

OCEANOGRAPHY

Mountains Under Sea

Great range 1,000 miles long and up to 14,000 feet in height discovered under the Pacific. Most peaks are flat on top as if eroded by sea.

See Front Cover

► **DISCOVERY** in the central Pacific of a tremendous underwater mountain range—1,000 miles long, 100 miles wide and up to 14,000 feet in height—was announced following a joint University of California-U. S. Navy expedition which returned recently.

The submerged mountain range, which has been named the "Mid-Pacific Mountains," stretches all the way from Wake Island to Necker Island near the Hawaiian group.

Hydrographic charts had previously indicated isolated shoal points in this area, but the findings of the expedition proved conclusively that these were not isolated peaks but the summits of a long, narrow, virtually continuous mountain range as mighty as the Sierra Nevada.

Most of these sea mounts were flat on top—as if eroded by wave action in shallow water and then sunk below the surface. Clam, snail and sea urchin shells were dredged from a submerged mountain top that has now sunk to the 6,000 foot level.

The photograph on the front cover of this week's **SCIENCE NEWS LETTER** was taken 4,500 feet below the surface of the Pacific on the peak of Sylvania Seamount, near Bikini Atoll. The objects shown are probably fossil coral heads coated with manganese dioxide. At the upper right can be seen ripple marks made by underwater currents.

Entitled "Operation Midpac," the expedition was sponsored by the University of California's Institute of Geophysics and the Office of Naval Research and the Bureau of Ships of the U. S. Navy, and carried out by the University of California, Scripps Institution of Oceanography and the U. S. Navy Electronics Laboratory at San Diego.

Led by Dr. Roger Revelle, acting director of the Scripps Institution, the expedition consisted of two vessels, 85 crew members and 30 scientists from the Scripps Institution, U. C. L. A., U. S. C., Stanford, the U. S. Geological Survey and the Navy. The two ships were the *Horizon*, a 143-foot converted Navy tug which now belongs to the Scripps Institution, and the *EPCE(R)-857*, a 220-foot research vessel assigned to the Navy Electronics Laboratory.

The two vessels set out from San Diego for the central Pacific on July 27 and completed their 96-day, 27,000-mile trip on Nov. 1.

Chief mission of the expedition was to explore the vast, watery frontier which comprises the floor of the Pacific Ocean, and about which comparatively little is known.

Scientists had previously believed that

GEOLOGY

Largest Meteor Crater

► **NORTHERN** Canada's huge meteor crater, if meteor crater it is, was found this summer to be seven times larger than Canyon Diablo in Arizona and 17 times larger than Australia's Wolf Creek Crater.

All available evidence seems to indicate that the two-mile-wide lake is the largest meteor hole in the world, Dr. V. Ben Meen of the University of Toronto told the Geological Society of America meeting in Washington.

Dr. Meen and the crater's discoverer, a prospector named Fred W. Chubb, flew to the Ungava Peninsula on the eastern shore of Hudson Bay this summer. The geologist

the floor of the Pacific had remained relatively stable for hundreds of millions of years. But the mass of evidence brought back by "Operation Midpac" shows that in recent geologic times it was the scene of violent movement and that there have been great changes in depth.

Dr. Revelle points out that the underwater sea mounts—the gigantic "Mid-Pacific Mountains"—were thrust up and afterwards sunk. They have sunk in such recent geologic times that the submergence is thought to be due primarily to the sinking of the sea floor itself. Great quantities of ash were also brought up, indicating widespread and violent volcanic activity.

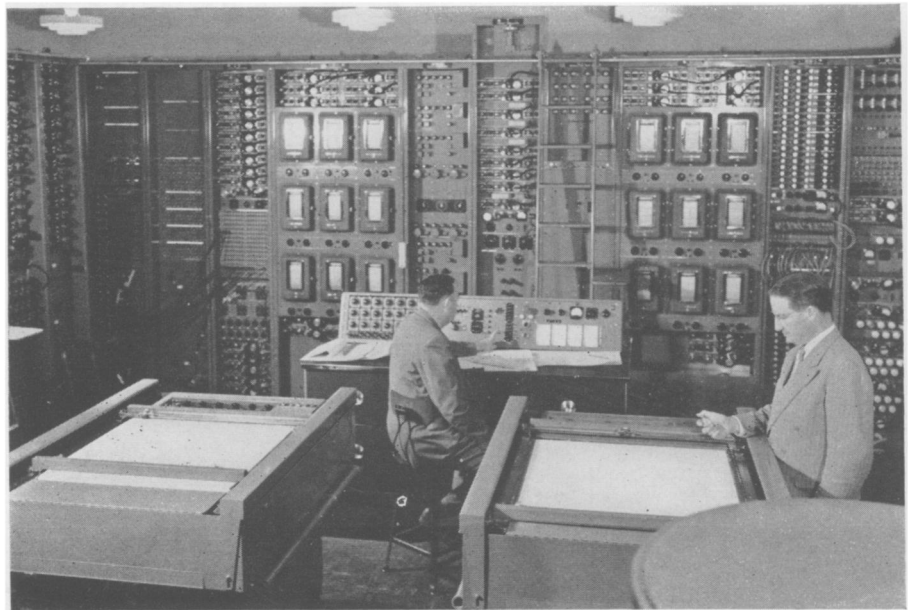
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In a barren land where no tree or shrub can grow, a granite rim was found "which seemed to represent a mass of granite bedrock which has been fractured by a tremendous explosion and lifted bodily to its present position," Dr. Meen said. Yet there is a complete absence of lava or any other evidence of a volcanic eruption.

Assuming a depth of 1,000 feet for the crater, he said, the amount of granite removed from the center by the force of the explosion is figured at more than 5,000,000,000 tons.

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TYPHOON—A new and accurate computer built to evaluate the performance of guided missiles, ships, airplanes and submarines. It was developed by engineers of RCA under contract with the Special Devices Center of the U. S. Navy.