

## SCIENTIFIC AND SANITARY.

AN interesting application of photography to the study of speech has been made by a French scientist. By a rapid succession of photographs taken of a person speaking he succeeded, by placing the prints in a rapidly-revolving apparatus, in causing to be repeated by deaf mutes familiar with the Pereire method the words pronounced before the camera.

IN a recent address before the Astronomical Association of France a French astronomer stated that there are invisible stars that will never be seen by man, but the existence of which can be ascertained by means of the spectroscope, and by this means it is still further possible to compute their weight, chemical composition, their motion, duration of their revolution and the distance they are from us.

OF 296 railroad time tables employed on the Russian railroads, examination shows that but six routes have speeds above twenty-six miles an hour, the maximum being twenty-eight miles; five between twenty-three and twenty-six, fifty-six between twenty and twenty-three, ninety-nine between sixteen and twenty, 107 between thirteen and sixteen and twenty-three less than thirteen miles.

THE Paris School of Philosophy has recently conducted experiments as to the value of oats as a food, which seems to show that the kernel contains three medicinal principles, the first of which tends to calm, soothe and tone up the brain and general nerve tissues, the second yielding phosphates for the weakened and hungry nerves, and the third, residing in the husk of the oat, acting as a laxative by its action on the digestive track.

AN experimental sub-marine boat is being constructed at Detroit. It is constructed of oak, and its propeller shaft can be placed at any angle, so that when it is revolved the vessel can be propelled forward or submerged as desired. As the boat is an experimental affair, it is but forty feet long, nine feet wide and fourteen feet deep. The motive power will be steam, the smoke-pipe being connected with an outside iron conduit. This is provided with a check valve, and the air to supply the fires is stored in the hull, whence it is forced out of the smoke-pipe into the water.

# "German Syrup"

For Throat and Lungs

"I have been ill for Hemorrhage about five years, have had the best Five Years. medical advice, and I took the first dose in some doubt. This resulted in a few hours easy sleep. There was no further hemorrhage till next day, when I had a slight attack which stopped almost immediately. By the third day all trace of blood had disappeared and I had recovered much strength. The fourth day I sat up in bed and ate my dinner, the first solid food for two months. Since that time I have gradually gotten better and am now able to move about the house. My death was daily expected and my recovery has been a great surprise to my friends and the doctor. There can be no doubt about the effect of German Syrup, as I had an attack just previous to its use. The only relief was after the first dose." J. R. LOUGHNEAD, Adelaide, Australia.

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As the train proceeds rapidly over the level desert my eyes "fix"—i. e., gaze steadily at—a clump of sage-bush which is probably two miles distant. The bush seems to move slowly with the train, while objects between it and my eyes have an apparent motion in the opposite direction. Of these latter the near ones fly past with great rapidity, but the apparent velocity of those farther removed diminishes until, just before the point of fixation is reached, objects come to an apparent standstill. Beyond the point fixed by my eyes objects move in the same direction as the train, their velocity apparently greater the farther away they lie. Suddenly I shift my gaze from the sage-bush to a large boulder which is sailing slowly past, probably one thousand yards from the train. Everything is changed at once. The boulder's retrograde progress is arrested; near objects fly past with accelerated speed; the sage-bush clump forges ahead as if to make up for lost time, while the plain beyond it, indistinct in the distance, races ahead of every object in view. And so I while away a full half-hour, making one conspicuous object after another stand still, go ahead, or sail past at will—all upon the surface of this apparently boundless plain—trying to realize, meantime, that things are not as the moving panorama before me indicates. For relatively to the train, all objects are passed at an equal rate, the near as well as the distant, those seen by direct as well as those seen by indirect vision. But, in looking from my car window, I am made the subject of optical illusions common in a journey of this sort.—*Dr. Casey A. Wood, in The Popular Science Monthly for March.*

A NEW instrument called the "schiseophone," lately invented by Captain de Place (a French officer), is described in *Engineering*. The object of the instrument is to reveal the presence and the place of any blow-holes, flaws, cracks or other defects which may exist in the interior of a piece of metal. When these defects are very great, the blow of a hammer on the piece of metal soon betrays their presence, but for small blow-holes, although these may also be very dangerous, there is not enough difference in the sound given by the hammer striking the piece of metal for it to be detected by the ear. The schiseophone, however, will enable that difference to be heard. The apparatus consists of a pin which runs through a microphone of a special construction, which, as usual, is put in connection with the current of an electric battery. Without giving more details of the complicated mechanism of the instrument, one can understand that, when the pin strikes on a good part of the metal tried, a sound is produced, the vibrations of which affect the electric current in a certain way and then a certain sound can be heard in the telephone attached to the instrument. When the pin strikes on a part of the metal where there is a defect, the sound produced is different; the microphone, the current and the telephone are then affected differently, and the defect existing in the metal is revealed by the difference in the sound heard at the telephone. The ear must, of course, be used to the different sounds to be able to distinguish them; but the necessary skill is not very difficult to acquire. Trials with this instrument have been carried out at Ermont, at the works of the Northern Railway Company of France, in the presence of many engineers, to find defects in the rails. The telephone of the apparatus was placed at a long distance from the rails, from which it was also separated by a wall. The points where the instrument intimated a defect in the metal were carefully placed; the rails were then broken at those places and the defects were actually found.—*Science.*

THE great Australian expedition has succeeded in traversing, from north to south, the first or most southerly of the three great blanks it was commissioned to explore. This is the wide interior space lying between the track of Forrest in 1874 and that of Giles in 1875. The party crossed the boundary between South and West Australia, at a point to the east of Fort Müller, in latitude 26° 10' south, and longitude 128° east, and struck south across the desert from Mount Squires, making for Victoria Spring, on Giles' track of 1875. Arriving at that expected abun-

dant water supply, they found it nearly dry, and all hopes of a thorough exploration of the region were destroyed. Under these circumstances, and sorely straitened for water, a direct route was taken for the nearest cattle stations, near the southern seaboard of West Australia and Esperance Bay, from which latter port Mr. David Lindsay, the leader, despatched reports of the expedition to Adelaide in October last. The country traversed appeared to have had no rain for two years. Owing to admirable management on the trying march of five hundred and sixty miles through an almost waterless country, the health of the party had not suffered, and only two of the camels had died. Notwithstanding the utter aridity of the region, Mr. Lindsay remarks that it cannot be called a desert, for the country is more or less clothed with bushes and trees, and for many miles there is a gum-tree forest, which extends into South Australia, the trees reaching often three feet in diameter and forty to fifty feet in height. He adds that the clean white trunks and dark-green tops of the trees from a short distance present a charming aspect, but that a nearer examination reveals the usual signs of aridity, the ground being covered with nothing but the desert-loving spinifex and useless shrubs. Mr. E. A. Wells, the surveyor of the expedition, reports that the whole of the country travelled over from Mount Squires was inhabited by natives who got their water-supply partly by draining the roots of certain mallee trees, some of which, distinguishable only by the keen observation of a native, yield quantities of pure water. It was Mr. Lindsay's intention to remain near the south coast for some weeks to restore the strength of the sorely-tryed camels, and then to proceed again towards the interior, taking a more westerly route, so as to cross Giles' route at Ullaring, and Forrest's track at Mount Ida, and thence on to Hope's Station via the new gold fields. From the last mentioned place he had hopes of making an excursion south-east as far as latitude 28°, and thus completing sufficiently the examination of the first great area it is the object of the expedition to explore, before proceeding to the second, further north.—*Science.*

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THOUGHTS come and go, some never to return. What some of us would have given at the time for an Esterbrook pen to jot down a fleeting inspiration.

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