

**NITROGEN FROM THE AIR.**

Machinery has been set up in Newark, N. J., for manufacturing ammonia from atmospheric nitrogen. Every farmer knows that nitrogen is one of the essential elements of plant food and that it is far the most expensive of the elements that are required in fertilizing mixtures. It is well known, too, that nearly four-fifths of the great ocean of air that surrounds the earth is nitrogen, and that it is practically useless as food to plants, though they are bathed in it all the time. Recent researches have shown, it is true, that a small portion of this nitrogen can be utilized by certain plants, especially those belonging to the pulse family, but there never has been any available method of transforming the nitrogen of the air into plant food for general use. Of course it is not wise to expect too much from any reported discovery, but if it is true that the sulphate of ammonia can be produced by this new process at about one-third of its present cost, this will be one of the greatest boons that the science of chemistry has yet bestowed on the art of agriculture. If ammonia can be cheaply manufactured from atmospheric nitrogen, the discovery means that a great step has been taken toward securing a material increase in the productiveness of the soil.—Scientific American.

**A WINDMILL IRRIGATOR.**

A bright Nebraska farmer writes as follows to Pacific Rural Press: "I have a wind power plant run by a 14-foot wheel, with an 8-inch pump, that throws 4,400 barrels per day in a medium wind. I have two reservoirs, one 60x150 and one 80x150 feet. With this plant I have watered ten to fifteen acres, and it can be managed so as to water still more by using and applying the water to some of the land during the winter season. It is necessary to use reservoirs so as to have a larger volume of water whenever you irrigate. By this means you have more pressure and can water more land at one time and do it quickly.

"To build reservoirs, take from the dimensions that you wish to put into the reservoir the earth to make your banks with by plowing and scraping it up from your bank, and by so doing you spoil no land on the outside. Two men and a team can make a reservoir 100x100 feet in eight or ten days, or less time. The Gause pump that I am using can be used in an open well or with drive points.

"To make your reservoir hold when you begin to pump water into it, commence tramping horses as fast as the water covers the bottom of the pond, until you get it into a loblolly of mud

two or three inches deep, and this will then settle into the pores of the ground and stop nearly all the seepage. Do not put manure or straw into the bottom of the pond if you ever expect to stock it with fish, as they will surely die. A plant like mine, or similar, with reservoirs, pumps, etc., complete, ought not to cost over \$250, counting pay for the farmer's labor that he does himself on the plant. I am lifting the water seventeen feet. This pump will raise the water twenty-five feet from the valve successfully.

"In irrigating a great many kinds of fruit trees, berries, and in fact all small fruits, use furrows or small ditches instead of flooding the land, and by so doing save at least one-third of the water that it would otherwise take to flood the land. I have eight acres in fruit, and in the last three years I have always had enough water to flood this orchard. Where there is a sufficient supply of water underneath and you do not have to go too deep for it, say 20 to 30 feet, I would advise the use of points instead of open wells. Where a man is gardening, or wishes to grow an orchard of ten acres, one of these plants will pay for itself in one dry season, and the farmer who has a plant of this kind is always sure of vegetables and berries for his own family use, and I consider this one of the most essential things to the farmer, for in any country, to make true farming a success, the farmer must grow his own vegetables and fruit for home use."

**DIFFERENCE IN HOURS.**

The Whatcom Reveille says that William Powell illustrates the difference between the farmer and the mechanic, as to the hours of labor by the following: Jim Brown, a farmer of Nevada City, hired Jack Bolong, a carpenter, to serve his milk route. Jack got a statement of his duties, which were to get up at 3 a. m., wash the cans, curry the horses, grease the wagon, drive the route, collect the bills, clean the stables, assist the other hired man and do the chores. He finished at 11 p. m. and went to old Brown's bed and inquired what else was to be done—how he should put in the other four hours. "Why, hang it, man, go to sleep," said Brown. "I don't like to waste the time," said Bolong with a grin. "Moreover, it makes my feet sore to sleep."

W. J. Malloy said that made him think of the case of Ed. Billmeyer and his brother Ike, who undertook to open a mine of their own in Nevada. They had always worked in a mill with a noon whistle, under a boss, so when they went to work for themselves they each took an eight-hour shift and the other was boss. They got a dog whis-

tle, and when noon came, whoever happened to be boss blew it, and the other quit work as though he had been shot. One day Ed blew the whistle just as Ike drove his pick into the face of the drift. Ike never pulled the pick out, but quit work. That noon they sold the mine for \$100, and when the men who bought it loosened the pick, gold sulphurets worth \$2,000 a ton came tumbling down, and the men made \$1,000,000 out of it. Ed said Ike did just right, and that any man who moved a muscle after his eight hours was a dirty scab.

**STOCK ECONOMICS.**

A big Jersey City abattoir burned last Saturday, destroying 5,000 sheep and lambs, and a lot of dressed beef and mutton. Total loss, \$800,000, and 700 men thrown out of employment.

Salt is necessary for all vegetarian animals, and aids in the digestion of the food. The belief that it is a preventative of intestinal worms is well founded, for these parasites are found mostly in animals of imperfect digestion. The undigested food encourages these pests, as they feed upon it, or upon the copious mucous secreted in the bowels of animals suffering from indigestion. Salt should be given regularly with every feed, if cut food is used, otherwise in the form of a lump of rock salt kept in the manger, where it may always be reached.—Exchange.

TROTTER EVOLUTION.—The American Sportsman, in a long article on "The Evolution of the Trotter," concludes with these general remarks: "Assuming that trotting began about the year 1800, it took forty-five years before 2:30 was beaten. In fourteen years more 2:20 was beaten for the first time, and twenty-five years more elapsed before 2:10 was reached. This shows that while general speed multiplies fast, the limit of extreme speed was attained more slowly. Just as when we near a state of perfection progress necessarily becomes slow, so beyond a certain limit man or horse cannot progress. The day after Jay-Eye-See put up his mark of 2:10, Maud S. shaded it a quarter of a second. In 1885 she turned the Cleveland track in 2:03 $\frac{3}{4}$  and was retired as queen of the turf. At the close of 1891 the trotting record had been reduced to 2:08 $\frac{1}{4}$  by Sunol, or a gain in seven years of 1 $\frac{3}{4}$  seconds, but this apparent gain is of rather a superficial nature. When the curtain dropped on 1892 the world's record stood 2:04. It was not changed last season, but the public looks for Directum or Alix to shade it in 1894."

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