

Eureka!

New Sea Depths

DISCOVERIES of new ocean depths and new underwater mountains, valleys and plateaus have been reported by two civilian research scientists. The two carried out a preliminary International Geophysical Year survey aboard the British submarine *Telemachus*.

The scientists are S. Gunson, a geophysicist with the Australian Bureau of Mineral Resources, and H. Traphagen of the Lamont Geological Observatory of Columbia University in Rockland County, N.Y. Capt. G. D. Tancred, head of the Royal Australian Navy Hydrographic Section, was also with the expedition.

The *Telemachus* covered 12,000 miles and made 138 dives in the Tasman Sea, in the Pacific off New Zealand, and near the Kermadec Islands, Fiji and New Caledonia.

During the dives, the scientists plumbed a new depth in the Tongan Trench, which is about six miles deep; found an underwater extension of New Caledonia ex-



tending toward New Zealand, and explored the lightless world with mountains as high as Everest, great valleys, and plateaus one-third as big as Australia.

In addition, they examined part of the earthquake fault that runs down to the thermal regions of New Zealand. It is this line that, it is said, can bring disaster to million in China, Japan, the Philippine Islands, New Guinea and the South Sea Islands.

During the cruise the *Telemachus* was taken down 240 feet for about an hour at a time.



At depths unaffected by winds, waves or currents, the scientists made their observations at fifty-mile intervals.

ONE OF THE most important instruments was a Vening Meinesz pendulum brought from the Lamont Observatory. Timed to one-millionth of a second, it was used to measure variations in the earth's gravitational acceleration. From its readings, they were able to chart the undersea crust of the earth and determine the type of its rock composition.

A mass of lead, for example, would affect the swing of the pendulum. Timing the swing would give the scientists the information they sought, since lead exerts a greater gravitational force than other substances.

The Royal Australian Navy's Hydrographic Section has carried out many marine surveys with the object of making Australia's eastern coast safe for shipping. Captain Tancred described this coast as at present "far from safe."

"We know little about the routes along our coast, and in the seas about us," he added. "There is enough work to keep three ships and three tenders busy for twenty-five years."

He said the survey ship H.M. A. S. *Barcoo*, which has done a great deal of work in charting the coastal shipping lanes, recently discovered a 15,000-foot plateau rising from the seabed 200 miles off Newcastle.

She also reported:

A mountain 11,000 feet high—much higher than Australia's highest, Mount Kosciusko (7,320 feet)—thirty miles to the north of the plateau;

Another plateau, 13,000 feet high, between the mountain and Lord Howe Island, 436 miles northeast of Sydney;

An underwater mountain range 200 miles south-southwest of Gabo, near the Victoria-New South Wales border.