

PHYSICS

Ball Lightning, Old Puzzle to Science, Made out of Smoke

A GHOSTLY lump of the ball lightning that has till now baffled the efforts of scientists to understand it, has been made in the laboratory of Leeds University in England by Drs. W. Cawood and H. S. Patterson. Or at least something very like it has been made.

The artificial thunderbolt was a glowing red ball, eight inches in diameter. It appeared while the experimenters were passing an electrostatic "brush" discharge through a smoke cloud.

Electrically charged particles, of opposite sign to the other particles of the smoke, formed the ball. It was kept suspended in the center of their hundred cubic foot glass chamber, the experimenters believe, by the electrical repulsion of the inside walls.

Globular or ball lightning is one of the rarest and most puzzling of natural phenomena. Entering a home by the window or down the chimney, this dazzling red, blue or white, round or pear-shaped ball floats in the air or runs

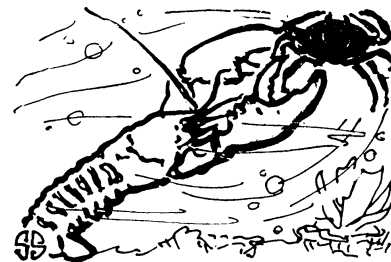
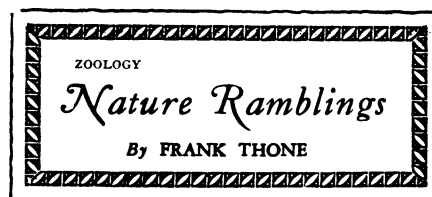
along the floor. The lightning ball may crackle or hiss, but it seldom does any harm. Sometimes it is observed dropping like a stone from a thunder cloud along the path of previous ordinary lightning flashes.

Dr. W. J. Humphreys of the U. S. Weather Bureau recently issued an appeal for detailed descriptions of the phenomenon from all persons who have observed it.

That the artificial lightning ball was movable and electrically charged was shown by Drs. Cawood and Patterson when they inserted an electrified wire into the vessel. Chains of the smoke particles formed the ball, it was shown under the microscope.

Evaporation of various substances into the space was the method of forming the smokes or "aerosols," one with the formidable name of "para-xylene-azo-beta-naphthol" being found most suitable.

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Deep Sea Drama

JULES VERNE, H. G. Wells, and many another writer of hair-raising romances have scored their best successes either by magnifying some small monster and introducing him into the human world, or else have ventured down, as minified spectators, into the arenas of desperate struggle that go on in the lesser world every hour of every day. The insects live a fierce and terrible life of their own, as Fabre has shown us, but it is beneath the blank surface of the sea and other waters of the earth that the frantic game of eat and be eaten goes on at its greatest intensity.

In the American Museum of Natural History in New York City there is a beautifully arranged group that shows the climax of one of these silent dramas of the underwater world. A crab has been sliding along over the bottom, with an eye to a possible meal among the fronds of a clump of seaweed nearby. But as he has neared this little submarine grove, a terrible, bloodthirsty monster has pounced out on him—no less terrible because it is a cousin-animal, the lobster. Little this clawed Goliath reckes of near-cannibalism. The sudden lurch of the crab, its attempted escape by swimming, have come an instant too late. The great pincers of the lobster have seized its shell, and in a moment more will have crushed it in. Then the big-toothed member of the pair will finish the work of hacking the poor crab to bits, while the finer-toothed claw will stuff the fragments into the lobster's avid mouth.

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Among the game animals of Tennessee are listed a herd of goats which reverted to the wild, and scores of hogs which have roamed the hills for years.

PHYSIOLOGY

Soporific Drug Numbs Brain But Goes Chiefly to Muscles

ALTHOUGH the brain is the part of the body chiefly acted upon by the bromides, hypnotic and sleep-inducing drugs, it is not the spot of highest concentration of these drugs, a report of the American Medical Association shows.

This newly-discovered fact upsets one theory of the action of such drugs. It had been supposed that when a bromide was given, most of the drug went to the tissues of the brain and nervous system, and that that was why it had such a direct effect on them. The efficiency of sodium or potassium bromide in the treatment of epilepsy was considered a matter of saturation of the specific tissue with the drug.

M. A. B. Toxopeus of the Utrecht Pharmacologic Institute in Holland recently investigated the distribution of

sodium bromide when given in moderately large doses to dogs. He found most of the drug, over one-third of it, in the muscles. Next largest amount was found in the skin, then came the blood. The brain stood eighth or ninth in order, with the bones, lungs, heart, liver and kidneys coming ahead of it. The muscles were found to contain from one and one-half to five times the concentration of the bromide which Mr. Toxopeus discovered in the brain.

The mechanism of the action of bromide remains unexplained, but it appears certain that it is not due to special selectivity of the nervous system for the bromide ion, according to comment by the American Medical Association.

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