ZOOLOGY-FOLKLORE

NATURE RAMBLINGS
by Frank Thone

Shadowy Superstition

See Front Cover

GROUNDHOG Day is one of those curious superstitions that persist even after they have been well discredited and generally disbelieved. Probably nobody thinks that six more weeks of winter will ensue if the sun shines on the morning of February 2, but everybody talks about it in terms of the gravest belief. It has become one of those straight-faced public jokes that is almost a public ritual.

The assumption is always made, of course, that if the sun shines the groundhog will really see his shadow. As a matter of sober zoological fact, the groundhog never sees his shadow on the morning of February 2, though the winter sun should shine brighter than it does in June.

The reason is that groundhog simply isn't there to see any shadow. The groundhog is a hibernating animal, and he sleeps soundly in the innermost recesses of his burrow until about the end of the first week in March, and even later in the more northerly portions of the country. The very earliest record of an observation of a groundhog is a February 7 date in the Middle South—five days too late for Groundhog Day shadow-observing purposes.

The Groundhog Day superstition is older than its name. In various parts of Europe, other hibernating animals, especially the bear and the hedgehog, are burdened with responsibility for the weather of late winter. The groundhog is an American animal. It seems to have received its meteorological job from European colonists who believed in the hedgehog, for the hedgehog is strictly Old-World in its habitat. Lacking the hedgehog as a bad-weather "goat," the settlers found the groundhog a ready substitute.

The superstition may very well be older than the date on which we expect the groundhog to come forth and do his shadow-gazing. Candlemas day is an important feast of the Church—it gets its name from the fact that the altar candles for use during the whole year are formally blessed on that day: the "candle Mass." But there is nothing in the rubric about the weather. Not unlikely some old Pagan belief about the importance for the subsequent course of the weather, about the first of February, was dragged into the Christian feast by converts who could not entirely put off the works of their older darkness. Anyhow, the superstition did manage to creep in, and it is still with us.

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PHYSICS

New Aid for Atom Study Announced at Ohio State

STILL another new tool by which science can probe the secrets of the atom and effect transmutation of the elements has been developed at Ohio State University, according to an announcement from the department of physics and astronomy.

The new weapon of science is the first successful production of strong narrow beams of negatively charged hydrogen atoms which can serve as "bullets" for use in atom bombardment research. It is the work of Dr. Willard H. Bennett and Paul Darby of the physics department.

The hydrogen atom normally consists of one positively charged nucleus called the proton, and one negatively charged electron. It is now well known that these electrons can be knocked off and beams of protons or positively charged hydrogen atoms obtained. Positive ion beams of most elements have been familiar in laboratories for 30 years or more.

But never before, according to Ohio State scientists, has anyone been able to attach extra electrons to atoms and make them stick in sufficient quantity to obtain beams of negatively charged ions.

Production of the negative ions in quantity is described as having far-reaching effects in research with the new million volt tube at Ohio State by which transmutation of the elements is effected.

Since scientists previously have been unable to obtain negative beams of any element, the physical properties of such ions themselves hold great interest and will be a subject for further study. They are thought to play a decisive role in the production of striations in glow discharge, a familiar case of which is the discharge in a neon sign.

An "electron microscope" played a prominent part in the discovery of these beams. This "microscope" is a vacuum tube whose parts focus the beams of charged particles on a screen, just as the lenses in an ordinary microscope focus the beams of light on a screen.

In the work at Ohio State, the "microscope" was so used that ions of all masses and charges could be focussed on one screen and then separated by a transverse magnetic field.

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