

points on the line, terminating at Senegal. A blind *Fusus* was dredged in over twenty-five hundred fathoms. These instances are sufficient to show the extension of arctic forms into tropical regions, but with these are found a great number of mollusks yet unknown in the North Atlantic. The abyssal fauna of the African coasts is therefore not composed solely of arctic immigrants. Lovén has shown that the arctic species range at greater depths as they advance southward, — a fact confirmed by other naturalists, and by the researches of the *Talisman* party. It is probable, therefore, that the idea now generally entertained by malacologists is correct, that the range of

able forms first signalized by the U. S. fish-commission from deep water in the North Atlantic, among which may be mentioned *Pholadomya arata*, *Mytilimeria flexuosa*, etc.

W. H. DALL.

THE RELATION OF THE MOUND-BUILDERS TO THE HISTORIC INDIANS.

IN *Kosmos*, vol. xiv., parts ii. and iii., will be found two papers, by Dr. Emil Schmidt, on the relation of the mound-builders to the modern Indians. The reputation of the author as a student of American



DEEP-SEA MOLLUSKS LIVING AT A DEPTH OF FROM 1,500 TO 2,500 METRES. (Taken from *La Nature*.)
Calliostoma, Modiola, Fusus, Dentalium, Turbo, and Terebratula are represented.

these animals is determined by temperature rather than by the intensity of light or other factors. The investigations of the *Talisman* have considerably enlarged the number of Atlantic stations for mollusks reputed peculiar to the Mediterranean. Among these are *Cassidaria tyrrhena*, *Umbrella mediterranea*, *Xenophora mediterranea*, *Carinaria mediterranea*, *Pyramidella minuscula*, *Pecten pes-felis*, *Spondylus Gussoni*, and a number of others. Dr. Fischer concludes that the Mediterranean has very few peculiar species, and appears to have been populated in great part by colonists from the Atlantic, after the geological period in which communication with the Indian Ocean was cut off.

Lastly, the expedition obtained some of the remark-

aboriginal history will give to these papers great weight in Germany. It is important, therefore, in the interests of true science, to know what they contain, to indorse them where they are in harmony with the latest investigations, and to correct any mistakes into which the author may have fallen.

After paying a just compliment to the Peabody museum, the Smithsonian institution, and the Bureau of ethnology, and expressing his regret that the laity are still disposed to behold something wonderful and mystical in every thing that the mounds reveal, Dr. Schmidt passes in review the history of mound exploration for the last century. Capt. Hearne, in 1791, expressed the opinion that the earth-works could not have been the production of hunting Indians,

but of a sedentary people, under fixed laws and organized society.

Bishop Madison, in 1803, applied first to the works the titles 'sacred enclosures,' 'temple-mounds,' 'sacrificial mounds,' etc. Few of the successors of this writer — Atwater, Squier, Baldwin, etc. — have done any thing to lift the veil of mystery which encompasses the subject. Prehistoric America stands opposed, in their view, to the historic Indians: a cataclysm cut off the mound-builders, and the modern aborigines are a new revelation on our soil. In anatomy and culture they stood apart. They formed dense settlements in the Mississippi valley, organized despotic governments, worshipped the sun in holy places or on temple-mounds, and offered human sacrifices on their altars. They practised agriculture, handicrafts, and art extensively, amused themselves in well-ordered plazas, and buried their dead in mounds. Their time reached thousands of years back; their origin is unknown; they were driven from their homes by savages many centuries before Columbus. If any thing remains of their influence, it is to be sought in Mexico and Central America.

However unscientific much of the investigation has been, we have still material for the classification and comparative study of the mounds and earth-works. That the 'works' were designed for defence alone, Dr. Schmidt thinks there is no doubt; but they certainly tell us very little concerning the social organization of those who dwelt within them.

The author, speaking of the animal mounds, says they are usually of no specialized form, the particular animal typified in any case being unknown. There is nothing improbable in the suggestion that they are connected with the totemic system of all American aborigines. The truncated mounds, correlated by the older archeologists with the Mexican *teocallis*, were undoubtedly the sites of dwellings, acquiring their great dimensions in many instances by years of accretion.

The altar-mounds prove merely that here corpses were burnt, and with their ashes were deposited the things of greatest value to the dead. Surely there is nothing unique in this, since barbarous nations have done the same thing in all places and times. Let us, therefore, draw the pen through all the fables that have been written upon the civil and religious institutions of the mound-builders. Of the sepulchral mounds, Dr. Schmidt tells us that their variety and structure can be observed in the old world as well as in the new; and as for the fortification and signal mounds, they are generally only mounds of sepulture.

The geographical distribution of the various types points, not to one race, but to a variety of ethnic groups.

With respect to the art of the mound-builders, weaving, pottery, agriculture, metal-working, commerce, and war, there occurs nothing to differentiate them from the modern Indians. The attempts to connect them with Greeks, Etruscans, Phoenicians,

or Hittites, through the 'inscribed tablets,' are not worthy of serious criticism. When we turn to the remains of the people themselves, the varied utterances of those who have studied the matter are a sufficient commentary upon their results. Indeed, the crania are so distorted that no conclusions can be reached; nor are the discussions upon the antiquity of the mounds of any greater value.

Dr. Schmidt's second paper is devoted to an examination of authorities to show, that, in each respect wherein the mound-builders have been deemed a unique people, modern or historic Indians have been found to equal or excel them. The author discusses systematically, for this purpose, agriculture, fortifications, buildings on the upper terraces, house-building, effigy-mounds, platform-mounds, deposits with the dead, cremation, stone-working, pottery, metal-working, ornamentation, textile fabrics, etc.

So much for the possibilities of the case. That the mound-builders were the immediate ancestors of any of our historic tribes must rest on language and tradition. In the Iroquois and Algonquin traditions, the author finds the necessary information concerning the commencement of that disaster which swept away the mound-builders, and, in the traditions of the Cherokees and Muskoki, the narrative of their extinction. We know their name, *Allegéwi*; in part, their language; we know their conflicts, and their last century of defeat and decline. The linguistic argument is based on the discussion of Indian migrations as evidenced by language, by Horatio Hale.

With the author's arguments, from traditional and linguistic grounds, for the identification of the mound-builders with the *Allegéwi*, many will have little sympathy. It is to the first part of the essay that especial attention is directed. On general principles, the continuities of human historic evolution are everywhere becoming even more apparent than those of the natural world. It is difficult to believe, therefore, that the erectors of the earth-remains of the Mississippi valley were a discrete people. The arguments of Dr. Schmidt are strengthened by the recent explorations and researches of Professor Cyrus Thomas in the mounds; of Mr. W. L. Holmes in the shell-carvings and textile work of their builders; and of Mr. H. W. Henshaw, the ornithologist, in the identification of the animals of the mound-pipes, etc. "It is certain," says Mr. Henshaw, "that, of the carvings from the mounds which can be identified, there are no representations of birds or animals not indigenous to the Mississippi valley. A large majority of the carvings are not exact likenesses either of animals or men. The state of art-culture has been greatly over-estimated." It is of the utmost importance to bear in mind, however, the fact, well authenticated, that the arts, complexity of social structure, and knowledge, of our modern Indians, have been greatly underrated. The probabilities of consanguinity between them and the mound-builders will be enhanced as well by placing the culture of the former on its true basis, as by an unjust depreciation of the works of the latter. O. T. MASON.