

comes in contact with the flesh. It is also liable to be left around in bottles and pitchers, and to be swallowed by somebody thinking it to be water, or perhaps liquor. A single swallow is pretty sure death, not because it is poison, but because it is corrosive and destructive to the flesh. Diluted with water until it is a pleasant sour, and swallowed, sulphuric acid is a pleasant and harmless drink. But in its concentrated form it is about as safe to drink as melted lead.

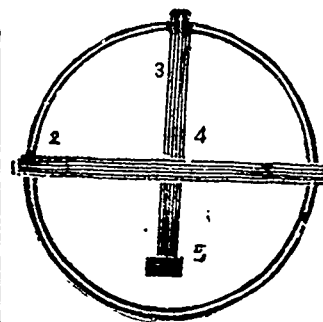
There is nothing we can get that is better worth what it costs as a manure than ashes, but it is not a complete fertilizer, and on soils that are cold, wet, or "worn out," ashes seem to do no good. They want some form of nitrogenous manure, and perhaps some phosphoric acid, though they contain some of that naturally, and when liberally applied will furnish a plenty for one or two crops. But their phosphoric acid is small in proportion to their potash. On strong clay land, and on some rich slaty or "marly" gravels, ashes do no good because there is natural potash enough in the soil. Raw ground bone contains both phosphoric acid and combined nitrogen, and when mixed with ashes the compound is a complete fertilizer. But raw ground bone contains a good deal of grease, which keeps out the water and prevents its decomposition in the soil. To cure this defect we mix the ground bone with the ashes (two or three barrels of ashes to one of bone), and pack the mixture firmly into barrels, making holes nearly to the bottom with a broom-stick or hoe-handle, and pouring in enough water to soak the mixture without making it leach. This dissolves all the grease, and also "cuts" or softens the nitrogenous animal matter of the bone, so that it is all ready for the plants to use. All can see that this is a simpler, more easily and safely made, and more complete fertilizer than one made with bone and acid. If three barrels of ashes are used to one of bone, it is well to keep one until the rest of the ashes mixed with the bone has taken effect (one, two or three weeks, according as you have time to wait, but the longer the better). Before applying it to the land, turn out the mixture in the barrels, and with a shovel mix the reserved dry ashes with it. This makes it better to handle, and easier to spread. Use this mixture just as you would a purchased fertilizer, but in double the quantity.

We said above that sulphuric acid was of no use as a fertilizer. This is true, yet it is of some use in the soil for its chemical action, especially in setting potash free from its insoluble (in water) combinations with other minerals. But we can buy sulphuric acid in a much cheaper and safer form, if we buy it in land plaster, which is merely sulphuric acid and lime combined together. We have used a great deal of plaster as a fertilizer, and have made up our mind that its value is due to the sulphuric acid in it. The quantity of lime in it is so small that it does not seem possible that the lime should have any part in the effect, for there is no soil that we cultivate that does not naturally contain far more lime than we ever apply in a dressing of plaster. It is universally agreed that the crop plaster does the most good to is clover, and especially red clover. Red clover is a very independent plant for such a strong grower. It is so, because it sends its roots deep and wide, and these roots seem to have a power to find the nitrogen compounds, and separate them from the soil, and use them, such as hardly any other plant has. Clover don't ask for nitrogen in a fertilizer. But it does seem to want plaster, and to make great use of it. We think it uses the sulphuric acid in the plaster in some way to get hold of the potash (and perhaps also the nitrogen) in the soil, and thus feeds itself, if it can only have this little digestive to work with. Anyway, plaster does wonders for clover. It seems often to have a similar, though less marked, effect on corn and potatoes. For this reason we do not reckon the

plaster which constitutes about one-half of our best commercial fertilizers (not added, but made by the union of the sulphuric acid with the lime of the bones) as being of no value, as is the custom of chemists in making their analyses. We think the plaster in a barrel of good phosphate is worth as much as though it were bought separately, and there are from one hundred to one hundred and fifty pounds in each barrel. Taking the analysis on one of Bradley's barrels, we find that only one-fourth of the whole weight consists of phosphate of lime, nitrogen compounds, and potash. Most of the remainder is plaster. But plaster alone on any tilled crop is not very effective, and cannot be depended upon to make a fair yield. It is useful, but must have the other elements of fertility along with it to give us a crop.

#### A RAT TRAP.

Take a barrel that will hold water; cut a notch on edge of barrel on opposite side after one head is taken out; then



take a strip to reach across the barrel to fit in notches; make round each end so it will turn easily; then take a second piece to go across the barrel flat; allow one end to rest on the edge of the barrel; tack in middle of the first strip, bait by tacking a meat skin on this short end; fill barrel with water, and often one-half bushel rats can be caught in a single night.

The above diagram shows the outline of the trap. 1 notch; 2 first strip; 3 second strip; 4 mail in center; 5 bait of meat skin. "This," writes Dr. Folk, "is a self setting trap; and the best, I believe in the world." Any intelligent reader of the Journal, ought to be able to make, or plan for some one else to do the work, a trap of this kind to put in a corn-house, cellar or other places infested by rats.

Mr Jenner Fust, has been appointed Professor of Agriculture at Lincoln College, Sorol. There is a farm of 160 acres attached to the College, which will be added to as opportunities occur. Lectures will be given by the Professor on the theory and practice of agriculture, and the cultivation of the farm, the management of the stock, etc., will be entirely under his control. Mr Jenner Fust will still continue his connection with the *Journal of Agriculture*. Lincoln College is fortunate in securing the services of so competent a man as Professor Jenner Fust.—*Montreal Star*.

#### OUR ENGRAVINGS.

Havemeyer's Cattle Barn.

Garfield's American hay tedder working with the back action.

Shorthorn bull, Fourth Duke of Clarence: the property of the Bow Park Farm stock association.

Racine Sulky plough.

Fruit-evaporator illustrated.

#### The Farmer's Cow.

R. GOODMAN.

THE line is being sharply drawn between those who argue that a new breed can be originated by a judicious cross-breeding among the existing races and cows be produced combining the beef qualities of one and the dairy qualities of others; and those who claim that the true course is to con-