CHAPTER XIV.—DESERTS.

As the earliest traces of man in Central Asia show him living in oases, as he does to-day, the archeology of that region is centered on a study of the oases of antiquity, and this study must include surrounding deserts, for climatic and topographic changes have been everywhere so pronounced and have left records so intimately interwoven with the records of man that no comprehensive search into the conditions of his past life in Central Asia can be undertaken without some fundamental ideas about the cause and effect of desert changes.

For our purpose a map of Asia should be regarded as no more than a passing picture of a struggle between land and sea, and mountains and storms—but one phase in the evolution of a continent. And it is not only the archeologist and physiographer or those who probe into the remote past who must assume this dynamic point of view. The pace of continental change is so fast that a man in his lifetime can watch the trend of great events, the change of great features, and know that hardly a branch of human affairs exists but must feel the effect.

THE DESERT BASIN AS AN ORGANIC WHOLE.

Already in early Pliocene time Asia in her immensity had developed a vast interior region of desert basins, into which were spread the wastes of then large existing mountain masses, the cores of which still remain as worn-down granites of the Tian Shan, Pamir, and Tibet. When treated as an organic whole a desert basin forms one of the most interesting features of our planet, and the laws of Nature, under which its oases are controlled, must be of vital interest to man.

THE ESSENTIAL CHARACTERS OF A DESERT BASIN.

For our purpose this organic whole includes the area that drains thereto and may be divided into two parts—the inclosing mountains, ever worn into new relief by the storms of geologic time, and the plains they have created by the slow building, layer on layer, of their débris brought down by the waters and winds of those storms. The first requisite of a desert basin is aridity, sparsity of vegetation, and too little rainfall to carry the products of erosion away to the ocean. From the beginning of its definition as a desert basin self-contained, or hydrographically isolated from the ocean, each basin was destined to accumulate on its plains the débris of erosion sent from its inclosing ranges, and the inevitable sinking of the earth's crust that yielded as that load increased to a thickness of many thousand feet appears to have resulted in a corresponding upward displacement of its border ranges. How long this great process has been in operation may be conjectured from the immensity of beds of fine red desert strata that reach a thickness of many thousand feet where exposed on the uptilted borders of the