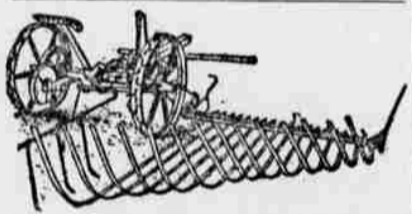


Nitrogen from the Air.
A detailed account of the progress of the works now in course of erection on the falls of the Svalogis at Norodden, in Norway, for the separation of atmospheric nitrogen, on the system of Messrs. Birkeland and Eyde, is given in La Nature. These works are the property of a French company, and the available power is stated at 34,000 horse-power. A second undertaking on a far larger scale is now in course of construction to make use of the falls of Rjukan, where not less than 250,000 horse power will be utilized. Photographs show that the buildings are now completed, and that much of the machinery is in place. The factory is contained in two separate divisions, the hydro-electric generating station and the chemical works. Details of the revolving furnaces, with the internal electrodes and the flame arcs, are given.

Let Women Run Incubator.
Please do not get the idea that the incubator is so everlastingly automatic that you do not need to give it any attention. The result with the use of an incubator is a great deal like the results with the use of other things. They will be in proportion to the effort you make to a great extent. Of course I am not personally acquainted with you, but as a long-distance proposition I would a heap sight rather you would turn your machine over to your wife. The women folks have more natural good sense in raising poultry, and you can bet your boots they look after the pennies and dimes in whatever they undertake. While a man that is accustomed to dealing in big money often overlooks seemingly immaterial things that go to make the use of incubators and brooders a success.—M. M. Johnson, Nebraska.

A Clover Buncher.
Clover that is pastured until the middle of June and then permitted to make a second growth will escape in-



jury from the midge and usually give a better yield of seed. When 95 per cent of the heads are a dead brown color the mower may be set to work. The illustration shows a finger-like mowing machine attachment for bunching and laying the clover out of the way of the horses.

To Prevent Tomato Rot.
The disease often attacks plants that are not sprayed. It is first noticeable as small black or brown spots on the leaves and stems of the plants, occurring first on the lower and older leaves, but with favorable weather it spreads rapidly till the plant is defoliated and the spots on the stems have coalesced into irregular blackish patches. If a piece of bark with these spots be examined under a high power microscope innumerable small, crescent-shaped bodies may be seen. These are the fruiting spores of the fungus. Spray with Bordeaux mixture.

Get a Disk Harrow.
The disk harrow is a tool that is almost indispensable on an up-to-date farm. For working land that is infested with weeds that spread from their root systems the disk harrow is the only harrow that should be used. It cuts the roots where they lie and does not drag them from one part of the field and transplant them in another. With plenty of horsepower it will do the work of a plow on some kinds of soil, especially in fruit orchards, where a plow is liable to tear up large roots and start suckers to growing up where the root is cut.

Ration for Cows.
Experiments conducted last year at the West Virginia Agricultural Station go to show that, while a ration of grain given to cows that are on pasture may keep them in somewhat better physical condition and keep up their flow of milk, the increase in butter fat is not sufficient to pay for the cost of the grain ration. This would seem to be on the assumption of a lush pasture and that the cows would eat additional grass to take the place of the higher-priced grain ration.

Hired Man and The Horse.
Every man who works on a farm ought to know how to care for horses. By "care" it is not meant that he should know just enough to feed a horse, but he must know how to take care of a mare in foal, how to break a colt and how to feed it to the best advantage. He should know all about horses' feet and something about shoeing, too. Many a man has dropped into a fine and permanent job because he knew these things. Horses are the most valuable animals on the farm, of course, and the man who can take the best care of them is the most valuable help.

Changes in Farming.
Farming is not what it was twenty years ago from a revenue standpoint. Corn and cotton were the main products from which the farmer drew his income, and that, too, only once a year. Now the process has changed up. Instead of the one crop, cotton, farmers have invoked a multiplicity of crops, and not only grow corn and cotton for revenue, but have supplemented potatoes, both Irish and sweet; peaches and pears, onions, melons, berries, peanuts and ribbon cane, all of which bring money at all seasons of the year, and there is a continued market for what he has to sell.—Sulphur Springs (Tex.) Gazette.

Growing Dates in Texas.
An experienced date grower of California who visited the lower Rio Grande region of Texas two years ago discovered large numbers of date palm trees, some of them very old but all of which were barren. He proposed to pollinate the trees artificially and share in the proceeds, a proposition which was eagerly accepted by the owners. Hundreds of these trees are now bearing delicious fruit. The poor, crippled and sick Mexicans of that section regard the man as a sorcerer and when he visits them they fall upon their knees and beg him to cure them of their infirmities.

Humane Slaughter of Animals.
The American Society for the Prevention of Cruelty to Animals will shortly begin experiments with a new method for killing animals. Henry Bergh, the treasurer and former president of the society, has invented an air gun of large size, working like a pneumatic hammer. The society some time ago offered a reward of \$500 for an improved and humane method for slaughtering purposes. Mr. Bergh thinks his invention fulfills the requirements of the society for an improved device for slaughtering animals.

Fruit Tree Borers.
August is the time to look for borers. Dig the soil away around the stems of fruit trees to the depth of 3 inches, scrape the bark with a knife, and if any sawdust or exuding gum is found it is time to get to work. Dig out the borer and wash the uncovered parts with a mixture of soft cow dung, lime-wood ashes and a little crude carbolic acid. Then return the soil. The quince, dwarf pear and peach trees are particularly affected by this pest.

Foe of the Green Bug.
Last season farmers of the Southwest were greatly alarmed over the appearance of the wheat plant louse, commonly known as the green bug. They



caused a tremendous amount of damage, but this year its ravages were much less, owing to the appearance of a parasite bee which destroys the bug. The bee lays its eggs on the body of the green bug, which are shown in the picture on the wheat leaf. When the eggs hatch out the larvae feed on the bug until they become bees, when they lay more eggs on the bugs, and this process is repeated over and over. The bees are shown in the picture, and farmers should become familiar with them, so they may recognize them as one of their best friends.—Exchange.

Leguminous Crops.
Nature has provided a leguminous crop for every part of the earth where it was intended that man should farm. Cow peas, soy beans and Japan clover in the South, crimson clover in the Eastern slope, red clover in the Central states, alfalfa in the West, and Canada peas in the North show how thoroughly the distribution has been effected.

CHANGE IN METHODS.

Farmers See Necessity of Getting Out of Old Ruts.

By W. D. Foster, Foreman State College Experiment Farm, Pullman, Wash.

An up-to-date farmer nowadays must study the problems that confront him. Consequently there must be a moving out of the old ruts, and the adoption of improved and new methods.

In the eastern part of Washington the growing of wheat is an almost exclusive farming industry, but I believe the present state of affairs in this respect will in the future become merely a memory of the past. There will be changes. The younger generation of farmers that is growing up around us will assuredly adopt different methods.

If I can read the signs of the times correctly, I believe I can safely predict that the state of Washington will, in the near future, become a great dairy state. Even now the farmer who has a few good cows and "tends to business" is never bankrupt. He has in his possession a certain producer of value. With milk and butter he can go to market twice a week, instead of once a year, and in many respects he is free from the annoyances that harass the wheat-growers. But there are some things he must attend to if he would succeed.

Many people there are, indeed, who would not make even a bare living handling cows. To use a familiar expression, "They are not built that way." Nevertheless, it is certainly true that no matter how the farmer is built, the cow is built to yield value quite material in kind.

Lack of pasturage is an objection to dairying in many parts of eastern Washington, of course, but where alfalfa or clover will grow this hindrance can be overcome. And these two valuable forage plants would grow in many places where they are not found at present, if the land was properly fitted to receive the seed. On the experiment station farm we have two fields of clover that have given splendid returns. Both alfalfa and clover are valuable for feeding cows.

Farsighted dairymen now recognize the fact that there is a better method of feeding dairy cattle than by pasturing, especially in regions where land is as valuable as it is in Washington. This is by the proper use of soiling crops, and silos. A very indifferent mathematician can figure that one acre of land well tilled and seeded to some kind of a soiling crop will equal two and one-half acres of the best kind of pasture land for feeding dairy cows. Therefore, even if one has enough land to pasture a large herd of cows, it would be unwise to do so. Every successful dairyman wishes his cow to do the best and yield the best return possible in consideration of the amount of feed consumed and care given. The cow must have favorable surroundings. She must not be permitted to roam all day in search of food, even if requiring only that necessary for a living, aside from the production of milk. To give a large amount of milk at night would be contrary to nature.

The quicker you can get the cow "filled up," the sooner she will lie down and masticate her food. I venture to assert that when milking time comes, if you have the right kind of a cow, and are the right kind of a master, she will not disappoint you.

There are many different kinds of crops that can be grown for soiling purposes. Winter rye, oats, barley and oats mixed, peas and oats, clover, and vetch are some of them. A few will suffice. Care, however, must be taken not to sow too much at one time, with the exception of corn. That can be planted in abundance, because as it approaches maturity it continues to make good feed.

We have grown at the college farm two and one-half acres of peas and oats, which are sown on a north slope, the steepest, perhaps, on the farm, and from this plot have harvested five and one-half tons of hay, in addition to having pastured on the same plot for five weeks a small herd of the experimental farm cattle. This is an example of what can be grown on a small tract carefully tilled.

The farmer who undertakes to manage a herd of cows under this system must make ample provisions. One necessity, of course, is a good stable. This, without elaborate surroundings, can be built at a moderate cost. It should be planned in a way which will enable the farmer to feed ten acres of good pasture to start off with in the spring. His intention should be to use this ten-acre tract for night pasture after he has commenced to feed the cows in the stable. He will also need a mower and a horse rake in the field to lessen the labor of cutting and handling.

For the purpose of winter dairying, no up-to-date man would be without a silo. In this part of the state corn is past the experimental stage. It always matures on the college farm. The cows are fed the year around, and do well, always having an abundance of silage. This process, in my opinion, largely solves the pasture problem.

Naturally, questions arise relative to the expense connected with the feeding of soiling crops. Over in Ontario, which is without doubt a dairy country, soiling and the silo go hand in hand. Every farmer there will tell you that it would not be possible to keep up the flow of milk in his herd without resorting to these methods. If the silo and soiling crops are necessary in a country where, as a rule, they have plenty of rainfall, how much greater is the necessity for their use in parts of the Pacific Northwest where rainfall is not always sufficient?

The time is at hand when a radical change of methods in farming is necessary. Especially is this true in the case of the rancher who does not own

a large acreage, since he cannot grow wheat enough to make more than a bare living. The dairy cow opens the way to a more lucrative pursuit. Trained effort, however, is required to handle this opportunity to the best advantage, and there must be concentrated and conscientious effort on the part of the dairyman and every member of his household.

It is not my intention to say what kind of a cow is the best for dairy purposes. That is a problem which dairymen should decide for themselves, but, as a rule, the cow to keep is the one which you fancy most and is best suited to the surroundings you have to offer. Pedigree will not make a cow give milk, but pure-bred sires are necessary in order to have high class grades. Therefore, it is necessary to keep a pure-bred sire at the head of the herd and also to be very careful in the matter of selection.

Insist that the sanitary conditions around your stable are the best possible. Be prompt at milking time. Give the herd the best of care in the matter of feed, salt and water. Keep the cows clean, and permit no one to use rough methods or use obscene language in your cow barn. Have a great big heart for your "job." Your work must be done right; and assuredly, the farmer who is willing to adapt himself to the requirements demanded by the country will be a successful dairyman.

PRUNING TREES.

Professor Thornber Tells How to Procure Best Results.

From Washington State College, Pullman.

In response to an inquiry from Sherlock, Professor W. A. Thornber gave the following discussion of pruning:

"When trees produce too much wood, and not enough fruit, or no fruit at all, it is well to prune them very severely in the summer time, say about June; also cut them back at that time. This is to give the trees a check, and make them produce fruit buds, rather than wood. Here at the station, in the case of young trees, we do considerable early spring, or winter pruning, in order to make the trees produce large quantities of wood. We are thoroughly convinced that it is well for a young tree to produce large quantities of wood, even though you have to cut it out the following spring. This extra growth gives a splendid root development, and this is necessary before you can secure a good tree. In the case of trees that have been grafted, I would recommend that you remove the suckers just as fast as the scions seem able to take care of the entire food supply. In cases where the tree is a very rank grower, I frequently leave a few suckers around the graft, so that the graft may become hardened, and not make such a soft growth.

"Another good plan, at times feasible, is to keep an orchard in grass, and check the growth somewhat in that way. The western soils and an excess of moisture are very conducive to a heavy growth of wood; therefore it is somewhat advisable to grow grass in the orchard, with the idea of checking the growth in this way. Some of our most successful apple-growers west of the Cascades, make a practice of growing grass in their orchards to prevent the growth. The station does not advise you to make use of any kind of fertilizer whatever. A small amount of potash would serve the purpose to make the trees more fruitful, but under no conditions do we advise the use of barnyard manure, or nitrogen, since this would only exhilarate the growth. In your locality, I think you could grow the Gravenstein, Northern Spy, Rhode Island Greening, Jonathan, and probably the Golden Russets very successfully. The station now has specimens of these apples from your locality, and they certainly show up well."

A farmer residing near Larané inquired about the "common sorrel." Professor Beattie replied:

"This is not an extremely serious weed, although sometimes it does damage. If the sorrel has a tendency to choke out the crop, it is an indication that the land is rather deficient in available plant food. You could improve the condition of your region by growing some crop of alfalfa, clover, vetch or peas, and plow such crops under, as this would put humus in the soil, and improve its condition. On the West side, this weed is very abundant in the worn-out soils, and the farmers find it desirable to 'lime' the soil, to make more available plant food."—From the Washington State college, Pullman.

Celery Salad.

One boiled egg, one raw egg, one tablespoonful salad oil, one teaspoonful white sugar, one saltspoonful salt, one saltspoonful pepper, four tablespoonfuls vinegar, one teaspoonful made mustard. Cut the celery into bits half an inch long and season. Eat at once, before the vinegar injures the crispness of the vegetable.

Molasses Cake.

One cup of molasses; one-half cup of brown sugar; one-half cup of shortening creamed with the sugar and molasses; two well-beaten eggs; one teaspoonful of baking soda dissolved in a half-cup of sour milk; one teaspoonful of ginger; two cups of flour. Bake in a sheet in a shallow pan, well greased, in a slow oven.

SOMETHING FOR EVERYBODY

A hotel is being built at Berlin which will be the largest in the world.

Manhattan is the most densely populated island in the world, 99,150 persons to the square mile.

In Massachusetts alone there is more neglected water power going to waste than is available at Niagara Falls.

Nearly one-third of the immigrants who arrive in the port of New York never go beyond the city for a home.

There is a lot of poverty on Manhattan Island, but the assessment rolls give \$2,000 in taxable property to each inhabitant.

Courts are a great expense to New York City. The jurors alone last year cost \$415,168. The year before the cost was \$321,293.

In China there are match factories at which only hand labor is employed. One of them, at Hsieh Chang, has 600 workers, 400 of whom are women.

When New York City's Catskill aqueduct is completed the city will have water enough for a population of 7,000,000, without any cause for anxiety.

Hot weather has brought a marked increase in the number of children who are taken to the New York hospitals for treatment, and the diagnosis shows that 90 per cent of the trouble arises from improper feeding.

There has been a large increase in the number of emigrants from the port of New York during the last year, but the net result is that the city is growing at the rate of about 32,000 a month through immigration.

An electric railway is being built on the Zugspitze, the highest peak in the Alps on Bavarian territory. Its height is about 10,000 feet. The railway will run to the summit, while a hotel will be built at the 7,000-foot level.

There are some large profits made on goods sold in New York City, but the greatest percentage goes to the retailers of jewelry that has imitation precious stones in its composition. The profit is often one thousand times as much as the goods cost. To get \$40 for what cost 40 cents is quite usual.

"The Swamp Angel" was the name given by the Federal soldiers to an eight-inch Parrot gun which was mounted on a battery built on piles driven into a swamp outside of Charleston, S. C., and used during the siege of that city. It burst Aug. 22, 1863. After the war it was bought with some condemned metal and sent to Trenton to be melted, but, having been identified, was set up on a granite base on the corner of Perry and Clinton streets in that city.

Two odd-looking craft are to be seen at work on the St. Lawrence ship canal. They are used for removal of bowlders which are too large for a dredge to lift or to clear the bottom before the dredge is placed to work at any locality. The lifter consists of a wooden-hulled boat with a middle well, through which the large sixty-ton capacity tongs or grips can descend to the river bottom, there to pick up bowlders, which can be hauled to the deck by the hoisting engine situated aft.

The new Chinese Board of Education proposes to establish a Shih-fan Hsueh-tang, or civil normal college, in Peking, for training teachers for service in the various civil schools and colleges throughout the empire. In addition to Chinese classics, says Harper's Weekly, English, French, German, Russian and Japanese will be taught in the proposed college, under the instruction of experienced teachers. The college will be established in the Chinese city in the course of the present year, and the annual expenditure is estimated to be about 100,000 taels (about \$70,000).

Emperor Francis Joseph of Austria was 78 years old on Aug. 13, but he is still an ardent hunter. Having settled down at Ischl for his summer holiday, the Emperor lost no time in beginning his favorite sport of deer shooting. In the first formal court shoot the Emperor and his party drove in carriages as far into the mountains as possible and then took to horses. But after riding for a quarter of an hour his Majesty was forced to walk the rest of the way up the Steinberg, 5,000 feet high. An hour's climb brought the party to the hunting ground, and the Emperor shot four stags.

The readiness of Japan and China in adapting themselves to Western methods of electrification, says the Railway News, is to-day amply evidenced in the work going on in the large cities of these two countries. Yokohama has its electric tramways, Tokio, the capital of Japan, has a fine system of electric railways. The railway engineers and directors are Japanese. Shanghai has recently completed a splendid system of tramways, and Hong-Kong has operated street railways for several years with good results. There are many other cities in Japan and China which will undoubtedly follow the example of these cities.