

nor would take these aspects as given causes and examine their influence upon man and his works. In this way, economic geography would connect physical with political geography. But, though there were geographers before Humboldt who described the physical characteristics of the lands in whose political subdivisions they were chiefly interested, it becomes evident to the readers of "Cosmos" that the truths of physical geography could never have been reached, had not the observer shifted their standpoint. To the student of every descriptive science, like botany, chemistry, mineralogy, or zoology, a knowledge of the localities where the various species occur has ever been deemed essential, even if its chief value lie in the sense of tangible reality which it imparts to the study. A limited amount of the material for a work on economic geography is already contained in such descriptive treatises. To the student of technology, a more serious consideration of geographical conditions will often reveal surprising truths. How obvious is the effect which the accessibility of different fuels has upon the metallurgy of iron! The quality of steel or wrought iron that different localities can produce, depends as much upon the relative ease of obtaining charcoal, anthracite or bituminous coal as upon the nature of the iron ores. The fuel question has determined the choice of widely divergent methods of silver extraction in Europe and America. On the other hand, geographical location may largely influence the value of an accumulation of raw material; the worth of a gold mine on the Yukon River is more affected by its difficult access than by the richness of its assay.

Most interesting of all would be a study of the relations between the geographical distribution of desirable material and the course of history.

Here, again, there is nothing novel in the assertion that greed for material wealth has been more powerful than any intellectual principle in actuating men, both in their peaceful pursuits, and in their quarrels and wars. But the precise way in which the existence of local resources has influenced the course of events is not often pointed out systematically to the student of history. It would seem to me to be of more importance than an investigation of methods of diplomacy or strategy, because the latter depended upon the capacities of individual leaders, while the motives of which I speak must have been common to the mass of the people. In illustration, I shall not touch upon the fact that nearly all geographical discovery is due to motives of trade; the ancients found Britain and Prussia in tracing the sources of tin and amber, just as Columbus discovered America and Vasco de Gama circumnavigated Africa in quest of the gold and spice of Cathay. The fertility of Sicily was alone the reason that Sparta and Athens, Rome and Carthage, Normans and Saracens, French and Neapolitans, made it their battleground. The Iberian silver mines led Hasdrubal and Hannibal to Spain, thence to attack Rome. On our own continent, we have the best illustration of the effects which the discovery of new mineral or agricultural resources has had upon the flow of population and the advance of civilization. And if we choose again to look farther, we find that many forbidding corners of the earth are eagerly sought, for some substance which they alone contain. Discover cryolite elsewhere than off the shores of Greenland, richer guano fields than those near Iquique, ivory and copal outside of Africa, exhaust the diamond fields of the Transvaal region, and the communication of these lands with the more