BOTANY

Nature Ramblings

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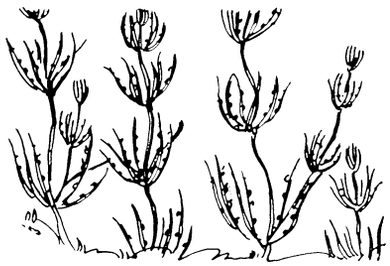

A Contemporary Fossil

IT IS still too early to go a-hunting wildflowers, although such things as pussy-willows, alder catkins and skunk cabbages are already about offering their humble satisfactions to the really thorough-going nature lover. But under the thawing waters there are plenty of plants, again humble members of the vegetational commonwealth, that will repay a little attention, even at the risk of a wet cuff.

In the ponds and slow creeks of regions rich in limestone you can find, even in the dead of winter, an attractive, wiry-stemmed, whorl-branched aquatic plant known to botanists as *Chara.* If you fish out a few stems of it and feel them with your fingers you will find that they are harsh to the touch.

Chara is usually classified as an alga, that is, as a relative of seaweeds and pond scums; though some botanists claim that it is a plant *per se,* an orphan of botanical evolution, having no living relatives. Certainly if it is an alga it is a most peculiar one, and those who regard it as such classify it as the highest of its division of the vegetable kingdom.

Whatever it may be in point of relationship, in point of time it is certainly one of the most ancient forms of life now extant. Rocks laid down in Cambrian times, which were simply uncountable millions of years ago, show fossils of *Chara* that can hardly be distinguished from its modern species. It is older than the cycads which the dinosaurs champed, older than the seed-ferns of the coal age. There were plants on earth before it, but they are dead and gone, and *Chara* still holds its own in the fresh waters all over the world.

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PHYSICS

New Clock Correct to 1-500 Second in 24 Hours

A NEW precision clock, which varies from correct time not more than one five-hundreth of a second in twenty-four hours, has been devised by Prof. Max Schuler of the University of Göttingen. It is described in detail in the German scientific journal *Die Umschau.*

The most distinctive feature about Prof. Schuler's clock is the addition of a very considerable mass of metal to the upper end of the pendulum, so arranged that its center of gravity is exactly opposite the knife-edge bearing on which the pendulum is suspended. This makes for great steadiness in its swing, and is the principal contributor to the clock's great accuracy.

In order to prevent changes in length of the pendulum as far as possible, the clock is kept in a room in which the temperature is regulated, and any changes that do occur are registered on automatic apparatus. To reduce atmospheric friction to a minimum, the clock is kept within a sealed glass case filled with hydrogen, which is the least viscous of gases.

The clock does not have a face and hands, like ordinary clocks. The function of telling the time is delegated to a second clock which it controls electrically, called a "slave clock." The free-swinging pendulum of this "master clock" does not even touch the electric contacts that drive the slave clock.

This is done by the most delicate and weightless of all possible levers, a beam of light. A lamp on one side of the master-clock case shines on a photo-electric cell on the other. Every time the pendulum swings, it causes a momentary eclipse of the photocell. This causes an electric current to flow for a moment, giving the slave clock the necessary little push to keep it going.

The slave clock, thus admonished to accuracy from second to second by its master, repays by closing a circuit with each swing of its pendulum, which supplies a momentary electromagnetic impulse to the master-clock pendulum, keeping it swinging.

Science News Letter, February 28, 1931

Good cheese can be made from frozen milk, with a slight modification of the cheese-making process, New York State dairy specialists have found.