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NORTH AMERICAN STONE IMPLEMENTS.

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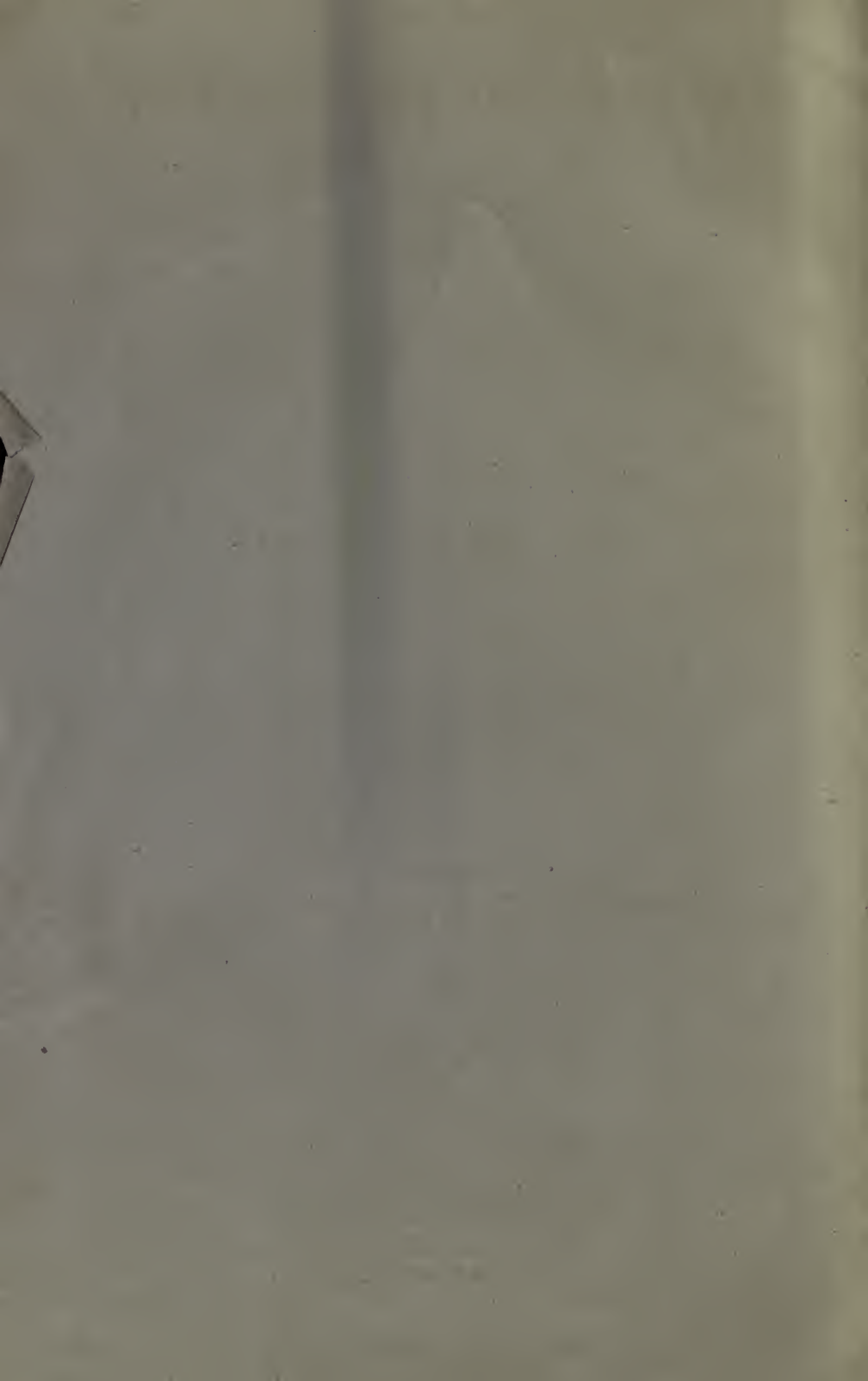
CHARLES RAU.

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REPRINTED FROM THE REPORT OF THE SMITHSONIAN  
INSTITUTION FOR 1872.

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GOVERNMENT PRINTING OFFICE.  
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## NORTH AMERICAN STONE IMPLEMENTS.

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By CHARLES RAU.

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The division of the European stone age into a period of chipped stone, and a succeeding one of ground or polished stone, or, into the palaeolithic and neolithic periods, seems to be fully borne out by facts, and is likely to remain an uncontroverted basis for future investigation in Europe. In North America chipped as well as ground implements are abundant; yet they occur promiscuously, and thus far cannot be referred respectively to certain epochs in the development of the aborigines of the country. Archæological investigation in North America, however, is but of recent date, and a careful examination of our caves and drift-beds possibly may lead to results similar to those obtained in Europe. When in the latter part of the world man lived contemporaneously with the now extinct large pachydermatous and carnivorous animals, he used unground flint tools of rude workmanship, which were superseded in the later stages of the European stone age, comprising the neolithic period, by more finished articles of flint and other stone, many of which were brought into final shape by the processes of grinding and polishing. In North America stone implements likewise have been found associated with the osseous remains of extinct animals; yet these implements, it appears, differed in no wise from those in use among the aborigines at the period of their first intercourse with the whites.

In the year 1839, the late Dr. Albert C. Koch discovered in the bottom of the Bourbeuse River, in Gasconade County, Missouri, the remains of a *Mastodon giganteus* under very peculiar circumstances. The greater portion of the bones appeared more or less burned, and there was sufficient evidence that the fire had been kindled by human agency, and with the design of killing the huge creature, which had been found mired in the mud, and in an entirely helpless condition. The animal's fore and hind legs, untouched by the fire, were in a perpendicular position, with the toes attached to the feet, showing that the ground in which the animal had sunk, now a grayish-colored clay, was in a plastic condition when the occurrence took place. Those portions of the skeleton, however, which had been exposed above the surface of the clay, were partially consumed by the fire, and a layer of wood-ashes and charred bones, varying in thickness from two to six inches, indicated that the burning had been continued for some length of time. The fire appeared to have been most destructive around the head of the animal. Mingled with the ashes and bones was a large number of broken pieces

of rock, which evidently had been carried to the spot from the bank of the Bourbeuse River to be hurled at the animal. But the burning and hurling of stones, it seems, did not satisfy the assailants of the mastodon; for Dr. Koch found among the ashes, bones, and rocks *several stone arrow-heads, a spear-head, and some stone axes*, which were taken out in the presence of a number of witnesses, consisting of the people of the neighborhood, who had been attracted by the novelty of the excavation. The layer of ashes and bones was covered by strata of alluvial deposits, consisting of clay, sand, and soil, from eight to nine feet thick, which form the bottom of the Bourbeuse River in general.

About one year after this excavation, Dr. Koch found at another place, in Benton County, Missouri, in the bottom of the Pomme de Terre River, about ten miles above its junction with the Osage, *several stone arrow-heads* mingled with the bones of a nearly entire skeleton of the Missouriium. The two arrow-heads found with the bones "were in such a position as to furnish evidence still more conclusive, perhaps, than in the other case, of their being of equal, if not older date, than the bones themselves; for, besides that they were found in a layer of vegetable mold which was covered by twenty feet in thickness of alternate layers of sand, clay, and gravel, one of the arrow-heads lay underneath the thigh-bone of the skeleton, the bone actually resting in contact upon it, so that it could not have been brought thither after the deposit of the bone; a fact which I was careful thoroughly to investigate."\*

Fig. 1.



It affords me particular satisfaction to present in Fig. 1 a full-size drawing of the last-named arrow-head, which is still in the possession of Mrs. Elizabeth Koch, of Saint Louis, the widow of the discoverer. The drawing was made after a photograph, for which I am indebted to Mrs. Koch. It will be noticed that the point, one of the barbs, and a corner of the stem of this arrow-head—if it really was an arrow-head, and not the armature of a javelin or spear—are broken off; but there remains enough of it to make out its original shape, which is exactly that of similar weapons used by the aborigines in historical times. The specimen in question, which, as I presume, was found by Dr. Koch in its present mutilated shape, consists of a light-brown, somewhat mottled flint.†

\*Koch, in Transactions of the Academy of Science of Saint Louis, vol. i. (1860,) p. 61, &c.

†I am well aware that the reality of Dr. Koch's discovery has been doubted by some, although it is difficult to perceive why he should have made those statements, if not true, at a time when the antiquity of man was not yet discussed, either in Europe or here, and he, therefore, could expect nothing but contradiction, public opinion being

In referring to these discoveries of Dr. Koch, and some other indications of the high antiquity of man in America, Sir John Lubbock concludes that "there does not as yet appear to be any satisfactory proof that man co-existed in America with the Mammoth and Mastodon."\* Yet, it may be expected, almost with certainty, that the results of future investigations in North America will fully corroborate Dr. Koch's discoveries, and vindicate the truthfulness of his statements. Indeed, some facts have come to light during the late geological survey of Illinois, which confirm, in a general way, the conclusions arrived at by the above-named explorer. According to this survey, the blue clays at the base of the drift contain fragments of wood and trunks of trees, but no fossil remains of animals; but the brown clays above, underlying the Loess, contain remains of the Mammoth, the Mastodon, and the Pecary; and bones of the Mastodon were found in a bed of "local drift," near Alton, underlying the Loess *in situ* above, and also *in the same horizon, stone axes and flint spear-heads*, indicating the co-existence of the human race with the extinct mammalia of the Quaternary period.†

It must not be overlooked that both Dr. Koch and the Illinois survey mention flint arrow and spear-heads as well as stone axes as being associated, directly or indirectly, with the remains of extinct animals. These stone axes undoubtedly were *ground* implements; for, had they differed in any way from the ordinary Indian manufactures of the same class, the fact certainly would have been noticed by the observers. Thus far, then, we are not entitled to speak of a North American palaeolithic and neolithic period. In the new world, therefore, the human contemporary of the Mastodon and the Mammoth, it would seem, was more advanced in the manufacture of stone weapons than his savage brother of the European drift period, a circumstance which favors the view that the extinct large mammalia ceased to exist at a later epoch in America than in Europe. The remarks of Lieutenant-Colonel C. H. Smith on this point are of interest. "Over a considerable part of the eastern side of the great (American) mountain ridge," he says, "more particularly where ancient lakes have been converted into morasses, or have been filled by alluvials, organic remains of above thirty species of mammals, of the same orders and genera, in some cases of the same species, (as in Europe,) have been discovered, demonstrating their ex-

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totally unprepared for such revelations. Not being a scientific palaeontologist, he certainly made some mistakes in putting together the bones of the animals exhumed by him; but these failings, in my opinion, have no bearing on his observations relative to the co-existence of man with extinct animals in North America. Only a short time ago some remarks tending to depreciate Dr. Koch's account were made by Dr. Schmidt, in an article on the antiquity of man in America, published in vol. v, of the *Archiv für Anthropologie*. I may state here that I was personally acquainted with Dr. Koch, whom I saw repeatedly at the meetings of the Academy of Science of Saint Louis.

\* Prehistoric Times, 1st ed., p. 236.

† Geological Survey of Illinois, by A. H. Worthen, vol. i, (1866,) p. 38; quoted in Transactions of the Academy of Science of Saint Louis, vol. ii, (1868,) p. 567.

istence in a contemporary era with those of the old continent, and under similar circumstances. But their period of duration in the new world may have been prolonged to dates of a subsequent time, since the Pachyderms of the United States, as well as those of the Pampas of Brazil, are much more perfect; and, in many cases, possess characters ascribed to bones in a recent state. Alligators and crocodiles, moreover, continue to exist in latitudes where they endure a winter state of torpidity beneath ice, as an evidence that the great Saurians in that region have not yet entirely worked out their mission; whereas, on the old continent they had ceased to exist in high latitudes long before the extinction of the great Ungulata.\*

Flint implements of the European "drift type," however, are by no means scarce in North America, although they cannot (thus far) be referred to any particular period, but must be classed with the other chipped and ground implements in use among the North American aborigines during historical times.

In the first place I will mention certain leaf-shaped flint implements which have been found in mounds and on the surface, as well as in deposits below it. They are comparatively thin, of regular outline, and exhibit well-chipped edges all around the circumferences. On the whole, they are among the best North American flint articles which have fallen under my notice. The specimens found by Messrs. Squier and Davis in a mound of the inclosure called Mound City, on the Scioto River, some miles north of Chillicothe, Ohio, belong to this class. Most of them were broken, but a few were found entire, one of which is represented in half-size by Fig. 100 on page 211 of the "Ancient Monuments of the Mississippi Valley." This specimen measures four inches in length and about three inches across the broad rounded end. I have a still larger one, consisting of a reddish mottled flint, which was found on the surface in Jefferson County, Missouri. The annexed full-size drawing, Fig. 2, shows its outline. The edge on the right side is a little damaged by subsequent fractures, but for the sake of greater distinctness I have represented it as perfect. The finest leaf-shaped implements which I have had occasion to examine, are in the possession of Mr. M. Cowing, of Seneca Falls, New York. The owner told me he had more than a hundred of them, which were all derived from a locality in the State of New York, where they were accidentally discovered, forming a deposit under the surface. Mr. Cowing, who is constantly engaged in collecting and buying up Indian relics, refused to give me any information concerning the place and precise character of the deposit, basing his refusal on the ground that a few of these implements were still in the hands of individuals in the neighborhood, and that he would reveal nothing in relation to the deposit until he had obtained every specimen originally belonging to it. I am, therefore, unable to give any

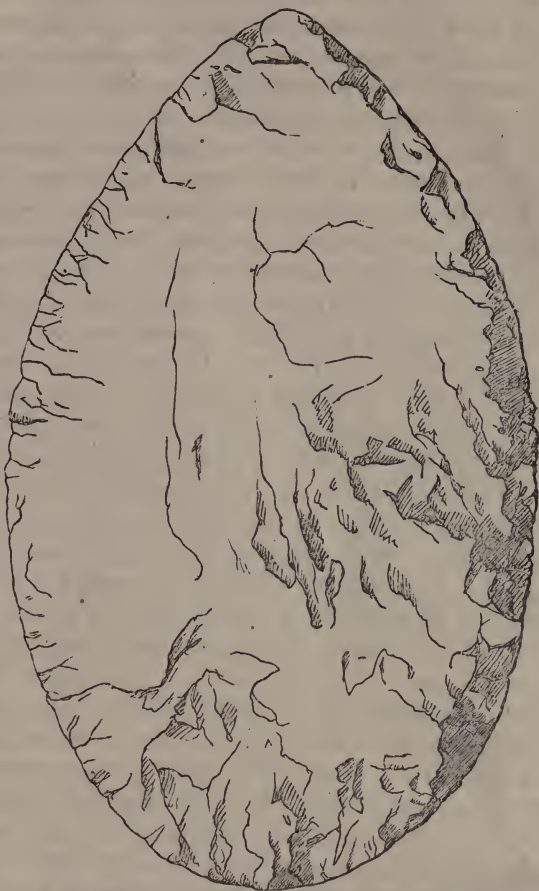
\*The Natural History of the Human Species, London, 1852, p. 89. The comparative freshness of the bones of extinct North American animals was noticed by Cuvier.



particulars, and must confine myself to the statement that the specimens shown to me present in general the outline of the original of Fig. 2, though they are a little smaller; and that they are thin, sharp-edged, and exquisitely wrought, and consist of a beautiful, variously-colored flint, which bears some resemblance to chalcedony.

Concerning the use or uses of North American leaf-shaped articles, I am hardly prepared to give a definite opinion, though I think it probable that they served for purposes of cutting. They were certainly not intended for spear-heads, their shape being ill-adapted for that end; nor do I think that they were used as scrapers, as other more massive implements of a kindred character probably were, of which I shall speak hereafter.

Fig. 2.



The aborigines were in the habit of burying articles of flint in the ground, and such deposits, sometimes quite large, have been discovered in various parts of the United States. These deposits consist of articles representing various types, among which I will mention the leaf-shaped implements in the possession of Mr. Cowing; the agricultural tools found at East Saint Louis, Illinois, of which I have given an account in the Smithsonian report for 1868; and the rude flint articles of an elongated oval shape, which were found about 1860 on the bank of the Mississippi, between Carondelet and Saint Louis, Missouri, and doubtless belonged to a deposit. I have described them in the above-named Smithsonian report, (p. 405,) and have also given there a drawing of one of the specimens in my possession. This drawing has been reproduced by Mr. E. T. Stevens, on page 441 of his valuable work entitled "Flint Chips," (London, 1870,) with remarks tending to show that the specimen does not represent an unfinished implement, as I am inclined to believe, but a

complete one. I must admit that my drawing is not a very good one. It gives the object a more definite character than it really possesses, the chipping appearing in the representation far less superficial than it is in the original, which, indeed, has such a shape that it could easily be reduced to a smaller size by blows aimed at its circumference. I have myself scaled off large flat flakes from similarly-shaped pieces of flint, using a small iron hammer and directing my blows against the edge, and have thus become convinced that the further working of objects like that in question could offer no serious difficulties to a practised flint-chipper. My collection, moreover, contains several smaller flint objects of similar shape, which are undoubtedly the rudiments of arrow and spear-heads, and I may add that I obtained a few from places where the manufacture of such weapons was carried on.

Yet the most important deposit of flint implements resembling certain types of the European drift, is that discovered by Messrs. Squier and Davis during their researches in Ohio. They have described this interesting find in the "Ancient Monuments of the Mississippi Valley," and a *résumé* of their account was given by me in the Smithsonian report for 1868, (p. 404.) The implements in question, I stated, occurred in one of the so-called sacrificial mounds of Clark's Work, on North Fork of Paint Creek, Ross County, Ohio. This flat, but very broad mound contained, instead of the hearth usually found in this class of earth-structures, an enormous number of flint discs, standing on their edges and arranged in two layers, one above the other, at the bottom of the mound. The whole extent of these layers has not been ascertained, but an excavation six feet long and four broad disclosed upward of six hundred of those discs, rudely blocked out of a superior kind of dark flint. I had occasion to examine the specimens from this mound, which were formerly in the collection of Dr. Davis, and have now in my collection a number that belonged to the same deposit. They are either roundish, oval, or heart-shaped, and of various sizes, but on an average six inches long, four inches wide, and from three-quarters to an inch in thickness. These flint discs are believed to have been buried as a religious offering, and the peculiar structure of the mound which inclosed them rather favors this opinion, while their enormous number, on the other hand, affords some probability to the view that they constituted a depot or magazine. Many of them are clumsy, and roughly chipped around their edges; and hence it has been suggested that they are no finished implements, but merely rudimentary forms, destined to receive more symmetry of outline by subsequent labor. Many of the discs under notice bear a striking resemblance to the flint "hatchets" discovered by Boucher de Perthes and Dr. Rigollot in the diluvial gravels of the valley of the Somme, in Northern France. The similarity in form, however, is the only analogy that can be claimed for the rude flint articles of both continents, considering that they occurred under totally different circumstances. The drift implements of Europe represent the most primitive attempts of man in the art of working stone, while the Ohio

discs, if finished at all, are certainly very rough samples of the handicraft of a race that constructed earthworks of astonishing regularity and magnitude, and was already highly skilled in the art of chipping flint into various shapes.

On page 214 of the "Ancient Monuments of the Mississippi Valley," a group of the flint articles from Clark's Work is represented. The drawing exhibits pretty correctly the irregular outline and general rudeness of these specimens; yet Mr. Stevens states (Flint Chips, p. 440) that "the representations are not at all satisfactory." The only fault, I think, that can be found with these drawings is their small scale, a fault which is very excusable, considering that at the period when Messrs. Squier and Davis published their work, (1848,) flint articles of such shape were no objects of particular attention; for just then the results of the researches of Boucher de Perthes were first laid before the scientific world, which, it is well known, ignored for a long time the significance of the rude flint tools discovered by the indefatigable and enthusiastic French savant in the diluvial gravel-beds of the Somme. It is true, however, that some of the flint discs of Clark's Work are wrought with more care than those represented in the "Ancient Monuments." This fact may be ascribed to a whim of the worker or workers, who gave some of the articles a greater degree of regularity by some additional blows. Mr. Stevens has only seen specimens of this better class, for such were those which Dr. Davis sold to the Blackmore Museum among his collection of Indian relics, and hence the author of "Flint Chips" seems to attribute to them a better general character than they really possess. I learn, however, that Mr. Blackmore, during a recent visit to Ohio, has succeeded in recovering a considerable number of the implements of Clark's Work, and thus an opportunity will be afforded again to investigate the true nature of these relics of a bygone people.

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The objects in question consist of the compact silicious stone of "Flint Ridge," in Ohio, a locality described on page 214 of the "Ancient Monuments."\* A careful comparison has established this fact beyond any doubt. The flint or hornstone which occurs in that region, is a beautiful material of a dark color, resembling somewhat the real flint found in nodules in the cretaceous formations of Europe. It is occasionally marked with darker or lighter concentric stripes or bands, the centre of which is formed by a small nucleus of blue chalcedony; and this internal structure appears particularly distinct in specimens which, by exposure, have undergone a superficial change of color. The stone, in general, possesses peculiarities by which it can be recognized at once, even when met in a wrought state far from its original site. According to Mr. Squier, arrow-heads made of this hornstone have been found in Kentucky, Indiana, Illinois, and Michigan. That they occur in Illinois, I can attest from personal experience.

\* More particularly in Squier's "Aboriginal Monuments of New York," Buffalo, 1851, p. 136.

A few years ago, when treating of the flint implements of Clark's Work, I was not prepared to express a definite opinion concerning the manner in which they were used. In the mean time, however, I have obtained additional information in relation to the class of implements under notice, which enables me, as I think, to point out the purposes for which those of Clark's Work, as well as similar ones from other localities, were designed. In the summer of 1869, some children, who were amusing themselves near the barn on the farm of Oliver H. Mullen, in the neighborhood of Fayetteville, Saint Clair County, Illinois, dug into the ground and discovered a deposit of fifty-two disc-shaped flint implements, which lay closely heaped together. Several of them came into my possession through the assistance of Dr. Patrick, of Belleville, in the same county. They consist, like those of Clark's Work, of the peculiar stone of Flint Ridge. This I noticed at first sight, and so did Messrs. Squier and Davis, to whom I showed them. They resemble, in general shape, the

Fig. 3.



objects of Clark's Work, but are somewhat smaller and of perfectly symmetrical outline, having a well-chipped, though strong edge; in one word, they are highly finished implements, far superior to those of Clark's Work. In Fig. 3 I give a full-size drawing of one of my speci-

mens from Fayetteville, which is twenty millimeters thick in the middle. The slight irregularities observable in the circumference are owing to later accidental fractures. In this specimen, as in the others from the same find, the edge is produced by small, carefully-measured blows. The edges of my specimens from Fayetteville, moreover, exhibit traces of wear, being rubbed off to a small degree, and this circumstance, in connection with their shape, induces me to believe that they were used as *scraping or smoothing implements*. The aborigines, it is well known, hollowed their canoes and wooden mortars with the assistance of fire, and the implements just described, were, as I presume, employed for removing the charred portions of the wood. They are well adapted to the grasp of the hand, and, indeed, of the most convenient form and size to serve in that operation. Probably they were likewise used in cleaning hides, and for other purposes. The tools of Fayetteville, however, are much more handy than those of Clark's Work.

The fact that implements made of the hornstone of Flint Ridge are found in Illinois—a distance of about four hundred miles intervening—is of particular interest, as it shows that the material was quarried for exportation to remote parts of the country. It doubtless formed an article of traffic among the natives, like copper, sea-shells, and other natural productions which they applied to the exigencies of common life or used for personal adornment.

Concerning North American flint implements of the European drift type in general, Mr. Stevens expresses himself thus: "The legitimate conclusion at which we may at present arrive, is that implements, in form resembling some of the European palaeolithic types, were made by the aborigines of America at a comparatively late period, and that the people usually termed the 'mound-builders,' were, probably, the makers of these implements." (p. 443.)

There is no sufficient ground, I think, for attributing these implements exclusively to the mound-builders, considering that they occur on the surface, and in deposits below it, in regions where the people designated as the mound-builders are not supposed to have left their traces. In the States of New York and New Jersey, for instance, such articles repeatedly have been met. I will only refer to the leaf-shaped implements in possession of Mr. Cowing, which were found in New York, and are the finest specimens of that kind ever brought to my notice. That the people who erected the mounds made and used tools resembling the palaeolithic types of Europe, is proved by the occurrence of those tools in the mounds; but it follows by no means that they are to be considered as the sole makers of that class of implements. Supposing that the mound-builders really were a people superior in their attainments to the aborigines found in possession of the country by the whites, it is certainly very difficult to draw a line of demarcation between the manufactures of the ancient and those of the more recent indigenous inhabitants of North America. The mound-builders—to preserve the adopted

term—certainly did not stow away all their articles of use and ornament in the mounds, but necessarily left a great many of them scattered over the surface, which became mingled with those of the succeeding occupants of the soil. Both the mound-builders and the later Indians lived in an age of stone, and as their wants were the same, they resorted to the same means to satisfy them. Their manufactures, therefore, must exhibit a considerable degree of similarity, and hence the great difficulty of separating them.

Yet Mr. Stevens goes in this respect farther than any one before him. He is particularly orthodox in the matter of pipes. Those who have paid some attention to the antiquities of North America, are aware of the fact that Messrs. Squier and Davis found in the mounds of Ohio, especially in one mound near Chillicothe, a number of stone pipes of peculiar shape, which they have described in the "Ancient Monuments of the Mississippi Valley." In these pipes the bowl rises from the middle of a flat and somewhat curved base, one side of which communicates by means of a narrow perforation, usually one-sixth of an inch (about four millimeters) in diameter, with the hollow of the bowl, and represents the tube, or rather the mouth-piece of the pipe, while the other unperforated end forms the handle by which the smoker held the implement and approached it to his mouth. In the more elaborate specimens the bowl is formed, in some instances, in imitation of the human head, but generally of the body of an animal—mammal, bird, or reptile. These pipes, then, were smoked either without any stem, which seems probable, or by means of a very diminutive tube of some kind, the narrow bore of the base not allowing the insertion of anything like a massive stem. The authors of the "Ancient Monuments" called these pipes "mound-pipes," merely to designate that particular class of smoking utensils; it was not their intention to convey the idea that the mound-builders had been unacquainted with pipes into which stems were inserted. On the contrary, they distinctly assign a beautiful pipe of the latter kind, representing the body of a bird with a human head\* to the mound-builders, though this specimen was not found in a mound, but within an ancient inclosure twelve miles below the city of Chillicothe. Referring to this pipe, Mr. Stevens says: "Squier and Davis consider that this object is a relic of the mound-builders; but it does not appear that any pipe of similar form, or indeed *any* pipe intended to be smoked by means of an inserted stem, has been found in any of the Ohio mounds." Upon inquiry I learned from Dr. Davis that mounds had been leveled by the plough within the inclosure where the pipe in question was found, which, he is convinced, belonged to the original contents of one of those obliterated mounds. In the Smithsonian report for 1868, I published (on page 399) the drawing of a pipe then in possession of Dr. Davis. Its shape is that of a barrel somewhat narrowing at the bottom, and its material an almost transparent rock-crystal. The two hollows, one for

\* Fig. 147 on p. 247 of the "Ancient Monuments;" Fig. 106 on p. 509 of "Flint Chips."

the reception of the smoking material, and the other for inserting a stem, meet under an obtuse angle. This pipe was taken from a mound near Bainbridge, Ross County, Ohio. Mr. Stevens suggests it had been associated with a secondary interment, (p. 524.) Dr. Davis, however, who is acquainted with the circumstances of its discovery, told me that it belonged, with various other objects, to the *primary* deposit of the mound. Thus it would seem that the mound-builders confined themselves by no means to the use of one particular class of pipes.

Those who advocate a strict classification of North American relics according to earlier or later periods, should bear in mind that mound-building was still in use—if not in Ohio, at least in other parts of the present United States—when the first Europeans arrived, though the practice seems to have been abandoned soon after the colonization of the country by the whites. Yet, even in comparatively modern times, isolated cases of mound-building have been recorded,\* which fact would indicate, perhaps, a lingering inclination to perpetuate an ancient, almost forgotten custom. Many of the earthworks in the Southern States doubtless were built by the race of Indians inhabiting the country when the Spaniards under De Soto made a vain attempt to take possession of that vast territory, then comprised under the name of Florida. For this we have Garcilasso de la Vega's often-quoted statement relating to the earth-structures of the Indians. The Floridians, we also know, erected at the same period mounds to mark the resting-places of their defunct chieftains. Le Moyne de Morgues has left in the "Brevis Narratio" a representation and description of a funeral of this kind. When the mound was heaped up, the mourners stuck arrows in the ground around its base, and placed the drinking vessel of the deceased, made of a large sea-shell, on the apex of the pile.† But even without such historical testimony, the continuance of mound-building might be deduced from the fact that articles of European origin are met, though rarely, among the primary deposits of mounds. The following interesting communication, for which I am indebted to Colonel Charles C. Jones, will serve to illustrate one case of mound-burial that can be referred with certainty to a period posterior to the European occupation of the country:

"I have found in several mounds," says my informant, "glass beads and silver ornaments, and, in one instance, a part of a rifle-barrel, which were evidently buried with the dead. These, however, were secondary interments, the graves being upon the top, or sides, or near the base of the mound, and only a few feet deep. Never but in one case have I discovered any article of European manufacture interred with the dead in whose honor the mound was clearly erected. Upon opening a small earth-mound on the Georgia coast, a few miles below Savannah, I found a clay vessel, several flint arrow-heads, a hand-axe of stone, and a por-

\* Squier, *Aboriginal Monuments of New York*, p. 112, &c.

† Le Moyne, in De Bry, vol. ii, *Francforti ad Moenum*, 1591, pl. XL.

tion of an old-fashioned sword deposited with the decayed bones of the skeleton. This tumulus was conical in shape, about seven feet high, and possessed a base diameter of some twenty feet. It contained only

Fig. 4.



one skeleton, and that lay, with the articles I have enumerated, at the bottom of the mound, and on a level with the plain. The oaken hilt, most of the guard, and about seven inches of the blade of the sword still remained. The rest of the blade had perished from rust. Strange to say, the oak had best resisted the 'gnawing tooth of time.' This mound had never been opened or in any way disturbed, except by the winds and rains of the changing seasons. I have no doubt but that the interment was primary, and that all the articles enumerated were deposited with the dead before this mound-tomb was heaped above him. This, within the range of my observation, is an interesting and exceptional case. I am persuaded that mound-building, at least upon the

Georgia coast, was abandoned by the natives very shortly after their primal contact with the whites."

From mound-building I turn again to North American flint implements. Mr. Stevens refers in his work to the absence of flint scrapers in the series from the United States exhibited in the Blackmore Museum. Scrapers of the European spoon-shaped type, however, are not as scarce in the United States as Mr. Stevens seems to suppose. The collection of the Smithsonian Institution contains a number of them; and I found myself two characteristic specimens in the Kjökkenmödding at Keyport, New Jersey, described by me in the Smithsonian report for 1864. They lay upon the shell-covered ground, a short distance from each other, and were perhaps made by the same hand. In Fig. 4 I give a full-size drawing of one of my specimens, both of which consist of a brown kind of flint, such as probably

Fig. 5.



would be called jasper by mineralogists. The figured specimen; it will be seen, possesses all the characteristics of a European scraper. Its lower surface is formed by a single curved fracture. The rounded head is somewhat turned toward the right, a feature likewise exhibited in the other specimen, which is a little larger, but not quite as typical as the original of Fig. 4. As the peculiar curve of the broad part is observable in both specimens, it must be considered as having been produced intentionally. Indeed, I have among my flint scrapers from the pilework at Robenhausen one which is curved in the same direction. In fashioning their implements in this particular manner, the Indian and the ancient lake-man possibly had the same object in view.

ing their implements in this particular manner, the Indian and the ancient lake-man possibly had the same object in view.



There is, however, another somewhat different class of North American flint articles; which, as I believe, were employed by the aborigines for scraping and smoothing wood, horn, and other materials in which they worked, or perhaps, also, in the preparation of skins. They resemble stemmed arrow-heads, which, instead of being pointed, terminate in a semi-lunar, regularly chipped edge. It is probable that they were partly made from arrow-heads which had lost their points. Schoolcraft gives in Fig. 3, of Plate 18, in the first volume of his large work, the drawing of an object of this class, calling it "the blunt arrow or *Beekicuk*, (Algonkin,) which was fired at a mark." It is likely enough that these articles served in part the purpose assigned to them by Mr. Schoolcraft. Yet, I have in my collection several in which the rounded edge is worn and polished, while the remaining part retains its original sharpness of fracture, a circumstance that can only be ascribed to continued use, and therefore leads me to believe that they were employed in the manner already indicated. These implements hardly could be used without handles. Fig. 5 represents, in natural size, one of my specimens, which was found on the surface near West Belleville, Saint Clair County, Illinois. The material is a yellowish-brown flint. The edge, it will be seen, is perfectly



Fig. 6.

Fig. 7.



scraper-like. Inserted into a stout handle, this object would make an excellent scraper. The edge of this specimen is not polished, but it seems as if small particles of the edge had been scaled off by the pressure exerted in the use of the implement. In the original of the above full-size representation, Fig. 6, on the contrary, the curved edge is rubbed off to a considerable extent and perfectly polished, while the portion opposite the edge bears not the slightest trace of friction. This specimen, which consists of a whitish flint, was found in Saint Clair County, Illinois. In Fig. 7, lastly, I represent, in natural size, a fine large specimen, which I class among the implements under notice. I formerly supposed it to be a tool destined for cutting purposes, but the condition of the edge, which is rather blunt and hardly fit for cutting, afterward induced me to change my

opinion. Originally, perhaps, one of those unusually large spear-heads, which are occasionally found, it may have been reduced subsequently, after having lost the point, to its present shape. Yet, it may never have possessed a form different from that which it now exhibits. This specimen is chipped from a fine reddish flint which contains encrinites. I obtained it from quarrymen near West Belleville, who found it in the earth while they were engaged in baring the rock for extending the quarry. In conclusion, I will state that, since writing the preceding pages, I received a number of stone implements from Muncy, Lycoming County, Pennsylvania, among which there are some large scrapers of the European type. Their material, however, is not flint, but either graywacke or a kind of tough slate.







