

Correspondence.

Sun Motors for India.

To the Editor of the SCIENTIFIC AMERICAN:

In one of the recent issues of your paper which has come to hand is found the article, with illustrations, on solar motors. This has proved of great interest to me, as the thought has suggested itself time and again in this severe famine, "Why cannot some means be employed for the utilization of the fierce heat of the sun for the purpose of pumping water?" This article goes to show that the day is not far distant when a great deal of heat will be derived from the sun.

I shall watch with keen interest the development of the solar motors and do what I can to let it be known here that the Americans are successfully creating power from the sun's rays.

Undoubtedly these motors will command world-wide attention, as there are vast tracts of territory where the cloud percentage is very small and where, could power but be obtained, "the desert would bloom as the rose." In this portion of India the season in which water is most sorely needed, especially after the failure of the rains, is called "sun time." The percentage of sunshine is very high.

A few figures from some experiments I have made with respect to the power of the sun may be of interest to those who are constructing the "motors." From these it would appear that the heating power of the motors would be increased should the "magic circle," or possibly the entire middle portion of the motor be incased with glass.

The following are the figures recorded on three separate days, with an ordinary thermometer, in the sun at midday, and the temperature in a cardboard box covered with glass. Had a tin box been used a still greater difference would have been recorded:

	In Sun.	In Glass-Covered Box.	
April 17, 1901	126°	157°	= + 31
April 18, 1901	136°	157°	= + 27
April 22, 1901	127°	159°	= + 32

From these it will be seen that the temperature in the box was from 27° to 32° higher than in the open air. Should the temperature in the "magic circle" be raised from 27° to 32° by simply incasing the same in glass, undoubtedly better results would be obtained.

REV. WALTER T. SCUDDER.

Vellare, India, Madras Pres., May 1, 1901.

Meteor Seen in Daylight.

A remarkable phenomenon, that of a meteor seen in daylight, was observed in different localities in the northwest of Germany on the 16th of December last. According to the indications furnished by Das Wetter, the meteor was observed about 4.40 P. M., near 45° above the horizon, in the direction south-southeast. It appeared under the form of a large mass of a brilliant and rather violet hue; it moved in an arc which was somewhat inflected toward the horizon, in the direction southwest. The meteor disappeared at or near the horizon, according to the different reports. The light was quite intense, as may be remarked from the fact that even in daylight the phenomenon was mistaken for that of lightning. The observers agree in attributing to the meteor an elongated and pointed form, but this may have resulted from an optical illusion due to the movement. The meteor in its passage through the atmosphere left behind it a great quantity of smoke or vapor, which was visible in the form of clouds extending nearly five minutes of arc in length behind it. These clouds, which were visible in spite of the rays of the sun, which had not set, followed the path of the meteor at first, but then moved toward the east in the direction of the wind, and gradually settled down, this no doubt being due to the weight of the particles composing them.

A Derailment That Damaged a Pond.

A curious case was brought before the Supreme Court of Pennsylvania recently, says The Railway Gazette. Plaintiffs owned an ice pond and brought an action for \$7,500 damage to 15,000 tons of ice, due to 6,000 gallons of oil from an oil tank car which had been derailed. The derailment, according to the evidence, was not due to any fault on the part of the defendant. The oil ran through a break in the tank at the rate of two gallons a minute, and flowed into plaintiff's pond. The defendant used every effort to pump the oil from the car into another car without success, and at the end of eleven hours from the time of the accident, the defendant, finding that nothing could be done to save the oil, opened the valve at the bottom of the tank and let it all run out. The court said, in refusing to permit a recovery by the plaintiff, that as the quantity of oil which had already flowed into the stream was sufficient to render the ice made from its waters useless, letting out the remaining oil is an insignificant fact, and cannot be said to be sufficient to place the responsibility on the defendant. (Commercial Ice Co. vs. Reading.)

Electrical Notes.

Germany and Holland are planning to lay a new cable to connect with the Dutch East Indies.

There are now in Italy 3,179 kilometers of street tramways worked by mechanical power, 263 kilometers of these by electricity, and the remainder by steam power. They are owned by 64 companies and private concerns. The town of Milan owns only 5½ kilometers, while the two largest companies control 261 and 205 kilometers respectively.

A committee of experts appointed by Postmaster-General Smith, which investigated the workings of the pneumatic tube systems of carrying mails in cities, has reported its conclusions that on the present basis of cost the system is too expensive. They say, however, that a system to be operated by electricity is in process of development and bids fair to be successful. It essentially consists of a miniature third-rail trolley road operated in a tube.

A large electric plant is being erected at Bibi-Eybat, near Baku, which is intended to supply power and light for the whole district where boring operations are carried on. There are four dynamos of 500 kilowatts and 2,000 volts each. All the necessary work, including boring, will be done with electric motors, and these are of a particular construction. Great care is taken to exclude the highly inflammable gas, rising from the borings, from the motors and other parts likely to cause an explosion.

At a meeting of the German Auer Company, held some time back, it was announced that Dr. Auer had succeeded in making an electric lamp with a filament of osmium, says The Trade Journals Review. It was further stated that laboratory experiments showed this lamp to take but 1.5 watts per candle power, and that the average life would be not less than 700 hours. The lamp works best, it is said, with a small electromotive force, 25 to 50 volts at most. This, while an inconvenience in most cases, has advantages when the lighting current is supplied by batteries, since fewer cells are needed.

A light electric railway for passengers and goods traffic in Russian Poland, connecting the towns of Lodz, Zgierz, and Pabianice, is now open. Its length is about 21 kilometers, and the electric plant has been built in Russia. The line is owned by a company consisting of Polish manufacturers and merchants, and has cost about £80,000. The building of this railway has been granted by the Russian government on the conditions that after twenty-eight years the whole line and plant is to be handed over to the government without any compensation, and that after twenty years it has the option of purchase. Furthermore, the company has agreed to pay a certain portion of the profits to the government. This line is interesting, as it is the first electric railway established in Russia.

Several French syndicates have planned the development of the water power of the Rhone, and extensive plants are to be erected within the next three years between Pymont and the Swiss frontier. The first of these projects is that of Malpertuis, 2½ miles below Bellegarde, where the river falls thirty to thirty-five feet, with perpendicular banks only 160 feet apart. By building a tunnel one-half mile long, a total fall of fifty-one to fifty-five feet can be secured, equivalent to 25,000 horse power, at low water. Near Bellegarde another tunnel would secure a fall of eighty to eighty-five feet, developing 30,000 horse power. And about eight miles from the Swiss frontier is a narrow gorge only 80 feet wide, and a dam built here would give a fall of sixty-five feet, or 30,000 horse power, at low water.

It has been noticed in certain parts of America and in India, that during thunderstorms incandescent lamps that are alight suddenly brighten up very considerably, in some cases sufficiently to break the filament; and in some cases the brightening is followed by the lamp's giving an inferior light to that which it gave previously to the storm. It has been suggested that this phenomenon is due to a similar action to that which takes place in the coherer, which is used in the high-tension form of wireless telegraphy, viz., a closing up of the molecules, and a corresponding decrease of the electrical resistance of the filament, this having been observed in coherers, when thunderstorms have passed over the places where they were fixed. It appears more likely, however, that it is due to pressures induced by the passage of charged clouds over the lines connected to the lamps, the increased brightening taking place when the induced pressures were in accord with the service pressures.

Robinson Crusoe's Gun.

A Philadelphia firm of auctioneers recently offered at one of their sales Robinson Crusoe's musket. It was a fine old flintlock. It was in the possession of a grandniece of Alexander Selkirk, and its pedigree is much more unclouded than is usually the case with objects of this kind.

Automobile News.

The progress of the automobile industry in France will be seen from the following table, which gives the figures for imports and exports of automobiles, cycles, as well as private carriages, for the years 1898, 1899 and 1900:

IMPORTATION.			
	1898.	1899.	1900.
Automobiles	\$79,010	\$94,530	\$101,800
Cycles and motorcycles.....	1,785,060	1,588,810	1,107,360
Carriages	172,870	159,960	122,400

EXPORTATION.			
	1898.	1899.	1900.
Automobiles	\$349,870	\$851,860	\$1,882,000
Cycles and motorcycles.....	2,132,800	2,030,710	1,583,800
Carriages	431,460	854,800	610,720

It will be seen from the table that the figures for the imports and exports of last year have diminished for cycles and motorcycles, as well as for carriages. The figures for automobiles, while increasing somewhat in importation, have more than doubled in exportation. It is estimated that more than 3,000 workmen, at a mean of \$1.60 per day, have been occupied during the whole of last year upon foreign orders alone. It will thus be seen that the automobile industry is in a flourishing condition.

The Paris-Berlin and Paris-Cordeaux are the two next important races; the latter includes the Gordon Bennett Cup, which will be run on the same day. The Paris-Berlin has been organized by the Automobile Clubs of France and Germany, in connection with the Belgian Club and the Union of German Automobile Clubs. The distance will be covered in three stages. 1. 27th of June, Paris-Aix-la-Chapelle, starting at 3:30 A. M. 2. Aix-la-Chapelle-Hanover, the following day; start at 5 A. M. 3. Hanover-Berlin, the 29th, starting at 5 A. M. After the machines arrive at Berlin they will be taken to a large building which has been prepared, and will form part of an automobile show to be held on the 30th of June and the following day. The race is international, and includes the usual four classes of moto-cycles, voiturettes, light and regular machines; the last two classes carry at least two persons, representing 154 pounds each. Engagements may be made up to the 25th of June (\$10 to \$60, according to class), but this is doubled after the 27th of May. A considerable number of entries have been made up to the 12th of May, including Charron, Levegh, De Knyff, Heath, Count de Chasseloup-Laubat, Girardot, Count Zborowsky, etc., with petroleum machines; Jenatzy, with an electric racer; Serpollet (steam system), and others.

The Automobile Club of Great Britain has organized a competitive test of automobiles for the 13th of April, which takes the place of the first test of alcohol motors, this having been postponed to a later date. In the present tests the speed of the machines is not taken into account, but only their general performance. The meeting of the participants takes place at the Sheen House Club, and the start is at 2:30 P. M. The route includes a part of Richmond Park to Robin Hood Gate, Kingston, Esher, Cobham, Weybridge Road and return by Hersham, High Road, Roehampton Lane and Richmond Road, arriving at the starting point after having covered exactly 30 miles. The event is terminated by a dinner given at the Sheen House Club, in which the organizers and competitors are united. As regards the three-monthly tour for the Hundred Miles Record, organized by the Automobile Club for the 2d of April, this event could not be carried out with great success owing to the bad weather, and out of 12 engagements only 2 were present at the start, these being a machine of the Gladiator (French) type, new model, with a 6 horse power water cooled Aster motor, and an English machine, a 6 horse power dog-cart of the Marshall type. The weather was not favorable for the test, as a violent wind which blew during the day made the trip difficult. This was over the Kensington route, via Uxbridge, Beaconsfield, High Wycombe, and return. Both machines, however, made a good performance; the official record has not yet been made public. It is to be expected that the next contest, which takes place on the 2d of July, will be more successful.

A New Ruling on Patent Rights.

A ruling of Judge Kohlsatt in the United States Circuit Court is most important, as it makes valueless a patented device which has been used solely in a business not recognized by law. The plaintiff lost his case "in view of the lack of legal utility of the patented device." The case in point was a patented bogus coin detector used in slot machines operated for gambling purposes. The decision by Judge Kohlsatt deprives the owner of the patent of standing in a court of equity to sue any man for alleged infringement on the device. The judge held that the patent in this case was not useful to the world in general and that the patent rights therefore could not be protected.

It is estimated that the cost of restoring the papal palace at Avignon, France, would be about \$1,400,000.