

## PREFACE.

I am often asked why, having passed my life till nearly threescore and ten in geological work, I turned to archeology, and what led me to choose remote Central Asia as a promising field. To answer this fully here would carry me beyond the restricted limits of a preface; I shall therefore state the reasons as briefly as possible.

My geological explorations through Central and Northern China and Mongolia during 1863 had given me a great amount of material towards a skeleton geological map of the Chinese empire. I learned then that the successive dynasties had caused to be made exhaustive reports on the resources of the empire, covering not only those of the vegetable kingdom and the exact localities of all useful minerals, but including also fossil bones from caves in limestone, as well as certain fossil shells of well-defined species, both of which classes of objects belong in the Chinese *materia medica*. Topographical phenomena of extraordinary interest were also recorded. These printed "geographies" formed a great number of volumes. Here was a great mass of information adapted to supplementing the material I had gathered on my journeys. To utilize it I employed for several months three able native scholars, courteously found for me by the foreign office, to extract all items of a long series of classes of entries. The voluminous notes thus obtained were kindly translated for me by Mr. S. Wells Williams, then Secretary of our legation, aided by some of my missionary friends, and from them I was able to fill in my skeleton map and construct a "hypothetical geological map" of China, which Baron von Richthofen, in publishing the results of his later and far more extensive explorations, was good enough to say was remarkably good in its broad outlines. Extracts were made also from other works, and from maps, including even commented volumes of the writings of Confucius.

In studying all this material I was naturally struck, as I had been on my journeys, by the great contrast between fertile China and arid Mongolia, and by the reaction of the latter upon the former as shown in the repeated attempts of vast Turanian hordes from the Mongolian table-land to overrun China. I was impressed, too, by a note on a Chinese map of the Tarim basin stating that here a large number of cities (between 100 and 200, I think) were buried by sand in the early centuries of our era. Then, too, on native Chinese maps the desert of Gobi or Shamo was called Han-hai (dried sea), and was by native writers said to have been formerly an inland sea.