

were computed throughout the country from the sides and angles of the triangulation.

Puissant, following Legendre, had derived expansions for working up these extended latitudes, longitudes, and azimuths, but unfortunately the engineers had limited the expansions to terms of the second order. The result was that the errors due to computation alone frequently amounted to 0.03", say 1 metre.

The object of the methods set out in the two numbers of the *Bulletin Géodésique* is to bring these old formulæ of the engineers into line with modern accuracy. In a preface by General Perrier it appears that the methods were devised at Saigon in 1905 by Lieut.-Col. E. Benoit. The latter has not only modified the old spheroidal factors, always tabulated, but has also introduced corrections to the terms last computed, so as to take the terms of the third order into the reckoning. These corrections are calculated by the aid of two supplementary tables, II. and III. The result is that the maximum error in latitudes below 70° is reduced to 0.002", say 2½ inches, even when the side of the triangulation is 60 miles in length.

In *Bulletin* No. 12 the methods of derivation of the formulæ are described and the spheroidal factors are tabulated for every 10 sexagesimal minutes of the quadrant. In No. 16 the same factors are shown on the centesimal system, the figure of the earth employed being that of Hayford. The author is to be congratulated on the success of his accomplishment; the formulæ now rank with others of modern times.

G. T. McC.

University and Educational Intelligence.

LONDON.—The Rhodes Trustees have made a donation of £5000 to the fund which Mr. F. C. Goodenough is raising in order to build a Hall of Residence for Overseas and British Students at the University, and have provisionally undertaken to set aside a sum of £5000 towards the building of a Students' Union.

The following doctorates have been conferred: D.Sc. in medical statistics on Mr. Major Greenwood, University professor of epidemiology and vital statistics, for a thesis entitled "Laws of Mortality from the Biological Point of View"; D.Sc. (engineering) on Mr. J. N. Long (Imperial College, City and Guilds College) for a thesis entitled "Heat Transmission: A Series of Investigations into the Phenomenon of Heat Flow in an Air Stream, in relation to some of its Industrial Applications."

Prof. L. N. G. Filon has been appointed for a period of five years to be Director of the University Observatory, and Mr. C. C. L. Gregory to be Wilson observer at the Observatory.

WE have received from the Rhodes Trust a copy of a statement for the academic year 1927-28 regarding the Rhodes scholarships. The number of scholars regularly resident at Oxford during the year was 187, namely, 94 from the British Empire and 93 from the United States of America. Natural science and medicine claimed 43 of them, mathematics 7, and economics 7. Among distinctions won by former Rhodes scholars, mention is made of the following appointments: J. J. Tigert (Tennessee), lately United States Commissioner of Education, to be president of the University of Florida; S. K. Hornbeck (Colorado) to be Chief of the Division of Far Eastern Affairs in the Department of State, Washington; and P. H. Rogers (New South

Wales) to be a Justice of the Supreme Court of New South Wales. Thirty-one of the Rhodes scholars represented Oxford against Cambridge in athletic contests, and three represented their Dominions at the Olympic games. Of 37 books known to have been published during the year by Rhodes scholars, twenty-five were published in the United States, eleven in the British Empire, and one in Germany. Only three were on scientific subjects.

SCIENCE teaching in rural secondary schools in America is criticised by the professor of rural education, Cornell University, in an article published in the September number of *School Life*, an official organ of the United States Bureau of Education. Teachers have, in general, been too intent upon "drill in dry facts and principles of a formal science which creates no enthusiasms and which should follow an interesting initiation." There has been a general disregard of the connexions between the science studied and the economic, social, æsthetic, and other aspects of rural life, the courses of study and text-books having been planned and written largely from the point of view of the city and its institutions. In the same number of *School Life* another aspect of science teaching is discussed in an article on "Social Hygiene Work by the Parent Teacher Associations." The value of the study of biology has lately been emphasised by the National Congress of Parents and Teachers and American Social Hygiene Association. These bodies are actively engaged in promoting the systematic instruction of children in the facts of human reproduction, and a pamphlet has just been issued by them in which these facts are presented in such a way as to help parents to take their proper share in this task, for which, moreover, parent-teacher study groups are organised for reading and monthly discussions on such topics as "The Way Life Begins," "Sex and Social Health," etc.

SPEAKING of "Science, Industry, and Humanism," in the Taylorian Lecture, 1928 (Oxford: Clarendon Press, 1928), Dr. Abraham Flexner enlarged upon the peculiar function of humanism as the assessor of values. Science and industry have in the past two hundred years transformed the face of the civilised world and profoundly modified human conceptions of the past, present, and future, but neither science nor industry, as such, is concerned to consider in respect of any of its doings, whether it makes for the weal or the woe of mankind. It is for the humanist to elaborate a rational system of values appropriate to the conditions not only of past ages but also of to-day and to-morrow, and thus to influence the direction of human development; and in proportion to the magnitude of the changes wrought by science and industry is humanism's burden heavy. Science has vastly enlarged the scope of human knowledge, human effort, human thought, human imagination: it has given wings to the human spirit. But it ministers also with absolute impartiality to the worst that is within us. Humanism must, it is true, use scientific method in procuring data, in generalising and in interpreting, and in the last century the scientific side of humanistic studies has been strongly emphasised, but the attitude of detachment and indifference proper and necessary to science, must give place in the humanist to the attempt to see things in perspective, to measure, albeit tentatively, the works and doings of the human spirit, scientific, practical, and humanistic as well. The humanist is the custodian of the human ideals evolved through the ages, and he fails to rise to the height of his opportunity if he shrinks from attempting to appreciate the situation of the world of to-day.