

Science Notes.

Three hundred and twenty acres of land have been purchased in Salt River Valley, the idea being to consolidate, as far as possible, the ostrich industry.

A swimmer who broke his neck last August, and who was successfully operated upon, is now able to write and his hand gained steadiness with each attempt.

The statue of the late Prof. Huxley by Onslow Ford was recently unveiled. It has been placed in the great hall of the Natural History Museum at South Kensington.

A crystal of beryl has been found at Grafton, N. H., which was 2,900 pounds and another from the same locality measuring 45 by 24 inches weighed by calculation about 2½ tons. In Utah crystals of gypsum over 4 feet long have been found. A crystal of spodumene—lithium, aluminium silicate—30 feet long has been discovered in South Dakota.

The question of the stability of the Ducal Palace in Venice is receiving great attention. The alarming reports which are being published are apparently exaggerations. The great library and archaeological museum are to be transferred, thus relieving the weight of the upper stories. The palace was never intended by its builders as a storehouse for books and heavy models.

Vesuvius is becoming more and more active and those who live around it are greatly alarmed. Experts are inclined to consider that there is no immediate danger. The station of the cable road which leads to its summit has been destroyed. Four English travelers, who were making the ascent of the volcano ventured too far and were overtaken by the lava and seriously burned.

An aeronaut was recently poisoned by hydrogen arsenide, which escaped from the balloon. This shows the necessity of purifying the hydrogen used for balloon purposes. The balloon was filled in the ordinary way and nothing peculiar in the odor of the gas was noticed. A few hours afterward the persons who had assisted in the operation were taken seriously ill and one of them died.

A field station in connection with the New York State Museum is to be opened during the summer on Saranac Lake for the study of the biology of aquatic insects. This is believed to be the first station in the United States where fresh water insects will be under investigation. Charles Needham, professor of biology at Lake Forest University, has been selected by the management of the New York State Museum to conduct the work.

In the year 1898-99 the medical faculty of the Paris University graduated 671 doctors, of which 79 were foreigners, besides 13 health officers, 48 midwives and 68 dentists. The number of medical students enrolled is 4,412; of this number 570 are foreigners. The Russians number 180; the Roumanians 79; Germans, 26; Greeks, 25; Swiss, 21; South Americans, 12. There are 129 women students, 100 of which are foreigners, including 91 Russians, 5 Roumanians, 2 Greeks, 2 Swedes and 1 English student.

It is probable that the metric system will be introduced before long in Russia; the bill which has been prepared to this effect by the Minister of Finance has received the approbation of the State Council, with the understanding that the University and the various scientific societies will give their assistance in the verification of the weights and measures necessary for commercial use. The details have been nearly all decided upon, and will be submitted to the Council in the near future. Since 1896 the metric system has been used by the medical service of the army in the compounding of formulas, this having been made obligatory.

On December 27, 1896, there occurred over Melbourne and a considerable area of Victoria an unusually heavy fall of dust of a red color which was carried down by an accompanying rain. Mr. T. Steel examined a sample of the dust after drying it at a temperature of 110° C., and obtained the following results: Organic matter (nitrogen 0.30), etc. (loss on ignition), 10.70; sand, insoluble and undetermined, 66.23; soluble silica, 0.75; ferric oxide, 4.68; ferrous oxide, 0.50; alumina, 15.16; lime, 1.36; and sulphuric anhydride, 0.62 per cent. It is stated that the dust agrees very closely in appearance and composition with volcanic soils from Northern Queensland, New South Wales, and Fiji Islands.

Dr. Chavernac, of Aix (France), has just designed a new army stretcher. It is a rigid contrivance made in two halves, and its advantage over the existing French ambulance is that the wounded man can be lifted off the ground without experiencing any shock or pain. The halves of the stretcher are placed on each side of the sufferer and by pressure they fold together under the body of the patient, who is not touched with hands at all in the operation. When loaded the stretcher is mounted on a light bicycle carriage. Under the existing conditions of ambulance work in France, four men are required to lift the wounded man, but by the aid of the new stretcher only two attendants are required.

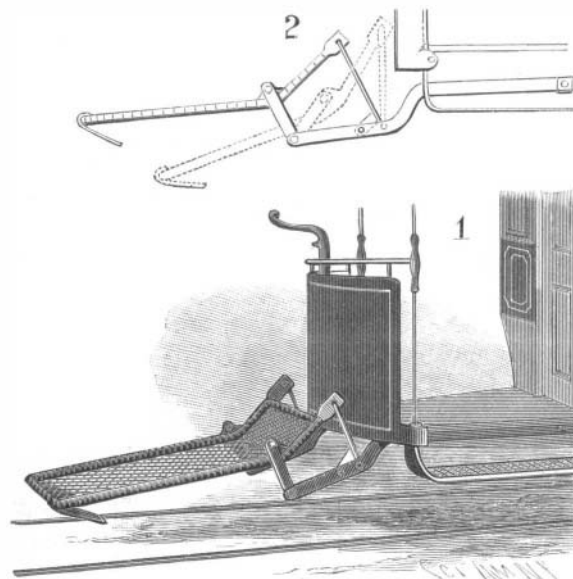
The Paris-Roubaix Races.

The Paris-Roubaix races showed a very high speed obtained by the motorcycles; one of the concurrents, Barras, made an average speed over 262 kilometers of road of 69 kilometers per hour, and in some places reached a speed of nearly 100 kilometers. From Beauvais to Breteuil the distance is 29½ kilometers, and the time required to cover the distance was 18 minutes, giving an exact figure of 98 kilometers per hour. The race was marked by an unfortunate accident, which has caused a great deal of comment, and may result in legal restrictions or even suppression of automobile races. A large crowd of spectators was assembled at a point where two roads crossed, the motorcycles being obliged to make the turn here. In front of the crowd was a row of bicycles. The two motorcycles arrived, and one of the runners made a turn which was somewhat too large, and the other, who was going at a greater speed, tried to make the turn on the inside; the two tricycles became entangled, and ran into the crowd of spectators, who were partially protected by the row of bicycles. Two persons were seriously wounded, one of whom was the wife of a deputy. Some of the French journals made this the occasion to decry automobile races in general, and there is talk of restrictive legislation or prohibition of automobile races in the future.

A NEW FORM OF CAR-FENDER.

To provide a fender for street-cars, so arranged that, normally, it will be held in raised position, and that, upon striking an obstacle, it will be immediately depressed, is the purpose of an invention controlled by the Rodman Car-Fender Company (Mr. Fred S. Pickering, secretary), of Olathe, Kans.

Fig. 1 represents the platform of a car provided with the fender. Fig. 2 is a side elevation of the fender.



THE SAUNDERS-RODMAN FENDER.

The fender consists of a netting stretched on a stout tubular frame, carried by two pairs of links pivoted on supporting-bars attached to the car. One pair of links is pivoted to the forward ends of the supporting-bars and to the side tubes of the fender-frame; the other pair of links pivotally connects the rear portion of the fender-frame with the supporting-bars.

In the normal position of the fender, the links will all be inclined upward and forward, as shown in Fig. 1, and will be thus supported by means of stops engaging the rear links. When the front of the fender comes in contact with a person on the track, it will be forced rearwardly and downwardly, as shown by dotted lines in Fig. 2, so that the shoes on the front portion will engage the track-bed, and the person will be picked up or thrown to one side out of danger. The merits of the device are so obvious that extended comment is unnecessary.

A NEW form of ozonizer has been devised which consists of two long concentric square conduits of thin wood; the space between them is filled with a kind of metallic matting composed of a central web of wire-gage in which are placed vertically a great number of small wires. In the central conduit is placed a kind of continuous wire brush, obtained by fixing to a central core a series of wires which project out radially, their point facing the points of the wire matting in the outer conduit. The two are connected to the poles of a high tension electrical machine and a current of air is passed into the conduit, which at one end opens into a box containing the aspirator. The other end is connected with a chamber through which enters the air to be ozonized; it contains a layer of cotton to intercept the dust particles. The use of metallic conductors of this form has the advantage of providing a great surface of action and at the same time they are sufficiently elastic to take up the expansion and contraction due to the heat disengaged. In practice a number of these conduits are placed together to increase the output.

Engineering Notes.

A château near Prague has been lighted by 1,200 jets of acetylene gas.

Mr. Charles P. Haughian, who died recently, was the founder of the chrome steel industry in the United States.

The total number of compound locomotives built in the locomotive works of America is 1896 up to date. Of this number, 1329 were constructed at the Baldwin Works.

Pullman palace cars are to be used on the Yukon and White Pass Railway from Skagway to Lake Bennett. They are only 40 feet long and weigh 15 tons. The railway company is building 200 freight cars.

The Coolgardie, Australia, water pipe line is a hydraulic enterprise of the first magnitude. It involves the construction and placing of 328 miles of 30-inch steel pipe which will deliver daily 5,000,000 gallons of water.

There has been a marked improvement in the state of trade in Palestine since the opening up of the country by the Jaffa-Jerusalem Railway. The transportation of goods from the coast to the interior is now rendered very easy.

A new kind of map for railway stations is being introduced in England by the Northeastern Railway Company. The map is made up of white tiles and is about 6 feet square and each tile is 8 inches square. The lines are marked in black and burnt Sienna.

The paved streets of New York aggregate 1720 miles of which Brooklyn provides 548 miles and Manhattan 405 miles. There are 745 miles of macadam streets; 339 miles of granite, 238 miles of cobblestones, 230 miles of asphalt, 84 miles of trap, 45 miles of Belgian block, 19 miles of brick; 13 miles of gravel and 0.08 miles of wood pavement.

A ladle full of molten iron was overturned recently on a trestle at the works of the Illinois Steel Company, at Chicago. The cars hold about 10 tons of metal and are operated by electricity on an elevated track, beneath which a number of men were working at the time of the accident; eight of the men were badly burned by the flying metal.

In the German army movable targets are used. The targets are drawn forward by the aid of ropes and pulleys, and the targets rest on small skids. As the trucks move forward the infantry, kneeling down, fires at them. This gives them a practice which enables them to familiarize themselves with the best methods of repelling a cavalry attack.

Arrangements have been perfected by which Russian oil will be distributed in Germany. In the last few years American petroleum has practically monopolized the German market. The German government has now offered facilities to Russian producers in the way of reduction of railway rates, so that it is expected in the near future, the Russian oil trade will make considerable progress in Germany.

An ocean depth of 5,260 fathoms, or 31,560 feet has been found by the United States steamer "Nero," which has lately been engaged in making soundings for a submarine cable between Guam and Manila. In November, 1899, the "Nero" reported a sounding of 4,900 fathoms about 500 miles east of Guam. The deepest ocean sounding heretofore reported was 30,930 feet, northeast of New Zealand and east of the Kermadecs, in the South Pacific.

Experiments are being made in Germany with beech as a material for railway sleepers. It has been found that without preservative treatment such sleepers are apt to rot internally though they may be apparently sound on the exterior. On the Alsace-Lorraine lines, favorable results have been obtained with creosoted beech sleepers, which have shown an average life of 19½ years, while others preserved with zinc chloride have proved still more satisfactory, their life being 21½ years.

The oil engine is growing in favor in Palestine, says The Engineer. The engines are used for drawing water from deep wells and for irrigating the orange gardens where they are extensive and a constant supply of water is necessary. Hitherto there has been employed from six to eight mules for turning water wheels which involve considerable expense. It is found that an oil engine of 6 horse-power, or even less, will raise double the quantity of water in the same time that a horse or mule will, while the expense is about the same.

Recently in making repairs upon the interior of a dwelling house in Boston, the discovery was made that the water pipes were lined with glass. The house was built some sixty years ago, and when Cochituate water was introduced into Boston, the owner of the house with hundreds of others became panic-stricken over the possibility of lead poisoning and had all of the pipes used in bringing city water into his house lined with glass. This was expensive and unsatisfactory, and few attempted to have the glass-lined pipes. It is thought that no other house in Boston has plumbing of this unique nature.