



Makers of Land

ISN'T IT ODD, how plants can turn air and water into solid land!

All over the world, the phenomenon of the filled-up lake is common. You will often hear an Oldest Inhabitant say, "This marsh-pasture, here, used to be one of the prettiest little lakes you'd want to see—full o' waterlilies, and willows and cattails all round the edge. But now it's all filled up, except in real wet spells."

Even allowing for the possible hastening of the drying-up process by an impatient drainage canal dug by the hands of men, much of the disappearance of such shallow bodies of water is to be accounted for by the slow but incessant activities of the very waterlilies and cattails and other water-dwelling plants which the old-timer remembers. The leaves and stems that sought the sun, the roots and rhizomes that burrowed in the bottom mud, have returned to the earth from whence they came. Inch by inch they have built up the bottom, until bottom has merged with top, and there is no open water left.

And paradoxically enough, they have used the water itself, plus part of the air, as raw materials for the making of this new land. For as everyone knows, the carbohydrates that make up practically the whole of the plant body are formed from water plus carbon dioxide from the air, acted upon in the green leaves by the energy of the sun.

The soil in the bog-peat or marsh-muck left by one of these disappearing lakes or ponds is almost wholly of this vegetable origin, as a rule. There may be a certain amount of sand or other mineral stuff in it, blown in by wind or washed in by inflowing brooks. There may also be small additions of shells or skeletons of various animal

forms. But in the main, the new soil is made up of plant remains.

So much is this the case, that extinct lakes are often "mined" for humus, to add to soils too rawly mineral for the comfort of garden plants. A profitable business is founded on the strange arithmetic of the water-plants' leaves: air plus water plus sunshine-fire equals earth.

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ASTRONOMY

Luminous Night Skies Caused by Cosmic Dust

AT TIMES there is a strange luminosity in the sky at night. More or less extended areas glow faintly or stretch in bands across the sky. Such bands have been observed simultaneously at widely separated points, such as in Middle-Europe and in Scotland. Although occurring prevailingly in the northern sky, and often mistaken for some form of auroral effect, these bright areas are evidently not of this nature, because the light is steady, the streaks run prevailingly from east to west, and the phenomenon is not accompanied with marked magnetic disturbances as is the case with the aurora.

A thirteen-year study of this phenomenon has just been reported by Dr. C. Hoffmeister of the Sonneberg Observatory near Berlin. He finds that it occurs more often when shooting stars are numerous, as at the time of a meteor shower.

Not Meteor Dust

A rough connection of the sort had been observed before, and was explained by the Japanese scientist Dr. Nagaoka as due to dust produced by the disintegration of the meteors. But the careful observations of Dr. Hoffmeister showed that the luminosity sometimes precedes, sometimes follows a meteoric shower, and sometimes is absent altogether.

The meteors that strike into our atmosphere in April, called the Lyrids, do not produce this luminescence. The Perseids that arrive in August and are very numerous produce relatively little of it. On the other hand, the Leonids, the Geminids, and other lesser showers produce considerable effects.

For these reasons Dr. Hoffmeister believes that the dust that causes the luminosity is of cosmic origin and is brought into our atmosphere along with the meteors, instead of being produced after they arrive.

He points out that all these meteor streams that the earth periodically encounters have been produced by the breaking up of comets. This must have produced not only the larger particles that appear in our atmosphere as meteors, but also smaller particles and dust. The latter, encountering no resistance in empty space, travel along with the larger particles, and like the latter become eventually distributed throughout the whole orbit.

The Lyrids and the Perseids, he further points out, are derived from two rather old comets that broke up in 1861 and 1862. Their dust has been nearly all swept up.

The sudden injection of cosmic dust into the atmosphere also affects radio reception. The dust particles neutralize the electrified particles that compose the "ionosphere," that reflecting layer that causes radio waves to hug the surface of the earth.

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ZOOLOGY

Discovery of Lizard-Eating Spiders Reported in India

FROM INDIA comes the story, published in the current issue of the *Scientific Monthly*, of how spiders enmesh lizards in their webs and devour them.

The first man actually to see a contest between spider and lizard was Gopal Chandra Bhattacharya of the Bose Research Institute, Calcutta. The lizard-eating spider measured three inches across its leg-span. Its web was three feet square. With this equipment the comparatively lightweight spider was not at too much of a disadvantage in trapping a common house lizard three and three-quarter inches from head to tail and weighing considerably more than its captor.

The spider's first attempt failed. Attracted by a dragonfly fluttering in the web, the lizard was soon tangled in the meshes.

The spider was too hasty in its attack. The lizard had not been trussed securely, and managed to get loose.

The second effort was more successful. After wrapping its catch in flossy silk, until it was completely mummified, the spider hopped up and down a number of times as if in triumph, and then sank his fangs into the back of the lizard's neck. Inside the silken sheath the lizard shivered once or twice. A short time later the spider had eaten it completely.

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