METEOROLOGY

Do-It-Yourself Tornado Made in Living Room

➤ YOU CAN MAKE your own tornado. It is simple to do it yourself, in your own living room, and there is no danger involved in duplicating the most violent storm that nature produces.

This is how you can see for yourself the birth and death of a tornado:

Place a clear bottle of soda water on the turntable of a record player and rotate it at 78 revolutions per minute until the soda reaches the same speed. Drop in a pinch of sugar or any other solid particle.

The tiny gas bubbles contained in soda water, which ordinarily rise to the top of the liquid, surge up and into the center, creating a partial vacuum.

Dr. J. S. Turner of the Commonwealth Scientific and Industrial Research Organization in Sydney, Australia, who developed the soda water "whirlwind," has also simulated the motion of a tornado by blowing bubbles of air into a tank of tap water.

If dye is placed in the top of the tank, it is drawn down to the bottom, then toward the center and up, remaining in a cylindrical form, he reported in Oceanus, 10:15, 1963.

The "big brother of the whirl produced by water draining out of a bathtub" occurs in nature when a mass of cold, dry air from the west runs into a mass of warm, moist air from the south or southwest. The lighter warm air rushes up through the heavier cold air, cooling as it rises.

As it rises, the moisture carried by the warm air condenses and produces latent heat that adds to the energy of the storm. As the opposing currents of air meet, they begin to rotate—the warm air from south to north and the cold air from the northwest to south, producing a counterclockwise motion. In the Southern Hemisphere, the opposite is true.

Centrifugal force in the bathtub whirl pulls water away from the center, just as the tornado pulls air away from its center, creating a vacuum.

Scientists have been trying to simulate the whirlwind's action since 1780. Recent theories that convection causes cylindrical momentum in a tornado resulted in the simple soda water experiment.

• Science News Letter, 84:251 Oct. 19, 1963

TECHNOLOGY

Computer Granddaddy Retired to Smithsonian

➤ THE GRANDDADDY of data processing computers, Univac I, no longer has to worry about keeping the census records straight. It retired Oct. 3 when Secretary of Commerce Luther H. Hodges presented it to the Smithsonian Institution.

Univac I was the post-World War II creation of J. Presper Eckert and Dr. John W. Mauchly. They suggested to Census Bureau officials that electronic equipment should be used for tabulation of the census.

The first big computer was an earlier Mauchly-Eckert machine, ENIAC, built at the University of Pennsylvania to compute trajectories of artillery missiles.

With its speed of 30,000 items per minute, Univac I began its round the clock and round the calendar operation in March, 1951. Univac I was a pioneer computer and helped to usher in the age of automation.

"Today computers not only compile our statistics, they make out utility bills and bank statements, they send us magazines, help to forecast the weather, track our satellites, open new doors to scientists and help business managers to make decisions," said Secretary Hodges in presenting it to Dr. Leonard Carmichael, secretary of the Smithsonian.

• Science News Letter, 84:251 Oct. 19, 1963

AGRICULTURE

Autumn Fertilizing Of Lawns Important

➤ SPECIAL KINDS of fertilizers on lawns and gardens supplement the earth's store of plant nutrients to yield vigorous lawns, abundant flowers, and a good yield of tasty and nutritious vegetables next year.

Fertilizers differ in nutrient content, ingredients and form. The average homeowner often stands perplexed before the choice of which fertilizer to use when, and where to put it. For clarification of basic fertile facts, the U.S. Department of Agriculture has issued a brief informative leaflet, Selecting Fertilizers for Lawn and Gardens, which can be obtained free by writing the USDA, Washington 25, D. C.

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Nature Note

➤ IN THE MORE SOUTHERLY salmon streams, the fish that made their "run" last spring are now returning to the sea. But far to the north, in Labrador and the upper reaches of Alaska, these valuable food and game fish are still entering the streams of their birth.

The "run" is a most curious phenomenon, lasting from early summer until late September and October when all salmon spawn and die. The eggs remain unhatched all winter, and only the warm waters of spring bring forth the tiny fish.

Young salmon marked in fresh waters have proved to scientists that the fish return to their native streams, but researchers have not yet been able to determine what factors influence this mysterious migration. One trend of thought, the "zone of influence theory," maintains that its sense of smell causes the salmon to recognize and stay near the waters of the parental stream after it flows into the ocean.

Although the abundance of salmon in early America rendered it "poor man's meat," the salmon was considered *par excellence* the fish of patricians in imperial Rome. Despite a serious decline in supply today, the combined sport and commercial value of the salmon is estimated in hundreds of millions of dollars each year.

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