FARM AND GARDEN.

PROBLEM OF VENTILATING A CELLAR SATISFACTORILY SOLVED.

Statements Made by an Experienced Horse Breeder—Professor Shelton Tells How to Cut Corn Fodder—An Economical Plan for Feeding Stock in Yards.

Every section of the country has its own special feed racks, and an interchange of ideas and plans on the subject between widely differing localities often results in added conveniences heretofore untried by many.

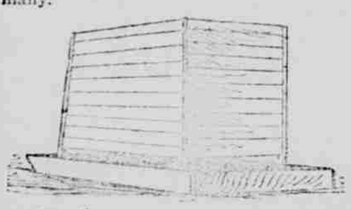


FIG. 1—ECONOMICAL FEED RACK.

For economical feeding in the yard there is perhaps no better device than the one here reproduced from Minnesota Farmer, and in use in many sections of the west.

A simple way to build one of these feed racks is to begin by setting four tall posts in the ground in the form of a rectangle. Their height and distance apart will determine the size of the rack. It is not best, however, to make it very wide, say not over six feet, as some difficulty would be experienced by the animals in pulling out the hay if bound solidly in the center. Set the posts leaning toward the center, in order to make the opening at the bottom wider than at the top. This will prevent binding, and the hay will easily settle as it is being eaten away from below. From about eighteen inches above ground, to the tops of the posts, the sides and ends should be boarded tightly, making it possible for the animals to reach the hay only from the bottom.

To make the rack complete, a manger must be built entirely surrounding the upright part. Set four short posts securely in the ground opposite the corners, and others between to give firmness to this part, where pressure is always brought to bear. If the manger is made slanting, and narrow at the bottom, it will prevent animals from getting in, as they are tempted to do in cold or stormy weather. Many consider it a good thing to cover such a rack with a shed roof, thus always keeping the hay dry. This can be done with very little extra expense.

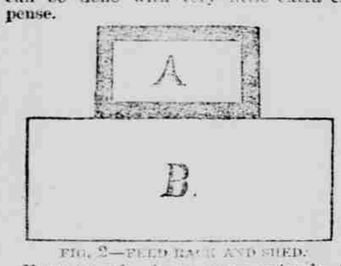


FIG. 2—FEED RACK AND SHED.

Farmers who have many animals to feed sometimes build several of these racks, arranging them at the entrance of their sheds. This affords the animals eating under shelter from one side during inclement weather. See second cut, in which the rack is shown at A, and the shed at B.

Hints on Horse Breeding.

At one of the New York Farmers' institutes, an experienced breeder in horses read a paper on "Horse Breeding," in which occurred the following statements: 'First decide what style of horse you want to produce. There are several classes of horses, the race horse and trotter; the carriage horse, such as the Cleveland bay and French coach, and the various breeds of draft horses: The English Shire, the Clydesdale and the Percheron. Of these various breeds the race horse can only be bred to advantage in large establishments. The American trotter has only become a distinct breed within a generation, but now we produce the trotter quite uniformly. The English race horse was the progenitor of the American trotter, of which Rysdik's Hambletonian, Mambrino, Henry Clay and a few others were the first sires. Only within fifteen years has an intelligent study of the trotter been pursued. Now the rules adopted and published in the register govern. American breeders of the trotter have reached a degree of success of which they are justly proud. They produce the fastest road horse in the world.

The Cleveland bay was the offspring of the thoroughbred race horse on larger mares. The French coach horse was bred under government supervision, which owned all the stallions. The Norman should not be confounded with the Percheron. The former is smaller—a carriage horse; the latter better adapted to heavy draft. It is the draft horse of France. The English Shire and Clydesdale horses have been much mixed. Give the best of care and feed well. Such treatment pays.

The farmers can breed a few colts every year and work their mares most of the time. Cheap raising of colts on the starvation plan does not pay. The dam should earn her keeping. He estimated the cost of properly raising a colt until it is four years old at $120. The profit or loss will depend upon the quality of the colt at that age.

Length to Cut Corn Fodder.

Numbered with interesting experiments reported upon by Professor Shelton, of the Kansas Agricultural college, is the one relating to the proper length to cut corn fodder. According to the professor's report the finely cut fodder was much less attractive and palatable to the animals than when cut into coarser lengths, and the uneaten portions, the "waste," were greatly increased by the excessive reduction.

A number of the cows were fed for one week upon corn fodder reduced to quarter inch lengths, the week following the same corn fodder cut into inch lengths, and the week following they were furnished fodder cut into two-inch lengths. Care was taken that each animal received just about what previous experience had shown it would "eat up clean." The cows were fed night and morning as usual, but before feeding the next day the residue in the mangers was carefully weighed. The result of these trials is shown in tabular form as follows:

Length of Cut.	Food. lbs.	Waste. lbs.	Per Cent. waste.
One-fourth inch.....	427	225	53
One inch.....	440	150	36
Two inches	439	115	21

Professor Shelton offers the following explanation of the above results: "As ordinarily prepared, the blades of the corn plant are the only part having nutritive value. The stalk portion and the husks are, for the most part, indigestible, tasteless, woody fibre. When fodder is cut into very short lengths, these dissimilar parts are inextricably intermixed; the animal is unable to extricate them; and, in rejecting the worthless portion, is forced to discard much that is valuable; hence, the greatly increased 'waste' when the shorter lengths were used. The additional advantage in the use of the longer lengths in the great saving of power required to cut a given weight of fodder is a very considerable item, not likely to be lost sight of."

Creamery or Cheese Factory.

In reply to the question, "Which is the more profitable for the average farmer and small stock raiser, the creamery or the cheese factory?" Michigan Farmer answers: "As a general rule the cheese factory will return the most money to its patrons, one year with another. But there are special seasons and conditions which would change this. The returns made by cheese factories the past season run from $33 to $75 per cow—the average would be about $50. It must be remembered, however, the cheese factory only leaves the whey for its patrons, while the creamery leaves all the milk, a difference which, if properly utilized, would materially change results. Then, again, the quality of the butter or cheese produced would have an important bearing upon the returns. If the products of either are of a low grade, through the lack of experience or carelessness on the part of the managers, such factory or creamery will not be able to pay their patrons as much as if they were making a first class article. It would be better to sell your milk to a well managed creamery than a poorly managed factory, and vice versa. Brains and experience are essential in either."

Nuts and Nut Trees.

The shell bark hickory tree thrives best from thirty to fifty miles from the seashore. It will perform better work in fruiting if its roots are fed from a running stream.

The butternut produces better crops on the hills away from the shore, and it also delights in damp feet. The fruit is better if left on the ground until after hard frosts.

The black walnut must be gathered and cleaned of its husk before hard frosts. Then the nut can stand any kind of weather. Eat it and all other nuts with a small quantity of salt. The oil in nuts requires a cast iron digestive apparatus. The salt aids nature in digesting the fruit.

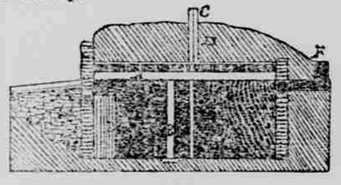
Chestnuts will grow anywhere, but better near the salt air. The cultivated varieties can be improved by the aid of fertilizers.

A correspondent claims that a walnut grafted on butternut stock produces fruit that is better flavored than the natural walnut. The only difficulty is that the walnut outgrows the butternut stock.

Ventilating a Cellar.

In this enlightened age, it is not necessary to waste space or time in explaining the reasons why every cellar, whether under dwelling house or elsewhere, ought to be ventilated. Every progressive man and woman understands the necessity, but everybody does not know how to bring about the desired ventilation. A Kansas genius, who has solved the problem to his own satisfaction, explains, in Prairie Farmer, with the assistance of a diagram similar to the one here presented, his mode of ventilating an outdoor cellar.

In his cellar he puts a vertical tube—3 inches square, inside measurement, extending from within 4 inches of the floor, out 3 feet above the roof. This is left open until extreme cold weather when it may be readily closed with a wisp of hay at the top.



CELLAR VENTILATOR.

This tube, he explains, draws off all moist and cold air from the bottom, as the warm air always rises to the upper space. If the cellar becomes too warm, a slide is drawn from the side of the tube near the roof, until the desired lower temperature is secured.

When this correspondent builds another he proposes to have two tubes, one reaching down to the floor, as above described, and the other just through the roof, as shown at C. The construction of his cellar is as follows: F, ventilator, with screen over inside end. This is for summer use, being closed in winter, though it might serve as a chimney if it was necessary to have a stove in the cellar during the latter season. The roof beam A and brace B are of hard timber, 6 by 6 inches. The plank covering the rafters, E, is 2 by 12 inch hard pine. The walls are made of stone.

How to Handle Wasps with Safety.

In reply to a query in Science, "Is it true that while one holds his breath it is impossible for him to be stung by a wasp?" a Connecticut correspondent in the same journal says: "I have picked up hundreds of live wasps, holding my breath at the moment when the wasp was grasped, and have never been stung under such circumstances. I have frequently been stung by wasps when I have disturbed them unawares. As to the explanation of the phenomenon, I have none to give. I have tried the experiment on hornets, honey bees and bumble bees, and a single trial with each was sufficient to prove that the plan did not work with either of these species."

Here and There.

It is reported that the big cattle ranches of the west and southwest are breaking up.

Experiments made during the past season in exporting pears to Europe did not result favorably.

According to the department of agriculture, the average per acre of wheat used for seeding is 1.88 bushels.

The last legislature of Michigan enacted a law, making the members of the state board of agriculture an independent forestry commission.

Silk production is being encouraged in Kansas. The state has, by act of legislature, established a station from which eggs will be distributed and reelers educated.

The peach growers of Maryland and Delaware have decided to ask the legislatures of those states to enact laws compelling growers to destroy all trees affected by the yellows on the first appearance of that dreaded disease.

MICROSCOPIC WONDERS.

CHAT WITH PRESIDENT COX, OF THE NEW YORK SOCIETY.

Methods of Measuring Minute Objects. Work Done in Dissecting and Examining Microbes—Mysteries of the "Brownian Movement"—Salt Crystals.

President C. F. Cox, in a very interesting conversation at his home in the Westmoreland, spoke of the work of the New York Microscopical society for 1887.

Mr. Cox first mentioned the vast improvement in the methods of measuring microscopic objects. This is done by rulings on glass, which are produced by complicated but wonderfully delicate machines. They are constructed so as to accurately divide an inch or any other unit of measurement into any desired number of parts, as, for instance, 1-100 of an inch, 1-1000 of an inch, and even 1-10,000 of an inch. Only three of these machines, however, have produced any noteworthy work. One is the invention of Professor Rogers, of Harvard college, another that of Mr. Fasoldt, of Albany, and a third that of the professor of physics at Johns Hopkins university. These three machines do different kinds of work, though ruling parallel lines by means of a fine diamond point upon glass or metal, to be used as micrometers, which are to objects under the microscope similiar to the scale of inches portrayed at the bottom of maps and architectural plans. The finest rulings thus far produced by any of the machines are at the rate of something like 200,000 to the inch. Some idea of the closeness of the ruled lines can be obtained from considering that 2,000 such lines would occupy only the space included in the thickness of a sheet of ordinary letter paper.

With this explanation of the method of measuring objects under the microscope, Mr. Cox started in to tell some of the things members of the society had done in the last year toward dissecting and examining microbes, which cause and spread diseases like cholera, diphtheria, yellow fever or malaria. In every day English he explained that the microbe and the bacillus, the microbe's twin brother, are names for exceedingly minute organisms which exist in infinite numbers wherever they find their particular foods, either in the liquids of the human body in both health and disease, in the tissues of animals, in stagnant water and sewerage. In a dried and dormant state they even float in the air, from which they descend into their proper habitats. Thus they cause and spread diseases like cholera, diphtheria, yellow fever and malaria. Each disease has a microbe or germ peculiar to it, and which may be easily distinguished by the microscope from nearly all other microbes. Specimens of all these microbes have been collected by a member of the society and sown upon a gelatine surface, just as a farmer sows oats or wheat. They will grow up as sorts of fungus, and even to the naked eye they will then be as distinguishable, one sort from another, as oats are from wheat, or wheat from rye, or rye from barley. Professor Charles E. Pellew, of Columbia, is the member of the society who has thus sown little fields of diphtheria, consumption, cholera, yellow fever and other dangerous diseases. They are under cultivation like grasses in a rockery. These little grass plots of the terrible diseases are glass covered, and whole cemeteries are represented in them.

Mr. Cox referred to one difficulty the microscopists had experienced in experimenting with the fungi of these terrible diseases. At a certain stage, or rather in the advanced growth of the fungi, new microbes are shed, which are infinitely smaller than the original microbe. These microbes have a shell like a hazel nut, and about as hard, and even after they are boiled at a great heat some microscopists differ as to whether the disease germ has been destroyed. Microbes are like potato bugs. They encircle the globe. You can scrape them off your tongue. Microbes destroy the teeth. They are with us and about us morning, noon and night. They are even in the medicine bottles in the druggists' shops. Mr. Cox then told of the discovery of one of his brother microscopists who examined a number of vials on the shelf of an up town druggist. At the bottom of the vials a sediment was found which, under the powerful gaze of the microscope, turned out to be microbes, and any prescription prepared with the liquid in the vials would harm instead of heal the patient. He referred to this to show the care that all druggists should exercise in keeping fresh medicines in their vials.

Mr. Cox then told how the microscope had shown what is known as the Brownian movement to be a mysterious trembling, or half rotary motion, which seems to take place incessantly in any sort of substance, if finely enough divided and held in suspension in a liquid of suitable specific gravity. "For example," he said, "a little gamboge rubbed up in water will exhibit an activity among its microscopic particles which will give them the appearance of being alive when looked at through the microscope. No one knows the cause of this motion nor its limitations as to time. I have a specimen of this sort which has been under observation for thirteen and a half years, and, as far as known, has never shown any sign of slacking in all that time."

Speaking of the microscope on minerals, Mr. Cox said that many crystalline substances, particularly quartz, abound in small cavities, or "bubbles," left when crystallization took place. Sometimes these are empty. Sometimes they are filled with a gas. Often they are filled with brine, in which a cube of salt is held in suspension. If the cavity and its contained salt crystal are exceedingly small, Brownian movement occurs in the salt particle and affords a very interesting object for the microscope. The quartz of ordinary granite is generally rich in such moving "inclusions," and thus a thing which is ordinarily regarded as actually inert is seen to be filled with activity. This is one reason why granite used in the construction of buildings goes to pieces in a fire, for the heat expands the liquid or gas contained in the cavities, and causes such pressure as breaks the stone asunder. The presence of the brine in these cavities is regarded as evidence that the granite, which was formerly looked upon as an igneous rock, is really sedimentary.

One of the interesting sights is to see members of the society cut a fly, a beetle or house roach into a thousand pieces, every one of which is thinner than the finest hair. This is done by a knife, or rather a sort of planing machine, the edge of whose blade can only be seen by a microscope. The insect is dropped into a spoonful of hot paraffine, which is allowed to cool. It is then put in place on the microscope and planed or shaved by the machine until every thousandth part of the insect is cut off, somewhat after the fashion of a Second avenue butcher operating on a bologna sausage. The wax containing the specimens is then floated in alcohol, which frees the specimen. It is then secured by the application of a drop of balsam and laid on a tiny bit of glass, upon which are focused the powerful lenses of the microscope. Thus the thousandth part of a fly is as discernible to the microscopist as a frisky calf to a Sullivan county farmer.—New York Sun.

THE NORTHERN TYROL.

A LIGHT HEARTED, MERRY, SIMPLE AND PICTURESQUE RACE.

Old World Customs and Old Time Superstitions—Religion of the Tyrol—The National Costume—Not a Race of Hard Workers—Beggars—Gypsies.

The Austrian Tyrol, though visited by many, is by no means so well known as Switzerland and many other parts of the European continent, yet no country is more beautiful, more rich in quaint legendary lore, and certainly no peasantry is more courteous or more picturesque than the Tyrolese.

The Tyrolean peasants are a light hearted, merry race, very simple, very superstitious, disliking innovations of all kinds and clinging with wonderful tenacity to their old world customs. In most villages, during the frequent and terrific thunder storms which prevail during July and August, the great bell in the church is rung—first as a warning to all who are abroad to seek shelter as soon as possible, and secondly to drive the thunder away. Any one who did not believe in the efficacy of the bell would be looked at askance and his ignorance would be pitied, but the villagers would not try to convince him. On one occasion I was talking to a group of peasants and inquiring what wild animals were to be found in the Kaiserjeberje, a range of almost inaccessible mountains in the northern Tyrol. After telling me that wolves, foxes, wildcats, vultures and chamois in great abundance were to be found there, one peasant remarked with a mysterious look:

"Ah! but guadige frau, there are far worse things than the [illegible]

There are witches, many witches; but people do not often see them except before an awful storm; but once there was a jager (hunter) who had climbed up higher than any one ever had before, and he came to a sort of cave, and there sat a horrible old hag, leaning over a cauldron full of some loathsome compound. He was so terrified that he threw away all the skins he was carrying, and flew like one possessed with a devil, and never after ventured within many miles of the spot."

Another story is that a poor girl—a servant on a farm—was so fond of dancing that she declared she could dance forever, and had often been heard to say that she would dance with the devil himself, if he would ask her. One evening at a dance at a lonely hut in the mountains, where this girl was present, a fine, very tall and handsome man, dressed as a butcher, came in. He asked the girl to dance and was accepted. On, on they went till the girl was ready to drop with fatigue, and begged him to stop, but no, on, on she must dance. The story goes that she danced till she fell dead on the floor, upon which her partner stalked from the room, followed by some of the villagers. He went on till he came to a little stream overshadowed by thick bushes. There he stopped, and planting one foot on the rock (thus showing the peasants the cloven hoof) he sprang with a fearful yell into the water and disappeared in a flame of fire. The mark of his foot may be seen on the rock by the curious and credulous to this day, and few care to pass the spot after nightfall; or if obliged to do so they tell their beads with unusual devotion.

The religion of the Tyrol, indeed of Austria generally, is Roman Catholic, and in the more remote parts the people are very devout. There is generally a sisterhood and often a monastery near every village. One in particular occurs to me where there was and is a monastery of the Capuchins. These monks live entirely by charity, and gifts of corn, bread, milk and butter, are freely brought by the people, the recipients giving little sacred pictures, holy medals, or a flower from their lovely garden in return, and to those who ask for, and need them, their prayers. In Salzburg the sisterhood of the Capuchins have a curious custom. Sometimes they are quite without food, and until the third day they must bear their privations patiently, but then they ring their chapel bell, and then the townspeople come flocking to the convent, bringing the welcome and sorely needed provisions.

The costume of the Tyrolienne is a pretty one, consisting of a stuff dress, with a very full skirt, the bodice cut square in front and filled in with a silk handkerchief which matches in color; and a gay silk apron, which is of pink, blue or yellow, according to the taste of the wearer. The hats are not unlike the sailor hats worn by ladies, except that they have a stiff, straight brim, and are generally adorned with tassels of gold bullion.

The national costume of the men is even more picturesque, consisting of knitted dark blue or white stockings, knee breeches, waistcoat with two rows of silver buttons, a somewhat long skirtish coat, and a hat with a bunch of some wild bird's feathers at the side. But the prettiest costume of all is that of the jager, or huntsman. The breeches come to the knee only, and the legs are covered in embroidered leather gaiters, leaving the knees bare; the coat is dark green, with collar and cuffs of a lighter shade; a hat of dark green, with an eagle's feather, and an embroidered shot pouch slung over the shoulders.

The Tyrolese are by no means fond of very hard work. Money is not to them what it is to their neighbors, the Swiss. They love pleasure, and willingly take lower wages if they are allowed plenty of time to amuse themselves. The schools, too, do not carry education to the extent which prevails universally through Germany and Switzerland, and I must confess that, for a purely agricultural population as the Tyrolese are, reading, writing and arithmetic, with good religious instruction, are enough; and certainly here you see no signs of overworked brains, as are only too often to be met with in the former mentioned countries. Here the children are pictures of strong health and happy, careless spirits.

On saints' days there are generally processions, which start from the church, consisting of a large proportion of the villagers, both young and old, some carrying banners, the children decorated with wreaths, the sisters singing some sweet anthem as they go, and all looking full of peace and happiness. On these days no work whatever is done in the village. In the evening the people amuse themselves as they like best, but there is very little drunkenness. Beggars you seldom see, and if by chance you do encounter one five kreutzers will insure you blessings and prayers to all the saints for your health, wealth and happiness. Gypsies abound, and are much dreaded by the peasant farmers, as they make free with their poultry, with their cows, and commit other small depredations. Robbery of houses is, however, almost unknown in the Tyrol, the people being singularly honest, and by no means overreaching.—Cor. San Francisco Chronicle.

Black veils induce tan and white ones injure the eyes, so gray and blue should be chosen, even if they are not so becoming.

To extract ink from wood, scour with sand wet with water and ammonia. Then rinse with strong saleratus water.