

To Colonel Sir GERALD LENOX-CONYNGHAM, R.E., who succeeded to the charge of the Trigonometrical Survey in 1913, I am indebted for much kind help in connection with my third expedition and for most of the efforts which were needed to assure the publication of the maps dealt with in this Memoir.

Support of Trigonometrical Survey Office.

My gratitude for his constant consideration and support must be all the greater because the protracted labours needed for the compilation and fair-drawing of these maps at the Trigonometrical Survey Office had to be carried on for the most part during the period of great stress and strain when the war caused depletion in the Survey staff. To Colonels E. A. TANDY, R.E., and H. Mc C. COWIE, R.E., who successively held charge of the Trigonometrical Survey Office since 1920, my special thanks are due for the steadily continued efforts which permitted the reproduction of the large number of map sheets to be completed by the summer of 1922.

The greatness of the field covered by our surveys, extending over no less than 28 degrees of longitude and 8 degrees of latitude, and the varied nature of the materials brought back from the different journeys made the task of compilation and drawing necessarily a very heavy one. No

Compilation and drawing of maps.

less than fifteen draftsmen on the average were employed on it during 1917-19 under the supervision of several officers from the Provincial and Upper Subordinate Services, working at No. 2 Drawing Office, Dehra Dun. Under the exceptional difficulties created by the war, the work could not have been brought to a successful conclusion but for the special efforts which the officers successively in charge of it, Colonels G. A. BEAZELEY and H. H. TURNER and the late Colonel R. A. WAUHOPE, R. E., were prepared to devote to it by the side of much other urgent work. To the last named officer in whom the Survey of India has since lost a distinguished veteran of wide trans-frontier experience, I am indebted for a series of valuable suggestions which have helped to improve the cartographic representation of the ground.

I owe a similar debt of gratitude to Major F. J. M. KING, R. E., who since the spring of 1919 adding the charge of No. 2 Drawing Office to that of the Photo.-Zinco. Office, Dehra Dun, has spared no pains to improve the reproduction of the maps by all technical means at his disposal.

Reproduction of maps

Finally I consider it my duty to record here my special thanks to Munshi KARIM BAKHSH, Head Draftsman of No. 2 Drawing Office, who brought to bear upon the drawing of the new maps the accumulated experience he had gained ever since 1901 from the cartographic elaboration of our previous Central-Asian surveys. His exemplary attention to detail and his painstaking care helped to lighten the labour which the revision of the fair drawings and the correction of proofs in their successive stage have involved for me.

When in the spring of 1921 Colonel C. H. D. RYDER, C. I. E., D. S. O., R. E., Surveyor General, had accorded final sanction for the publication of the present Memoir, Major KENNETH MASON, M. C., R. E., officiating Deputy Superintendent, Survey of India, kindly agreed, with the approval of Colonel H. Mc C. Cowie, to provide for it an Appendix dealing with the details and merits of the triangulation executed by my survey assistants, R. S. Rām Singh and R. B. Lal Singh. The labour involved in this task was far greater than the summary and discussion as prefixed by Major Mason in Appendix *A* might suggest in its lucid conciseness. I cannot feel too grateful to him for the expert analysis thus provided as regards the trigonometrical basis of our maps. Not content with this service Major Mason decided to incorporate in the appended tables and charts also the complete data available in the Computing Office, Dehra Dun, of the triangulation work executed by other observers, including himself, on the Pāmirs and along the high K'un-lun ranges eastwards. It is hoped that the systematic record of these data will prove useful towards facilitating the work of future explorers.

Appendices to Memoir.

Dr. J. de GRAAFF HUNTER, Deputy Superintendent in charge of the Computing Office and Mathematical Adviser to the Survey of India, kindly rendered a service similarly helpful by furnishing the notes of Appendix *B* on the height observations of my journeys. They explain the data and methods of correction used for the height records shown in the maps and incidentally afford guidance as to the better use of the hypsometer on future explorations of this character.