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ART. I.—*Description of an Ancient Sepulchral Mound near Newark,
Ohio*; by O. C. MARSH, F.G.S.¹

IN the first volume of the Smithsonian Contributions Messrs. Squier and Davis have ably described the most important of those ancient monuments of the Mississippi Valley, which render that region so interesting to the student of American archæology. By discarding vague speculation, which had been the prominent fault of most previous investigators, and adopting that rigid method of research, inaugurated so successfully by Scandinavian antiquaries, these authors were enabled to embody in their work all that was valuable in previous accounts, and to add much new and important information concerning that ancient population of this country, who have left behind them so many imposing structures. The subsequent researches of Squier, Latham, and others, have thrown additional light upon this interesting subject, so that at the present time the "Mound-builders" can no longer be regarded as an unknown people, although both tradition and history are silent in regard to them.

Few of these ancient monuments of the West have attracted more attention than the group of 'Enclosures,' or 'Forts,' near Newark, Ohio, which have long been celebrated on account of their great extent, and remarkable regularity. They consist mainly of elaborate earthworks, in the form of a circle, octagon, and square, and enclose an area of about four square miles, on

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the upper terrace between two branches of the Licking River. They were well described by Atwater, in 1820, who regarded them as works of defense;² and subsequently by Squier and Davis, who, however, considered them sacred enclosures.³ Scattered over the same plain, and crowning the neighboring hills, are numerous tumuli, or mounds, evidently erected by the same people that built the larger works.

While on a geological excursion through the West, during the last autumn, the writer spent several days at Newark, examining these various monuments in company with George P. Russell, Esq., of Salem, Mass., who is well versed in everything relating to American antiquities. In the course of our investigations a sepulchral mound was opened, which proved to be in many respects the most interesting one of the kind yet examined. Mounds of this class received from Squier and Davis much less attention than the smaller "Alter Mounds," as the latter usually contain more relics of ancient art. These authors, moreover, examined none of those belonging to the Newark group of works, although the mounds in that vicinity appear to present some points of difference from those of other localities. For these reasons a more detailed account of our explorations will be given than would otherwise be necessary. The mound selected for examination was about two and a half miles south of Newark, on the farm of Mr. Thomas Taylor, and was known in the neighborhood as the "Taylor Mound." It was conical in form, about ten feet in height, and eighty in diameter at the base, these being about the average dimensions of the burial mounds in that vicinity. It was situated on the summit of a ridge, in the midst of a stately forest. On the mound itself several oak trees, two and a half to three feet in diameter, were growing, and near them were stumps of others, evidently of greater age. The mound stood quite alone, nearly half a mile from its nearest neighbor, and about three miles from the large earthworks already mentioned. In our explorations we were greatly assisted by Dr. J. N. Wilson, and Messrs. Dennis and Shrock, of Newark, and Charles W. Chandler, Esq., of Zanesville, who are all much interested in the local antiquities of that region.

An excavation about eight feet in diameter was first made from the apex of the mound, and after the surface soil was removed the earth was found to be remarkably compact, probably owing to its having been firmly trodden down when deposited. This earth was a light loam, quite different from the soil of the ridge itself, and its peculiar mottled appearance indicated that it had been brought to the spot in small quantities. In excavating

² Transactions American Antiquarian Soc., vol. i, p. 126.

³ Smithsonian Contributions, vol. i, p. 67.

the first five feet, which was a slow and very laborious undertaking, nothing worthy of notice was observed except some traces of ashes, and pieces of charcoal and flint, scattered about at various depths. At five and a half feet below the surface, where the earth became less difficult to remove, a broken stone pipe was found, which had evidently been long in use. It was made of a very soft limestone containing fragments of small fossil shells, apparently Cretaceous species. No rock of precisely this kind is known to exist in Ohio. Pieces of a tube of the same material, and about an inch in diameter, were found near the pipe. The cavity was about two-thirds of an inch in diameter, and had been bored out with great regularity. Similar tubes have occasionally been found in mounds, but their use is not definitely known.

About seven feet from the top of the mound a thin white layer was observed, which extended over a horizontal surface of several square yards. Near the center of this space, and directly under the apex of the mound, a string of more than one hundred beads of native copper was found, and with it a few small bones of a child, about three years of age. The beads were strung on a twisted cord of coarse vegetable fibre, apparently the inner bark of a tree, and this had been preserved by salts of the copper, the antiseptic properties of which are well known. The position of the beads showed clearly that they had been wound two or three times around the neck of the child; and the bones themselves, (the neural arches of the cervical vertebræ, a clavicle, and a first rib), were precisely those which the beads would naturally come in contact with, when decomposition of the body ensued. The remains evidently owe their preservation to this fact, as they are all colored with carbonate of copper, and the other parts of the skeleton had entirely decayed. The position the body had occupied, however, was still clearly indicated by the darker color of the earth. The beads were about one-fourth of an inch long, and one-third in diameter, and no little skill had been displayed in their construction. They were evidently made, without the aid of fire, by hammering the metal in its original state; but the joints were so neatly fitted that in most cases it was very difficult to detect them. On the same cord, and arranged at regular intervals, were five shell beads, of the same diameter, but about twice as long as those of copper. All had apparently been well polished, and the necklace, when worn, must have formed a tasteful and striking ornament.*

* Native copper seems to have been the favorite material for ornaments among the mound-builders. The metal was, without doubt, derived originally from the Lake Superior deposits, although it may have been found in the drift. It was more probably taken directly from the deposits themselves, as they exhibit abundant evidence of ancient mining operations, which no one familiar with such matters would attribute to the more recent Indians.

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About a foot below the remains just described, and a little east of the center of the mound, were two adult human skeletons, lying one above the other, and remarkably well preserved. The interment had evidently been performed with great care. The heads were toward the east, slightly higher than the feet, and the arms were carefully composed at the sides. A white stratum, similar in every respect to the one already mentioned, was here very distinct, and extended horizontally over a space of five or six yards, in the center of which the remains had been laid. The earth separated readily through this stratum, and an examination of the exposed surfaces showed that they were formed from two decayed layers of bark, on one of which the bodies had been placed, and the other covered over them. The smooth sides of the bark had thus come together, and the decomposition of the inner layers had produced the peculiar white substance, as a subsequent microscopic examination clearly indicated.⁶ Directly above these skeletons was a layer of reddish earth, apparently a mixture of ashes and burned clay, which covered a surface of about a square yard. Near the middle of this space was a small pile of charred human bones, the remains of a skeleton which had been burned immediately over those just described. The fire had evidently been continued for some time, and then allowed to go out; when the fragments of bone and cinders that remained were scraped together, and covered with earth. All the bones were in small pieces, and most of them distorted by heat; but among them were found the lower extremity of a humerus, and some fragments of a fibula, which showed them to be human, and indicated an adult rather below the medium size. The two skeletons found beneath these remains were well formed, and of opposite sex. The ossification of the bones indicated that the female was about thirty years of age, and the male somewhat older. It is not impossible that these were husband and wife—the latter put to death and buried above the remains of her consort; and the charred bones may have been those of a human sacrifice, slain at the funeral ceremonies. Near these skeletons was a small quantity of reddish brown powder, which proved on examination to be hematite. It was probably used as a paint.⁷

⁶ This white layer, which was thought by Squier and Davis to be the remains of matting, is a characteristic feature in burial mounds. It has only been found where the interments were unquestionably those of mound builders.

⁷ Among the ancient Mexicans and Peruvians, when a ruler or other person of high rank died, his wives and domestics were often put to death at the tomb, and in some instances the remains were burned.

⁷ A larger quantity of the same substance was found in another mound near Newark. May not the "iron rust" discovered in the mound at Marietta, and regarded by some as proof that the mound-builders were acquainted with that metal, have been merely this substance. Implements of hematite were, indeed, found in the same mound.—*Transactions American Antiquarian Soc.*, vol. i, p. 168.

On continuing our excavations about a foot lower, and somewhat more to the eastward, a second pile of charred human bones was found resting on a layer of ashes, charcoal and burned clay. But one or two fragments of these remains could be identified as human, and these also indicated a small-sized adult. The incineration had apparently been performed in the same manner as in the previous instance. Immediately beneath the clay deposit a third white layer was observed, quite similar to that just described. In this layer was a male skeleton, not in so good a state of preservation as those already mentioned, although evidently belonging to an individual considerably older. In this case also the head was toward the east, and the burial had been carefully performed. Near this skeleton about a pint of white chaff was found, which appeared to belong to some of the native grasses. The form was still quite distinct, although nearly all the organic substance had disappeared. A few inches deeper, near the surface of the natural earth, several skeletons of various ages were met with, which had evidently been buried in a hurried manner. All were nearly or quite horizontal, but no layer of bark had been spread for their reception, and no care taken in regard to arrangement of limbs. These skeletons were in a tolerable state of preservation, some parts being quite perfect. A tibia and fibula, with most of the corresponding bones of a foot, were found quite by themselves, and well preserved.

Our excavations had now reached the original surface of the ridge, on which the mound was erected, and we were about to discontinue further researches, when the dark color of the earth at one point attracted attention, and an examination soon showed that a cist, or grave, had first been excavated in the soil, before the mound itself was commenced. This grave was under the eastern part of the elevation, about four feet from the center. It consisted of a simple excavation, in an east and west direction, about six feet long, three wide, and nearly two deep. In this grave were found parts of at least eight skeletons, which had evidently been thrown in carelessly,—most of them soon after death, but one or two not until the bones had become detached and weathered. Some of the bones were very well preserved, and indicated individuals of various ages. Two infants, about a year and eighteen months old respectively, were each represented by a single os illium, and bones of several other small children were found. One skull, apparently that of a boy about twelve years of age, was recovered in fragments, and this was the best preserved of any obtained in the mound. The skeleton of an aged woman of small stature was found resting on its side. It was bent together, and lay across the grave with its head towards the north. Some of the loose, human bones,

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exhumed from the bottom of the grave, were evidently imperfect when thrown in. Among these was part of a large femur, which had been gnawed by some carnivorous animal. The marks of the teeth were sharply defined, and corresponded to those made by a dog or a wolf.

Quite a number of implements of various kinds were found with the human remains in this grave. Near its eastern end, where the detached bones had been buried, were nine lance and arrow-heads, nearly all of the same form, and somewhat rudely made of flint and chert. The material was probably obtained from "Flint ridge," a siliceous deposit of Carboniferous age, which crops out a few miles distant. These weapons are of peculiar interest, as it appears they are the first that have been discovered in a sepulchral mound, although many such have been carefully examined.^a They show that the custom—so common among the Indians of this country—of burying with the dead their implements of war or the chase, obtained occasionally, at least, among the mound-builders. Not far from these weapons six small hand-axes were found, one of which was made of hematite, and the rest of compact greenstone, or diorite, the material often used by the Indians for similar articles. Two of these corresponded closely in form with the stone hand-axe figured by Squier and Davis as the only one then known from the mounds.^b With these axes were found a small hatchet of hematite, a flint chisel, and a peculiar flint instrument, apparently used for scraping wood.

In the central part of the grave, near the aged female skeleton already alluded to, were a large number of bone implements, all exceedingly well preserved. Among these were five needles, or bodkins, from three to six inches in length, neatly made from the metatarsal bones of the common deer; and also a spatula, cut from an ulna, and probably used for moulding pottery. With these were found about a dozen peculiar implements formed from the antlers of the deer and elk. They are cylindrical in form, from three to eight inches in length, and an inch to an inch and a half in diameter. Most of these had both ends somewhat rounded, and perfectly smooth, as if they had either been long in use, or carefully polished. It is possible these implements were used for smoothing down the seams of skins or leather: they would, at least, be well adapted to such a purpose. A "whistle," made from a tooth of a young black bear, and several "spoons," cut out of the shells of river mussels, were also obtained near the same spot.

A vessel of coarse pottery was found near the western end of the grave, but, unfortunately, was broken in removing it. It

^a Squier, *Antiquities of New York*, p. 331.

^b *Smithsonian Contributions*, vol. i, fig. 110, p. 217.

was about five inches in its greatest diameter, six in height, and one-third of an inch in thickness. It was without ornament and rudely made of clay containing some sand and powdered quartz. It was filled with soft, black earth, the color being probably due to some animal or vegetable substance, which it contained when deposited in the grave. Fragments of a vase of similar material, but having the top ornamented, were found in another part of the mound. Neither of these vessels were superior, in any respect, to the pottery manufactured by the Indians.

Near the bottom of the mound, and especially in the grave, were various animal bones, most of them in an excellent state of preservation. Many of these belonged to the common deer, and nearly all the hollow bones had been skillfully split open lengthwise,—probably for the purpose of extracting the marrow,—a common custom among rude nations. Some of these remains of the deer indicated individuals of a size seldom attained by the species at the present time. Beside one of the skeletons in the grave, and evidently deposited with it, were several bones of the gray rabbit. This renders it not unlikely that the mound-builders used this animal for food,—a point of some interest, as the inhabitants of Europe in the stone age are supposed to have been prevented from eating the hare, by the same superstition that prevailed among the ancient Britons, and is still observed among the Laplanders.¹⁰

Some of the animal remains in the mound, although well preserved, were in too small fragments to admit of accurate determination. Characteristic specimens, however, were obtained of those in the following list:

- Cervus Canadensis*, Erxl., (elk).
- Cervus Virginianus*, Bodd., (common deer).
- Ursus Americanus*, Pallas, (black bear).
- Canis latrans*? Sav, (prairie wolf).
- Lepus sylvaticus*, Bach., (gray rabbit).
- Arctomys monax*, Gm., (woodchuck).
- Unio alatus*, Say, (river mussel).

It will be observed that these are all existing species, and, with one or two exceptions, are still living in Ohio—a fact of some importance in its relation to the antiquity of the mounds. The discovery of these remains under such circumstances shows, moreover, that the mound-builders depended, to some extent, at least, on the chase for subsistence. If, however, they were a stationary and agricultural people, as is generally supposed, we should expect to find in the mounds, the remains of domestic, rather than of wild, animals, but none of these have yet been discovered. This may be owing to the fact that comparatively

¹⁰ Lyell, *Antiquity of Man*, p. 24. London. 1863.

little attention has hitherto been paid to the animal remains, and other objects of natural history found in the mounds, although a careful study of these would undoubtedly throw much light upon the mode of life of the mound-builders."

The excellent state of preservation of the various skeletons in this mound is remarkable, and has probably never been equalled in the hundreds that have hitherto been examined. The remains of undoubted mound-builders have almost invariably been found so much decayed that it was impossible to recover a single bone entire." The preservation in this case was doubtless due in part to the excessive compactness of the earth above the remains, but mainly to the fact that the mound stood on an elevation, where moisture could not accumulate. The skeletons in the lower part of the mound were not so well preserved as those higher up, probably because the original soil of the ridge naturally retained more moisture than the earth above it. There may have been, moreover, a considerable interval between the irregular burials, and those that followed, and thus some of the skeletons commenced to decay before the mound was completed. The interval, however, could not have been of very long duration, as no perceptible deposit of vegetable matter was formed over the small mound then existing. The same may be said of the intervals between the regular interments, and also of the subsequent period preceding the final completion of the mound. It should, perhaps, be remarked before proceeding further, that this mound had evidently never been disturbed by the Indians, and that all the human remains and other objects found in it were undoubtedly deposited there by its builders. This will readily be admitted by every one familiar with the subject, as the last interment was at least seven feet below the surface, directly under the apex of the mound, and the white layers—infallible indications of regular burials of the mound-builders—all extended over the grave, and remained undisturbed."

The skeletons found in this mound were of medium size, somewhat smaller than the average of those of the Indians still

¹¹ The animal remains found near the Swiss lake habitations, show conclusively that the earliest inhabitants of those settlements were hunters, who subsisted chiefly on wild animals: at a later period, however, during the change to a pastoral state, domestic animals were gradually substituted as an article of food.—*Rüttimeyer, Fauna der Pfahlbauten der Schweiz.* Basel, 1861.

¹² Squier and Davis regard this fact as evidence of the great antiquity of the mounds, as in England, where the moist climate is much less favorable for preserving such remains, perfect skeletons of the ancient Britons have been found, although known to have been buried at least 1800 years.—*Smithsonian Contributions*, vol. i, p. 168.

¹³ It is well known that the modern Indians occasionally buried their dead in the mounds, but invariably near the surface; the position of such remains, and especially the manner of their interment clearly distinguish them from the original deposits of the mound-builders.

living in this country. The bones were certainly not stouter than those of Indians of the same size, although this has been regarded as a characteristic of the remains of the mound-builders. All the skulls in the mound were broken—in one instance apparently before burial—and most of them so much decayed that no attempt was made to preserve them. Two, however, were recovered with the more important parts but little injured. Both were of small size, and showed the vertical occiput, prominent vertex, and large interparietal diameter, so characteristic of crania belonging to the American race. In other respects there was nothing of special interest in their conformation. With a single exception, all the human teeth observed were perfectly sound. The teeth of all the adult skeletons were much worn, those of aged individuals usually to a remarkable degree. The manner in which these were worn away is peculiarly interesting, as it indicates that the mound-builders, like the ancient Egyptians, and the Danes of the stone age, did not, in eating, use the incisive teeth for cutting, as modern nations do. This is evident from the fact that the worn incisors are all truncated in the same plane with the coronal surfaces of the molars, showing that the upper front teeth impinge directly on the summits of those below, instead of lapping over them. This peculiarity may be seen in the teeth of Egyptian mummies, as was first pointed out by Cuvier."

All the bones in this mound, animal as well as human, were very light, and many of them exceedingly brittle. They adhere strongly to the tongue, but application of hydrochloric acid shows that they still retain a considerable portion of the cartilage. Some of the more fragile bones, which showed a tendency to crumble on exposure to the air, were readily preserved by immersing them in spermaceti melted in boiling water, a new method, used by Prof. Lartet and other French paleontologists, and admirably adapted to such a purpose.

There are several points connected with this mound which deserve especial notice, as they appear to throw some additional light upon the customs of the mound-builders, particularly their modes of burial, and funeral ceremonies. One of the most remarkable features in the mound was the large number of skeletons it contained. With one or two exceptions, none of the burial mounds hitherto examined have contained more than a single skeleton which unquestionably belonged to the mound-builders, while in this instance parts of at least seventeen were exhumed. The number of small children represented among these remains is also worthy of notice, as it indicates for this particular case a rate of infant mortality (about thirty-three per

¹¹ *Leçons d'Anatomie comparée*, tome ii, p. 105. Bruxelles, 1838.

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cent) which is much higher than some have supposed ever existed among rude nations. Another point of special interest in this mound is the evidence it affords that the regular method of burial among the mound-builders was sometimes omitted, and the remains interred in a hurried and careless manner. This was the case with eleven of the skeletons exhumed in the course of our explorations, a remarkable fact, which appears to be without a precedent in the experience of previous investigators. It should be mentioned in this connection that nearly all of these remains were those of women and children. Their hurried and careless burial might seem to indicate a want of respect on the part of their surviving friends, were there not ample evidence to prove that reverence for the dead was a prominent characteristic of the mound-builders. It is not unlikely that in this instance some unusual cause, such as pestilence or war, may have made a hasty interment necessary. The various implements and remains of animals found with these skeletons also deserve notice, as they far exceed in number and variety any hitherto discovered in a single mound. They prove, moreover, that, if in this instance the rites of regular burial were denied the departed, their supposed future wants were amply provided for. The contents of one part of the cist (which is itself a very unusual accompaniment of a mound) appears to indicate that the remains of those who died at a distance from home were collected for burial, sometimes long after death. The interesting discovery of weapons, which were found with these detached bones, would seem to imply that in this case the remains and weapons of a hunter or warrior of distinction, recovered after long exposure, had been buried together.¹¹

The last three interments in this mound were performed with great care, as already stated, and in strict accordance with the usual custom of the mound-builders. The only point of particular interest in regard to them is the connection which appears to exist between some of the skeletons and the charred human bones found above them. Similar deposits of partially burned bones, supposed to be human, have in one or two instances been observed on the altars of sacrificial mounds, and occasionally in mounds devoted to sepulture, but their connection with the human remains buried in the latter, if indeed any existed, appears to have been overlooked. Our explorations, which were very carefully and systematically conducted, clearly demonstrated that in these instances the incineration had taken place directly over the tomb, and evidently before the regular interment was completed: taking these facts in connection with what the researches of other investigators have made known

¹¹ A similar custom still prevails among some tribes of western Indians.

concerning the superstitious rites of this mysterious people, it seems natural to conclude that in each of these cases a human victim was sacrificed as part of the funeral ceremonies, doubtless as a special tribute of respect to a person of distinction.

All the skeletons in this mound, except one, appeared to have been buried in a horizontal position with the face upwards. The exception was the skeleton of the aged female found in the grave, which lay on its side; but this may have been owing to the fact that the body had been bent together, perhaps in consequence of age. The skeletons which had received a regular interment all had their heads toward the east, but no such definite position has been noticed in the remains found in other mounds. As the grave had the same direction, this can hardly have been unintentional, although it may have been determined by the position of the ridge upon which the mound stood. The layer of charcoal, not unfrequently found in sepulchral mounds, was wanting in this instance, as was also the evidence, usually afforded by the same substance, that the fire, which consumed the human remains, had been suddenly extinguished by a covering of earth. Possibly the former, as well as other objects of interest, were contained in the outer portion of the mound, which was not examined, although usually everything deposited by the mound-builders was placed near the center; and hence our explorations were chiefly confined to that part.

Such is a brief and incomplete description of one of the ancient mounds of the West, of which at least ten thousand are known to exist in the single state of Ohio, and countless numbers elsewhere in the valleys of the Mississippi and its tributaries. These structures are the only remaining memorials of a race whose history has been buried with them, and from these alone can we hope to learn who this people were, and whence they came. The Indians of this country, although retaining no tradition of this more ancient population, regarded their works with great veneration; but the present possessors of the soil have, in general, little of this feeling, and hence hundreds of these monuments of the past are annually swept away by the plow, and their contents irretrievably lost. A few pioneers in American archæology have, indeed, rescued much that is valuable, but the work is hardly commenced; and a careful and systematic investigation of these various monuments would not only add greatly to our knowledge of this interesting people, but doubtless also help to solve the question of the antiquity of man on this continent, and, perhaps, that more important one of the unity of the human race.

New Haven, Ct., Feb. 1866.