the air in a typhoon southeast of Okinawa on June 5, 1945. Regular flights, begun soon after that date, were continued until Nov. 15. In all, 345 such typhoon reconnaissance flights were made.

Weather research as well as weather scouting will become part of the flyer's job beginning in March, when Army and Navy air forces, under the scientific direction of the U. S. Weather Bureau, will fly remote-controlled, pilotless planes into the hearts of the worst thunderstorms they can find, to learn more about these storms, rated about worst of weather hazards that aircraft have to encounter in temperate regions.

The research will be conducted at the huge air installation of the Army Air Force at Orlando, Fla., and at the Naval Air Station at Banana River in the same state. The robot planes will carry instruments to record all that happens to them in their trouble-seeking flights, and they will be watched and controlled from "laboratory" planes flying at a safe distance from the dangerous thunderheads.

Several other organizations will collaborate, conducting research along special lines. Among them will be the National Advisory Committee for Aeronautics, the Soaring Society of America, the Massachusetts Institute of Technology, the University of Chicago and the University of New Mexico.

Science News Letter, February 2, 1946

CHEMISTRY

Vitaminized Fertilizer From Pulp-Mill Waste

➤ WEALTH from waste, always a fascinating topic in the annals of American industry, finds a new exponent in a New York inventor, Eric W. Eweson, who has been granted U. S. patent 2,392,811 on a fertilizer made by culturing masses of yeast cells in sulfite liquor, a most objectionable effluent from woodpulp and paper mills.

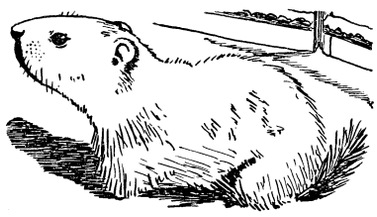
To prevent development of too much alcohol, Mr. Eweson bubbles quantities of air through the sulfite liquor while the yeast cells feed on the wood sugars dissolved in it, and on the mineral salts which are introduced. After the yeast has reached maximum growth, the mass is dried and sacked, ready for use.

The inventor claims that his fertilizer contains vitamins and still-living yeast cells, the excess of nutrient salts not used by the yeasts, and the lignin, the latter serving as a valuable soil conditioner.

Science News Letter, February 2, 1946

ZOOLOGY

NATURE RAMBLINGS by Frank Thone



Deputy Forecaster

➤ THE GROUNDHOG, whose shadow-gazing on Candlemas Day (Feb. 2) is supposed to determine the character of the weather for the ensuing six weeks, serves in this country as deputy for the European hedgehog, which was really the original object of the quaint superstition. Early settlers from western Europe, finding no hedgehogs here, picked out the next likeliest animal, which happened to be the groundhog, or as he is also known, the woodchuck.

Actually, the groundhog isn't at all a good substitute for the hedgehog. Zoologically he is not at all closely related, for he is a rodent, whereas the hedgehog is an insectivore, belonging to the same group as moles and shrews. The two animals do not even look much alike: the hedgehog is considerably smaller, and has a back-armor of spines like a porcupine, except that they are only an inch long.

The groundhog would be a most unwilling deputy for the hedgehog if he could be conscious of the dubious honor that has been thrust upon him, for he is a hearty sleeper and hates to get up so early in the year. The hibernating period of the groundhog, over most of his range, runs well into March; St. Patrick's Day would be a much more appropriate feast than Candlemas, to set for his first tentative emergence from winter quarters. The hedgehog, in the much milder winters of western Europe, and especially of the British isles, sleeps lightly and may be seen rummaging around in the underbrush on almost any warm day in winter, like some of our own squirrels.

There is a European animal that is a very close cousin of our American groundhog; it is known as the marmot, which is the more dignified common name of the groundhog as well. It is also the scientific name; the full zoological title of the common groundhog of the eastern United States is *Marmota monax*. A Western marmot, that lives amid the tumbled rocks of the mountains instead of in the woods, is appropriately known as rockchuck instead of woodchuck.

Science News Letter, February 2, 1946

ENGINEERING

Gas Turbines to Give Much More Power

➤ WAR-BORN gas turbine engines can be used in future transport planes and will give nearly half again as much power with the same engine-weight as prewar reciprocating engines, declared R. P. Kroon, Westinghouse engineer, at a meeting of the Institute of Aeronautical Sciences in Washington, D. C. Or, he continued, use of such engines can save approximately 25% of installed engine weight and permit greater fuel capacity for long-range flights, or greater payloads on shorter trips.

These economic advantages, he pointed out, will be achieved through the compactness of the gas turbine, the small diameter and low frontal area of which enable a great amount of power to be packed into a small space with relatively light weight.

"Gas turbine engines," he said, "whether equipped with a propeller drive or depending upon a jet for power, can easily be installed in the wing of a large airliner with a considerable reduction in air resistance as compared with a regular reciprocating engine."

Science News Letter, February 2, 1946

A blind species of *salamander* is found almost exclusively in Missouri caves.

Like acids, the enzyme *invertin* found in many plants and yeasts changes cane sugar into a mixture of glucose and levulose.