

instruments and methods of reduction and analysis. It was by employing these methods that Dr. Georg Wüsr obtained and collected the final values which he presents in the tables corresponding to each station.

Each table includes the date, geographical position, mean depth of the sea bottom at the station, zone times, gross depth (*solltiefe*) and true observed depth. The gross depth depends solely on the reading of the length of wire paid out, the second is deduced directly (to an accuracy of ± 1 m.) or by interpolation (to an accuracy of ± 5 m.) from observations with protected and unprotected thermometers. The tables also contain the numbers of the thermometers used, and the temperatures (corrected by the protected thermometers) to two or three decimals. When two thermometers were used simultaneously, the mean of the results is given as well as the difference Δt° between each result and this mean. A comparison of these various values shows that the mean precision obtained with two thermometers reading to a tenth of a degree was $\pm 0.01^\circ$.

One of the three last columns of the table gives the percentage of chlorine content to three decimals, the error of an observation being generally below 0.005. This content was found by titration carried out on board, allowing also for a control titration carried out at the Institut für Meereskunde of Berlin only a few months after taking the samples. The latter titrations have seemed to be less accurate than the former; they often show somewhat higher chlorine content—clearly due to the effect of evaporation. It is therefore advisable to carry out titration on board shortly after taking samples, and, in cases where the samples must be kept with a view to a later analysis, to cover the stoppers of the flasks immediately with paraffin. It was also possible to check the titration and detect erratic results by constructing, for certain stations, the curve which connects the temperature with the chlorine content.

The penultimate column gives, to two or three decimals, the value of the salinity deduced from the chlorine content, not by means of KNUDSEN'S tables, but by means of new manuscript tables calculated with KNUDSEN'S formula.

The last column gives the density *in situ* to two or three decimals, deduced from the foregoing data by means of manuscript tables calculated for this expedition by Dr. A. SCHUMACHER.

A third part collects these data in a form more convenient for making use of them. It gives the salinities and densities *in situ* for all the stations and for the usual round-number depths. These values were deduced from curves showing the values of the various data on a vertical.

We thus have here the whole of the results of physical oceanography observations from the *Meteor* cruise, corrected and discussed with great care and competence; further, they are presented in a very convenient manner for making use of them.

P.V.

GEODETIC SURVEYS IN THE U. S. A.

(Extract from *Nature*, London, 6th April 1935, p. 559).

The Proceedings of the National Academy of Sciences, Washington, D.C., No. 21, 1-68, Jan. 15, 1935, contain an interesting article by Mr. William BOWIE entitled *Fundamental Geodetic Surveys in the United States nearing completion*.

The U.S. Coast and Geodetic Survey is now completing a series of first-order arcs of triangulation and lines of levels spaced at intervals of about 100 miles, with second-order triangulation and levelling in the intermediate areas. It has been found that mean sea-level along the coast is not an equipotential surface, but increases with increase in latitude. The Canadian and Mexican governments have unified their triangulation systems with that of the United States, so a single triangulation net is available for the whole of North America.
