

« BULLETIN GEODESIQUE » (Paris), year 1941-1942

Review

The Directing Committee has received recently the *Bulletin Géodésique* for the years 1941-1942 which has been issued only in 1945. This *Bulletin* consists of very interesting articles of which we can but give a short account. It gives a study by Mr. Ernest Esclangon, Director of the Paris Observatory, on astronomic and geodetic refractions, in which this Scientist has established a relatively simple formula applicable to all zenithal distances and notably convenient in the case of astronomic refractions. This formula is in agreement with meteorological data at least up to an elevation of 14 kilometers, this corresponds to the most refringent layers of the atmosphere. The following formula is suggested for the value of the astronomic refraction (1).

$$R = 2 \mu \cdot n_0 r_0 (n_0 - 1) \sin \zeta_0 \psi (v_0),$$

in which

$$v_0 = \mu n_0 r_0 \cos \zeta_0.$$

Mr. Esclangon justifies the law assumed by him for the distribution of densities through the atmosphere by showing that the decrease of temperatures and consequently that of pressure is of the average order as given by means of meteorological observations.

The *Bulletin Géodésique* gives also biographical notices by Prof. Dr. Martin Knudsen, on Dan Barford La Cour, President of the International Geodetic and Geophysic Union, from the year 1936. This well known Danish Geophysician made numerous studies on terrestrial magnetism, specially in arctic regions. He invented a vertical force variometer together with an apparatus for the induction measurement of the vertical force. He visualised improvements to other magnetic measurements recording apparatuses. He took a large part in the organisation of the Polar year, and of aerologic studies by means of Radio Soundings and in the studies of cosmic rays. The *Bulletin* shows a list of numerous publications of which he is the Author.

The *Bulletin* gives an obituary notice concerning Fernand Holweck, who died in prison on 21st December 1941, a victim of the authorities occupying France, the notice has been drawn up by Général G. Perrier, Secretary of the International Geodetic Association. Holweck, a very skilful French Physician took part in the researches undertaken in France for wireless time transmission and for the determination of longitudes; afterwards he invented a "molecular pump" by means of which a most perfect vacuum was obtained. His name is attached to the realisation of the inverted pendulum gravimeter, the theoretical idea of which is due to the Rev. F. Pierre Lejay (2), an apparatus which has enabled the number of gravity observations to be largely increased. After an interesting historical account of this problem and a comprehensive review of the difficulties encountered in the establishment of this apparatus, intended for the measurement of the relative gravity intensity, Général Perrier shows that the manual skill, patience and obstinacy of Holweck succeeded in the construction of a satisfactory instrument with which the Rev. F. Lejay carried out numerous measurements in China, Indochina, Philippine, and East Indies and the Levant States, other measurements were also carried out in France, North Africa and even in Soudan and the Sahara; at the same time the use of the apparatus became more general in foreign countries.

An obituary notice is also given of Edmond Rothé, a learned French Geophysician. He died in 1942, and was the author of a Treatise on Earthquake, a review of which has been given in *Hydrographic Review* vol. XXI, August 1944, page 114.

In the last page of the *Bulletin* is found a report written in English by Prof. W. Heiskanen, on the activity of the Isostatic Institute during the period 1939-1942. Prof. W. Heiskanen mentions the seven publications issued by the Institute, he gives a review of these pamphlets and makes a statement of the work projected by this International Institute the researches of which are of great importance to the study of the earth's crust.

P. V.

(1) Notations are the same as in the Article concerning refraction published in *Hydrographic Review*, vol. XXI, 1944, page 19 and 20.

(2) See: *Hydrographic Review*, vol. VIII, November 1931, page 266.