

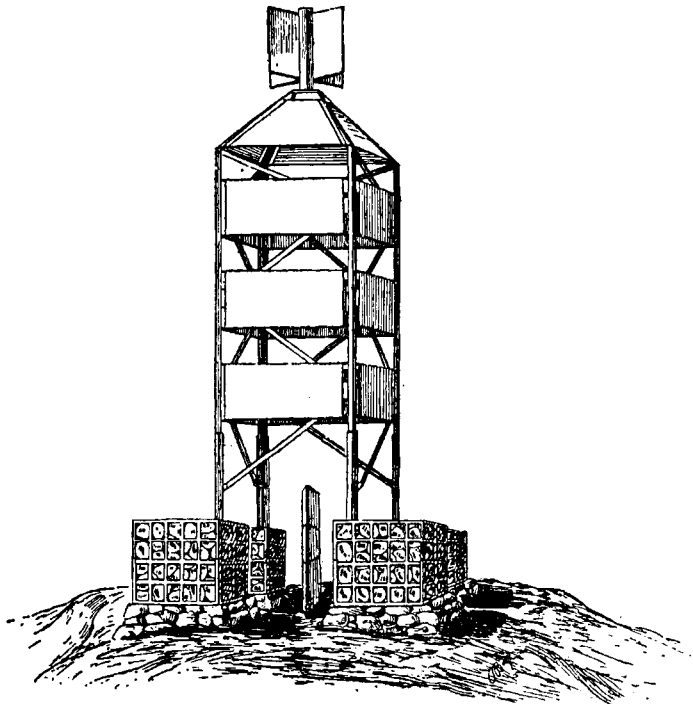
Because of the considerable differences between the several installations it had been felt for many years that there should be an international standardization of a group of wires and this program is now being carried out. The National Bureau of Standards requested that it be included in the program,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



The signal is constructed of metallic trellis-work formed by T-bars the base of which is a parallelepiped terminating in a pyramid which in turn is surmounted by a tube defining the axis of the signal and serving to support the lining-mark. The trellis-work is itself completed by frames which may be of iron and between which sufficient intervals are provided to avoid too strong wind pressure. The feet of the signal are fitted in sockets and are completely enclosed in what may be described as open-work iron cages. These cages are meant to hold a mass of stones which, by their weight, serve to hold each foot of the signal firmly in position. The instrument is placed in the free central space between the feet and observations around the whole horizon are then possible. The method of securing the feet requires neither cement nor water. The weight of material to be transported varies from 350 to 500 kilograms according to the height of the signal. Signals of this kind, used by the Italian Military Geographical Institute, are constructed by the PIGNONE metal works, Florence. In addition, the signal may be fitted with earth blocks and metal lightning-rods of the Melsens type, for protection against lightning.

H. B.

PROFESSIONAL PAPERS

NEW SERIES - PUBLISHED BY THE ORDNANCE SURVEY OFFICE, SOUTHAMPTON.

The International Hydrographic Bureau has received from the Ordnance Survey Office, Southampton, a new series of the *Professional Papers* published by this Department since 1912.

A short review of such of those Papers as are of particular interest to Hydrographic Offices is given below :

N^o 1. — *An Account of the Measurement of a Geodetic Base Line at Lossiemouth, in 1909, together with a Discussion on the Theory of Measurement by Metal Tapes and Wires in Catenary.*
39 pp. - 3 figs. — H. M. Stationery Office, London, 1912 — Price : 2 Shillings.

On the initiative of the Council of the British Association for the Advancement of Science, the Ordnance Survey carried out in 1909 the measurement of a new base for the purpose of ascertaining, by modern methods, the accuracy of a portion of the Principal Triangulation of the United Kingdom which has as its mean date of execution the year 1835.

The various chapters of the publication explain the reasons for the selection of the base, the method of measurement adopted, the instruments used and their method of use during the work, the fundamental standard of length used.

One chapter is devoted to Invar Tapes and their Standardization.

In chapter VII, which is specially interesting from the geodesist's point of view and constitutes a very useful part of the publication, Professor C. HENRICI presents a theory of measurement by metal tapes or wires in catenary.

Chapter VIII is a study of Accuracy of Measurement and the numerical estimation of certain errors.

N^o 2. — *An Investigation into the Accuracy of the Principal Triangulation of the United Kingdom* - by Captain H. St. J. L. WINTERBOTHAM, R.E.
20 pages - 5 pl. - photo. ill. — H. M. Stationery Office, London, 1913 — Price : 2 shillings.

The angles of the principal triangulation of the United Kingdom were observed between 1783 and 1855. The much greater accuracy resulting from the use of modern instruments for the measurement of angles raised the question of the necessity for remeasurement of certain portions of the British triangulation which connect with European arcs measured at a much later date : and in this connection control measurements were made from 1909 to 1912 by the Ordnance Survey.