

that is, if there is anything into it to eat. A little latch or turn-sneck keeps it fast in its position until it is required to be replenished.

Of course, it will be understood that there is a hole cut out of the front partition in the first place, just large enough to be nicely filled up by either side of the manger, so that when the manger needs replenishing, or when you desire to feed, you simply walk into the passage-way in front, turn the 'sneck,' catch hold of the top of the manger and pull it towards you. Its other side will then close the opening, so that whilst you are pouring in the feed—gram, turneps, or whatever it may be—you and it are both hidden from view of the animal. Then, simply push it from you and close it, turning the 'sneck' on it to keep it in its place, and the animal can feed away.

This manger, wherever it has been tried, is immediately admitted to be one of the best things of the kind ever invented.

Lightning, and Lightning Rods.

Mr. J. M. Mott has been reading a series of papers before the meteorological section of the Franklin Institute, on the above subject, and arrives at the following conclusions:—

1. Lightning rods, as usually erected, do not afford much protection.

2. Insulators, and glasses, at the points of support, are of no use in any case; they destroy the most valuable influence of the rod, and may, under certain circumstances, be the cause of most terrific, and destructive return strokes.

3. The conducting power of lightning rods is proportional to their solid contents, or sectional area, with similar metals of equal lengths, and not to their surfaces.

4. A lightning rod should have the conducting power of a copper rod one half-inch square, and perfect metallic union of all its parts. A rod made exclusively from copper wires, if of sufficient size, constitutes one which is perfect in theory.

5. Sharp points for the upper termination of rods are necessary. Rods are of but little value without them. Points should be plated, to prevent oxidation. They are also of value when used at the lowest terminus of the rod.

6. It is necessary to place a point at each gable, chimney, and ventilator; to connect all together; to connect the rod with metallic roofs, gutters, valleys, steam pipes, gas pipes, water pipes, speaking tubes, and other permanent metallic bodies about buildings, and the more numerous the connections with the earth the better.

7. The rod must be attached directly to the building, the closer the better. It must not be insulated by being passed through, or over rings of glass, horn, or other non-conducting substances, nor be placed at a distance from the object to be protected.

8. Ground rods must have two or more branches penetrating the earth to permanent moisture; must extend below the foundation walls, or the bottom of the cellar. In some instances, where it is difficult to reach moist earth, they must be imbedded in charcoal.

9. Lightning rods, constructed and erected in accordance with the foregoing principles, will afford full protection in the hour of danger, and their use is strongly urged as a necessary means of safety.

CATTLE STANCHIONS.—Three years ago I built a barn, and, thinking I would be merciful to my cows, I had the platform on which the cows had to stand, built four feet and nine inches long, with only two inches drop. I tried this almost two years, but I found the cows got very dirty, especially in the spring, and fall. I then took it up, made the platform four feet, six inches in length, and six inches drop. I found this quite an improvement, but still it did not quite suit me; and this fall I made the platform four feet, and four inches long, with a slant of one and a half inches from front to rear, the drop being six inches at the rear, as before. This, I find, works like a charm with my cows, which are medium size; but for larger cattle the platform would want to be from two to four inches longer. If I was going to improve it all, I would make the drop platform an inch or two higher.—*Correspondence Country Gentleman.*

Grasses and Forage Plants.

Renovating Power of the Grasses.

A respectable volume could easily be written on the above theme. How often has clover exerted an almost magical influence on light, sandy lands, well nigh reduced to utter sterility by injudicious management. What an important part the grasses play in a good rotation of crops, not only by the change of product they bring round, but by the recuperative power they put forth.

But we took pen in hand to note down a few things concerning the beneficent part the grasses are playing in the restoration of agriculture in the Southern States. In extensive regions at the South, where the over-culture of cotton and tobacco had quite exhausted lands once highly fertile, grass-growing is being introduced with excellent effect. The agricultural and local papers are arguing very earnestly recourse to this means of recuperation for soils worn out by exclusive crops and a bad system of tillage. Quite a stir is being made, and if such a thing as an excitement can be induced in the quiet realm of agriculture, then there may be said to be an excitement about grass-growing. As an example of the earnestness of this movement toward improvement, a writer in one of the prominent farm-journals says, referring to clover, "a few pounds of diminutive seed furnish machinery to absorb from the atmosphere, and pump out of the earth, the elements of fertility needed to replace what our wasteful and improvident predecessors have expended. I solemnly believe, that in the benign providence of God, clover is to be the Moses which is to deliver Southern agriculturists from the bondage of poverty and debt, by restoring our wasted and worn inheritance to its original fertility."

Considerable prejudice as well as ignorance appears to prevail in the South in regard to these products. A farmer in Hale county, Alabama, writes to one of the Southern journals, that in his opinion it will "take time to eradicate the prejudices of the planters against grass, which they have been fighting all their lives," and adds that he believes "the salvation of the South in great measure depends upon the introduction of cereals and grasses."

The "Sunny South" seems to be peculiarly adapted to some of the grasses. The Fescue-grass, (*Bromus Schraderi*), proves of great value there. Mr. C. W. Stewart, Montgomery County Texas, testifies that four mules and two milch-cows were pastured on less than two acres of this grass all winter, besides hogs. It greatly improves the flavor and quality of milk and butter. One party who experimented with it, did not break up or plough the patch for three years.

In South Carolina, clover seed rolled in with wheat will give a crop of stubble-hay after the grain comes off, which is better than corn fodder for cattle. If the land be good, the clover which stands three years yields a larger profit in hay than can be gained by any other crop. Then clover-sod ploughed in and put to corn will give thirty bushels to the acre. Next comes the wheat crop, after which the land stands in clover another three years. This is exactly the system of rotation we have known pursued very successfully in certain parts of this country known as "oak plains." That such a course should retain the productivity of the soil, is a striking proof of the renovating properties of clover.

Lucerne does wonderfully well at the South. It is considered by those who have tried it to be superior to all others as a forage plant, and is largely used for feeding green or soiling. Its yield of hay is enormous, five tons to the acre being no uncommon crop. Lucerne hay is said to be very nutritious, and is eaten with great relish by horses, cattle, and sheep. An acre will produce fodder enough, green and dry, to keep five horses. So says the *Southern Farm and*

Home We believe much more use might be made of lucerne at the north, if its habits were better understood, and the best modes of culture ascertained by careful experiment.

But after all clover is our "Moses," as truly as it is that of the Southerners. There is nothing like it as a recuperator of the soil. Clover, well dressed with plaster, is a vegetable magician. Its long tap roots go down into the depths of the earth for food and moisture, and its broad, magnetic leaves, attract the fertilizing gases and humidity of the atmosphere. Whatever there is in the heaven above or in the earth beneath, which its leaves and roots can gather, will without fail be brought to the soil to improve its condition. And it flourishes most luxuriantly here. Of all the sights that are fitted to bring hope and joy to a farmer's heart in the summer time, commend us to a glorious field of red clover!

Special Uses for Grasses.

In various quarters we find considerable discussion as to the value of the various grasses used in agriculture. The majority prefer timothy; but now and then some one is sure that orchard grass is best of all, while others contend that blue grass, red top, or some other is best of all.

After all it seems to us a matter of climate or soil, or season. In Kentucky the blue grass becomes famous, not only for the heavy crops it yields, as for the large amount of nutrition it seems to yield. The same grass is widely known in Pennsylvania as green grass; but no one seems to have observed in this State that this species has any specially nutritive character more than any other.

Orchard grass has many admirers. It yields heavily, and as it will do tolerably well in situations where other grasses do not do so well, it has this advantage. Again, it pushes up its herbage earlier than some others, and as anything green in spring is inviting to animals kept on dry food all winter, they seem very grateful for an early turning out to graze in an orchard grass pasture.

It is interesting to note how little heat seems to be necessary to get some kinds of grasses to grow, and how much it takes to start others. Thus timothy hardly begins to start till long after all others. Green grass and herds-grass, or red-top as it is sometimes called, is also rather late. The two which seem most easily started, of the popular kinds, are rye-grass and orchard grass. In this part of the world rye-grass has become rather common as a pasture grass. Many English people at various times have settled about here, and rye-grass being the favorite English grass, has naturally been extensively tried by them. So far as we have been able to see, however, in no case will it yield anything near the amount of hay that timothy will; but for a pasture grass it proves one of the very best. Many of our lawns have rye-grass among its other herbage, as it is a chief element in many popular lawn-grass mixtures, and here the first lawns to put on a green spring dress, as the gardeners say, are those in which a liberal stock of rye-grass prevails. It is quite as early, to say the least, as orchard grass; and, though, as we have said, cattle seem to eat orchard grass with great avidity in early spring, they will leave it for rye-grass if they have a chance.

The occasional rye-grass pastures we have about this city have been splendid cow pastures this season. The few tolerably warm days we had early in December, made them push rapidly into growth; while most of the others kept a dingy brown after the brief cold November spell. In the favored rye-grass pastures we have reference to, cattle are being turned out to graze up to the time we now write, near Christmas, and seem to have all they desire. From the preference they seem for it over others, it is probably nutritious grass, as cattle, unlike so many of the human species, seem to have an instinctive knowledge of what is good for themselves. But we have never seen any figures in regard to this subject.

In the south they seem to have no especial grass on which they run. Indeed, there is a sort of tradition that grass will not grow in the south, although as a distinguished southern man has recently said, half the summer time of the south is spent in weeding out the grass which grows spontaneously between other crops. No doubt there are many grasses which would do well in the south, if care were taken to select the kinds best suited to that region. Even here, a country fitted by nature especially for grass, we see how much depends on soil and climate, as well as indeed whether we want the grass for pasture or