

uniform changes over broad areas. Nevertheless, the purpose of our expedition can not be achieved until we possess such a knowledge of the movements of the earth's crust in Asia during recent geological times as shall enable us with certainty to estimate their possible effect upon early man. I have therefore recorded all the data on this subject which came under my observation. Moreover, as my journey led through an unknown country, I have thought it advisable to record certain geological facts relating to earlier times.

In Asia, as in Europe and North America, the main events of that part of recent geological time which immediately precedes and includes early man seem to have been due to changes of climate. Evidences of this are found abundantly in Persia, Transcaspia, and Turkestan. It is therefore of first importance to ascertain the exact sequence and degree of each change and the dates of the later changes in relation to the origin of man, and accordingly the main portion of this report is concerned with the evidences of climatic change in Persia, and with an attempt to form a tentative scheme of the physical history of the country during Quaternary times. The influence of climate, and especially the physiographic results of climatic changes in nonglaciaded regions, are so little known that it has seemed necessary to devote some attention to a theoretical examination of these questions. Accordingly this report is in the main a study of the influence of climate and of climatic change in Persia. When this influence is understood, and when the sequence of events shall have been clearly made out, we shall be in a position to determine the relation of physiography to climate in Persia and to apply our results to the larger problem of Western and Central Asia.

ROUTE.

Between the high mountains of Central Afghanistan on the east and the fearful salt wastes of Eastern Persia on the west lies a dreary region of naked mountain range, huge fans of rough gravel, and level basins floored with fine silt. At the northern end of this region the Heri Rud, the river of Herat, furnishes life to the towns and villages of Herat, Serakhs, and Tejen, while to the south the half-mythical Helmund, before losing itself in the immense swamp of the Hamun-i-Sistan, supports the numerous villages of the province of Sistan. Between these two rivers the lowlands are absolute deserts, while the uplands above an altitude of 4,000 feet are sparsely studded with villages located at the bases of the higher mountains, where water can be procured.

Across this inhospitable region lies the route from Transcaspia to Sistan. (See map.) Through the courtesy of General Ussakovsky, governor of the Russian province of Transcaspia, to whom our expedition is indebted for many favors, I was allowed to follow the Russo-Persian frontier and to stop at military posts to which foreigners are not usually given access. Starting from Askhabad, the capital of Transcaspia, November 23, 1903, I proceeded eastward along the southern border of the province to Serakhs, at the northeastern corner of Persia. There I was joined by Mr. V. G. Yanchevetski, secretary for special affairs to the governor of Transcaspia, and the rest of the journey was made in his company. To him, in