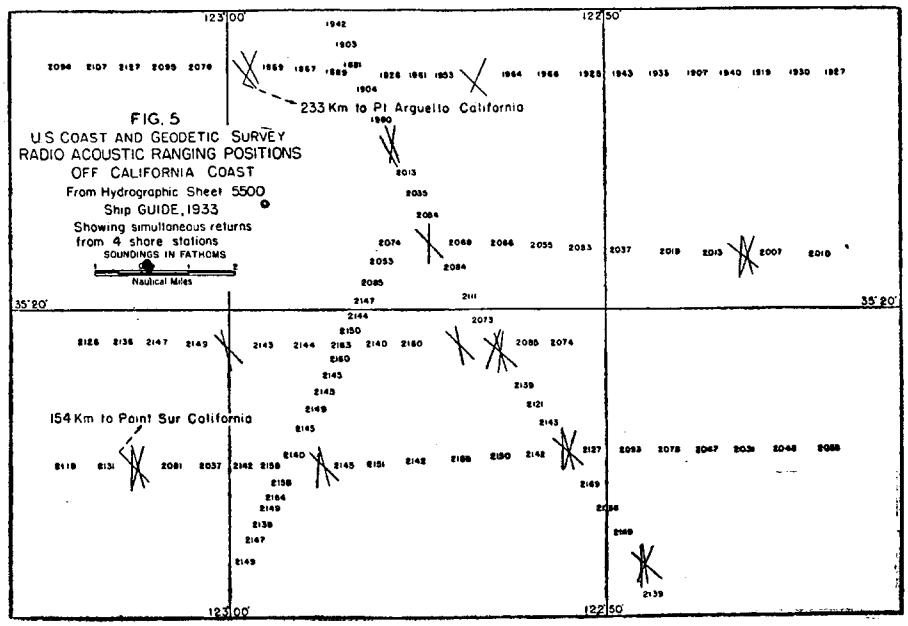
hydrophones are used in the development of such feature. This means that the shape of the feature is more accurately determined than the true geographic position of any point on the feature with reference to the shore-control. It is difficult to state what the



relative accuracy in this case might be, but the consistency of such radio acoustic positions also is illustrated in the sketch showing a section of the field-sheet in the Figure.

INTERNATIONAL STANDARDIZATION OF BASE-LINE TAPES AND WIRES.

by

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The International Bureau of Weights and Measures has sent a group of invar base-line wires for standardization to several of the national laboratories. Twenty-four-meter invar wires are used rather generally in Europe for geodetic base-line work instead of the 50-meter base-line tapes used by the United States Coast and Geodetic Survey. These wires are described in "*La mesure rapide des bases géodésiques*" by J. R. BENOIT and C. E. GUILLAUME.

The standardization of these wires at the International Bureau is carried out in a basement-room in the main laboratory building. The new equipment installed a few years ago, is described by Dr. GUILLAUME in an article entitled: "*La nouvelle base édifiée au Bureau International*", published in the "Procès-Verbaux des Séances" of the International Committee for the session of 1925. The working standard for the measurements is an -H-shaped four-meter invar bar.

The equipment for standardizing tapes and wires is different in nearly every country. Some of these comparators were described in a paper "Precision machines and instruments for the measurement of length", presented by Dr. George K. BURGESS at the World Engineering Congress in Tokyo in 1929 and published as paper N° 335 in volume 5 of the Proceedings.

Because of the considerable differences between the several installations it had been felt for many years that there should be an international standardization of a group of wires and this program is now being carried out. The National Bureau of Standards requested that it be included in the program, and a similar request was made from Ottawa.

The wires have been standardized in Washington twice, first in 1933 and the second time in 1934-35. Twenty-four-meter tapes belonging to the National Bureau of Standards and to the Physical Testing Laboratory of the National Research Council at Ottawa were included in the more recent series of measurements.

The outcome of these measurements may be stated as follows: (*a*) The National Bureau of Standards, the Physical Testing Laboratory and the National Research Council at Ottawa, and the Geodetic Survey of Canada appear to be in agreement with the International Bureau of Weights and Measures on lengths of 24-meter bases to at least one part in a million ; (*b*) The instability of the tapes and wires used in these measurements, and the uncertainties in the coefficient of expansion make it impossible to determine the actual agreement to a higher degree of accuracy than that stated.

IRON OPEN-WORK TRIGONOMETRICAL SIGNAL FOR ROCKY TERRAIN

In the monthly review *Universo*, published by the Military Geographical Institute, Florence, April 1936, Francesco RAMPOLLA describes an iron trigonometrical signal which is particularly easy to construct on rocky terrain where excavation for the purpose of planting and fixing the mounts is impossible.