METEOROLOGY

Where Hurricanes Start

Born in the belt of the doldrums, which are farthest north this time of year, big winds can take several kinds of paths.

➤ LATE AUGUST or September is the beginning of the hurricane season in the Atlantic. In late summer and early fall, swirling winds from the hot humid areas north of the equator are likely to lash out over the tropical portion of the western Atlantic, West Indies, and south and east coasts of the United States.

High temperatures and humidity team up with converging winds in the late summer and early fall to make these superstorms. The rotation of the earth causes the whirling motion.

Born in the belt of doldrums, towards which the trade winds blow from both sides, the hurricane is the western Atlantic's version of the typhoons of the western Pacific Although the doldrums exist throughout the year, they are farthest north at this time, and so in the best position for the earth's rotation to start whirls. Also, the available energy to develop such storms is greatest now. This energy is in the form of the latent heat of the great abundance of water vapor discharged from the hot surface of the strongly sunned ocean.

The air in a circle anywhere from about 50 to 500 miles in diameter presses in toward the central low pressure core, swirling around in a spiral faster and faster until its centrifugal force is so strong that it moves in a circle about 10 to 30 miles in diameter, inside of which there is almost no wind.

As the whirling wind ascends, it cools and much of the vapor in it condenses, liberating latent heat. This keeps the central zone warmer and less heavy than the surroundings, and thereby maintains the low pressure, on the existence of which the continuance of the storm depends.

Because of the rotation of the earth, hurricanes swirl in different directions in the two hemispheres. In the northern hemisphere, the rotation is counter-clockwise, and in the southern hemisphere it is clockwise.

Hurricanes can take several kinds of paths, depending on the location of the pressure areas in their vicinity. A hurricane tends to follow the southern and western border of the semi-permanent Atlantic high pressure area. The hurricane thus usually moves in a parabola, though a comparatively straight line is common. Occasionally, it may loop, crossing over the same spot twice.

Tearing over the waters of the western Atlantic, the storms expend enough energy in a single day to run all the power plants in the world for several years. But this tremendous energy has never been harnessed. Thrown against coastal cities, it has caused great disaster. The worst American hurricane disaster claimed 6,000 lives at Galveston, Texas, in 1900.

Science News Letter, August 18, 1951

AERONAUTICS

Plane Seats Reversed

➤ BACKWARD-FACING seats for passengers in airplanes are again recommended by the U. S. Air Force as a forward step in lessening injuries in case of a crash. To determine the reaction of passengers flying backward, a group of 20 aviation writers was given a trans-continental round trip by the Military Air Transport Service in seats facing to the rear.

On the whole, these writers found the seating arrangement satisfactory. Takeoffs and landings were little different from that with conventional seating, they found. The view to the rear was as good as the view to the front. The majority of the men seemed to feel the backward-seating arrangement desirable because of the safety features involved.

With the belt used in conventional front-facing seats, the lower part of the body is held in position but there is nothing to prevent the head from snapping forward in case of a crash to strike the rear of the seat ahead. With the backward-facing seat, the entire body is supported against the seat in case of a sudden stop.

Studies made by Hugh DeHaven of Cornell University Medical College show that the human body can tolerate high deceleration forces for a short period if the forces act transversely to the long axis of the body while standing or sitting with the back against a support.

If a passenger is sitting in a conventional forward-facing seat, the trunk acts as a three-fold weighted arm driving the ten-pound head forward to hit against the back of the seat ahead with a force much greater than that actually working on the aircraft structure at that point, Air Force officials state.

In other words, they continue, the passenger held back by his seat belt endures n his body, especially his belly, only the impact of the plane. But his head really hits alone, and hits with much more force than if the whole body accompanied it.

Science News Letter, August 18, 1951

MEDICINE

Mamma Spanks Son, Gets Clot in Vein

➤ A 41-YEAR-OLD housewife "swung her right arm forcibly to spank her son." Soon after, the palm of her hand was blue and painful. Next morning her right arm was swollen and dark with the veins showing prominently. A day later she had a sudden pain in the left side of her chest and was short of breath.

This muscular woman, who claimed she could crack nuts and remove soda bottle caps "without the aid of the usual tools," had given herself an attack of "effort" thrombosis, or clot, in the underarm vein by the violent arm swing when she spanked her child.

Her case is reported by Drs. Theodore Barnett and Leon M. Levitt of New York. (JOURNAL, AMERICAN MEDICAL ASSOCIATION, Aug. 11).

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MEDICINE

Shoot Neutrons at Anti-Anemia Vitamin

➤ THE anti-pernicious anemia vitamin B-12 has been made radioactive by neutron bombardment in the research reactor at Brookhaven National Laboratory.

As a result, medical scientists should have plenty of the radioactive vitamin for tracer studies in research to learn how the vitamin helps fight pernicious anemia.

Each molecule of vitamin B-12 crystals contains an atom of cobalt 59, the naturally occurring form of cobalt. When the vitamin crystals are irradiated by neutrons in the reactor, the cobalt is changed to cobalt 60, which is radioactive.

Heretofore the only method of making the vitamin radioactive was to feed cobalt 60 atoms to the mold from which the vitamin is produced commercially by fermentation.

The reactor method producing radioactive B-12 is described by Dr. R. Christian Anderson and Yvette J. Delabarre of Brookhaven. (JOURNAL, AMERICAN CHEMICAL SOCIETY, August).

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