

SCIENTIFIC MISCELLANY.

Some drawings of reindeer, horses, bears and mammoths in a grotto at Perigord are held by M. Emil Riviere to be 200,000 years old.

The peat beds of the German Empire are estimated to cover 4,942,000 acres. To make use of this fuel in a profitable way is a problem for science to solve.

The influence of hypnotism upon the lower animals has attracted little attention. But N. Vaschilde of Paris, who is still working with dogs, cats, guinea pigs, rabbits, chickens and snakes, declares the mysterious power has real action, and that it may produce complete anaesthesia and brain paralysis. Mlle. M. Stefanowski has found half-starved frogs susceptible, the cataleptic state produced often persisting for half an hour. In various experiments, especially by simply looking them in the eye, M. Vaschilde has succeeded in hypnotising frogs, even when well fed and free to move about on a table or in a tank. The sleep, though not lasting long, was so profound that needles and hot iron brought no signs of sensation.

In the Marconi system of telegraphy, the electrical impulses known as Hertzian waves are projected into the air through wires held up by tall masts, and are received through similar elevated wires. The receiving apparatus is made possible by the coherer. This is a small tube of metallic filings, which is placed in an electric circuit and becomes a conductor—closing the circuit and permitting the current to give an audible or visible signal—only when acted upon by an impulse from the distant transmitter. In the new Orling-Armstrong system, the impulses are sent through the earth instead of the air. This removes the necessity of tall masts, and a new receiver is claimed to be effective without expensive apparatus and with currents of very low voltage. An electrocapillary relay supplants the coherer in this receiver. An inverted siphon of mercury has one foot in a vessel of mercury, while the other foot, contracted to a very fine opening, rests in a vessel of dilute acid at considerably lower level, and the action depends upon the fact that the passage of a electric current narrows the mercury column and causes a drop to fall from the lower end of the siphon. This drop gives a signal by closing a relay circuit or in some other way. Earth telegrams by this method, known as the Armort invention, have been sent twenty miles with a current of only four volts.

Hydrogen, hitherto regarded as harmless, is believed by Dr. J. C. Mc-Walter, of Dublin, to act as a mild poison when long inhaled. The ill effects observed were in workman of electric-light stations, where accumulators, giving off hydrogen, were used during a part of the day.

In a recent comparative test of pavements, the average temperature of macadam was 102 degrees; of asphalt, 113; of granite, 115, and of wood, 124 degrees. Wood, instead of asphalt, is thus shown to be the hottest material. Other tests showed advantages for macadam, especially over asphalt, as it retains water longer after sprinkling, and the dust on it can more easily be kept laid. Asphalt is dustier than macadam, as its surface is being constantly pulverized and it is not easily kept wet.

Scientific men and certain savages are aware that insects may serve as palatable food. M. Dagin, a French entomologist, has tried several hundred species, both raw and cooked in various ways, and has further made himself an authority by collecting travelers' experiences. Spiders, which he has eaten, he does not recommend. Cockroaches, however, make most delicious soup; caterpillars are light and easily digested, and are relished not only by African and American natives but by Frenchmen; and locusts fried or made into flour and boiled in milk, are prized by the Bedouins. Cambon, the Jesuit father, suggests that locust flour might become a popular condiment in Europe.

The most sensitive heat-measuring instrument thus far devised is the radiometer of Prof. E. F. Nichols. This consists of a block of bronze, 2 inches square and 4 inches long, bored to serve as a case, in which is hung by a delicate quartz fiber a tiny glass arm carrying at each end a blackened mica disc or vane about one twelfth of an inch in diameter. The heat rays reach the vanes through a fluorite window, while a piece of glass in the back shows both vanes and source of heat. Crooks has made known that a blackened surface in a partial vacuum is pushed back by heat, and when the rays of a star are reflected upon one of the vanes the arm is slightly rotated, the quartz being twisted to a degree that is carefully noted on a scale. At the Yerkes Observatory, it has been shown by this means, that the heat from Arcturus corresponds to that from a paraffine candle six miles away, if none of the candle's heat were absorbed by the atmosphere, while that from Saturn only equals that of a candle ten miles off.

A primitive process that is a marvel of old time ingenuity is claimed in the Russian method of storing petroleum. No strong and expensive iron tank is built, but instead a bottomless tank of cheap sheet iron is suspended in water on piles, the top projecting a foot or so above water-level. This tank is filled through a pipe passing to its center, the water sinking as the oil enters. The plan has other advantages besides inexpensiveness, for if the oil should take fire some of it may be drawn off from the bottom, and as there is only water at the bottom sand and dirt do not accumulate in the tank.

Animal fiber that has been treated with soda solution is found by O. Freyman and Charles Tolman to have the curious property of elongating on exposure to smoke. The treatment consists of boiling the fiber—which may be silk or horse hair—for twenty minutes in a 6 to 10 per cent solution of commercial soda, and then drying while slightly stretched in a tube from which the air has been exhausted. Just what change is produced is not understood. The presence of smoke is found to have invariable effect, however, and a smoke detecting alarm has been patented which is made to act through the closing of an electric circuit by the lengthening of the fiber.

NOT ON THAT LINE.

London Spare Moments: A porter at a certain station on the Caledonian railway had been granted leave for the purpose of going to Edinburgh to be married. In addition, he was given the customary return railway pass.

During his absence a new ticket collector had been put on, who, upon Benedick's return, demanded his ticket.

Benedick, who had put both pass and marriage certificate into the same pocket, by mischance tendered the latter.

The collector opened and gravely scanned the "lines," then returned them with a slow head shake, and:

"Eh, eh, mon, its a teeket for a verra lang ride, but nae on the Caledonian railway."

ABOLISHING A CURVE.

The famous "horseshoe curve" on the Pennsylvania road in the Allegheny mountains is likely to be abandoned. Engineers of the road have recommended that the curve be forsaken and a seven-mile tunnel constructed. Such a tunnel would be the second longest in the world, surpassed only by the St. Gothard hole between the Alps in Switzerland. Three miles running distance and many steep grades and sharp curves would be saved by the tunnel. Its cost would be several million dollars.