

SCIENTIFIC AND SANITARY.

A PUSH-SWITCH similar to the push-buttons used in electric gas lighting has been invented for electric lamps. There are two buttons, the white one lighting the lamp and the black one putting it out.

AN instrument called a photo-chronograph has been invented which when applied to netescopes causes the star to record accurately its time of passage across the meridian. This eliminates personal errors in the observations.

AMONG the interesting exhibits at the Frankfort electrical exhibition is that of a coach and sleigh having incandescent lamps at the end of the tongue and in the lamp-holders at the sides. The storage battery is placed beneath the driver's seat.

THE hardihood and longevity of the apple tree are illustrated by some apples in the possession of Captain Isaac Knight. They are from a tree in North Berwick, planted by the Taylor family in 1751—now 140 years old. The old tree bears some six or seven bushels this year.—*Portland (Me.) Argus.*

A PALSIPHONE is a new electrical musical instrument invented by a Frenchman. It is made up of a series of bells of different tones. Each bell is placed between an electro-magnet and an interrupter, and the bell itself thus becomes the medium of the electrical current. The sounds produced are said to resemble those of an organ.

LICORICE is usually brought from Asia Minor, where it is found growing in abundance all along the flat, uncultivated and almost uninhabited lands of the rivers Tigris and Euphrates. It is a small shrub, not more than three feet high, with a light foliage, and is never found far from the water. The roots are dried, carried to Bagdad, pressed into bales and shipped to London. The word licorice means "sweet root," and is of Greek origin.

ARTIFICIAL quinine, writes the Paris correspondent of the London *Lancet*, may be considered one of the discoveries of the year. The synthesis of that useful, nay, indispensable substance, quinine, has long been a desideratum, and now, thanks to MM. Grimaux and Arnaud (the former professor of chemistry at the Ecole Polytechnique, and the latter having succeeded the late illustrious centurion, Chevreul, at the Museum d'Histoire Naturelle), the chemical dream has been realized. The method adopted is as follows: The base cuprein contained in the shrub, *Remijia pedunculata*, growing in Brazil, is treated with sodium, then the combination thus obtained with chloride of methyl. The product is quinine, absolutely identical with the substance with which we are familiar, and the discovery should result in the cheapening of the drug.

"August Flower"

Mr. Lorenzo F. Sleeper is very well known to the citizens of Appleton, Me., and neighborhood. He says: "Eight years ago I was taken 'sick, and suffered as no one but a 'dyspeptic can. I then began taking August Flower. At that time 'I was a great sufferer. Every-thing I ate distressed me so that I 'had to throw it up. Then in a 'few moments that horrid distress 'would come on and I would have

For that "to eat and suffer again. I took a Horrid "little of your medicine, and felt much Stomach "better, and after Feeling. "taking a little more "August Flower my "Dyspepsia disap- peared, and since that time I "have never had the first sign of it. "I can eat anything without the "least fear of distress. I wish all "that are afflicted with that terrible "disease or the troubles caused by "it would try August Flower, as I "am satisfied there is no medicine "equal to it."

As regards their capacity for conducting electricity the principal metals rank thus: Silver, 100; copper, 96; gold, 72; aluminium, 52; zinc, 26; iron, 15; platinum, 26; nickel, 12; tin, 11; lead, 7. Copper and iron are the only metals that have commercial values as electrical conductors.

THE quality of the immigrants coming into this country should receive serious consideration. Canadians are apt to look only to the numbers which come in to occupy the broad fields of Canada, and are somewhat discouraged because the population has not increased to the extent which had been hoped for. A leading medical weekly in the States, referring to the influx of immigrants there, says: It scarcely needs comment to show the enormous influence that such immigration has upon the health, welfare and prosperity of this country. It is a notorious fact that the quality of this stream of humanity has diminished within the last decade, and in just about geometrical ratio with its increase in numbers. What a change from the days when men set out across the seas to escape persecution or to secure wider civil and religious liberty to the time of "assisted" immigration, when men leave their country not for their own good, but the good of their neighbours. Can we estimate the amount of crime, ignorance and insanity that will be inflicted upon this country in the defective descendants of these wretched beings.—*Canada Health Journal.*

WHILE the elderly man has less capacity for some forms of exercise than the younger adult, he has no less need than the other of the general and local effects of exercise. It is in the earliest period of mature age that the most characteristic manifestations of defects of nutrition—obesity, gout and diabetes, in which lack of exercise plays an important part—are produced; and the treatment of them demands imperiously a stirring up of the vital combustion. Placed between a conviction that exercise is necessary, and a fear of the dangers of exercise, the mature man ought, therefore, to proceed with the strictest method in the application of this powerful modifier of nutrition. It is impossible, however, to trace methodically a single rule for all men of the same age, for all do not offer the same degree of preservation. We might, perhaps, find a general formula for the age at which the muscles and bones have retained all their power of resistance, and at which the heart and vessels begin to lose some of their capacity to perform their functions. The mature man can safely brave all exercises that bring on muscular fatigue, but he must approach with great care those which provoke shortness of breath.—*Fernand Lagrange, M.D., in the Popular Science Monthly for October.*

NATURE states that Herr Hufner has lately pointed out some of the biological bearings of the fact (observed in experiment along with Herr Albrecht) that long light-waves are much more strongly absorbed by water than short ones. If the lower marine animals had, like man, the liveliest light-perception with yellow rays, and a certain intensity of light were necessary to them, they must live at a less depth than if their visual organs were most strongly affected by short-waved rays. Thus, e.g., if they needed as much yellow light as that of the full moon, they could not live deeper than 177 metres (say, 590 feet). Yet they are found at all depths where food, oxygen, and a suitable temperature exist. On the other hand, the existence of plants having chlorophyll depends on light, and we might expect that the distribution of non-parasitic plants would be very limited, which is the case, no plant-organisms being found under 200 fathoms. Green plants assimilate best in yellow light; and supposing plants to assimilate in moonlight they would find their limit at the above depth (177 metres). But while yellow is here weakened to 0.0000016 of its brightness, indigo blue has still 0.007829 of its original strength, and the assimilation with blue rays will be 660 times as strong as with yellow. Different coloured marine plants react differently according to the colour of light, and they have accordingly different distribution in depth.—*Science.*

Minard's Liniment Cures Diphtheria.

Now let us consider sound as an agent for changing the state of things in the air. It is one of the commonest and simplest agencies in the world, which we can experiment upon without difficulty. It is purely mechanical in its action. When a bomb explodes, a certain quantity of gas, say five or six cubic yards, is suddenly produced. It pushes aside and compresses the surrounding air in all directions, and this motion and compression are transmitted from one portion of the air to another. The amount of motion diminishes as the square of the distance; a simple calculation shows that at a quarter of a mile from the point of explosion it would not be one ten-thousandth of an inch. The condensation is only momentary; it may last the hundredth or the thousandth of a second, according to the suddenness and violence of the explosion; then elasticity restores the air to its original condition, and everything is just as it was before the explosion. A thousand detonations can produce no more effect upon the air, or upon the watery vapour in it, than a thousand rebounds of a small boy's rubber ball would produce upon a stone wall. So far as the compression of the air could produce even a momentary effect, it would be to prevent rather than to cause condensation of its vapour, because it is productive of heat, which produces evaporation, not condensation. . . . But how, it may be asked, shall we deal with the fact that Mr. Dyrenforth's recent explosions of bombs under a clear sky in Texas were followed in a few hours, or a day or two, by rains in a region where rain was almost unknown? I know too little about the fact, if such it be, to do more than ask questions about it suggested by well-known scientific truths. If there is any scientific result which we can accept with confidence, it is that ten seconds after the sound of the last bomb died away, silence resumed her sway. From that moment everything in the air—humidity, temperature, pressure and motion—was exactly the same as if no bomb had been fired. Now, what went on during the hours that elapsed between the sound of the last bomb and the falling of the first drop of rain? Did the aqueous vapour already in the surrounding air slowly condense into clouds and raindrops in defiance of physical laws? If not, the hours must have been occupied by the passage of a mass of thousands of cubic miles of warm, moist air coming from some other region to which the sound could not have extended. Or was Jupiter Pluvius awakened by the sound after two thousand years of slumber, and did the laws of nature become silent at his command? When we transcend what is scientifically possible, all suppositions are admissible; and we leave the reader to take his choice between these and any others he may choose to invent.—*From "Can We Make It Rain?" by Professor Simon Newcomb, in North American Review for October.*

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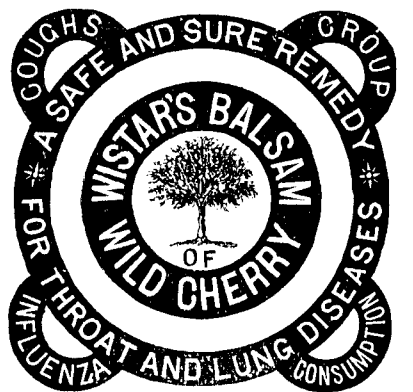
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