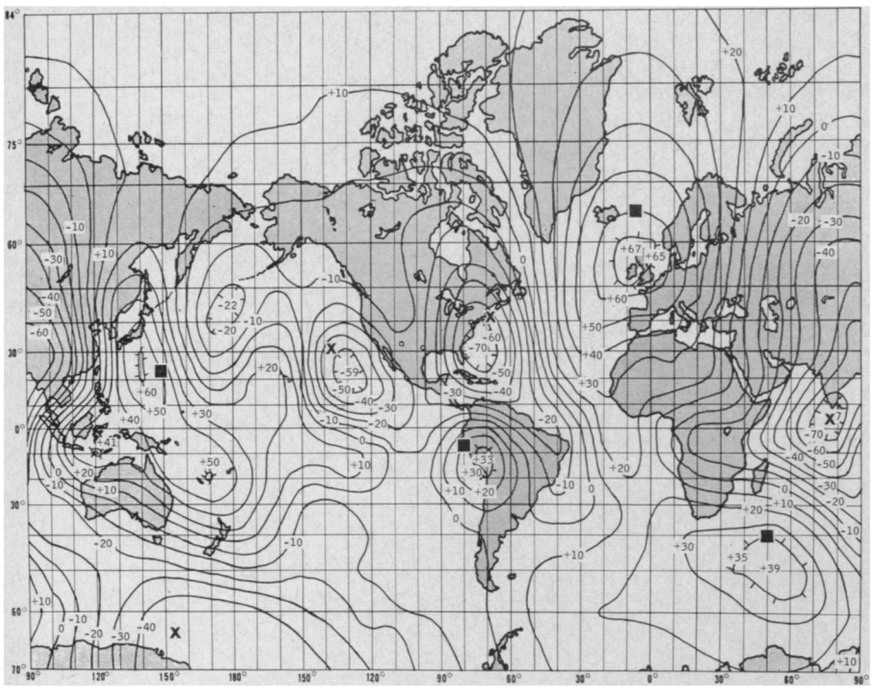

Johns Hopkins Applied Physics Laboratory

CORNERED EARTH—Measurements made by orbiting satellites have shown that the earth has four corners. This new fact was discovered by scientists at Johns Hopkins Applied Physics Laboratory in Silver Spring, Md. The squares on the map indicate the high points or corners and the four x's indicate the low areas.

GEOPHYSICS

Earth Has Four Corners

➤ THE EARTH has four corners, measurements made of earth-circling satellites have shown.

The high points each cover several thousand square miles of the earth's surface. They are 220 feet higher than they would be if the earth were exactly spherical.

The low areas between the high points are about 253 feet below what would be expected if the world were precisely round. The four-cornered, or pyramide-like, design was found by calculating the changes in the orbits of globe-girdling satellites.

At the center of the high points, the satellites were pulled downward a few hundred feet by the unexpectedly high gravity.

The new findings give the earth four known, superimposed shapes:

1. It bulges at the equator, as has been known for a long time.
2. It is slightly pear-shaped, with the narrow end in the Arctic and the broad base in the Antarctic.
3. The earth's equator is egg-shaped, not circular.
4. It has four high points, roughly of pyramid shape.

One of earth's high points centers over Ireland in the Northern Hemisphere and sprawls northward toward the pole. Another extends across the equator from New Guinea northward toward Japan. A third corner is south of Africa centered about half-way to Antarctica, and the fourth corner of the pyramid is west of South America, with the high point off Peru.

The new figure for earth was found by scientists at Johns Hopkins Applied Physics Laboratory in Silver Spring, Md., working under a contract for the U.S. Navy's Bureau of Naval Weapons. Dr. Robert R. Newton, with Drs. William H. Guier and George C. Weiffenbach, directed the studies.

Ever since Magellan proved that the earth is round, scientists have been trying to prove that he was wrong. Although they have been successful, the imperfections from a sphere are minor considering the earth's vast size, nearly 25,000 miles around the equator, with an area of nearly 197 million square miles.

• Science News Letter, 87:390 June 19, 1965

GEOPHYSICS

Mystery of Meteorite At Goose Lake Probed

➤ THE 529-POUND meteorite sitting on the earth at Goose Lake, Calif., may not have plunged solo from the skies. It may have splashed out from the huge meteorite that struck Canyon Diablo in Arizona, 625 miles away.

The energy required to send such an object hurtling through the earth's atmosphere for such a distance is about one ten-millionth of the total energy expended when the Diablo meteorite hit the earth, said C. Sharp Cook and C. P. Butler, U.S. Naval Radiological Defense Laboratory, San Francisco.

A clue that the Goose Lake meteorite may be part of the larger body is that the oxide particles found are identical in both cases, the scientists reported in Nature 206:704, 1965, a British scientific journal.

The Goose Lake meteorite has long puzzled scientists because they could find no apparent crater caused by the impact. Meteorites of the same mass have created craters about six miles in diameter, scientists note. They point out that some of the iron meteorites found in the southwestern United States and northern Mexico might also be fragments thrown out from the Diablo impact.

• Science News Letter, 87:390 June 19, 1965

AGRICULTURE

Sunlight Measuring Box Calculates Rain Needs

➤ AN ELECTRONIC "BOX" that accurately measures the amount of sunlight falling on any crop, and therefore enables the amount of water it requires to be accurately calculated, is now being developed by a leading British industrial research organization.

Known as an integrating solarimeter, it not only indicates when a crop needs watering but also shows exactly how much it needs.

This information could maintain optimum growing conditions, while in arid parts of the world the more efficient use of available water that the box would make possible would be especially valuable.

The integrating solarimeter, a development of British Telecommunications Research Limited, Taplow, has been tested by several horticultural establishments. Results achieved so far suggest that many crops are either over or under watered, particularly in the case of crops under glass.

The integrating solarimeter works by measuring the sun's radiation with a bank of solar cells, electronic "eyes" which convert light into an electric current. This current is applied to a simple transistorized circuit and is then used to operate a numerical counter.

The counter totals up the amount of energy received from the sun over a period of time and shows a reading in milliwatt-hours per square centimeter.

Work carried out by the National Institute of Agricultural Engineering and similar establishments has shown that sunlight is the predominant factor affecting the water requirements of plants, other elements such as wind and humidity being relegated to a comparatively minor role by the plants' built-in control mechanism.

Hence, by placing the integrating solarimeter in the middle of a crop, so that both are equally exposed to the sun's rays, an accurate indication of the water requirements can be obtained by comparing the reading taken from the integrator with a standard reference table.

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