

lay the double floor than to have put down the plank floor.

I never saw a stable floor so good as one made of tough clay and gravel, one third clay and two thirds gravel. Get tough, clean clay and mix it two thirds clean, with rather coarse gravel, and make into the consistency of mortar and put into place, and as soon as it is dried enough to begin to crack pound or ram it down hard, the harder the better, and continue this until dry. With plenty of bedding this will last as well as planks and is much pleasanter for a standing surface than plank or cement. If for lack of bedding horses ever paw out holes it can be easily repaired by simply filling with same and ramming down

Pastures

By Prof. Shaw

Pastures are either natural or artificial. Natural pastures are those which are indigenous to the country. They cover the ground in the open prairie when first occupied by the settler, and they grow, as it were, spontaneously in forest areas where the forest is cut away. The former are usually spoken of as native prairie pastures, and, though succulent and nutritious while they last, the season of their succulence is brief. The latter, the artificial pastures, composed mainly of blue grass and white clover, are superior to the former, inasmuch as they furnish succulent food spring and fall, whereas the former only furnish it in the spring or early summer.

If, therefore, our stock is to have suitable pastures during all their growing seasons, these must be grown in an artificial way. Some of these pasture crops may be grown on the upland and some in the bottom lands or in sloughs. The former include winter rye, timothy and clover, mixed grains, sorghum, corn, the Dwarf Essex rape and Australian brome, and the latter include temporary or permanent pastures sown with certain natural grasses. These will be considered separately.

Winter rye is mentioned first, since it is the earliest pasture that we can have in our State. Sown at the rate of two and one half bushels per acre, late in August or early in September, it may be made to furnish abundant pasture from the opening of spring to well on in May. When pasturing it, keep it cropped reasonably short, since as soon as it is allowed to joint its power to produce pasture that will be relished is gone. But dairy cows in milk should only be pastured on it during a few hours of the forenoon lest it taint the milk.

Timothy and clover pasture will be ready as soon as the rye pasture is done. Sometimes it is not easy to get a stand of these because of dry weather. Let us look at this question for a moment. These grasses usually start well in the spring, but fail later in a dry season. Why do they fail? They fail from want of moisture. The crops amid which they grow take the moisture and overshadow them, hence when the crop is cut, and dry weather follows, the grasses perish. Let us heed the lesson and try to grow them without undue shade, and on land that will hold moisture. These conditions will be found most perfectly on corn ground only stirred on the surface in preparing it for the crop and when the grass seeds are sown with crops of winter rye and barley.

Next in adaptation comes wheat, and after wheat oats. Winter rye stools less than other kinds of grain, hence it does not shade the grasses so completely. It is also cut early and the grasses are exposed before the hottest and driest season. The seed also can be sown early on winter rye, and, if covered with the harrow, will be much more sure to grow. Barley stools less than wheat, is less tall, thus letting in more sunlight, and is also cut earlier than any other kind of grain. When grass seeds are sown with wheat or oats on spring plowed land, and the season turns dry, they are almost sure to fail.

What Science is Doing

Sometimes it is wise to call a halt in our own affairs in order that we may be able to note more clearly what progress is being made in other fields of usefulness. While the agriculturist is busy with his land, his crops and his stock, the scientist is actively pursuing his investigations and endeavoring to solve the problems of the universe and the mysteries of nature about us on every hand. Several new discoveries in this wide field have been made recently which may have considerable effect upon the world's progress in future years. There are two of these discoveries that have perhaps aroused more interest than the others, namely, wireless telegraphy and liquid air.

Of these two discoveries that of wireless telegraphy is perhaps attracting more attention just now than the other. This consists in sending messages without wires on the waves of the air. Recent experiments in sending messages across the English Channel between France and England without wires have taken the invention from the experimental stage and placed it upon the plane of practicability. Messages were transmitted with perfect freedom and replies received in less than a minute. The apparatus necessary consists of vertical masts placed at two points between which messages are desired to be transmitted. The telegraphic apparatus may be placed in a house near the mast. On the top of the mast is the transmitter and receiver which sends off the message and receives the reply. The distance that a message can be sent depends upon the height of the mast.

It is not expected that this plan will replace to any great extent the present system. The objection to the wireless system is that there is no secrecy about it, and the messages may be broadcasted through the air to any number of receivers located within the circle of influence. Though it may be useful for signalling between ships at reasonable range it will be impracticable to use it for conveying messages across a large body of water such as the Atlantic Ocean. For instance, the radius of the earth being 4,000 miles, it would require towers 1.038 miles high to send a message between New York and London. It may be possible in time to improve the system so that these objections may be overcome, and if so this new discovery will work wonders in bringing nations and peoples into more intimate intercourse with each other.

The liquefying of air has its most useful sphere in the field of power and force. By condensing the air into a liquid, as has been accomplished, and then allowing it to expand into air again, a great amount of power is secured, which may be utilized for any purpose for which steam or electricity is now used. The inventor, Mr. Tripler, is said to have made the statement that he can produce ten gallons of liquid air from a compressor driven with three gallons. Many scientists doubt this statement, as it is, to a large extent, producing something from nothing, which is an impossibility, and in keeping with what was claimed for the Keely motor.

It was hoped some time ago that the penetrating Roentgen Ray, or, as it is commonly called, the X Ray, would prove of value for curative purposes, but this hope has been abandoned by the medical profession. It is claimed, however, that the Ray can be used effectively to diagnose disease in the human body, particularly consumption. It has been used with good results for this purpose, and old tubercle scars located in patients who never suspected they had been attacked by the disease. By diagnosing the disease at this early stage, special treatment can be given and the disease checked before it has reached an acute stage. Though there is no record of its having been tried, it might be possible to locate tuberculosis in cattle by the same method. At any rate, we would like to see the experiment tried.

Some attention is being given, more particularly in Germany, to the use of electricity in agriculture. Steam power for tilling the land is only applicable to large farms, but it is claimed that when electric power can be distributed from central stations it can be used in many effective