

Scientific and Useful

STARS AND STORMS.

Much of the beauty of the stars depends upon their scintillation. The multitudinous flashing of their tiny rays gives a wonderful life and brilliance to a winter's night. The great star Sirius excites the most admiration when, near the horizon, it coruscates with rainbow hues. But the astronomer would be glad if he could put a stop to the scintillation of the stars. That unsteadiness of their light is one of the chief obstacles he has to overcome in studying them with the telescope.

Scintillation has generally been regarded as due only to slight disturbances in the atmosphere. But as recent observations have shown that red stars scintillate less than white ones, it has been suggested that the causes for some of the essential differences in the scintillations of different stars may be in the stars themselves. There is no doubt, however, that the main cause of scintillation depends upon the condition of the air.

Most people suppose that when the stars appear to lose their liveliness of light, and shine without twinkling, as minute, bright points in the sky, fair weather is in prospect. Studies lately made in this country seem to contradict this popular belief. It has been found that when the stars are feeble in their scintillations, foul weather is at hand. The night before a most violent storm in the south, for instance, the stars lung so quietly in the sky that they seemed to have entirely lost their scintillating power.

This is said to be only one instance among many which show that an unusual steadiness in the light of the stars precedes the appearance of storms.

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SUGAR AS FOOD.

Some interesting experiments with reference to the nutritive value of foods containing sugar were recently made at the instance of the War Office at Berlin.

It is a fact well known to Alpine tourists that on difficult climbing excursions an increased desire is felt for sweets and sweetened foods, and many who never touch such things at home devour quantities of them on these tours. It is also frequently remarked that the guides eagerly appropriate any sugar that may be left over, and consume it on the journey. Whether the sugar afforded real benefit to the mountain climber was the subject of the German investigation; that is, did the consumption of sugar render the tired muscles, capable of renewed exertion?

To answer the question conclusively, the subject of the experiment was not allowed to know that a test was being made. One day a sweet liquid, containing thirty grams of sugar, was administered; on the next a similar liquid, sweetened by saccharin to render it indistinguishable from the other, as far as taste was concerned, took the place of the sugar.

The result was a complete triumph for the sugar. It was found that a greater amount of work could be accomplished on the days when the sugar was given than on those when saccharin took its place. This serves, as far as it goes, to prove that sugar is food in a true sense, and that it is in particular food for the muscles.

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HOW TO AVOID GOUT.

Would you avoid gout? (asks a Scottish physician). Then by all means live the simple life. Stick to your porridge and Scotch broth; and avoid too much red meat and heavy wines. Drink water as a beverage, and reserve wine for very special occasions. Don't be induced to dine out too frequently, and even then don't be afraid to refuse certain dishes when you feel that by partaking of them you will suffer from indigestion next day. Be especially careful never to indulge too freely in such things as roast beef. Don't get constipated, whatever you

do. There is no doubt whatever that gout results from the circulation of a poison in the blood; call it what you will. To prevent this from accumulating it is very essential that constipation should be avoided.

The diet of those who have already got gout must be a very strict one indeed. No sugar should be allowed, and all starchy foods, such as rice, sago, cornflour, etc., should be cut off. Fish, poultry, mutton, and stewed fruits are allowed. Most vegetables may be taken, but such things as carrots, turnips, beans and peas are best avoided. It is also a good plan to drink a glass of hot water every night before retiring, and to have another on getting out of bed in the morning.

Medicines must be left in the hands of the physician, and on no account ought quack remedies to be thought of.

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SOME PECULIARITIES OF IMPLSION.

Everyone knows what an explosion is; but its opposite, an implsion, is less familiar. At great depths in the sea the conditions are favourable for its production. At twenty-five hundred fathoms the pressure is, roughly speaking, two and a half tons to the square inch, that is to say, several times greater than the pressure exerted by the steam upon the piston of a powerful engine.

An interesting experiment to illustrate the enormous force of this deep sea pressure was not long ago made on the Albatross, a Government vessel engaged in deep sea exploration.

A thick glass tube several inches in length, full of air, was hermetically sealed at both ends. This was wrapped in flannel and placed in one of the wide copper cylinders used to protect deep sea thermometers when they are sent down with the sounding apparatus. The copper cylinder had holes bored in it, so that the water had free access inside, round the glass. The case was then sent down to a depth of two thousand fathoms, and drawn up again.

It was found that the cylinder was bulged and bent inward, just as if it had been crumpled inward by being violently squeezed. The glass tube itself, within its flannel wrapper, was reduced to a fine powder, almost like snow. The glass tube, it would seem, as it slowly descended, held out long against the pressure, but at last suddenly gave way, and was crushed by the violence of the action to a fine powder.

This process, exactly the reverse of an explosion, is termed an implsion.

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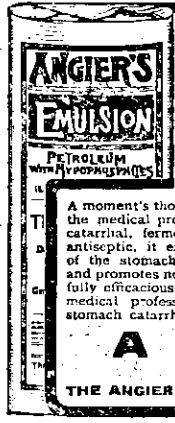
THE PRESS IN THE ARCTIC REGION.

There exist at present several journals that make their appearance only once a year. They are published within the confines of the north polar circle. "The Eskimo Bulletin," for example, is edited near Cape Prince of Wales, on Bering Strait.

Here, in a village inhabited by Eskimos, the English missionaries have established a school, and as only one steamer lands at this place, and that only once a year, the news that it brings is consigned to a sheet of paper printed with the hectograph. Its size is eight by twelve inches. The paper is very thick, and only one surface is used.

This "Eskimo Bulletin" in a subhead claims to be the "only yearly paper." This, however, is an error; for there is an annual sheet published in Godthaab, Greenland, where a small printing office was established in 1882, whence news sheets and lithographic prints have been issued. The journal in question is entitled "Atnagagiliintit, nalinginarmik tusaruminasasuumik," that is, "Something for reading; accounts of all sorts of entertaining subjects." The language is that of Greenland, a dialect of the Eskimo.

There is still another periodical published in Greenland, under the name of "Kaladit."



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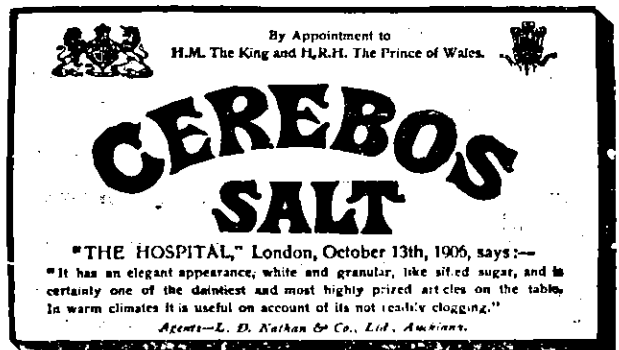
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