

WATER POLLUTION RESEARCH

(SURVEY OF THE RIVER TEES).

The INTERNATIONAL HYDROGRAPHIC BUREAU has recently received, through the courtesy of the Department of Scientific and Industrial Research, London, Water Pollution Research, Technical Papers No 2, 5 & 6 dealing with a survey of the River Tees. This survey was carried out for the purpose of obtaining reliable information regarding the effects on rivers of various polluting discharges, and the Tees was selected as a typical river flowing through an industrial area.

The work of the survey which was commenced in April 1929 was divided into two main sections, comprising the Tidal and Non-Tidal reaches respectively, and the work on the Tidal reach was further sub-divided into two sections, one to secure hydrographical data and the other to obtain biological and chemical information. For the Hydrographical work a hydrographical surveyor was appointed and this work was carried out in close co-operation with the Hydrographer of the British Navy. This work was principally to obtain information as to whether the time of change of the Tide was the same at all depths, regarding the relative strength of the Tidal Stream at the surface and on the bottom, the strength of the currents and volumes of water moving up and down the river at different times and places over all ranges of the Tide and at all depths, and on the effect of fresh water floods on Tidal movements in the estuary, also comparisons of water level at different states of the tide, and times and heights of High and Low Water throughout the estuary.

Technical Paper No 2 gives a detailed description of the Hydrographical work carried out, and as this was of a more or less pioneer nature, it should prove of great interest to those Authorities who have similar problems to investigate in future, containing as it does a description of the movement of water towards the sea in a typical river estuary, water levels and times of High and Low Water in the Estuary and the deposition of silt in the River. The concluding remarks show that at some points there are considerable differences between the surface and sub-surface waters and that at certain times the flood is running upstream below the surface while the ebb is still running on the surface, this being due to the difference of density between fresh and salt water and would not occur if the sea water was fresh.

The following current meters were used:

(1) small WATTS Meter; (2) small GURLEY-PRICE Meter; (3) Large GURLEY-PRICE Meter; (4) MERZ-EKMAN Meter. Experience showed that the method of measurement of currents by means of floats is not suitable for a tidal estuary.

Technical Papers No 5 & 6 contain accounts of the Chemical and Biological results observed in the Estuary and in the Non-Tidal Reaches respectively.

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NORTHERNMOST LABRADOR MAPPED FROM THE AIR

by

ALEXANDER FORBES, New York, N. Y., 1938.

No XI, November 1931, of the *International Hydrographic Bulletin*, p. 274, announced the return of an expedition to Northern Labrador carried out under the auspices of the American Geographical Society. Further operations took place in 1932 and 1935, and the International Hydrographic Bureau recently received *Special Publication* No 22 of the American Geographical Society which, in a well-brought-out volume, gives an account of the results of the expedition.

At the instigation of Sir Wilfrid T. GRENFELL, himself the author of charts of this area which are still in manuscript, very extensive use was made of aerial photography, which was particularly indicated for surveying intricate coasts cut up by deep fiords and accompanied by innumerable islets. Numerous and magnificent photographic reproductions show what valuable documents it has been possible to obtain in this way, which have enabled important errors on charts to be rectified and new charts to be constructed. Four sheets to 1:100,000 are annexed to the volume; they show ground relief by contour lines 50 metres apart, there is also a general orographic chart to 1:300,000 coloured, intervals of 250 metres. A small appendix contains notes on navigation in those difficult regions.

The datum for the altitudes was obtained from a recording tide-gauge loaned by the Coast and Geodetic Survey. The positions of ground control points, their latitudes and longitudes and the azimuths of the sides, were given by triangulation. Several soundings were made in the Kangalaksiorvick Fiord. It is particularly necessary, however, to note the almost exclusive use of "high oblique" aerial photographs for which the optical axis had a large tilt on to the vertical