago Tribune.

The Tribune of yesterday printed a dispatch from Des Moines stating that the United States circuit court had handed down a decision in the famous drive-well case of William D. Andrews et al. vs. George Hovey. This case involved the validity of the Nelson W. Green letters-patent and virtually decided the merits of the whole question as pertaining to drive-wells. Tens of thousands of farmers will be glad to know that the federal court, by its decision, has extinguished all patents under which water is secured by the drive-well system. In 1861 Col. Nelson W. Green, of Cortland, N. Y., while drilling volunteers for the war of the rebellion, realized the necessity of obtaining a sufficient quantity of water for his men. He mentioned the subject to some subordinate officers, and finally drove a rod sharpened at one end into the ground and into the water yielding stratum. Withdrawing this rod a tube was then inserted through which the water could be brought to the surface by an ordinary pump. This system of securing water is one on which Col. Green secured letters patent in January, 1868, there being a reissue in May, 1871. The invention under the reissue patent was thus described:

"The invention is for a method of procuring water from the earth by means of a tube inserted into the earth down to and into a water bearing stratum, and attaching to such tube, in cases where the water does not flow naturally, a pump, by an air-tight connection, and by the operation of the pump producing a vacuum within the tube which forms the body of the well and its lining, thereby causing the water in the surrounding earth, under the pressure of the atmosphere, to rush into the well formed by the tube, and furnishing a practically inexhaustible supply of water by the means as stated and described."

Farmers and stock raisers throughout the country were quick to appreciate the value of drive wells. Many, not knowing that any one claimed a patent on this system of water supply, drove down stakes and had a pump at work wherever they needed water. On a certain fair ground in an eastern State a few years ago 12 tubes were sunk and 12 pumps set to work. On the first day of the fair, however, suits were instituted against the agricultural society holding the fair for an infringement of patent. These alleged infringements were so numerous in many States that a corps of lawyers were kept busy in bringing suits. That the federal court has now spoken authoritatively in this vexed question is a matter of sincere congratulation to farmers, stock raisers, and dairy-men.

THE PATENT LAW.

In its decision the court holds that the patent law was designed for the public benefit as well as for the benefit of inventors. The defense in the case just decided was that Green, who claims to have discovered the system in 1861, communicated the facts of the discovery to the public, and thus acquiesced in the public use of the system. In the decision just recorded the court thus considers Col. Green's claim:

From the evidence in the case it appears that in the summer of 1861 Nelson W. Green was a resident of Cortland, N. Y.; that he was engaged in drilling and organizing volunteers for the army, and especially in connection with the Seventy-sixth regiment of New York infantry, of which regiment he was appointed colonel; that whilst thus employed his attention was called to the subject of procuring pure water for the use of his men, and that he set about to devise a means by which water could be readily procured from beneath the surface of the earth, thus avoiding danger from poisoned wells and springs, and also from the risk of being cut off from access to the ordinary sources of supply when in the presence of the enemy.

The patentee himself testifies that in the summer of 1861 he had devised in his own mind a method of accomplishing this result, which he explained first to his drill squad, and then to the officers of the regiment, and which consisted in driving a rod sharpened at the end into the ground and into the water bearing stratum, then withdrawing the rod and inserting a tube through which the water could be drawn by an ordinary style of pump. As a test of the method proposed, under the direction of Col. Green an experiment of driving a rod down to the water was made near his house, and the experiment was followed by driving a well at the fair grounds at Cortland, at the expense and for the use of one Graham, who had the contract for furnishing food and other supplies at the camp on the fair grounds. This well was driven between the 1st and 15th of October, 1861, and was used generally by the men in camp, as well as by Graham and his employees.

When the regiment left Cortland, N. Y., Col. Green exercised no control over this well. Later, a large number of driven wells were made and used in and about Cortland and neighboring places during the years 1862, 1863, 1864 and 1865. It was claimed that Col. Green did not have actual knowledge of the existence of these wells but on this point the decision of the federal court asks: "Was not Col. Green bound to know that the natural result of what he himself had done, and had caused to be done, in the way of giving publicity to the success which attended this mode of making wells, would be to spread their use by others, unless he promptly prevented by procuring a new law now have use of wells in his own facts show actual result are not left in question, owing satisfaction of the

existence of a portion at least of these wells, and despite his own testimony, wherein he endeavors to destroy the weight of this testimony either by direct denial, or by claiming that he did not in fact recognize certain wells which came under his notice to be driven wells, yet we think the proper inference of evidence is against him on this proposition, and that it must be held that he knew that such wells were being made and used. We find, therefore, as conclusions of fact:

1. That in 1861 Col. Green's purpose in devising his method of driving wells was to furnish a ready means whereby the men of his regiment could procure a supply of pure water, and that he did not at that time contemplate procuring a patent therefor, and that he put his method of driving wells into public use in 1861, for the benefit of his regiment, and thereby dedicated or abandoned his invention to the public.

2. That this invention was in open and public use, with his knowledge and acquiescence, for more than four years before he applied for a patent thereon.

From these conclusions of fact it necessarily follows that the letters patent originally granted, and the reissue letters based thereon, must be held invalid and void.

It is also urged on behalf of defendants that the reissued patent enlarges the scope of the original patent, is broader in its terms, including improvements and principles not contained in the original specifications, and is therefore void.

The court then considers of what Col. Green's original invention consisted and under this head says: In the opinion of Judge Benedict in the Circuit court, cited at length by complainants, it is stated that, "the novelty consists in making the well pit to consist of the tube or a pump connected tightly with the earth; this is accomplished by driving into the earth the tube to be used as a tube of a pump, and at the same time as the pit of the well. This manner of inserting the tube renders it possible, by means of a pump attached to the tube or pump, to produce a vacuum in the pit of the well, and at the same time in the water-bearing stratum of the earth."

In the printed argument of counsel for complainants it is said that "the drive well invented by Col. Green left no open space between the lining and the suction pipe, and is based upon the principle that if a vacuum is formed in the earth at the ordinary depths by the action of the suction pump the atmospheric pressure communicated through the earth to the water will cause it to respond to the vacuum produced within the well, whose lining is itself the suction pipe of the well, and perfectly air-tight, the earth serving as a filter."

It is not necessary to extend these quotations to show that the principle, which it is claimed constitutes the discovery, or invention of Col. Green, as described, the reissued patent is that the production of a vacuum in the earth by means of an air-tight tube driven into the earth, to which is attached a suction pump, will greatly increase the supply of water.

To produce this vacuum it is necessary that the tube forming the lining of the well should be in such close contact with the surrounding earth as to be air-tight, and it is claimed that driving the tube into the ground, whether with or without originally perforating the earth with a rod, constitutes a mode of constructing a well, which practically results in producing a well, whose lining—to wit: the tube, is in air-tight connection with the earth. In other words, in order to successfully apply the principle, it is absolutely essential that the tube, forming the lining of the well, should be in such close contact with the earth that the air cannot pass down around the outside of the tube, and the pump used in drawing up the water must also be attached to the end of the tube by an air-tight connection. Unless both of these conditions are fulfilled it is impossible to create a vacuum in the tube, and about the portion of it inserted in the water-bearing stratum, and as the creation of this vacuum is the essential and only means of applying the principle, which, it is claimed, constitutes the chief merit of Col. Green's invention or discovery, it follows that, in order to protect such a discovery by a patent, it must be included within the specifications. This may be done by either a proper description of the result to be obtained, or of the means employed to accomplish the result; that is to say, it would be sufficient if it was stated that by the use of certain prescribed means a vacuum in and about the tube would be created, and thereby the supply of water would be increased, or if it was stated that the tubing of the well was so driven as to be made air-tight by contact with the surrounding earth, and the pump to be used was affixed to the tube by an air-tight connection, the means described. In the latter case the result would not be described, but as the means described must necessarily produce the result, or apply the principle, it is held insufficient to describe the means employed without specifying the principle which is thereby brought into play. Indeed, it is not necessary that the inventor, to be entitled to a patent, should himself understand the abstract principle which his invention brings into use. It is sufficient if he is the inventor of a means whereby a new and useful application of the abstract principle is made, or if he is the inventor of the means employed to accomplish the result, or if he is the inventor of the means employed to apply the principle, it is held insufficient to describe the means employed without specifying the principle which is thereby brought into play.

Indeed, it is not necessary that the inventor, to be entitled to a patent, should himself understand the abstract principle which his invention brings into use. It is sufficient if he is the inventor of a means whereby a new and useful application of the abstract principle is made, or if he is the inventor of the means employed to accomplish the result, or if he is the inventor of the means employed to apply the principle, it is held insufficient to describe the means employed without specifying the principle which is thereby brought into play.

The court then gives Col. Green's description of his invention, and adds: There is not to be found in any part of the specifications any reference to a vacuum, either in or out of the tube, nor any mention of atmospheric pressure created thereby. If the application of this principle formed the material and all-important part of Col. Green's invention in 1861, as is now claimed in argument, he certainly failed to set it forth in express terms in his specifications forming part of the original patent, nor can it be inferred from the description of the means to be employed that he then proposed to create a vacuum by making the well air-tight, and by attaching a pump there to by an air-tight connection. The court also holds that the reissue departs widely from the original.

THE MILWAUKEE WELLS.

It also accepts the evidence offered showing that the same style of driven well was in operation in Milwaukee,

Wis., in 1849 and 1850. The decision concludes in these words:

"These wells driven at Milwaukee cannot be set aside as abandoned experiments. Purdy testifies that he was engaged in sinking them as a regular business. Numbers were put into practical use. This testimony remains uncontradicted, and it is not claimed that these wells are a myth. If then it be true that in 1849 and 1850 wells were driven at Milwaukee by a process not distinguishable from that devised by Col. Green in 1861, and these wells were driven not as mere experiments, nor for the purpose of exhibition, but for public and continuous use, and from aught now shown may be in use to-day, can any other conclusion be reached than that Col. Green was not the original or first inventor of the process of driving wells described in his specifications? In our judgment the method pursued in sinking these wells at Milwaukee is the same in substance as that devised by Col. Green, differing only in minor particulars, and hence it follows that Col. Green's process for driving wells was only a reproduction of a method which had been devised and put to practical use fully 10 years before Col. Green put upon the same expedient. If this be true then it necessarily results that the defense of want of novelty must be sustained. The conclusions we have reached upon the points already discussed render it unnecessary to consider the other questions, including that of infringement, which are presented in the record. Under the view we have taken of the case it follows that complainants' bill must be dismissed with costs, and it is so ordered."

Since the decision in the Iowa case, Judge Harlan, at Indianapolis, has refused to grant an injunction on the application of the patentees. The fact is reported in a dispatch to the *New York Times* as follows: Associate Justice Harlan this morning refused an injunction asked by the patentees of the Green driven well against the Viers, on the ground that such an injunction would not help the plaintiff in any way, and its only effect would be to seriously damage the defendants by prohibiting them from using their wells. He said that the decision of Judge Graham sustaining the patent, which was affirmed by an equally divided court, must remain as a decision for this district until the Supreme Court had decided otherwise in some other case. There was already a case from the New Jersey district on the docket of the Supreme Court, involving the validity of the Green patent. This patent question is a matter of the utmost interest in this State, there being fully 50,000 wells and a royalty of \$10 being demanded. Mr. McDonald is the attorney for the patentees, and in the northern part of the State particularly, that fact is being used against him with the farmers.

The Public Domain—Agriculture and Manufacturers.

Those who have been accustomed to the idea that the public domain of the United States is comparatively inexhaustible will do well to direct their attention to the wonderful progress that has been made in recent years both in respect to the growth of population in general and the occupancy of arable land in particular. At the rate of transfer in the recent past all of the public domain that is adapted to cultivation will, it is said, be disposed of in less than a decade. During the last five years there passed into private ownership for each and under the homestead and other acts 10,762,967 acres, an amount about twice that of the State of New Hampshire. In the fiscal year 1879-80, there were over 9,000,000 acres transferred; in 1878-79 over 8,000,000; in 1877-78 over 7,000,000. The rate of increase in the demand for this territory is perceptibly significant. Between 1870 and 1880, 12,000,000 were added to our population. By 1890, 20,000,000 more will probably be added, making us 70,000,000 in all, and it is not an extravagant statement to say that in 1900, or eighteen years hence, we will virtually number 100,000,000. The public land original, available for settlers, not included within the limits of the original thirteen States, were as follows:

	Acres.
Cession from the original thirteen States	229,987,787
Louisiana purchase	756,961,200
Florida	37,931,520
Mexican land grant	331,432,620
Purchased from Texas	65,130,880
Gadsden purchase	29,142,400
Alaska purchase	369,329,600
Total	1,823,126,987

Texas is not included in this estimate, because in the treaty of annexation, that State retained the ownership of all the lands within its boundaries. The government records show that in June, 1880, the lands owned by the Government amounted to 1,273,946,438 acres, by which statistics show to what extent the public domain has been sold or donated:

	Acres.
Cash sales	169,832,564
Donation acts	3,084,097
Land bounties	61,028,430
Given to States for internal improvements	7,806,554
Given to States for military springs	59,963
Town sites, &c.	148,916
Railroad land grants patented	45,650,026
Canal grants	4,324,073
Military wagon road grant	1,301,040
Mineral land sold since 1856	48,521
Homesteads	55,693,941
Scraps	2,893,034
Coal lands	10,750
Stone and timber acts of 1878	20,782
Swamp lands to States	69,266,522
Graduation act of 1854	25,696,416
Schools and colleges	78,659,439
Timber culture	9,346,660
Desert land acts	897,169

The amount patented to railroads is only a small part of what has really been granted. It is estimated that 154,067,553 acres were donated by Congress to State and Territories and to corporations from June 30, 1850, to June 30, 1880, contingent upon the construction of various railroads. But as only about 45,000,000 acres have as yet been actually patented to railroad companies, more than 110,000,000 acres are still held in reserve to await the fulfillment of contracts, most of which have already failed of completion in terms. There are said to be not less than 100,000,000 acres of land held by railroad companies on which the payment of all taxes is evaded by the device of not calling for the patent until the land has been surveyed and sold. The taxes begin to run when the settler comes into possession; but the rich railroad corporations decline to pay a dollar of taxes on such lands. These

data go to show the extent to which a large part of the public domain has been frittered away. They also show that a reform in this matter is necessary. If it were assumed with confidence that the last land grant has been made by the Federal Government to any railroad company or other corporation, no administration could now recover from the stigma of an extensive land grant to any corporation.

The abundance of cheap and fertile land in this country has made agriculture our leading industry. Our interests in that particular have naturally developed faster than any other. But as the population thickens and the amount of land per capita is reduced, it can be seen that the pressure to obtain other employments will increase. And in our future the promise that we shall be not only the leading agricultural but the greatest manufacturing nation. It is not alone a pressure for employment because of the density of population that will lead us in that direction, but it is also because we are invited thither by such a wealth of natural mineral resources as the world never before saw in the possession of one people. Our coal and iron, these two principal essentials of a manufacturing people, are practically inexhaustible and not only lie near the surface, but in very many localities lie together. Such favorable conditions exist nowhere else. The thinking men of the world recognize the situation, and Mr. Gladstone has been frank enough to tell Englishmen that the centre of the world's commerce, manufactures and economic prosperity in general is drifting across the Atlantic. England would like to go two thousand feet and more under ground for her coal and iron, in spite of cheap labor, and not excel us much longer. It is only a question of time as to when we may command the markets of the world. In addition to the ease with which we can get our coal and iron we have the advantage of cheapness of food. As a nation we are young yet, but when we once get fairly established in the manufacturing business we shall be enabled to hold our own with all competitors.—*New York Shipping List.*

Mr. Bryce on England and Ireland.

In the *June Century*, Professor James Bryce, M. P., discusses the Irish question in a singularly fair spirit and with perfect mastery of the facts. What might be called the sentimental obstacles to harmony between the countries are explained in part as follows: "The English government of Ireland is still practically a foreign government. The English may say that it ought not to be so, cannot be so, because after all the two islands form one kingdom, owe allegiance to a queen who is as directly queen of the one as of the other, are governed by a popular assembly, in which representatives of Ireland—representatives more numerous than her population and wealth entitle her to sit and vote and speak freely, and more than freely. Nevertheless, people in Ireland still think of and talk of the government, not as their government, but as 'the English government.' It seems to them an external power, set in motion by forces they do not control, conducted on principles which may or may not be favorable to which are not their principles. Unquestionably there is much truth in such a view. One need only listen to an Irish debate in the House of Commons to recognize it. And one must further admit that the English are not merely foreigners, but by no means gracious and agreeable foreigners, to deal with. In spite of their many virtues, partly because of some of their virtues and especially of their passion for improving people and things, the English do not make themselves liked by other nations, not even in India, where they are honestly doing their best for the natives. They are too stiff, too dry, too unsympathetic, too much disposed to make their own notions and customs the universal standard of right. Toward races which they think their inferiors they are less often cruel and far less often unjust than most European peoples. But they are contemptuous or, at best, condescending. They do not allow the subject to forget that he is not only a subject but an inferior. Their very indifference to his opinion of them is the most constant evidence of their pride. Between them and the Irish there is a sort of incompatibility like that which exists between the German and the Slav. It is true that they do not hate the Irish as the Germans hate the Slavs, and as the Lowland Scotch hated the Highlanders, even so recently as in the days of Thomas Carlyle's youth. An Englishman is not sensible of any antipathy to an individual Irishman; and it need not be said that an individual Irishman has every chance, and uses it, of success in England. In the professions of arms and law and medicine, and in the church, in literature and science, many of the leading men of modern Britain are Irish by birth or education. But Irishmen with their Irish quality, perhaps even their Irish speech betraying them. But for Ireland as a whole, or for any group of Irishmen associating themselves as Irishmen, the English have a feeling which, if not dislike, is at least distrust, and which, though hardly to be called contemptuous, is certainly not respectful. An Irishman who is content to be even as Englishman is received on the same footing. But Irishmen who obtrude their Irish character and nationality are ill-regarded. Then local patriotism is thought ridiculous. 'What have they to be proud of?' says the Englishman, why cannot they leave that nonsense alone, and be satisfied to be citizens of this great United Kingdom?"

FARMERS who never fully master the lesson they are now learning; will never be able to impress upon the minds of all the true dignity of the farmer's life; will never create for themselves the good society they might, and the world will never receive all the benefits arising from pure associations and absence of vice in the country, until our children are reared in homes which will give them all the independence and self-respect to be gained elsewhere.

A BACHELOR and a spinster who had been schoolmates in youth, and were about the same age, met in after years, and the lady chancing to remark that "men live a great deal faster than women," the bachelor returned: "Yes, Maria, the last time we met we were each twenty-four years old; now I'm over forty, and I hear you haven't reached thirty yet." They never met again.

Miss Bence's British Lover.

It was on a lovely morning in May that a very dapper young gentleman stood leaning against a tree in the woods that then, as now, top the rock-billed Palisades overlooking the lordly Hudson. He was attired in all the bravery of silk, and powder, and ruffles, and at his feet lay half a dozen volumes on which an army of ants were marching with a directness of purpose that caused great events in a land later on.

From the pose of this belated young gentleman and the care which he took to adjust the ruffles over his wristband as it dangled the elbow leaning against the tree, it was quite evident that he was waiting for one of that sex which has ruled the world since Eve ate that indigestible apple.

He was a handsome youth, to whom powder became handy, and like most handsome youths, he was perfectly aware of being a handsome youth.

"I wish that my heart would not rap so against my ribs, and I know that I am becoming pale."

The rustling of bushes and brambles announced an approach and in a couple of seconds a bright, fair-haired, blue-eyed, rosy-cheeked, cherry-lipped, maiden stepped up to where the ants were marching over the books.

"I am a little late, George," she said, after half a dozen kisses had passed between them, "but I couldn't help it; for a lot of gentlemen came to see papa, and I had to see after the refreshments for man and horse."

"Company at the Manor, Jac?"

"Not exactly company, George; but you see, papa is very determined against the iron rule of England, and I fear—" here she dropped her voice—"that there is going to be rough work, for one of the gentlemen spoke of raising a regiment, and—"

"What nonsense, Jac! We are very well off under British rule. There are always people ready to complain—always grumbling. Surely these gentlemen do not dream of independence?"

"And why not?" replied the girl, almost haughtily, her short upper lip curling, her thin nostrils expanding. "Stuff and nonsense, Jac!"

"I don't see why we should submit—" "You little rebel!" he burst out. "I must stop such seditious language."

And he did so in that way which is usual to lovers.

George L'Estrange was the son of Sir Henry L'Estrange, an English gentleman of birth, who had come over in the capacity of private secretary to the Governor.

Having met a very beautiful young lady, whom he espoused contrary to the wishes of the old baronet in England, who was as proud as he was careless, Sir Henry settled in America where he made a small fortune in the cultivation of tobacco.

A friend, to whom he had loaned a thousand pounds, having died and left him a property on the Hudson in lieu of the cash, Sir Henry migrated to the "Manor," where he resided in good style with his lady, one son, George, one daughter, Jacqueline, and a numerous retinue of white and colored servants.

Adjoining the manor was the property of Ephraim Bence a worthy merchant of Gotham, between whose only child and George L'Estrange sprang up that mutual feeling of feverish delight commonly known as love.

Mr. Bence did not at first oppose George L'Estrange's intimacy with his daughter, but of late his anti-British feelings came so intense that he politely informed the young man if he wished to avoid hearing that which he could not stomach he would cease his visits.

Every day the great spirit of Independence was ingrained in upheaval and George was compelled to take this hint of the sturdy American.

"We must meet elsewhere, darling," he said, and as the words which separated the two domains, and every pathway was known to the two lovers, a particular beach tree was destined to become their trysting-place.

Insensibly, but by degrees, Jacqueline Bence felt the spirit of patriotism budding in her fresh young heart, and at length came a pang of sorrow that her George would take no part in the great work that was now so steadily progressing.

George called her "rebel." She could retaliate by dubbing him "tyrant."

A few skirmishes, and it was mutually resolved never to refer to the subject of independence, but somehow or other it would crop out, when George's tone was one of insulting superiority, Jacqueline's that of insulting determination. On these occasions they would never see each other more, and the girl would return to her home, her eyes red from weeping, and her heart sorer than her eyes.

Mr. Bence one day summoned Jacqueline.

"My child," he said, "you are American born and raised. So am I, so is your mother. Now, your blood is too good, your heart too honest to let you act the part of treachery to your country. You must give up this whippersnapper Britisher who has just captivated himself in order to drive us from New York. I am too feeble to fight, but I can use pen and tongue, and gold, and my Jov! so long as a faculty is left, I'll cry 'no surrender.'"

"I'll see George," she said.

L'Estrange met her by appointment at the old beach-tree, not in silk and lace, but in the bravery of the English uniform.

"Why did you put this on to-day?" she said.

"Why not?"

"To meet me?"

"Certainly."

"George L'Estrange!" and her eyes flashed, her nostrils dilated—"this is an insult."

He laughed.

"An insult," she slowly repeated, as she broke off a hazel switch, "and a cowardly one—so cowardly that I needs must notice it." And so exasperated was she that she struck him two swift blows across the face in rapid succession.

Bence the Palisades, marched to the Bence mansion and took possession of it.

Old Ephraim Bence was for defending the place to the bitter end; but the more prudent counsel of wife, daughter and such relatives as were stopping with him prevailed, and he witnessed the seizure of his home and belongings with a hatred that seemed almost unendurable.

"So you are in command," he cried, as George L'Estrange—now a major in the British service—swaggered into the apartment.

"Oh, yes. Why should I not be?"

"And you come to swagger here?"

"A capital place to swagger in, too," observed the major, as he coolly threw his legs across the arm of a sofa.

"You are a white livered, cowardly dog."

"You are a very irascible old gentleman."

"If it was not for this cursed gout I'd spit you like a lark!" roared the infuriated old man.

"A very ancient figure of speech, my friend. Where's your daughter?"

"She is here!" cried a voice almost in his ear as Jacqueline, pale and every nerve quivering, as she stood before him. In spite of his braggadocio, the major yielded.

"Oh, you little rebel! you see I come here in command," he laughed.

"Not to command a few men or a few women."

"We shall see Mistress Jacqueline."

"If you had the courage of a gentleman you would have flung your commission in the teeth of your general ere stooping to set your foot across this threshold, save as a protector."

"Bah! Rebellion kills sentiment. I'm not the long-eared biped that I used to be. You and I will have a good time together here, and—"

"How dare you!" cried the girl, her eyes flashing, attempt but so much as the familiarity of my given name, and I will resent it as an insult."

"Fshaw!" growled the major, as he moved toward a window, in order to conceal his mortification, for his lieutenant, Staleybridge, was standing by.

That night Major L'Estrange held high revel in the old oaken dining-room of the mansion. A captain of dragoons, Oldham, the lieutenant and an ensign banqueted with him.

They drank heavily, as was the custom of that day, and after dinner commenced to toast their respective sweethearts.

When it came the major's turn he hesitated.

The lieutenant, who owed him a grudge, and loved him not, exclaimed: "Why not toast the beauty who is now under our roof?"

"A beauty under the roof!" roared the dragon. "Let's trot her out!"

L'Estrange stood up.

"Here's to Jacqueline, the prettiest rebel in all America!" and drained the goblet to the dregs.

"We must see her!" bellowed the dragon. "Send for her, major."

L'Estrange was three parts drunk, and a brutal idea flashed through his benumbed brain—that now would be a good time to keep his vow in regard to paying Jacqueline Bence for that blow.

"I'll send for her, by George!" he cried.

To the servant who responded to the ring he gravely said:

"I want to see Miss Bence for a moment on business of importance—importance, mind!"

The young girl at first refused point blank to appear, but on a second and a third pressing message she resolved to comply.

How beautiful she looked as she stood glancing from one to the other of those drunken debauchees!

"What is your business with me, Major L'Estrange?" she slowly and deliberately asked.

"Come here!" he exclaimed.

"I am here, sir! What would you have of me?"

"Do you recollect a blow you gave me in the woods here on a certain summer's day?" he asked.

"Perfectly well, sir."

"Then I mean to take twenty kisses for it," and he sprang to his feet.

At that instant the door was burst open, and a lady of Swift's yeomanry, led by Joe Wilson, a near neighbor, to whom Bence had sent for succor, leaped into the room, making prisoners of the drunken revelers.

An hour later, and the gallant major with his comrades-in-arms were on the march as prisoners of war, past the very beech tree where a few months previously he had received the cut across the face that he so richly deserved.

Communications.

DON'T LOSE YOUR GRIP.

Don't tell the world when your pocket is empty.
If you're favor would hold;
'Tis sad to admit, but every one knows it,
We're measured to day by our gold.
No, tell not the world, though hunger oppresses you,
But keep a stiff upper lip;
If it's known you are down, 'twill ring through the town,
"That chap is losing his grip."
Then keep a stiff upper lip, my boy;
Yes keep a stiff upper lip;
For men with a crown will say when you're down,
Why didn't he hold his grip?
Though work be scarce and the hearthstone cold,
Don't tell the world your sorrow.
But heat your own iron and strike it when hot—
It may mould into gold on the morrow.
No, tell not the world, though the adverse stream
Threatens to wreck your ship;
If men know you are down, 'twill ring through the town,
"That chap is losing his grip."
Each man you will find he has his burden and cross,
Each home its sorrow and care;
Then what good to tell your troubles, my friend,
When all have their own ills to bear?
Then tell not the world, though its storms beat upon you,
And breakers threaten your ship;
But sail your own craft, and none will dare say,
"That chap is losing his grip."
Then keep a stiff upper lip, my boy;
Yes keep a stiff upper lip;
For men with a crown, will say when you're down,
Why didn't he hold his grip?
—The Globe.

Co-operation: What is it?

Any number of persons united to work together for the accomplishment of a given purpose. All great achievements are the work of co-operation, it was by co-operation that the thirteen colonies severed their connection with Great Britain, and established the Government of the United States. It was by co-operation that the Slaveholders' rebellion was put down by the most gigantic war that history gives any record of. If we make a little effort we shall readily find cause for co-operation in the above named cases, and if we note what is taking place daily through the length and breadth of the land, we shall find cause for more earnest, persevering effort for co-operation, than has ever been made by the agricultural population of the United States. Taking the cases above named, as an example of what can be done by united effort, and perseverance, there is every encouragement for the Grange to persevere, and work together to carry out the principles of the Order of Patrons of Husbandry.

The Department of Agriculture at Washington, estimated the acreage of the corn, wheat, rye, oats, buckwheat, hay, cotton, and tobacco, for the year 1881, at 164,710,567 acres, and the valuation at \$2,131,051,567. We must add to his the estimated value of beef, pork, fruit, potatoes and forest products, \$500,000,000 more, another \$100,000,000 for horses, mules, and other items not mentioned in the above list, and it gives a valuation about \$2,731,057,579. Now the farmers by their labor produce all this life sustaining material, and we would ask the question, does the producer receive the proportion of profits that are right and just for his labor, or do others walk off with the lion's share.

We know the motto of the railroad managers is to take all the article will bear for carrying it to market, the motto of the merchant is, to get it for as little as he possibly can. It is a fact, though every one may be entirely independent of every other one, they are all united in fixing the price of your produce. Thus with railroads united to take all your produce will bear, for carrying it to market, the merchants united to pay about what they please for it when it gets there. What will you do about it. Must you always toil through the heat of summer, and the cold and storms of winter, that others in comfortable quarters may enjoy the fruits of your labor. The remedy is simple.

CO-OPERATION WILL DO IT.

Toad Lane, Rochdale, England, is one of the least of those small ungracious streets, low brick houses, petty shops crowded upon the steep and narrow road, the visitor wonders what can have made the lane so famous. Something less than forty years ago a few poor weavers agreed to club together to buy their groceries and other necessities of life, at wholesale prices, to sell them out the same as other dealers, and divide the profits among themselves. They hired a room in Toad Lane; they were their own salesmen, and did their business in the evening after their day's work in the mills, they persevered and prospered, improving their system as experience taught them how. To day they have one of the best store buildings in England, at the corner of Toad Lane and St. Mary's Gate, and a good number of branch stores in different parts of the city. Let us look at some items of their business to judge of what has been accomplished.

On the door post of one of the stores is a large poster which reads thus:

TOAD LANE, ROCHDALE.
ROCHDALE EQUITABLE PIONEER SOCIETY—LIMITED.

NOTICE.

Members wishing to receive their interest and dividends, are requested to fetch the same and their rule books, from the office of the new central store Toad Lane, Rochdale, in the following order:
From 1 to 3,000 Thursday, July 6th, Friday 7th, and Saturday 8th.
From 3,000 to 6,000 Monday, July 10th, Tuesday 11th, and Wednesday 12th.

From 6,000 to 10,000 Thursday, July 13th, Friday 14th, and Saturday 15th.
For the convenience of members, who cannot attend on these days, interest and dividends will be paid on Monday July 17th and Tuesday 18th, dividends not drawn on the above days will be posted to the member's share capital.

By order of the committee.
July 6th, 1876.

We will now glance at the Leeds Industrial Co-operative Society, Saturday afternoon a half holiday in the mill, the street swarms with work people of every age and condition, gathering at the open doors of the Leeds Industrial, struggling in and out, pressing up to the counters. One door leads up to a grocery store; the next to a drapery store, next up stairs to the house furnishing and outfitting department, and boot and shoe store. The staple goods are put up in convenient packages, and dealt out with wonderful rapidity, taking the money, making a note in the salesbook, tearing off the voucher handing it with the change to the customer. Near the doors sits a young girl in a tiny office, where each one presents the fly-leaf or voucher, and receives a tin or brass token, representing the amount of the purchase, which is the guide for estimating the profits next dividend day. These busy shoppers, are a few of the 16,000 share holders, the owners of the building, also of the 30 branch stores, the shoe manufactory, and the great flouring mill, and each one shared in that handsome dividend of £16,406 17s. 8d last quarter day, besides the interest of five per cent on the united share capital of £122,332 17s 11d.

Let us now look at a report and balance sheet of the directors.
The directors say: We have pleasure in submitting the report, and balance sheet, the society continues to progress. It will be seen the sales and profits have materially increased, the influx of members and capital still proceeds after paying £3,063, 13s 1d interest on capital. The net profits in the departments are:

	£.	s.	d.
Flour	4,576	15	1 1/2
Grocery	9,674	19	7
Costs	956	12	3
Drapery	712	11	9 1/2
Outfitting	231	1	8
Boots and shoes	354	17	3

And we recommend a bonus of 2s 6d per bag on flour, and 2s 2d per pound on all other purchases.

This report explains itself, and is worthy of careful consideration. The society's liabilities are almost wholly held by members in the form of shares, and its assets include mills, stores, cottages, canal boats, horses and stock in trade, more than enough to redeem every shilling with interest.

I must now return to Toad Lane Rochdale for a few moments, they are the Pioneers of Co-operative Societies. They are in advance of all other societies of which we have any knowledge. The value of their stock in trade is two hundred and sixty-six thousand shares of one pound each. They set aside two and a half per cent of all net profits, for educational purposes, Adjoining the reading room, is the Central library containing 10,169 standard volumes. We will examine their 125th quarterly report. The quarterly financial statement. The sales of the quarter amount to £77,957, being an increase of £1,218 over the corresponding quarter of last year, the share capital of the members, has increased £12,000 since our last report, in addition to a butcher's shop opened this quarter in connection with our Norden branch. We have this week commenced a clothing department, our subscription to the Devonshire hospital at Buxton entitles us to give recommendation papers to deserving cases. The balance disposable will be a dividend to the members of 2s 8d in the pound, on member's purchases, when the usual deductions have been made.

From the cash accounts it appears the society received from all its departments, a total of £77,957 3s 7d in cash. In addition to this it received for rents £400, 13s 10d, for dividends and interest on railway and manufacturing stock, £1,839 4s 10d, for contributions to share capital £17,770 9s 2d, building department, £2,187 9s 10d, children's savings bank, £240 18s 5d, loans received, £1,865 8s 0d. Agents for wholesale co-operative society, £44, 387 18s 10d, withdrawn from bank, £59,301 0s 7d, making with a few minor sums a grand total of £206,013 18s 10d for the quarter.

I have here endeavored to show how a few poor operatives started, what at the time was considered a hopeless undertaking and how by careful management and perseverance they have built up a most gigantic and profitable business. Would not co-operation be of vast importance to the farmers of Michigan. There are some things you must purchase, and pay a great deal more for than is necessary. If I am rightly informed you must pay 40 per cent over and above the wholesale price for all articles of clothing, and probably the same percentage for many

other articles. And be assured that for all produce you may have to dispose of you will be squeezed to the utmost to get it for the least possible sum.

Now if a few poor weavers could start a business on the principle of co-operation, buying in the cheapest market, dividing the profits among themselves, which in less than forty years, transacts a business of £206,013 18s. 10d or \$997,254 25 per quarter, and the committee of management tells the members, that after all necessary deductions are made, the balance disposable will be a dividend to the members of 2s 8d in the pound, or 13 and one 3d per cent, and five per cent on share capital in addition, cannot something of the kind be done here? Is there a better location for a co-operative society than Iowa? Are the farmers of Iowa county as capable of doing business as the poor operatives of Yorkshire and Lancashire, England? The writer believes they are as capable of buying in Boston or New York, or wherever it may be necessary, also of selling in Boston or Philadelphia or if need be in Liverpool or London or wherever the best market may be found.

SAMUEL WOOLDRIDGE.

Communism in the United States.

To the Editor of the Grange Visitor:—Communism in the United States is the title of an article in the May number of the North American Review, by Prof. Alexander Winchell, of the Michigan University. The article is marked by the author's peculiar, scolding style. He makes a blind and headlong attack upon what he conceives to be the various forms and manifestations of communism in this country, and in so doing he discusses subjects of which he is evidently in entire ignorance. It is to be observed in all of the Professor's discussion of public questions that he is out of all patience with the stupidity of those people who persist in refusing to see things as they are. He decides in a few sentences and beyond appeal most of the great and agitating questions of modern times. He announces the absolute and final determination of such questions as the employment of convicts in our state penitentiaries, the issue of paper currency by the government, the free coinage of silver dollars and the taxation of banking institutions. It is curious that these questions are still subjects of controversy among apparently intelligent people while the professor knows all about them and is ready to set forth the true doctrine in every case. He does not propose to waste many words upon those who have the temerity to dispute his conclusions. "Reasoning," he says, "takes no hold on them. They are scolded as the alligator-gar, they are vulnerable to no argument." * * * As well demonstrate the Binomial Theorem to a mule. Yet such lunatics cast ballots and labor by every means to secure a numerical majority and force their hair brained, thrice exploded projects on the intelligence and the business interests of the nation.

In the same confident manner, the learned author takes up the subject of "Grangerism," as he terms it, a topic of which he knows about as little as he knows of the philosophy of a republican form of government. "Grangerism," he says, "is mild trade unionism on the farm. It has its fancied wrongs to right and its crude methods for righting them. Its leading effort has been, through gross weight of numbers, to force legislation in its own interests. It seeks to impose burdens on railroads, banks, and manufacturing corporations. It establishes so-called agricultural colleges, conceiving such institutions to be simply high schools for the education of farmers' boys as a class. It guards with jealous eye all expenditures for higher learning, for science, art and public enterprises. Fear of its numerical strength overawes public officers, and whips into subservience the aggregate wisdom of our Legislatures. It is unwilling to leave business to spontaneous adjustment through the operation of its own laws. It frames its demands under the promptings of greed, and not on the basis of economical science. It is deaf to the wisdom of philosophers and statesmen, and enforces its will by the accident of a majority. This is the spirit of American communism. These assuredly are not the controlling motives of most of our farmers; but they are the motives which prompt the Granger spirit in the class." These are certainly serious charges to be made in such an off-hand manner and with no attempt at specifications or proof. Such assertions are reckless and foolish in the extreme and it is shameful that the author should attempt to give instruction to the intelligent readers of the North American Review, upon a subject which he can no more understand than he can appreciate the genius and progress of modern free institutions. It is not very clear what he means in his complaint about "so-called agricultural colleges." He has no word of fault to find with so-called law colleges or so-called medical colleges; but to establish an agricultural college appears to him the most rank and unreasoning

communism. This learned bigot denounces the Grange and compares its members with the murderous communists of Europe, because, among other sinister and dangerous projects, they desire to secure the application of science to agriculture by establishing colleges and experiment stations and by giving their sons special training just as they would do if they expected them to enter any one of the professions.

As to "imposing burdens on railroads," the Grange is perhaps a very vicious and dangerous institution. Gould and Vanderbilt and other railroad magnates have been great sufferers from the ravages of "Grangerism". It is curious to notice, however, that the courts with few exceptions, from the lowest to the highest, have sustained the theories of the Grange relating to railroads. The professor may be learned and proficient in his own particular department, but when a man is possessed of such ideas as his about the practical affairs of life, outside of college walls, it would seem that reasoning could have no effect upon him. Demonstrating the Binomial Theorem to a mule would be an intelligent and pleasing recreation compared with the attempt to teach such a man common sense.

READER.

The Grand Traverse Fruit Region.

J. T. Cobb: The Reputation of the Grand Traverse region as a fruit section, having been fed by numerous newspaper articles and words of praise from the lips of pomological teachers, has become a child of no inconsiderable size. This would naturally lead a young pomologist to expect to find here a Jumbo in the line of fruit business, and for this reason I have been wandering about the Grand Traverse bay for the past week.

The promised sight was however a little further on. I do not wish to detract from what has been said in praise of this section, as a fruit region, for it is a grand place to grow fruit. Yet what has been said and the manner in which it was said would lead one to form enormous ideas about this fruit region. It is not a perfect Eden here for the fruit grower, nor will one find here a wilderness of fruit trees.

First there have been somewhat enlarged stories told as to the size of the orchards and the amount of fruit here raised. Judge Ramsdell near Traverse city has an orchard of about fifty acres, composed mainly of apple, peach, and plum trees, with some cherry and pear trees. In about half the orchard the land is too uneven for the trees to do very well.

The new Mission fruit farm, which was sold last week for seven thousand dollars, although it contains about 440 acres has only about sixty acres of apple trees the most of which are young. At Old Mission the Geo. Parmelee place was said to be the great wonder of the age in the fruit line, and all along my route to this place I was told that I would there find 400 acres out to fruit, and that every kind of fruit that could be grown, was there raised. But on arriving there found only 116 acres of fruit 100 of apples, 13 of pears and about three acres of cherries.

There are several other orchards on the same peninsula of about 30 acres, and quite a number of smaller ones. The Geo. Parmelee place which was fitted up at a cost of from 40 to 50 thousand dollars was sold a few weeks ago for 17 thousand.

Comparatively little small fruits are raised. Several farmers had about five acres of strawberries and these were the old sour Wilsons. I saw no raspberries or blackberries growing and but very few grape vines.

As to the climate of this region it can get cold enough when it tries hard, to do some damage. The winter wheat is nearly half killed on the two small peninsulas. Some wheat fields are about half killed on high grounds. The reason assigned for the killing of wheat, and the strawberry vines, is that the snow blew off last winter.

About six years ago many peach orchards were killed by a hard winter and have not been replanted. Five acres of the apple orchard on the Old Parmelee place have black trunks and very small tops, while in the nine acre pear orchard nearly one-fourth of the pear trees have been destroyed from various causes. Forty of the best apple trees in the center of a 30 acre apple orchard on one of the Lardie places were killed last winter. These were on the highest ground of the orchard, the bark of the trees loosened near the ground.

Insects have to be fought here as well as in other parts of the State. Plum trees must be shook thoroughly for about two weeks. Eternal vigilance for the curculio is the price of a plum crop here. The borers trouble the peach trees very much and the trunks of the trees have to be closely watched. Judge Ramsdell is now placing boxes about the trunks of his peach trees, and filling them with a mortar of ashes to keep them from the borers. Birds rob cherries here as elsewhere.

As to markets and profits on the crops various stories are told but taking the word of those who are not trying to sell places to be the nearest truth, we find that the apples were sold

on the trees at Old Mission for a dollar and a half a barrel last year. Pears from eight to fifteen dollars per barrel, cherries for eighteen cents per quart. These three kinds of fruit were mostly shipped by boat to Chicago markets.

Strawberries and other small fruits are either sent in the daily boats to Petoskey and other summer resorts or are shipped from Traverse city on the cars to markets further south. Strawberries average about 7 cents per quart, a cent a quart is paid out of this for picking. There is also an extra charge for hauling berries from 5 to 12 miles to Traverse city. Boats do not run regularly enough to Chicago or Milwaukee to carry small fruits, and until enough go into this business to keep a daily line of boats running, this part of the country has no very great advantage over the southern part of the State in growing small fruits. For apples, pears, peaches, plums, and cherries, there are good profits here for one who understands the fruit business and expects to work for what he gets. I would not advise any who have good fruit farms in the southern part of the State to sell out and come north. I think you can do as well where you are. But to one who wishes to start in the business, the Grand Traverse region offers many inducements, yet do not get too high ideas, or expect to find all perfect.

Yours fraternally,
WM. S. SNYDER.
Traverse City, May 15, 1883.

The Liquor Question Once More.

There is some consolation in knowing that the present session of our Legislature must come to a close. It cannot continue always. It has "dragged its slow length along" for nearly five months. "The mountain has labored and brought forth a mouse" in the shape of local option (in a horn) for corporations. It is a law, and not yet a law which these solons unwittingly passed and afterwards endeavored to smuggle away. If it is any satisfaction to those members who defeated submission and forced rum and ruin upon us for two years longer, they are welcome to it. They well knew that prohibition would sweep this State like "wildfire" if submitted to the voters. If they had believed otherwise, do we suppose they would have opposed it? Nay, verily! They well knew they had a gag in the mouths of the voters, so they could not speak, and they proposed to keep it there. It might be well for all good citizens, regardless of party, to "chalk down" for future reference the names of those members who voted to continue this terrible evil, this traffic in human life, and the future happiness of their fellow beings. But my object in writing this article is to review H. Bishop's article which appeared in the Visitor of March 15th, and to discuss the liquor question from his standpoint.

He contends that a prohibitory law to be effectual should be uniform throughout the United States. He fears if we had a prohibitory law, and other States not, they would become wealthy out of the traffic at our expense. Then drug stores would be increased, and liquor sold under the name of different kinds of bitters. Therefore he concludes that a prohibitory law, however severe the penalty for infringing may be, will not promote the cause of temperance any better than the present mode of taxing the seller, with perhaps some other safeguards thrown around it. I think his objection is not well taken, that for fear the people of other States will smuggle the vile stuff among us, and get rich out of it at our expense, we will furnish it ourselves. Mr. Bishop's mode of dealing with the liquor question reminds me of a story which illustrates his theory very well. A quack doctor, on being called to attend a sick man, was asked if he could cure the patient. The doctor replied that perhaps he could not directly, but he had a medicine he would give him that would throw him into fits, then he could cure the fits, for he was hell on fits. Mr. B. is of the opinion that inasmuch as we cannot cure the patient by attacking the disease directly, or remove the cause by prohibition, we had better continue the dealing out of this fit medicine, and then through the agency of inebriate asylums, police justices, police officers, medical attendants, and taxing the dealers, endeavor to make good the damage, or cure the fits—the medical attendant to treat the patients with a view of destroying their appetite for liquor. Mr. B. would have all paupers made so by liquor supported by the tax, and all damage done by intoxicated persons made good out of the tax. In short, he would have all expenditures properly chargeable to the sale and use of intoxicating liquors paid by the dealers, and the amount of tax imposed on the seller should be governed by the amount required to pay it. Very well. Now I would ask Mr. B. if he does not consider an "ounce of prevention better than a pound of cure." If it is not safer to guard against contagious diseases than to run the risk of curing them after being attacked? Is he not aware how difficult it is to cure a drunkard, and how many such can he call to mind now? Can the damage caused by intoxicating liquors be esti-

mated in dollars and cents? Can the better tears that liquor causes to flow be measured and a price fixed thereon? Can the anguish of the drunkard's wife and children be weighed, valued and made good in money? Can they be fed, clothed, and their broken hearts healed by taxing the traffic? Can the time spent by young and old men who hang around these rum-holes, squandering their money, ruining their health and making beasts of themselves, be made good by taxing the dealers? Can criminals made so by whisky be prosecuted, convicted and supported in our jails and State prisons out of this fund? Can all the paupers made so by this legal traffic be supported in the same way? Can the shattered intellect and prostrated system of the inebriate be restored by taxing the rum-seller? Will taxing saloon keepers pay for one single human life? Will it pay for the thousands it consigns to drunkards' graves every year? Can all the tax collected for licensing this outrageous wrong, this terrible curse, buy back a single immortal soul sent to perdition through this legalized traffic? No, it is preposterous. We might as well attempt to "count the leaves of the forest" or "the sand on the seashore" as to estimate the damage done by this demon, whisky. Right here is a nut for Mr. B. or any other advocate of a tax law to crack. Because our laws against gambling and houses of ill fame are not effectual to entirely suppress all such places, why not tax them, and with the tax pay the damage done and endeavor to reform the gamblers and inmates of these disreputable houses? If one of these evils is to be allowed and protected, why not the others? They belong to the same firm, only whisky is at the head. Mr. B. would be "glad to have the liquor tax kept separate" from the other taxes. If that could be done it would speedily bring about a revolution in the liquor business.

For an illustration we will suppose Mr. A. goes to the tax collector to pay his taxes. He finds them on the roll about as follows: State tax \$5.00, county \$8.00, township \$9.00, school \$4.00 and liquor tax \$15.00. Total \$41.00. Mr. A. stares at the figures in astonishment and demands an explanation. He desires to know what that means. He says why have I a \$15.00 liquor tax to pay. I never use it. It is not allowed in my house or on my farm. It is an outrage to tax me for what is no benefit whatever to me. The tax collector in explanation says do you not remember that murder caused by whiskey which cost this county one thousand dollars. Do you not know that it costs this county one thousand more to pay the cost of arresting, trying and boarding drunkards and making good the damage done by them. Are you not aware that the cost of caring for paupers in this county is eight or ten thousand dollars a year? You ought to know that three-fourths of all the crimes committed is caused by whiskey. And the same proportion of pauperism can be traced directly to the same source. Now why do not tax payers look at this matter from a financial standpoint if from no other and why will they suffer themselves to be robbed of their hard earnings in this way.

Why will they permit, yes, authorize a business so disreputable, a case with not even one good feature or redeeming quality. A business degrading to all connected with it. It should be outlawed and treated as the worst enemy of God and mankind. Why will not every good citizen rouse up and assist in beheading this monster who spares neither age, sex or condition.

Only a few days ago in an adjoining State a drunken husband and father returned home from one of these licensed hells and murdered his wife and child. And in our village only the other day one of our most promising young men (but for whiskey the son of a widowed mother took his own life or rather the liquor he obtained at one of our fashionable rum holes on Sunday did the job. Now who is responsible for this suicide? These are not isolated cases by any means, our public journals are teeming with similar tragedies. And where is our remedy. Mr. B. says tax the dealers and make good the damage caused by the liquor they sell. Can he fix a price upon this young man's life? Will taxing the dealer heal the lacerated heart of this widowed mother? or restore to life a murdered wife and child?

D. WOODMAN.

Warts.

The following treatment is said to be effective: Cut a hole in a piece of leather sufficiently large to pass the wart through, then mix the following on a piece of glass. Take a small quantity of flour of sulphur, mix with equal parts of water and sulphuric acid to a thick paste. Then place the leather over the wart and apply the ointment with a stick; be careful not to get it on your fingers. After the application remove the leather. In ten or twelve minutes apply a little lard or sweet oil. One application usually is sufficient to remove any ordinary wart.—U. S. Veterinary Journal.

PERSUADING a customer to buy goods when he does not need them is an unprofitable operation to both parties.—Feltner's Talks to Clerks.

EAST RIVER BRIDGE.

A STUPENDOUS ENGINEERING WORK.

FINISHED PRODUCTION OF 14 YEARS LABOR.

HISTORY AND DESCRIPTION OF THE BRIDGE.

The Most Magnificent Architectural Structure in the Sister Cities and the Greatest Engineering Achievement of the Century Dedicated Thursday.

On Thursday the East river bridge, the achievement of 14 years of labor, directed by the greatest mechanical and engineering skill, was formally dedicated and presented to the cities of New York and Brooklyn, and Friday this magnificent structure was thrown open to use as a public thoroughfare between the two cities. The Visitor is glad to furnish its readers to-day with one of the most excellent cuts of this great public work which has yet been published.

The bridging of East river between New York and Brooklyn was advocated by an engineer named Pope in 1819, in a volume on bridge architecture. There was considerable agitation on the subject in the newspapers in 1849. In 1865 John A. Roebling was building the Cincinnati Covington bridge when O. R. Ungersoll of Brooklyn applied to him for estimates on an East river bridge. Roebling in 1866 submitted estimates and offered to build a double suspension bridge 200 feet high, with one roadway for passengers and another for cars, at a cost of \$4,000,000. In 1867 Henry C. Murphy introduced a bill in the legislature to incorporate the New York bridge company, the company to furnish one-third the capital and the cities of New York and Brooklyn the remainder. Work was prosecuted under this arrangement in 1874, when, owing to difficulties of management the entire undertaking was vested in the two cities, the capitalists being reimbursed for their investment and interest. The work was put under the management of eight trustees from each city, the mayor and controllers being ex-officio trustees, the cost being limited to \$8,000,000, one-third to be furnished by New York and two-thirds by Brooklyn, the city most benefited.

John A. Roebling was employed in 1867 as chief engineer and his son Washington A., as assistant. The latter had served in the war and been associated with his father in the Cincinnati bridge. He visited Europe to gain the latest scientific information on pneumatic foundations. He returned in 1869 and selected Columbia heights as his place of residence. Since 1872 he has been unable to personally inspect the work and unable to talk or listen except for a short time, but from his window he has viewed and directed the whole. The elder Roebling prepared the main plans, which were approved by the engineers of the war department and by congress. He lost his life by an accident at the Fulton ferry ship in 1869.

THE CAISSON WORK.

The work of construction began January 3, 1870. The greatest difficulty was to secure a firm foundation for the towers. To build these foundations below the bed of the level of the river was a work of great magnitude. Wooden caissons were used to support the towers of the bridge. A caisson is merely a great box turned up. The Brooklyn caisson was fifteen feet thick on the top, of large, solid yellow pine timbers, and the sides were nine feet thick and nine feet high. The measurement across the box from edge to edge was 102x168 feet. It was divided into six compartments, which were connected by means of doors. This great box was made water-tight and then anchored on the spot on which the tower was to stand. The caisson was protected from the river by a coffer-dam of piles and sheeting. The work of building the tower on the caisson was at once begun and continued until enough weight was on top of it to keep it on the river bottom. There were large wrought iron tubes or shafts in the caisson, excavated on the inside could be taken out, and there was an air-lock for persons to enter the caisson.

When it was sunk on the river bottom the water was forced out of the caisson by compressed air, and men could go in and work. One pound of air pressure equals two feet of tide water, so for every two feet the caisson was lowered one pound had to be added to the air pressure inside. Gauges in the engine-room above indicated the height of the tide and the pressure of the air. The highest pressure attained in the caisson was 34 pounds to the square inch, at that pressure a man could not whistle, and a candle blown out would immediately ignite again. Fresh water springs appeared. Beneath this caisson blasting and excavation went on for months, when a depth of 45 feet was reached, and the caisson was then settled on rocky foundation. The inside was then filled with broken stone and concrete until the whole thing was a solid mass; and then the work of erecting the tower went on rapidly.

SOLVING A GREAT ENGINEERING PROBLEM. Greater difficulty was encountered on the New York side, and the caisson was made stronger and bigger, and had to be sunk to the depth of 78 feet. Even at that depth solid rock was not discovered. But jagged points of rock stuck up here and there, amid a bed of quicksand. The points of the ledge which appeared only under one end of the caisson were leveled off and the quicksand was confined within a wall of concrete, the whole area of the caisson was filled with the same material, after which the tower was erected and finished like the one in Brooklyn.

There were many interesting incidents in the work of building the foundations. The pressure of the compressed air would sometimes tilt up a caisson and a portion of the compressed air would escape, throwing up a large column of water 50 or 60 feet high. One Sunday

blow-out which covered the adjoining buildings and ships with a coat of mud and injured two or three persons. Under some pressure some of the workmen became subject to certain physical derangements which have received the name of caisson disease. The Brooklyn caisson caught fire several times and twice had to be flooded with water. In December, 1870, a careless laborer placed a lighted candle on a shelf in close proximity to the caisson, and under the pressure of the air it made its way into the timber, and out of sight. As the pressure was all outward no flame or smoke could be seen in the caisson, and it was some time before the fire was discovered. Col. Roebling was summoned and he entered the caisson at 6 o'clock P. M. and did not leave it until 5 A. M. Overlook and anxiety, in addition to the many hours of compressed air, had its effect, and he was partially paralyzed before he reached home. This was the beginning of the disease that has so long prostrated him.

THE TOWERS AND ANCHORAGES. The towers, built of granite brought from Maine, are 276 feet 9 inches above high water mark. The Brooklyn tower reached its full height in May, 1875, and its New York mate in July, 1876. The New York tower above its caisson weighs 93,000 tons. The firmness of the foundation is shown in the fact that the tower has not settled two inches. At a height of 119 feet there are two arches, openings in each tower, through which will pass the streams of travel. On the top of the tower are saddle plates, huge iron castings, on which rest the weight of the cables.

The cables are fastened in anchorages 930 feet distant from the towers. The anchorages are built of stone and are 129 by 119 feet at the base and 89 feet high. Over the top of them run the roadways. Imbedded in the two anchorages are huge plates of iron weighing 25 tons each, to which are fastened iron bolts, formed into chairs, at the end of which are the cables that hold up the suspended part of the bridge. There are vaults in the anchorages, where the cables join the anchor chains, and they can be inspected at any time by the engineers. The remaining stone work of the bridge consists of granite approaches, which are lofty viaducts. The Brooklyn approach begins at Sands street, and it is 974 feet long to the anchorage. The grade is two feet nine inches in each 100 feet. In this distance, Prospect, Main and York streets are spanned by iron bridges. The New York approach is 1,562 feet long from Chatham street to the anchorage. The streets are spanned by stone arches, except at Franklin square, where an iron bridge crosses over the station of the elevated railway. Beneath the arches of the approaches are spaces which will be utilized as warehouses. At each end of the bridge are station houses of iron and glass, from which the cars will run.

MAKING THE CABLES. After the towers were completed the next engineering problem was to get the wires over them. The cables could not be made and then lifted into place. The first wire was carried across by a scow on August 14, 1876. It was lifted into place over the towers and fastened to the anchorages. A second wire was then run across and the two were fastened together, making an endless wire running over driving wheels. It was then as easy matter to run across other wires, and cable-making really began on June 11, 1877. On August 25, 1876 E. F. Farington, the master mechanic, crossed the river in a rigger's chair, which was attached to the "traveller" wire rope. A foot-bridge running over the top of the towers stretched across the river to assist in making the cables. That bridge was four feet wide and was laid on two small cables 200 feet high. Two five-eighths-inch wire ropes served as hand rails to this "pathway in the sky." Many persons made the perilous trip over it while it was in existence.

The making of the strands for the cables, which were begun June 11, 1877, was not completed until October 15, 1878. Each of the four cables contains 5,295 parallel (not twisted) galvanized steel, oil coated wires, closely wrapped to a solid cylinder, and is 15 1/4 inches in diameter. So many wires could not be handled at once, so that each cable is divided into 19 strands. When 12 strands were finished in each cable, seven of the central ones were clamped into the form of a small cable nine inches in diameter. This was made into the centre core. On June 14, 1878, the first serious accident in the operations of spanning the river occurred. A strand was let loose at the New York anchorage. It swept over the top of the tower and into the river, killing two men and injuring three more. Altogether some 20 persons have been killed during the erection of the bridge.

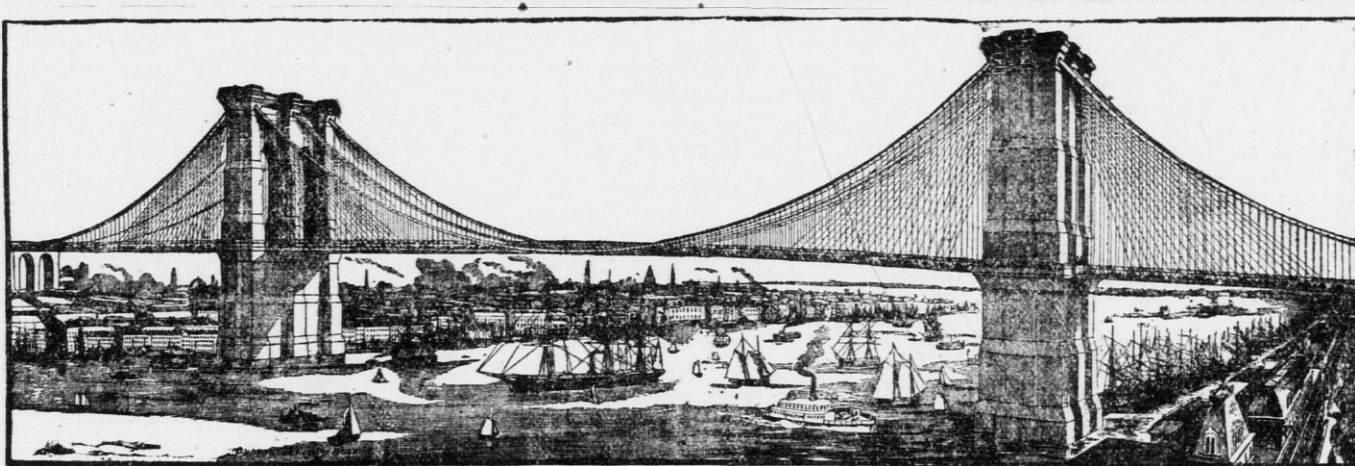
ONE OF THE BRIDGE FRAUDS. In the course of the delivery of the wire in the bridge yard it was carefully tested and what failed to come up to the standard was rejected. It was afterward found that some of the rejected wire had again been delivered and was admitted into the work. Just how much of this was used no one can tell, but the engineers assert that there is enough extra strength in the cables to offset any weakness from this cause.

When the cables were ready for their loads suspended bands made of wrought iron were fastened on at intervals of seven and one-half feet. To these bands were attached suspender ropes made of sheet wires. These ropes are made of 100 tons each, but not more than 10 tons weight will come upon one of them. The suspender ropes hold up the steel structure which forms the roadways.

On the approaches the width of the bridge is 100 feet. Here the wagon ways are paved with Belgian blocks, and the footway, which is only three feet above the roadways, has an asphalt pavement. But from anchorage to anchorage the bridge is different. It is a deft combination of steel beams, trusses, girders and chords, 85 feet wide, floored with timber except in the place reserved for the railway tracks. The total weight of steel in the bridge is 6,620 tons. The great delay in the delivery of this steel according to contract postponed the completion of the bridge for nearly one year.

As now completed there are five parallel lines on the bridge. The outer two, 19 feet wide each, are devoted to vehicles. In the center is an elevated foot-path 15 1/2 feet wide. On either side of this are the railway tracks—one for going to Brooklyn and one for those coming to New York.

CAPACITY OF THE BRIDGE FOR TRAVEL.



GREAT SUSPENSION BRIDGE, FROM NEW YORK TO BROOKLYN.
Total length, 5989 ft. Height of Towers, 278 ft. Width in centre, 85 ft.

sons move at the rate of 200 feet per minute, of allowing 45,000 persons to pass over every hour. The roadway will admit the passage of 1,440 vehicles per hour of an average weight of 3 1/2 tons each, estimating three moving vehicles in every 100 feet. The bridge will sustain 10,000 soldiers marching, better than any ordinary bridge.

The cars are to be propelled by an endless chain, but when they reach the centre of the main span they will run to the end by their own gravity and momentum, being under the control of brakes. Passengers will get in at one end and will be unable to get out until they reach the other end of the bridge. It is calculated that eighty cars, such as are used on the elevated roads, can be kept in operation at once, twenty of which will be on the bridge at one time. Each car can accommodate 100 passengers, and 80,000 persons can be taken across in an hour.

The total length of the bridge is 5,989 feet. The length of the river span is 1,535 feet, and at the center it will be 135 feet above high water in summer, and 128 feet in winter, the difference being caused by the effect of the heat and cold on the steel. The wind blowing at a velocity of 160 miles an hour would not hurt the bridge. The greatest velocity of the wind here is 76 miles an hour. The centre of the suspended structure is 15 feet higher than the roadway of the tower. Not over 3 per cent of the vessels that enter this port would have to strike their topsides in passing under the bridge. From anchorage to anchorage the bridge is 3,460 feet long and the total weight of the suspended structure is 17,769 tons. The cables, Chief Engineer Roebling says, are strong enough to pull up the anchorages, which weigh 60,000 tons each. The bridge is to be lighted by 100 electric lights.

OPPOSITION TO THE UNDERTAKING. Like all great local enterprises the bridge has met stout opposition. A memorial signed by 200 leading citizens was sent to the legislature in 1879 asking that the work be stopped, that the bridge would obstruct navigation and would be useless. A long investigation followed without any particular result. In 1873 under the pressure of public opinion, and as the result of an investigation, Mr. Kingsley resigned the office of superintendent. The management, however, was changed only in appearance, and the result was the passage of the act dissolving the original company. But the same managers were reappointed under the new law and they have managed to keep control ever since. By bad management and the delays caused by political opposition over \$1,000,000 at least has been added to the cost of the bridge.

THE DEDICATION. The dedication of the bridge Thursday was the occasion of a great gala day in the two sister cities. Decorations were almost universal in both cities.

The procession of Brooklyn officials and trustees, escorted by the 23d regiment, arrived at the station at 10 o'clock. The regiment passed upon the anchorage where it took up position. Mrs. Roebling, wife of the invalid chief engineer, arrived at the station afterward in 25 and her party, and at half-past one Bishop Littlejohn and his assistant in their robes. Way was made for them with great difficulty through the crowd that already filled every foot of space in the station. Hundreds were turned away without getting seats. A salute announcing the president's arrival at the New York tower was fired by war vessels in the harbor and forts at 2:16 P. M. The yards of the men of war were manned. Fifteen minutes later cannonading from Fort Greene and the navy yard announced the arrival of the procession at the Brooklyn tower, where Mayor Low received it. On account of the great crowd much difficulty was experienced by mayors and officials in obtaining a passageway to the platform.

PRESENTED. At the conclusion of prayer by Bishop Littlejohn, J. S. F. Stranahan, who presided, introduced the acting president of the board of trustees, who formally presented the bridge to the people of New York and Brooklyn through their respective mayors and each made a speech of acceptance. Congressman Hewitt also made an address and the Rev. Dr. Stora delivered an oration. Mayor Low presided in giving on the corner the Star Spangled Banner, Hail Columbia and Yankee Doodle.

After the closing exercises on the bridge, the presidential party drove to the house of

CHIEF ENGINEER ROEBLING, in Brooklyn and paid their respects to the great but enfeebled engineer. After the president's departure, a stream of prominent men pressed into the house, among whom were officers of the army and navy, clergy and distinguished visitors from abroad. After leaving here the president and his party drove to the residence of Mayor Low, who gave a dinner in honor of the bridge opening. After the dinner, the president, governor and mayor were driven to the river, and stepping aboard a boat in waiting, steamed out into mid-stream, whence they obtained a delightful view of the bridge and towers illuminated by the tall lamps of the United States Electric Light company. The spectacle attracted more attention than the day display. The exhibition of fireworks from 8 to 9 was fine. From half-past 9 to half past 10 the president held a reception in the Academy of Music, Brooklyn, which was crowded. During the period of the illumination of the bridge the East river was crowded with every species of craft, making necessary the stoppage of the ferryboats, followed by a terrible crowd of people when traffic and travel were resumed. The brilliancy of the

ded to a fine display from *The Tribune* office. In addition to the ordinary electric illumination in the composing room, which is always conspicuous from Brooklyn, *The Tribune* was lit up by half a dozen electric lights, which ornamented the building finely, and were a source of great admiration.

OUR NEW ADVERTISERS.

Grand Rapids: Since our last issue it has been our pleasure to again visit this interesting and important industrial center. Our visit was short but long enough for us to notice some of its vast diversity of industries. Among these one of the most important is the extensive Piano manufacturing of McIntyre & Goodsell, whose goods have now a first class reputation. The firm will sell direct to farmers. Their guarantee is good, saving to their purchasers the large percentages usually paid to agents. Next the extensive Marble & Granite Works of Charles Schmidt & Bro. are of such magnitude and importance that many orders from abroad are daily received by them. Their specialty is elegance and durability, and what they set at the graves of our friends will be good work, well done. We also visited the furniture manufacturing and salesrooms of our old and tried friend Wm. A. Berkey. Mr. B. is the original founder of the two largest manufacturing firms in this country, The Berkey & Gay and the Phoenix. There being no retail department to these extensive houses Mr. B. has thus sought to supply a long felt necessity. Mr. B. is perfectly reliable and will tell purchasers the faults as well as the good qualities of his goods.

Next the Great Star Clothing House, whose enormous trade has heretofore been crowded into its four large stores, has recently been forced to purchase the leases of tenants on the second, third and fourth stories above, in order to accommodate its rapidly increasing trade. The secret of their success is, they keep every grade and price of goods and will tell every purchaser just what he is buying, and sell the same quality of goods to every purchaser for the same price and that price is named the first time.

We next noticed the carriage manufactory of J. O. Fitch, one of the old and reliable dealers and manufacturers of Grand Rapids. While there we examined the most perfect jump seat carriage we ever saw. As we first saw it there was a neat, roomy, finely finished single-seat buggy. Mr. Fitch stepped into it, gently pulled a little lever and in an instant before you could see how it was done he was sitting in a double-seated carriage. The change was to and from a single seat instantaneous. He also sells "The Perfection Road Cart" which is a regular side spring two wheeled buggy, free from all jerking, with no weight on the horse when the cart is loaded.

In seeking for some place where our farmers could get their grists ground for lawful toll we found that Mr. Wood, proprietor of the Globe Mills, does all kinds of custom grinding and will give the farmers their full weight of flour, bran and middlings and from their own wheat if desired. Mr. Wood has a large supply of buckwheat for seed and keeps seed grains of all kinds.

In dentistry we found our old friend Dr. Button was one of the many who had moved from his offices over the Star clothing house to suitable rooms across the street. We have had work done by Dr. Button in dentistry and he always gave satisfaction both in execution and price.

One of the finest and most extensive Hat Stores in Michigan is the "Palace" hat store of F. Miner whose sales are perfectly enormous. One thing our farmers can rely upon and that is that what Mr. Miner tells them in relation to hats and caps they purchase will prove true and be made good. He keeps everything from the highest fashion to the most durable goods. His assortment of Lap Dusters is very fine and prices reasonable.

In our travels we could not refrain from a visit to the celebrated Spiral Spring buggy works and we were surprised at the enormous work done in the large five-story block occupied by this house. Hundreds of buggies in various stages of completion are under the hands of hundreds of skillful workers and yet so earnest is the demand for this buggy that the firm are constantly increasing their force. The peculiarity of this buggy is that no matter where the weight is put it is evenly distributed over the entire surface the front is

the back, or the left side by the weight of a heavy person getting in upon the right. The power of the spring is instantaneously adjusted to accommodate any weight of any number of persons. Our old friend Mr. Charles Cummings waited upon us and showed their stock which were of the best quality. While there they were just shipping buggies to Memphis, Tenn.

Another industry we visited was the steam dye house of Charles D. Rose, whose work it is admitted is superior to any other in the city, besides his prices are such that the farmers can well afford to have their clothes cleaned, colored or repaired since Mr. Rose does not charge the price of new for repairing the old. The Compton Brothers are also doing a very fine business in supplying those desiring to purchase any kind of household furniture or furnishing goods of any kind at lowest possible prices. One of these brothers has been a brother Patron and they will take pains to give the farmers a fair chance in purchasing.

At Granger and Hamlin's stables the farmers teams will be fed precisely as ordered. It has been a great annoyance to some who have ordered their teams fed at some stable that when they paid their bill as well as at any time they chanced to look in the manger there were no indications of the horse or team having had either hay, grain or water. Granger & Hamlin will not send teams away in that condition. We also found our old friend and brother Patron William T. Adams engaged in the sale of the celebrated Deering farm machinery. Mr. Adams was present at the trial of reapers on the Sweet farm last year, and saw the work of the Deering self-binder drawn up steep hills and along steep side hills in sand, and lodged and tangled wheat, and with his knowledge of its work has secured the agency, we all know what that means. We also had time to call into the emporium of our old time friend A. A. Crippin, whose elegant hat store on 54 Monroe street, is the pride of the people of Grand Rapids.

Our old friends Phillips Boynton and company are engaged in the sale of a fine line of agricultural tools, implements and machinery, and a more genial, pleasant and accommodating firm are not of our acquaintance. Their rooms on Summit street are as yet of capacity insufficient to accommodate their rapidly increasing business and they have purchased the ground and purpose erecting a large warehouse sufficient to accommodate their business in the coming years, for as they informed us they have come to stay. Mr. Phillips inquired of us where he could secure salesmen, and requires this qualification. He said, "we want men who will in every case tell the exact truth to the farmer in relation to our goods. Of machinery dealers, the heaviest in every conceivable line in the city of Grand Rapids is the celebrated house of W. C. Denison, who occupies three large stores on Division street from basement to attic, besides the grounds of an entire block, and hundreds of feet of sheds. Mr. Denison's business is by no means confined to agricultural implements alone, though his supply and variety in that line is unsurpassed if not unequalled, but he handles every conceivable kind of machinery for all kinds of purposes, including mill machinery, engines, portable and stationary. From grinding mills, saw mills, &c., &c., too numerous to mention. His line of buggies and wagons of latest styles with all modern improvements, is simply enormous, and he keeps a full line of all kinds of repairs. Mr. Denison has been so long established here and is so well known for fair, honorable and courteous dealing, that we can add nothing to his admirable standing as a business man. Before closing this article we should feel that we have not done fairly by our Patrons, not to refer to Dr. L. J. Whitfield, of Grand Rapids, one of the most skillful physicians and surgeons of this country. The doctor has supplied himself with all the necessary apparatus for the successful prosecution of his profession.

Among the lawyers of Grand Rapids to whom our friends can safely trust their legal matters is Leonard A. Ward, Esq. The success of Mr. Ward is owing to his fair dealing and his politeness and gentility to all. Such as the above realize the value of the GRANGE VISITOR with its nearly 8,000 subscribers as a means of communication between themselves and our producers. Not one of the above named but stands high as a citizen and business man in

Important Patent Decisions.

The Supreme Court of the United States, in a decision just rendered, declares the process of producing flour, by crushing it between rollers, known as the "patent flour," is void for want of novelty, the process which the patentee claims as his invention, having been clearly described as early as 1847, in a publication called "Anglo-Day American and Swiss Science Milling," by Christian Wilhelm Fritsch, of Leipzig.

This decision is important to the milling interest since it throws open to the whole trade a process for which a high royalty has heretofore been exacted.

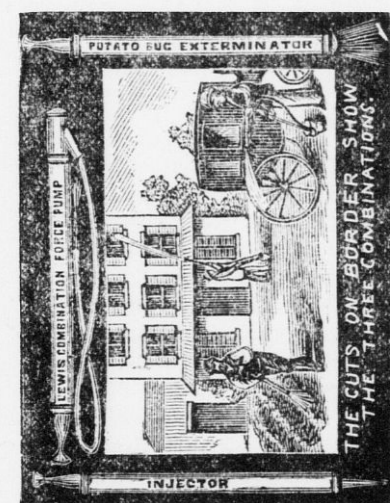
Another decision hardly less important to the milling interest, is that against the validity of the "Denchfield patents," a process for drawing away the steam and fine dust from the stones, to a settling room where it can be cooled and returned to the bolting room effecting a saving of material otherwise lost, and removing the danger of explosion from the ignition of this dust, when the air becomes thoroughly saturated with it.—*Exchange.*

GRIT.—The force of will is a potent element in determining longevity. This single point must be granted without argument, that of two men, every way alike and similarly circumstanced, the one who has the greater courage and grit will be the longer lived. One does not need to practice medicine to learn that men die who might as well live if they resolved to live, and that invalids who are invalids could become strong if they had the native or acquired will to vow they would do so.—*Dr. G. M. Beard.*

ALL that is necessary to do a good work in the Grange is for several members to resolve that it must be done, and then go to work and do it. A little careful planning and a little faithful working, a little plodding perseverance will accomplish wonders.

Lew's Combination Force Pump.

Three Machines combined in One.



As a Hand pump there is no Superior.

With the Injector and the spray attachment we have a combination of useful articles needed by every farmer whether his specialty is stock, grain, fruit or vegetable raising. The insect exterminator will save three-fourths your material and very much of your labor. In treating potatoes from three to five acres can be effectively treated in a day.

For spraying fruit trees infested with insects it stands unrivaled. Parties not wishing the Combination complete can have the Exterminator, made of brass, for \$1.75; made of zinc, for \$1.25. I will prepay express charges and send the whole Combination complete for \$6.00.

Agents wanted in every locality of the State. Write us for illustrated circular and terms. A good canvasser can make some money selling an article that will do farmers good.

Address, **Gaillard & Dickinson,** Sole agents for Michigan, CASSIAR, MICH.

HEADQUARTERS



FARM AND MILL MACHINERY, Portable and Stationary Engines, Pony and Standard Saw Mills, Reapers, Mowers, Hay Rakes, Hay Tedders, Plows and Harrows.

BUGGIES AND WAGONS. At Denison's Agricultural Ware house, 88, 90 and 92 So. Division St., GRAND RAPIDS. W. C. DENISON. Mention "Grange Visitor."

GRANGER & HAMBLIN, LIVERY, SALE AND BOARDING STABLES, Nos. 42 and 44 Davis St., Grand Rapids Mich. Farmers Teams Fed and Cared for as Ordered.

We make a specialty of the sale of horses. We guarantee every horse we sell to be as represented. Our stock cannot be excelled. Our double harness, Saddle, is one of the best in the State. Mention this paper.

ISAAC W. WOOD, PROPRIETOR OF GLOBE MILLS, Manufacturer of Pastry Flour Feed, Meal, Rice, At Wholesale and Retail.

Mill Street Near Bridge, Grand Rapids, Mich. Custom grinding of all kinds promptly done. A fine supply of seed Buckwheat and seed grains of all kinds always on hand. Mention GRANGE VISITOR.

J. MINER, PALACE HAT STORE, 27 Monroe Street, Grand Rapids, Mich. Largest Stock in the City of HATS, CAPS, LAP DUSTERS, &c., All goods warranted as recommended. Mention Grange Visitor.

"GRANGERS!" THE CHEAPEST place in Grand Rapids to buy all kinds of household furniture for "spot cash" and at REASONABLE RATES on installments is of

COMPTON BROS., No. 26 Canal Street, Grand Rapids, Mich. 11m66 Mention GRANGE VISITOR.

Alabastine

Is the only preparation based on the proper principles to constitute a durable finish for walls, as it is not held on the wall with glue, etc., to decay, but is a Stone Cement that hardens with age, and every additional coat strengthens the wall. Is ready for use by adding hot water, and easily applied by anyone.

Fifty cents' worth of ALABASTINE will cover 50 square yards of average wall with two coats: and one coat will produce better work than can be done with one coat of any other preparation on the same surface.

For sale by paint dealers everywhere. Send for circular containing the twelve beautiful tints. Manufactured only by ALABASTINE CO.

M. B. CHURCH, Manager,
Grand Rapids, Mich.
July 1st.

A NOTABLE BOOK.

Thurlow Weed's Autobiography.
Agents are wanted in all parts of the country to canvass for the forthcoming AUTOBIOGRAPHY OF THURLOW WEED. This is a most interesting work, embracing numerous anecdotes of Mr. Weed's early life, and, later, giving many curious facts respecting the inner political history of the country during the half century when his influence was so powerful. An immense sale is expected. Send for circulars and terms to agents.

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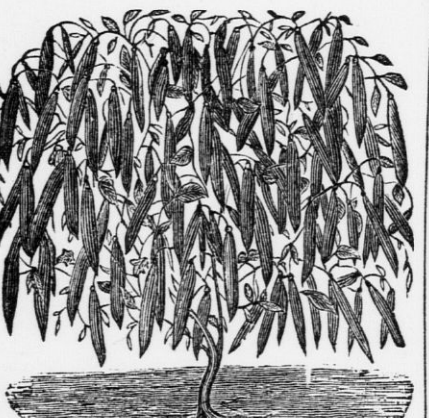
FENNO & MANNING,
Wool Commission Merchants,
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Consignments Solicited and Cash Advances Made

Fish's American Manual of PARLIAMENTARY LAW
Is the cheapest and best. The subject is made so plain that every Citizen or Society member should have a copy.

Circular of commendation free. Price by mail prepaid; cloth, 50 cents; leather, \$1.00. Postage stamps received.

Address, J. T. COBB, Schoolcraft, or
GEO. T. FISH,
(Mention this paper.) ROCHESTER, N. Y.

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PRICES
[Small Papers by mail postage prepaid. 15c.]
Seed 1 Pt. sufficient to plant one-fourth acre, 60 cents. Postage 15 cents extra.
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SUGARCANE MACHINERY.
Our list of Sugar Machinery comprises the largest line of Cane Mills, Evaporators, etc., made by any establishment in the world, embracing all kinds of HORSE & STEAM POWER MILLS of all kinds and sizes.

SUGAR EVAPORATORS.
Including the new PATENTED COOK EVAPORATOR for Sugar, Syrup, and all apparatus for Syrup and Sugar making. Circulars sent on application.

BLINMYER MANUFACTURING CO.,
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Manufacturers of Sugar Cane Machinery, Victor Cane Mills, Cook Sugar Evaporator, Steam Engines, etc.

New Harness and Trunk Store.
T. KININMENT & CO.,
Manufacturers, wholesale and retail dealers in
Harnesses, Trunks, Blankets,
WHIPS, Etc.,
117 Canal St., Grand Rapids, Mich.
All work our own make and guaranteed all Hand Made.

Farm Harness, white trimmed, Breeching, Round Lines, Rum straps, Spreaders, etc. complete..... \$29.00
Same without Breeching..... 26.00
Same with Flat Lines..... 28.00
Double Light Buggy Harness, white trimmed..... \$25.00 to \$30.00
The same nickle trimmed..... \$30.00 to \$50.00
Single Buggy Harness, with round lines, white trimmed..... 12.50
The same with Flat Lines..... 12.00
Nickle Trimmed, \$15, \$16, \$18, \$20, \$25, to \$50
We also make a fine Nickle Trimmed Farm Harness, stitched 6 to the inch, stock all selected, an extra fine article, Breeching, Round Lines, complete..... 36.00
Same without Breeching..... 32.50

Mr. T. Kininment for the past five years has been foreman for Mr. A. Vandenberg, and now in order to build up a trade offers special inducements to the Grangers of Michigan, guaranteeing a better class of work than was ever given to them by anybody.

All orders received under the name of Grange will be attended to at once and goods will be returned at our expense if not found satisfactory. Address all orders to

Yours very respectfully
T. KININMENT,
117 Canal Street,
Grand Rapids, Mich.
July 1st.

CHAMPION CABINET CREAMERY.

First Premium, Illinois, Michigan and Kansas, 1882.
All sizes for dairy or factory use. For convenience of handling, raising the cream quickly and thoroughly, and ease of cleaning, are unsurpassed.

Send postal for circulars and testimonials.

Dairy Implement Co.,
Bellevue Falls, Vt.
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The State Agricultural College.

This institution is thoroughly equipped, having a large teaching force; also ample facilities for illustration and manipulation including Laboratories, Conservatories, Library, Museum, Classroom Apparatus, also a large and well stocked farm.

FOUR YEARS
are required to complete the course embracing Chemistry, Mathematics, Botany, Zoology, English Languages and Literature, and all other branches of a college course except Foreign Languages.

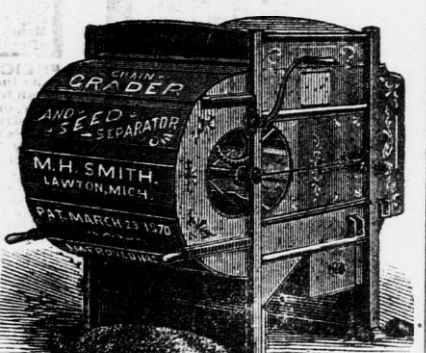
Three hours labor on each working day except Saturdays. Maximum rate paid for labor, eight cents an hour.

RATES.
Tuition free. Club Boarding.

CALENDAR.
For the year 1883 the terms begin as follows:
SPRING TERM..... February 20
SUMMER TERM..... May 22
AUTUMN TERM..... September 4

Examination for Admission, February 20 and September 4. For Catalogue apply to
T. C. ABBOTT, President, or
R. G. BAIRD, Secretary.

M. H. SMITH'S



Works Established at Lawton in 1860.

Patented March 29, 1870; Improved March 29, 1882 and 1883.

My mill is well known by the Side Spouts and being marked "Patented March 29, 1870; Improved 1882 and 1883." None genuine unless it has the side spouts and so marked.

Farmers! you will have an opportunity to purchase these genuine mills, improved this year of my agents, Circular of commutation free. Price by mail prepaid; cloth, 50 cents; leather, \$1.00. Postage stamps received.

Address, J. T. COBB, Schoolcraft, or
GEO. T. FISH,
(Mention this paper.) ROCHESTER, N. Y.

Farmers, Beware!
Of unprincipled and dishonest tricksters. The fact that counterfeit Fanning Mills are built and marked with the name of mine, and claimed to be manufactured in Lawton, Mich., when they are not, is unquestionable evidence that it is a fraud, gotten up on purpose to mislead. Farmers! do not be deceived and lose your money. Buy the genuine Fanning Mill manufactured in Lawton, Mich., and any assertion to the contrary is a falsehood.

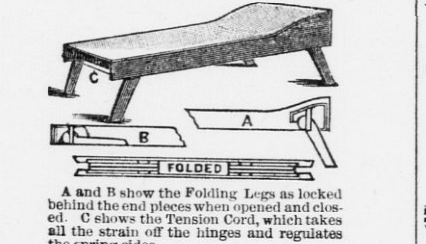
Yours truly,
MYRON H. SMITH,
Lawton, Van Buren Co., Mich.

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LUCIUS C. WEST, Solicitor of American and Foreign Patents, and Counselor in Patent Causes. Trade Marks, Copyrights, Assignments, Caveats, and Mechanical Drawings. Circulars free.

16 Portau street,
KALAMAZOO, MICH.

THE "BEDETTE."



The "BEDETTE" is a soft, easy spring bed without springs or mattress, which is not true of any other spring bed, whether folding or otherwise, whether cheap or expensive.

It is a delightful warm weather bed, there being only one thickness of soft flexible cloth under the sleeper, thus giving an even cool temperature on all sides which can be regulated to suit the weather by putting the necessary amount of clothing under the sleeper.

It is a well-known fact that a mattress absorbs heat through the day in hot weather and gives it off through the night as the temperature becomes cooler, thus making it uncomfortable to lie on, causing restlessness and often causing disease. "Not so with the "BEDETTE"; by leaving all clothing from under the sleeper, he will be comfortably cool in the hottest weather. This cannot be done with other beds as they must have something on to make them soft.

The "BEDETTE" is unequalled for sick rooms, as the temperature can be regulated from below as well as from above, thus saving the necessity of cooling the room by the use of ice in cases of fevers, etc.

No family should be without one at least. It can be folded up to six inches square by its length and is easily put out of the way when not in use. Weighs only 25 pounds and is strong enough to hold the weight of three heavy men.

Do not punish yourselves and children by trying to sleep on hot, musty mattresses through the warm weather but procure "BEDETTE" and sleep peacefully and healthfully.

Price \$3.00. Finished with stain and varnish, 10 cents extra. For sale by furniture dealers everywhere. If not for sale by your dealer, we will send to any address on receipt of price. Liberal discount to clubs of one dozen or more.

M. B. CHURCH BEDETTE CO.,
Grand Rapids, Mich.
July 1st.

Farmers Attention!

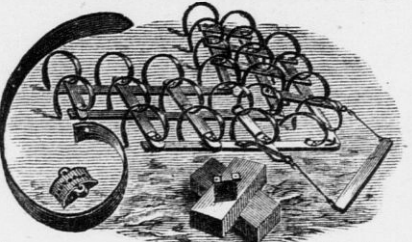
GIVEN AWAY,
51 Acres of Land!

The above choice tract within one minute walk of New State Blind Asylum, Lansing, Mich., and lying less than one mile from New State Capitol Building, at a "give away" bargain, if closed at once, non-resident title perfect, no incumbrance, small first payment, long time, come and see it. Address
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26.999 NOW IN USE.

All persons say their goods are the best. We ask you to examine our Farm and Garden Feed, Seed, and Fertilizing Drill and our Hay Rakes. They are the best. Circulars mailed free. Newark, Ohio, Eastern Branch House, Hagertown, Pa.

PATENT IMPROVED SPRING-TOOTH HARROW.



One of the best Farm Tools ever sold. No breakage of Bed Pieces as we do not Cut Them.

THE BEST TOOTH HOLDER EVER INVENTED
Having flanges cast on each side prevents lateral spring, thereby preventing trailing. It is impossible for the Tooth to get loose and wear the woods on account of its peculiar construction.

Tried and Tested Successfully.
Gives General Satisfaction.

Adjusted by moving the Nibor head pushed on the tooth from one depression in the casting to the other.

TOOTH CANNOT SLIP.

Simplicity and Durability.
We use the best of steel (tempered), and the best of white oak in the construction of our implements. All castings are made of the best iron.

With proper care one will last for years.

Farmers can save the price of one of these Harrows in a very short time, in time and labor saved in going over the ground, as once going over prepares and mows it up in such a condition to receive the seed as would not be obtained in going over three or four times with any of the ordinary Harrows. It is also the best seed-corer in the world.

Ground prepared by this Harrow will yield a larger crop than by any other agricultural implement, because it pulverizes the ground thoroughly, cuts the soil from the bottom, shakes it up and leaves it in a loose condition in so doing it shakes out all grass, thistles and weeds, leaving them on the surface in the sun where they die much quicker than if half covered.

This is our fourth year as manufacturers of Spring Tooth Harrows. We have made several improvements whereby our Harrows do better work than any season. Liberal discount to the trade. For terms, prices, etc., address
CHASE, TAYLOR & CO., Manufacturers,
Kalamazoo, Mich.
June 1st.

FRED VARIN.

(Successor to F. MATTISON)
73 Canal St., Grand Rapids, Mich.
HARNESS EMPORIUM,
MANUFACTURERS A FULL LINE OF
Horse Clothing, Single Harness, Double Light Drives, Harness, and Farm Harness.

All hand made, and of good stock. Also a good assortment of Express, Truck, Hack, and Trotting Harness, Riding Saddles, Bridles, Martingales, Halters, Horse Boots, Surchales, Blankets, Robes, Covers, Whips, Leashes, Harness Oil, Soap, Blacking, Wagon Covers, Buggy Cushions, Whip Sockets, Lap Covers, Fly nets, Carry Combs and Brushes, Sweat Pads, Fine Leather Goods, Collars, Trunks and Travelling Bags in full stock at low prices. Call and examine stock.

(Mention Grange Visitor.)
June 1st.

DENNIS L. ROGERS,

Successor to Burlingame & Rogers,
Attorney at Law and Solicitor of Patents,
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28 CANAL ST., GRAND RAPIDS.
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June 1st.

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REAL ESTATE AND LOAN AGENTS,
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(Mention Grange Visitor.)
June 1st.

ACME CREAMER and BUTTER COOLER



A combination by which all farmers can make Creamery Butter as well as keep it in a nice condition until it is marketed. It saves two-thirds the labor. No ice is required as it is strictly a cold water refrigerator. The cream is taken from the top and is free of sediment. The most complete arrangement for the Farmer and Dairyman in existence. Agents wanted. Send for circular and price list.

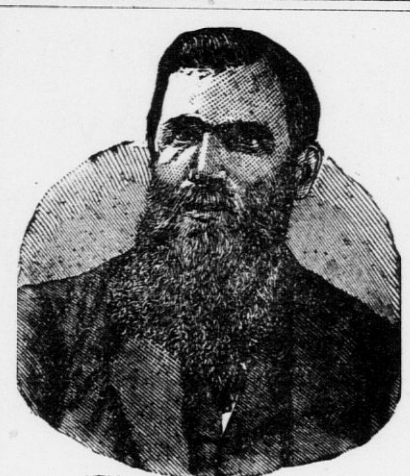
McCALL & DUNCAN,
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