

have been rated higher. The three greatest shocks, listed as 8.5 on Dr. Gutenberg's scale, were on the border between Ecuador and Colombia in South America in 1906, in China in 1920 and in Chile in 1922. The Jap quake in 1923 was rated 8.0.

Dr. Gutenberg's rating system, regarded by many seismologists as the most accurate, is the only scale measuring the intensity of the earth's tremors by instruments. It uses the amplitude of a quake's motion as recorded on a seismograph to rate the shock, and a Gutenberg figure of 7.5 will be a tremor big enough to wreck any city. Higher numbers are based on the extent of the quake.

Tremor on Aug. 8 that raised the toll from the quakes was one of more than 150 aftershocks recorded after the first big tremor. These following quakes may continue a month or several months more with varying intensity, seismolo-

gists declare. While not looking for any more as big as those already recorded, the earthquake authorities say that these "hangover" tremors are unpredictable.

The longest period of aftershocks ever recorded was for the quake at Helena, Mont., in 1935 that was followed by tremors for a full year.

Emphasizing that location is the all-important factor in the toll from quakes, seismologists say that the West Indies disturbance killed relatively few people because the epicenter of the shock was approximately ten miles at sea. The area affected was not densely populated and the many flimsy buildings helped keep the death list relatively small for an earth-rocking of that magnitude.

Among modern earthquakes, the Chinese shocks in 1920 claimed 180,000 lives for the highest fatalities, but China's historians have recorded a quake in 1556 with an estimated 830,000 deaths.

*Science News Letter, August 24, 1946*

#### ENGINEERING

## Shielded from Electricity

► SHIELDED buildings to protect delicate electrical experiments and tests inside from electrical influence without are not new, but in two under construction unique methods are employed.

One is a Navy hangar, a \$2,000,000 project just started at Patuxent River, Md., to provide facilities for delicate tests on radar and other electronic devices installed in aircraft.

The other is a group of laboratory buildings, some completed and others under construction at Nutley, N. J., in which the Federal Telephone and Radio Corporation will conduct experiments in television, frequency modulated broadcasting, aerial navigation and radar. Their shielding walls are designed to protect against atmospheric electricity.

In the Navy hangar, fine mesh wire will be used as a shield. It will be one-eighth inch galvanized mesh wire, installed around the entire hangar in such a manner as to prevent any breaks in its continuity. Two layers of wire mesh will be laid in the concrete floor.

Wire mesh is used in this building, instead of solid sheets of galvanized steel or copper, because it is cheaper and will permit ventilation and light, while at the same time opposing passage of electronic disturbances.

In the Nutley building, the walls are made of prefabricated panels made up

of flat sheets of aluminum and fluted sheets of steel, with an inch-and-a-half layer of glass fiber between. The glass is an inert, dielectric material that prevents electrolytic action between the two metals and also acts as insulation to keep heat within the building.

The steel sub-floors of the buildings are also made of prefabricated panels with a cellular structure, over which a lightweight concrete fill is poured. The cells provide runways for electric cables to furnish power within the building where needed.

*Science News Letter, August 24, 1946*

#### BIOLOGY

## System Similar to Radar Not New to Bats

See Front Cover

► BATS USE the thin, tough membrane that forms their wings not only to fly, but to catch food and locate obstacles.

Most species of bats, except the large fruiteaters, make a collecting net of the membrane, doubling it up like an apron. The bat then deftly removes the insects upon which it feeds with its strong teeth or flies to a nearby tree where it can manage the larger victims, states Richard Headstrom of Boston, Mass.

The picture on the front cover of this

SCIENCE NEWS LETTER, by George A. Smith, Quarryville, Pa., shows a brown bat with his wings not quite folded out of sight.

Bats, unjustly abhorred by many superstitious people, detect obstacles in their path by an echo system somewhat similar to that of radar. They emit supersonic notes that are reflected by the obstacle. The membrane which serves as wings is equipped with sensitive nerves that apparently respond to the reflected sound waves and help locate the source.

Bats, true mammals with the habits of birds, are not at all fitted for walking. Their hind legs are twisted around so that their knees bend backward, in the

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opposite direction from ours, Mr. Headstrom points out in a report to the Massachusetts Horticultural Society. This makes it extremely difficult for them to walk. When they do attempt it, they succeed only in a flapping shuffle.

The little brown bat often found in the northeastern United States mates in October, but the single young is not born until the following June or July. The mother nurses her young from the breasts as does a mouse for two or three weeks, after which the baby is expected to forage for himself.

The wings of the brown bat often measure nine inches from tip to tip, yet when folded they hardly show. When the bat rests or sleeps, it hangs head downward, holding on by the claws of its hind feet.

As cold weather approaches, bats move into caves or hollow trees, where they pass the winter. Some hibernate alone, but more often they collect in twos and threes, or even larger groups. While hibernating, they hang head down, with their wings folded close to their sides.

*Science News Letter, August 24, 1946*

## NUTRITION

## Food Plans for World

Long-range planning of United Nations Food and Agriculture Organization aims at better-balanced diets for all countries of the world.

➤ **MORE MILK**, fruits and vegetables but less sugar are the high points in the United Nations Food and Agriculture Organization's goals for the United States food supply in 1950 compared with prewar American diets, the FAO's world food survey reveals.

Based on a predicted 12% increase in population by 1950, the goals for the United States headline a need for 55.6% more milk and milk products, excluding butter, than the nation used before the war. Fruit and vegetables should jump to 48.6% more than prewar consumption, the goals indicate, with 17.6% more meat, fish and eggs needed for the 12% increase in population.

Americans before the war used more sugar than the 1950 goal of the FAO, while most other products should show percentage gains of less than the population increase.

With Americans averaging more than 3,000 calories in their daily diet compared with the FAO minimum of 2,600, the goals outlined for the United States are aimed at a better balanced diet rather than more food. But Americans are not the biggest eaters in the world; New Zealand, with an average of 3,281 calories for each person per day top the list.

Lowest calories per individual were reported for troubled Korea with an average of only 1,904. The survey covered 70 countries with nine-tenths of the world's population.

The United Kingdom, like the United States, needs more fruits, vegetables and

milk with less sugar, according to the survey. The FAO also called for a 2.5% decrease in grain products consumption by the British to meet an expected 6% population increase by 1950, while the United States will need 4% more grain than was consumed before the war.

But balancing American and British diets is a small matter compared with the fact, emphasized in the FAO survey, that "about half the world's population was seriously undernourished in the years before the war."

The goal for China's millions by 1960 includes a jump from 20,000 tons of milk to 1,150,000 tons or an increase of 5,650%. India, by 1960, should show a 60% increase in milk and a 330% increase in meat, slightly more than the goal for China. Both countries require more of all food products, the survey shows.

South America will need more food of all classifications, while southeastern Europe requires increases for all foods but grain.

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## AERONAUTICS

### Television and Radio To Record Flight Tests

➤ **TEST PILOTS**, the daring heroes who test new aircraft at the risk of their lives, may lose their jobs in the future as scientific instruments put new aircraft through their paces without a pilot at the controls.

Complete data on the flight of a new

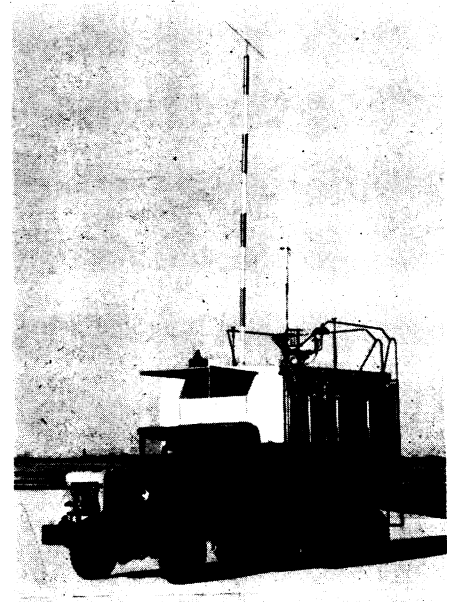
plane were gathered by Navy air engineers at the Marine Corps Air Station, Cherry Point, N. C., as radio controls sent the planes through maneuvers while television or radio-telemetering instruments gave ground observers complete information on the engineering and structural performance of the craft.

The equipment developed by the Naval Air Experiment Station, Philadelphia, Bell Aircraft Corp., and Cornell Laboratories, Inc., is an advanced form of experimental "drone" flights first made more than five years ago.

The test pilot, with a notebook to record his plane's achievements in flight, couldn't compete with the automatically recorded data sent by instruments in the systems demonstrated.

Navy equipment demonstrated radio control maneuvers at high angles of dive and dangerous speeds. Telemetering and television kept the records of the flight. Cornell Aeronautical Laboratory demonstrated a telemetering system installed in an SB2C-5, while the Bell Aircraft Corp. showed a radio control system for flying a Grumman F7F.

*Science News Letter, August 24, 1946*



**LIFE SAVER**—U. S. Navy's structural flight test station, which controls by television and radio equipment take-offs, landings and other maneuvers during test flights. The truck is completely mobile, carrying its own power supply and all electronics gear used during operations. Note chair on top from which operations are controlled.