

THE ADVERTISING TRICYCLE.

The machine represented herewith opens up a new horizon in the vast domain of advertising, in which it seemed impossible to realize still another innovation.

As may be seen, it consists of a tricycle whose hind wheels, P and P', with very wide rims, are covered with a rubber tire that carries in relief the advertisement that it is desired to make known.

It will be at once seen that such advertisement must be quite short (formed of two or three words, for example), so that the letters may be given as large dimensions as is compatible with the width of the wheels.

Above the wheels there are placed two inking rollers, A and B, that communicate with the reservoirs, R and R', through tubes, C and C', provided with cocks, r and r'.

Through the intermedium of a small pulley, L, and a cord, a, the axle of the pedals actuates a small blower, V, fixed upon a small shaft supported by the frame of the reservoirs. This blower sends air into the tubes, T and T', which drives away the dust from in front of the motive wheels. The system of tubes, K and K', supporting the inking rollers is controlled by a cord, a, attached to the extremity of the lever, E, which the cyclist can cause to tilt in such a way as to establish a contact between the roller and the tires. The reservoirs, R and R', are supported by the rear axle. The other parts of the machine do not differ from those that exist in the ordinary tricycle.—Revue Universelle.

California Scale.

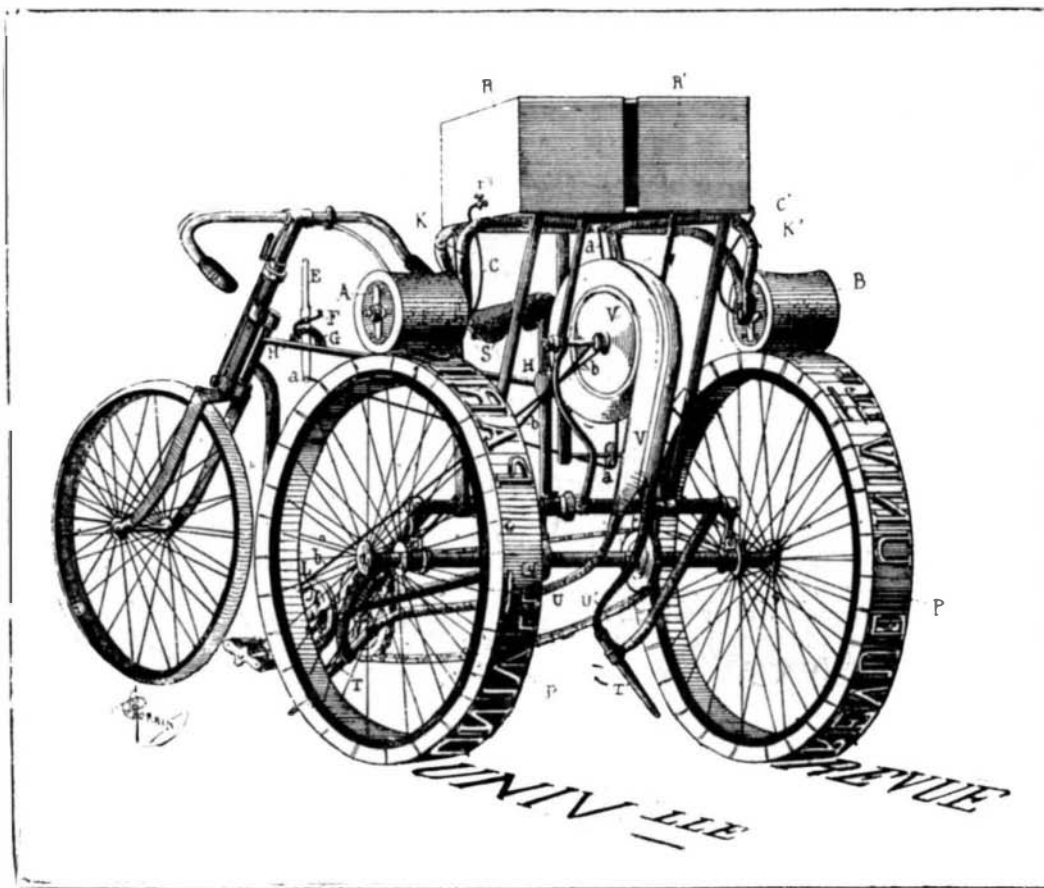
In the last bulletin from the New Jersey Experiment Station, Professor Smith gives an account of the spread of this scale in New Jersey, where it was introduced upon Kelsey plum trees imported from California, and probably from Idaho pear stock received from Western nurseries, and it has spread until it is known to have infested at least a hundred places in that State, and it is not safe to assume that it is absent from any orchard which has not been examined. This scale belongs to the group of armored scale insects, and a complete account of its life history and of its methods of spreading are given in this bulletin. Naturally it moves very slowly, but as it will crawl upon winged insects and the feet of birds, as well as upon ants, which are great travelers, it is sometimes carried great distances. It is probable that all rosaceous plants will support the species, although it prefers some varieties to others. The recommendations in the bulletin are that every orchard set out during the last six years should be thoroughly examined, and if the scale is found to be present and confined to a few trees, these trees should be taken out and destroyed, unless the infestation is slight, so that they can be gone over with a stiff brush and all these scales actually brushed off. In young orchards where the trees are not too large to handle it will pay to go over all the trees with a brush. Where the trees are too numerous or large they should be pruned back, removing as much wood as the tree can spare; the cuttings should be carted off and burned, and the tree should be washed with a potash solution. In California the insect is treated with gas which is formed by the action of diluted sulphuric acid on fused cyanide of potassium. This is not recommended for Eastern orchards, as the necessary outfit is too expensive, but wherever stock is infested in nurseries, or even suspected of infestation, all trees sent out should be made up in bundles with the roots wrapped to retain the moisture, covered with oiled canvas or other gas-tight material and fumigated for an hour, an ounce of cyanide to every one hundred and fifty cubic feet of space being used. This bulletin is worth careful study by all fruit growers, since the San Jose scale is one of the most dangerous insects introduced into the Eastern States within recent years, and no fruit grower ought to consider the matter so unimportant that he can afford to neglect it.—Garden and Forest.

Snow Insects.

At Wurtsboro, N. Y., on January 10, after a fall of snow the surface was covered with small black insects. On microscopical examination they proved to be *Thysanura*, of the *Poduridae* Burmeister family. They are found in gardens or hotbeds, on manure heaps and on the snow. There are many different species, and all have different habits. On the glaciers of the Alps the snow species is to be found. They take up their abode under stones, and hide beneath mushrooms and in damp, grassy spots. Often they leap together in the air, looking like a shower of sand. In the Wurtsboro case, they had probably come from some nearby stable or jump place.

Beet Leaves in Cattle Feeding.

We have on many previous occasions discussed the advantages and disadvantages of beet leaf utilization in cattle feeding. It has been pointed out that there is danger in excessive feeding thereof, that colic, etc., were sure to follow, but that those pernicious effects might be overcome by certain precautionary measures. The principal element contained in beet leaves, and



ADVERTISING TRICYCLE.

that most to be dreaded, is oxalic acid, which represents 10 per cent of the dry matter of beet leaves. But as the dry matter is 10 per cent of the beet leaves, it follows that when feeding 20 lb. leaves there is introduced 1.5 lb. oxalic acid. All organic salts are, as it were, harmless as compared with the action of an oxalate; and recent investigations in Germany point to the effort of the animal's bony frame to neutralize the poisonous effects of oxalic acid, by furnishing the requisite lime carbonate for a combination with the acid that would be a harmless oxalate, not assimilated during the physiological digestive process.

We have here an important hint as to the advantage of adding lime to beet leaves when fed to cattle. The question yet to be investigated is, whether it is better to add the lime to leaves before they are siloed, or during feeding. A fact not to be forgotten is, that the percentage of oxalic acid in beet leaves diminishes during their keeping. In this question of beet leaf utilization we have a series of problems to which our experiment stations should give their attention, and whatever conclusion is reached shall not be passed unnoticed in these pages.—The Sugar Beet.

Gratifying Results of the New Diphtheria Cure.

Consul General Mason, writing to the State Department from Frankfort, Germany, says:

In Paris, as has been stated on the authority of Dr. Roux, its use has reduced the diphtheritic death rate from 50 per cent of cases attacked to 14 per cent. The deaths from diphtheria in Paris during October, 1890, numbered 125; in the same month of 1892 they numbered 134, while in October, 1894, during which month antitoxine was extensively employed, the deaths from that disease numbered only 23. In Germany, diphtheria has been hitherto regarded as one of the most deadly and irresistible of diseases, the fatal cases ranging in some years as high as 60 per cent. Not less than fifty thousand lives have been annually sacrificed to this scourge in this country, and it is now believed, from the experience already gained, that this frightful tribute can be reduced to less than one-fourth of its present proportions when the use of antitoxine shall become general throughout the empire, and physicians in rural districts as well as those in cities are skilled in its application.

The discovery of antitoxine as a new agent for the prevention and cure of diphtheria was announced by Prof. Dr. Emil Behring, of Halle, about four years ago. Although received at first with more or less incredulity, the new remedy has borne successfully the test of actual use, and it is now recognized by high authorities as one of the most beneficent and interesting discoveries in modern pathology.

Horses are now exclusively employed to furnish the blood serum in which the antitoxine is developed and contained.

Dr. Behring found that when an animal which is by nature susceptible to diphtheria is inoculated repeatedly with gradually increased doses of diphtheria poison, or living bacilli, it becomes finally "immune" to (proof against) the poison of that disease, and there is developed in the tissues of the animal so treated an antitoxic principle which has the power to neutralize and render innocuous the poison which is secreted by the true diphtheria bacillus, as demonstrated in 1884 by Loeffler, which poisonous secretion, as is well known, forms the source of danger in diphtheria.

The neutralizing agent thus created was named "antitoxine," and is the specific which forms the basis of the new treatment of diphtheritic disease, both as a preventive and as a remedy in cases that have become actually developed. Precisely what this antitoxic agent is, has not been demonstrated. Chemistry has not separated and defined its constituent elements, but its action is perfectly understood, and is analogous to that of hydrated oxide of iron when used as an antidote for arsenical poisoning. In the presence of arsenic, the oxide unites with the poison and forms a combination which is not poisonous. In a similar manner, the antitoxine attacks and neutralizes the poi-

son secreted by the bacillus of diphtheria, and this, so far as experience has shown, without immediate or subsequent injury to the tissues or prejudice to any of the functions of human life.

The finished antitoxine is a clear, amber-colored fluid, soluble in water, and is put up for use in strong, carefully closed, sealed and labeled vials, having a uniform capacity of 10 cubic centimeters, or one-third of a fluid ounce. The exact bulk of serum in each vial is regulated according to its number and strength.

Foreign Honors for an American Scientist.

A recent number of the *Comptes Rendus* announces the award of the Janssen prize of the French Academy of Sciences to Prof. George E. Hale, of Chicago. Prof. Hale, who is the director of the new Yerkes Observatory, has been especially interested in astrophysics and has followed out very successfully some suggestions made in 1869 by Prof. Janssen. He has thereby succeeded in photographing many of the details of the sun's disk, such as faculae and protuberances, and has endeavored to catch the corona without an eclipse.