

say presupposes, a cadre or framework. Prof. P. M. Roxby dealt with the concept of natural regions in the teaching of geography, drawing his illustrations from China. The land frontiers, regarded as a zone rather than a political line, separate major regions differing from each other physically and biologically no less than culturally and economically. This difference between China and her neighbours being greater than the difference between the sub-regions of China, makes for unity in spite of its regional diversity. The major sub-regions also—the North China plain, the lower Yang-tze basin, Szechwan, south-east China and the highlands of Yunnan—reveal the same coincidence, broadly speaking, of natural and cultural divisions. Here, then, is a cadre, apparently permanent, giving definition to the geographical region with its internal complex and its external relationships.

Mr. A. G. Ogilvie outlined the extent to which such studies have been carried in South America and Africa and defined broadly the line upon which future geographical research must proceed. In both continents rapid progress is being made in topographic surveys and in the production of maps adequate for the needs of research workers. But much remains to be done. Under the auspices of the American Geographical Society much geographical work has been done in South America and more is being undertaken. In Africa little geographical research has as yet been carried out, especially in British territory.

Sir John Russell, in his account of "Cotton and the Nile," gave geographers two illustrations of great interest in the complexity and change of regional activities. Naturally the Anglo-Egyptian Sudan offers an important field for extensive cotton cultivation. Can the Nilotic tribes be induced to change their mode of life and grow cotton for the European market? In Egypt, on the other hand, a very distressing situation has arisen. After the expenditure of millions of pounds sterling on great schemes of irrigation, the land has begun to deteriorate quickly. For the first time in the long history of Egypt, it has been necessary to import fertilisers.

Egypt is now a large buyer of nitrate of soda for the growing of crops.

Geographical economics, a term applied to the study of economics on a regional or geographic basis, forms one of the most important and most urgent fields for research. What are the fundamental causes, for example, why Malaya and British Guiana, comparable in size, position, climate and fertility of soil, should differ so widely in their total population and the export of domestic products? One has a population of 3,300,000 with export value of 78,714,225*l.* (1923), the other a population of 300,000 and export value of 3,757,647*l.* This illustration, quoted by Mr. Ormsby Gore, served as an introduction to his presidential address on "The Economic Geography of the British Empire." Under present conditions, some regions are primary producing countries, others are manufacturing. The two are complementary and both require that their economic life should be studied on a regional or geographic basis, however fully trade statistics may be studied in the abstract. To many statesmen in 1763, Guadeloupe with its slaves and sugar appeared of far greater worth than the vast forest and prairie lands of Canada because the potential geographic value was not suspected. The observations of a trained geographer capable of getting the economic survey away from a narrow view of economics on to a much wider plane are of immense value, not merely to those engaged in administration, but also for those engaged in commerce. Unfortunately, little has as yet been done in the British Empire in this direction. Innumerable factors enter into an acceleration of primary production with the consequent increase of purchasing power of manufactured goods. Even in manufacturing countries, Sir Richard Gregory pointed out, inventive genius and adaptability may serve or create new needs and thus maintain or even enlarge the volume of trade between manufacturing and primary producing countries.

Altogether the papers presented at the annual meeting of the Geographical Association on January 7-9 furnished an excellent series illustrative of the theory and practice of geography.

Geodetic Observations in the United States of America.

AN official coastal survey of the United States was first authorised under President Jefferson in 1807, and since that date, with some vicissitudes, continual progress has been made in the survey of the country, both coast and inland. The Coast Survey, on account of its extended work, was renamed the Coast and Geodetic Survey, as now, in 1878. Besides the work done by this department, determinations of latitude, longitude, and azimuth have been made at various times by the U.S. Lake and Geological Surveys, the U.S. General Land Office, the U.S. and Canada Boundary Commission, the U.S. Army, and other bodies. Some of these determinations have hitherto remained unprinted, while others are scattered throughout many reports. The Coast and Geodetic Survey has therefore collected them all in one volume and made them readily and permanently available for scientific purposes.¹

The preparation of the volume has been made by Sarah Beall, mathematician to the Survey, who acknowledges the help given by Dr. Bowie, chief of the Division of Geodesy, and all the other members

of the staff of this Division. The compilation has been done in an admirably workmanlike fashion, with concise but adequate historical introductions and descriptions of the various classes of observations. There are four chapters dealing respectively with longitudes, latitudes, azimuths, and deflexions of the vertical, followed by a final chapter (occupying rather more than half the volume), giving detailed particulars of the stations. In each case the principal instruments and methods of observation and computation are described and illustrated, and the other relevant facts are summarised.

For a volume of this kind the letterpress contrives to be surprisingly interesting. The bulk of the volume, apart from the final chapter, is naturally devoted to tabular matter; the results (both as observed, and after making the various necessary adjustments) are given in order of date, the probable errors being indicated, except in the case of the deflexions of the vertical. Reference to any individual station is facilitated by a comprehensive index to stations. All those who have occasion to make use of geodetic data for the United States will feel grateful to the author, and to Dr. Lester Jones, the Director of the Survey, for this very valuable collected work.

¹ Department of Commerce: U.S. Coast and Geodetic Survey. Serial No. 283. "Astronomic Determinations by United States Coast and Geodetic Survey and other Organizations." By Sarah Beall. Special Publication No. 110, pp. v+337+13 plates. (Washington: Government Printing Office, 1925.) 80 cents.