

AN ITALIAN GRAVIMETRIC CRUISE IN THE MEDITERRANEAN

by

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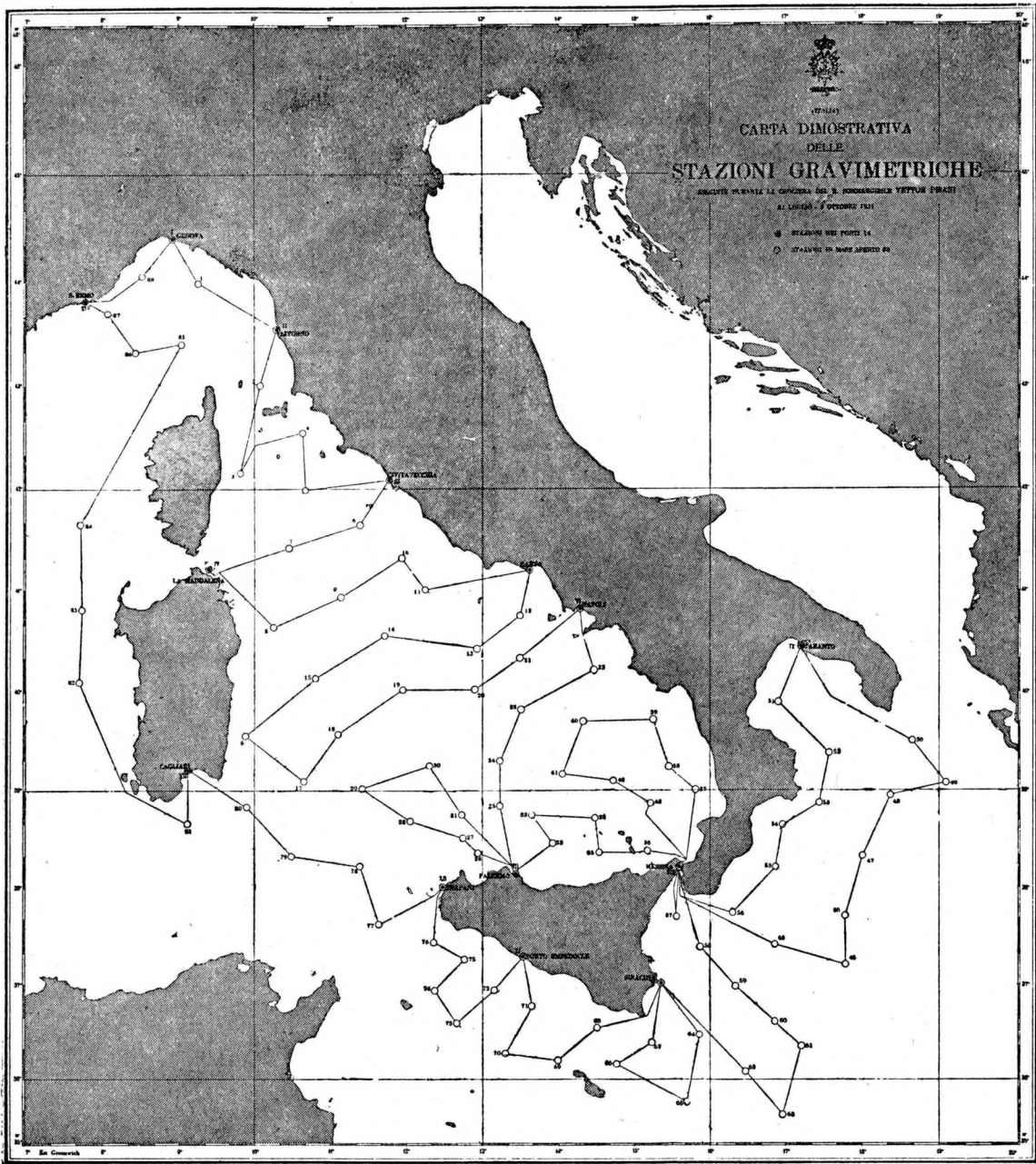
An important gravimetric cruise was undertaken last summer by the Italian submarine *Vettor Pisani*. As agreed between the Italian and Dutch Geodetic Committees and approved by Professor VENING MEINESZ, the Dutch Committee had kindly lent to the Italian Committee the pendular apparatus invented by Professor MEINESZ and used by him for taking gravimetric measures at sea. At the instance of Captain G. ROMAGNANO, Director of the Hydrographic Institute of Genoa, the Italian Ministry of Marine placed the submarine *Vettor Pisani*, under the command of Lieut.-Comm. L. LOMBARDI, at the disposal of the Institute with this cruise in view. The instrument was placed on board this vessel on 20th July 1931, under the personal direction of Professor MEINESZ, who had travelled to Genoa for the purpose of giving instruction in the use of the apparatus.

The gravimetric cruise of the submarine *Vettor Pisani* began immediately on leaving Genoa, on the morning of 22nd July, and ended on her return to that port on 3rd October 1931. During this period she covered 4,600 miles, 265 of which were below the surface and 112 gravity observations were taken at 102 stations, 14 of which were in the ports of Genoa, Leghorn, Civitavecchia, Maddalena, Gaeta, Naples, Palermo, Messina, Taranto, Syracuse, Port Empedocles, Trapani, Cagliari, San Remo, and at 88 stations during the passages in the Thyrrhenian and Ionian Seas, to the South of Sicily and West of Corsica and Sardinia.

In accordance with the programme prepared by Professor CASSINIS, an endeavour was made to distribute the observations over a sufficiently extended area to give a general idea of the gravimetric anomalies in the Italian peninsula and in the neighbouring islands and seas. Apart from the Adriatic Sea (which was excluded from the programme for want of time) and Corsica, several lacunae resulted in submerged parts, principally in the vicinity of Sardinia, and in those regions comprised between the parallels of Rome and Catanzaro; efforts will be made to fill these lacunae as soon as possible.

In spite of this, it was established that the isoabnormal curves could be traced with sufficient precision in their general direction by means of the stations of the *Vettor Pisani*, which extend over a surface of more than 350,000 km², if taken in conjunction with a carefully selected group of terrestrial stations. In this connection, it should be noted that the Italian Geodetic Commission has decided to undertake during 1933 the calculations of isostatic reduction of at least 200 gravity values, distributed over Italian territory. The knowledge of anomalies thus obtained will be of service in the study of the distribution in one of the most characteristic regions of the Earth from the point of view of sismology and vulcanology. They will furnish valuable indications concerning the areas where more detailed gravimetric observations are desirable, and probably also for other geophysical measurements and observations which will help to provide a more certain and accurate knowledge of the irregularities of the constitution of the Earth's crust and their connection with seismic and volcanic phenomena.

As soon as the calculations of the gravity values of the observations carried out at the various stations have been completed, they will be published. For the time being, it is desired merely to point out that the measurements have been as successful as possible, for in this regard the zones where photographic registrations have been carried out are a proof (these photographic registrations actually show that, at the great majority of the submerged stations, the apparatus remained almost as steady as at stations in ports or on land), as well as the attention paid to the rating of the two chronometers employed and the determination of the other elements for the reduction of the duration of oscillation of the pendulums.



These accomplishments affirm that Italy is making effective progress in this direction in considering, besides measurements in the Adriatic Sea, new undertakings in the Ægean Sea, which region, from a geophisic point of view, is interesting and characteristic.

