

SCIENTIFIC NEWS.

It is a well-known fact that certain forms of epilepsy are characterised by a peculiar creeping sensation called by medical men *aura*, which precedes the fit. Dr. Solzer, of Berlin, has discovered that the inhalation of the vapour of nitrate of amyl prevents, if commenced at the instance of the sensation of *aura*, the culmination of the attack into a fit. He also observes that the vapour of the nitrate of amyl is also beneficial in cases of asthma.

ABSORPTION OF OXYGEN BY PLANTS, IN THE DARK.—According to Deherain, leaves kept in a confined atmosphere in darkness will absorb the whole of the oxygen, and still continue to give off carbonic acid, the resistance to asphyxia varying with the species. The rapidity of growth and energy of respiration of plants are both favoured by obscure heat; and it is shown that the internal combustion, by the absorption of oxygen and emission of carbonic acid, is the origin of part of the heat necessary to the elaboration of new proximate principles in the plant.

From a two year's study of the succession of barometric minima in North Western Russia, M. Koppen has laid down the following rule. If a barometric depression has passed away from a locality, there is considerable probability that the next day, or the day after, the locality will have come under the influence of a new cyclone; but if several days have elapsed since the disappearance of that depression, and, in the mean time, more uniform high pressures have been established, the danger of encountering a new depression on the following day is about a half less.

THE FOURTH Darien Exploring Expedition has closed its work at the Isthmus, and all that remains is to make the various calculations from the data secured. The line surveyed is called the Atrato-Napipi. It has for its Atlantic harbour the Gulf of Darien, which affords anchorage for a thousand ships. From this point it is proposed to ascend the Atrato for 140 miles. There the excavations for the canal commence. About 21 1-10 miles from the Atrato the canal crosses the Napipi river by means of a basin formed by a retaining dam of 35 ft. in height. At this point is the summit of the canal, 141.2 ft. above mean tide. From this basin the canal enters the mountainous region, the whole distance to the Pacific being there only 8 6-10 miles, of which 5 54-100 are to be by tunnel. The total length of the canal is 29 8-10 miles; and its estimated cost \$56,000,000.

THE *Gazetta d'Italia* states that Professor Schiff, the notorious vivisectionist, is supposed to have killed, since he settled in Florence in 1848, no fewer than 14,782 dogs in his laboratory. "What fine thing," the *Gazetta* asks, "what precious acquisition have you procured at such a price for science?" The plea for vivisection is that, by means of it, physiological discoveries of the highest value to the physician and surgeon are made. This plea involves the admission that when no such discoveries are made the practice is self-condemned. It is, therefore a pertinent question which the Italian journalist asks, when he demands to be informed of the equivalent in fresh knowledge which has been obtained in return for the elaborate tortures and agonies inflicted on the vast army of dogs whom Prof. Schiff has "utilised for science."

SOME idea of the ramifications of the electric telegraph may be gathered from an experiment successfully accomplished in London not long since. Captain Sartorius, at present in Teheran, wished to test his pocket chronometer, and to check with absolute correctness its time in Persia with Greenwich time. To do this it was necessary to have a clear line from Teheran to London, a distance by "wire" of nearly 4,000 miles. After some little trouble in getting the German relays into satisfactory order (the lines come through Berlin), the important signal was made several times to insure accuracy, with the result the watch was found to be two seconds slow by Greenwich time. The experiment was of double interest, as it also tested the performance of a watch which has been constructed on a plan calculated to withstand a great deal of comparatively rough usage, and yet keep time with sufficient accuracy for many scientific observations. The watch was a half-chronometer, double-roller lever, made by Messrs. Barraud & Lund.

NOTES AND MEMORANDA.

THE following is a cement for fastening wood to stone:—Melt together four parts by weight of pitch and one part wax, and add four parts of brick dust or chalk. It is to be warmed, for use, and applied thinly to the surfaces to be joined.

A SIMPLE means of testing the quality of leather consists, according to M. Bitner, in watching its behaviour when treated with acids—preferably acetic acid. Leather not completely saturated with the tannin will swell up, but if the tannin has penetrated, the leather will not swell.

TO MAKE a waterproof glue boil eight parts of common glue with about thirty parts of water, until a strong solution is obtained; add four and a half parts of boiled linseed oil, and let the mixture boil two or three minutes, stirring it constantly. Parts by weight are to be taken.

SUBSTITUTE FOR INK.—A substitute for ink has been devised by Dr. Jacobsen of Berlin, which consists of points, like the leads of ordinary pencils, that can be fitted into holders. The writing at first very much resembles lead pencil marks, but when moistened immediately assumes a violet tint, and then adheres to the paper like ink. As many as six good copies can be taken from it by means of an ordinary copying press.

PRESERVATION OF MEAT, VEGETABLES, &c., BY ACETATE OF AMMONIA.—According to an English patent, fresh meat, fish, vegetables, &c., are preserved by immersing them in a more or less concentrated solution of acetate of ammonia, and allowing them to dry in the air. If the articles are to be preserved for months, or years, they are packed in cans or casks filled with solution of the salt. The boiling, roasting, &c., readily expels the acetate, and the articles are said to be free from the sweetish taste which acetate of soda imparts.

IMPARTING A FINE ORANGE-YELLOW TONE TO OAK WOOD.—According to Niedling, a beautiful orange-yellow tone, much admired in a chest at the Vienna Exhibition, may be imparted to oak-wood by rubbing it in a warm room with a certain mixture until it acquires a dull polish, and then coating it after an hour with thin polish, and repeating the coating of polish to improve the depth and brilliancy of the tone. The ingredients for the rubbing mixture are about 3oz. of tallow, 3oz. of wax, and one pint of oil of turpentine, mixed by heating together and stirring.

BRIGHT DEEP BLUE DYE.—The following is said to yield a tolerably fast bright deep blue colour on wool:—The wool or cloth is prepared by boiling for an hour in a hot kettle, with 2lb. alum, 1lb. chromate of potash, 14lb. sulphuric acid, and 2oz. tin salt in solution for 40lb. of material. It is then opened out and well cooled, and allowed to lie for twelve hours. The day after, 8lb. of logwood is boiled in a fresh bath, and then 3oz. of aniline violet—the bluish, soluble in water—is added, and, as soon as it is dissolved, another 1lb. of sulphuric acid. The prepared articles, after being washed or rinsed, are placed in a bath at 122 deg., and, after half an hour, are worked at a boil for an hour. More aniline violet affords a stronger blue, more logwood a deeper blue. The colour can easily be cleaned in cold water.

PRESERVATION OF WOOD.—M. Lostal, railway contractor, of Ferminy, has communicated to the Society of Mineral Industry, at St. Etienne the results of his observations on the effect of lime in preserving wood, and his method of applying it. He piles the planks in a tank, and puts over all a layer of quicklime which is gradually slacked with water. Timber for mines requires about a week to become thoroughly impregnated, and other wood more or less time, according to its thickness. The wood acquires remarkable consistency and hardness, and, it is said, will never rot. Wood has been prepared in this manner for several mines, so that the plan will shortly be tested on a considerable scale. Beechwood has been prepared in this way for hammers and other tools for several ironworks, and it is said to become as hard as oak without losing its elasticity or toughness, and to last much longer than when unprepared. It has long been known that wood set in lime or mortar is preserved from decay, but no systematic plan for its preservation has until now been attempted.