RESULTS OF AN INQUIRY AS TO THE EXISTENCE OF MAN IN NORTH AMERICA DURING THE PALEOLITHIC PERIOD OF THE STONE AGE.

By Thomas Wilson.

The existence and the antiquity of the paleolithic period in Europe had been so well established by the investigations of European prehistoric anthropologists as to neither require demonstration nor admit of discussion.

The prehistoric people of North America, as they have been generally known, whether mound-builders or Indians, all belonged to the neolithic period of the stone age, unless there is to be established an age of copper.

Their cutting implements of stone were not brought to an edge by chipping as was done in the paleolithic period, nor were these implements chipped in the sense of the term as used in connection with that period. On the contrary, they were polished or made smooth by rubbing against or upon another stone. Their cutting edges were made sharp in the same way. This was a new invention, and constituted the distinctive mark between the civilization of the two periods. The peoples of the neolithic period had much the higher civilization. They made pottery, had flocks and herds, a knowledge of agriculture, a society organized into tribes or bands, buried their dead with ceremony, mourned their loss, and erected burial monuments.

They were numerous in North America, and spread over or occupied, at one time or another nearly, if not quite, the entire continent; their tribes were many, they employed different languages, made and used a variety of curious implements, and their monuments are yet a source of wonder and surprise. These things have rendered the mine of ethnologic lore in America so rich and with such great opportunities, that the attention of the anthropologist and ethnologist of our country have been fully absorbed and left with but little incentive to investigate that ruder but earlier period—the paleolithic.

My attention has been turned towards this period, and I determined to give it a share of that consideration to which I felt it was entitled. I make but small claim to original discovery; most of my facts have been heretofore known, but they were isolated, disconnected, unrecognized, and almost valueless. I have now grouped them, here and there

filled the gaps with new facts, formulated all, and hope I have established their bearing one upon another, and thus proved (to my own satisfaction, at least) the general occupation of the United States by man during the paleolithic period. Other persons have heretofore expressed their belief in this proposition, but as yet it has not been proved. The evidence which they presented may have been good, but it was insufficient.

Many years ago Signor Capellini, rector of the University of Bologna, visited the United States, and reported having found at Burlington, Iowa, a paleolithic implement of white flint.*

Professor Joseph Leidy, in 1873, reported having found paleolithic implements in flint, jasper, and quartzite at or near Fort Bridger, Wyoming.†

Professor Leidy says:

"In some places the stone implements are so numerous, and at the same time so rudely constructed, that one is constantly in doubt when to consider them as natural or accidental and when to view them as artificial. Some of the plains are so thickly strewn with natural and artificial splintered stones that they look as if they had been the battle-fields of great armies during the stone age."

But Dr. Leidy did not know these implements to be what they really were, that is, implements of the paleolithic period. His friend Dr. Van A. Carter, residing at Fort Bridger, and well acquainted with the language, history, manners, and customs of the neighboring tribes of Indians, informed him that they knew nothing about these implements. He reported that the Shoshones looked upon them as the gift of God to their ancestors.

The discovery by Dr. Abbott of paleolithic implements in the gravel drift of the Delaware River at Trenton was the leading discovery which bore testimony to the existence of man in America during the paleolithic period. His discovery was valuable, and no doubt is to be thrown upon the genuineness of the implements. They tend to prove as well the antiquity as the existence of the paleolithic period in America. By this discovery Trenton occupies much the same relation to American prehistoric anthropology that Abbeville does to European.

Less known, but believed to be equally authentic, was the discovery of paleolithic implements by Miss Franc E. Babbitt in 1879 at Little Falls, Minnesota; by Dr. Metz, in the river gravel of the Little Miami at Loveland, near Cincinnati; by Professor McGee of a possibly paleolithic spear-head of obsidian in the valley of Lake Lahontan in northwestern Nevada; by Dr. Hilborn T. Cresson, of Philadelphia, at Claymont, Delaware, and Upland, Chester County, Pennsylvania, and of a supposed paleolithic fire-place or hearth, explained by Prof. G. K. Gilbert.

Conceding for these finds of paleolithic implements full authenticity,

* Le Prehistorique, par G. de Mortillet, p. 178.

† U. S. Geological Survey, 1872 (Hayden), p. 651, figs. 1–12.

they only show an isolated and widely scattered occupation by man during the paleolithic period. They are far from showing a general occupation as has been established in southern and western Europe. If the occupation shown by these finds was truly that of the paleolithic man I could not bring myself to believe that it was restricted in this way, and I thought that his implements should be found elsewhere. This was needed to establish a general occupation, and a general occupation must be established before the scientific world would accept the fact as proved.

My residence in Europe and my acquaintance with European prehistoric anthropology, especially that portion relating to the paleolithic period, caused me to be deeply interested in the question of the existence of man during a like period in America, and I began my investigations immediately upon my return. I found in the Museum many objects labeled "Rude and Unfinished Implements of the Paleolithic Type," and I queried whether they were not truly paleolithic. I was answered in the negative, and it was said that they were but the unfinished implements of the Indians; in fact, his *failures* when making the more finished and perfect implements. And it was further said that they were always found in connection, and associated with the more perfect implement. While it was not said that they could not be found under the surface or in gravels, yet it was declared that they had not been so found; on the contrary, all had come from the surface. The argument did not satisfy me, and I pushed my investigations and comparisons. I discovered that certain of the implements displayed in the Museum under the name aforesaid, had been found by Mr. E. P. Upham, my assistant, in times past on the hills around the city of Washington, chiefly those of Piney Branch and Rock Creek. Guided by him I visited the neighborhood and our searches were crowned with such success that in the first afternoon we found a greater number than we could carry home. I have since visited the same places in company with several scientific gentlemen of the Geological Survey, Professors Gilbert, McGee, Holmes, Henshaw, and Mr. DeLancey Gill, whose knowledge and experience were of great benefit. We were aided by Mr. S. V. Proudfit and Mr. E. R. Reynolds, who have pushed their explorations on the Eastern Branch of the Potomac and in the vicinity of the Chain Bridge. These rude implements were found everywhere in profusion.

Comparison is as good a rule of evidence in archæology as in law. I applied it by comparing these unknown and unrecognized implements with those from foreign countries which were recognized and admitted as genuine implements made by man during the paleolithic period in those countries, and as representatives of its civilization. The result was not less surprising than gratifying. My examination proved to me that, though coming from lands however distant, from other continents separated from ours by wide oceans, these were all the same implements. Their identity was complete. Both showed the handiwork of

man, and were undeniably manufactured for the same purpose and representing the same civilization or culture. An examination and comparison of the implements themselves are necessary in order to understand the full force of these statements.

The remarks of Dr. Leidy as to the great number of these implements which he found in the Bridger basin apply with equal force to the bluffs and hills around the city of Washington. The reports of these implements in the Museum, from the District of Columbia, are as follows:

Mr. Shoemaker	22
Mr. Reynolds	221
Mr. Proudfit	50
Mr. Wilson	299
Mr. Upham	34
Mr. Webster	119
Making a total from the District of Columbia of	745

Extending these investigations over the United States, Professor Langley, the Secretary of the Smithsonian Institution, at the instance of this Department, issued in January, 1888, Circular No. 36, already mentioned, and of which the following is a copy:

CIRCULAR CONCERNING THE DEPARTMENT OF ANTIQUITIES.

The Smithsonian Institution desires answers to the following questions concerning that class of American aboriginal stone relics which have been heretofore denominated "rude or unfinished implements of the paleolithic type."

Cuts of some, together with their localities, are herewith given.

Question 1. How many of these rude stone implements have you in your collection?

Question 2. Do you know of any in other museums or collections?

Question 3. Of what material are they made?

Question 4. Where have they been found?

(1) As to locality.

(2) Position, condition, and associated with what objects.

(3) Whether on or under the surface, and if so, at what depth, and in what kind of geologic formation.

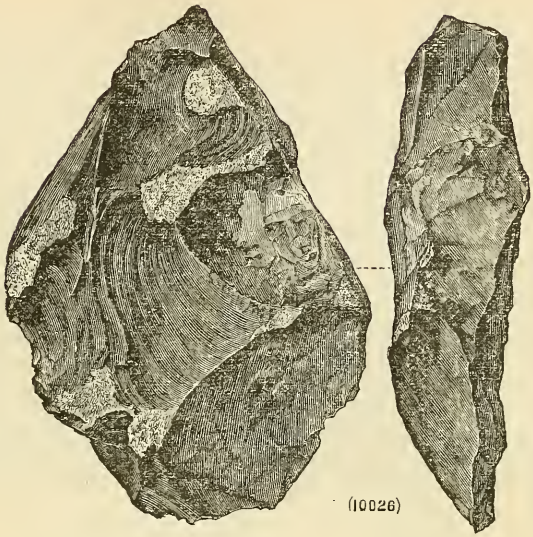
(4) Were they found in mounds, tombs, or other ancient structures.

(5) Were any other ancient implements found with them, and if so, of what kind.

(6) Did their deposit seem to be accidental or intentional.

(7) Have they been described in any publication, and if so, in what, and where can it be obtained.

(8) Can you forward specimens (as many as possible) to this Museum in exchange for publications or duplicate specimens.



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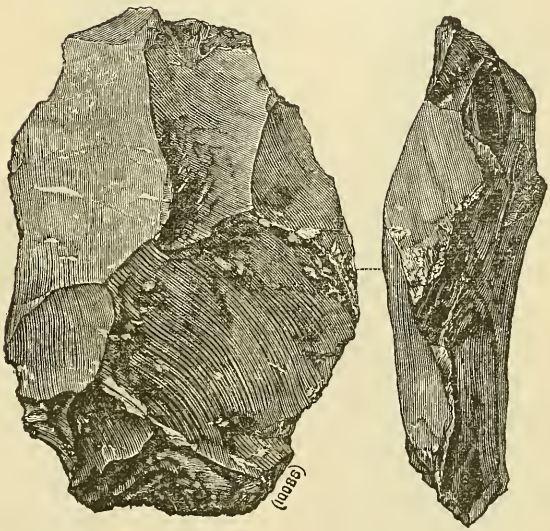
Utah. Dr. F. V. Hayden.



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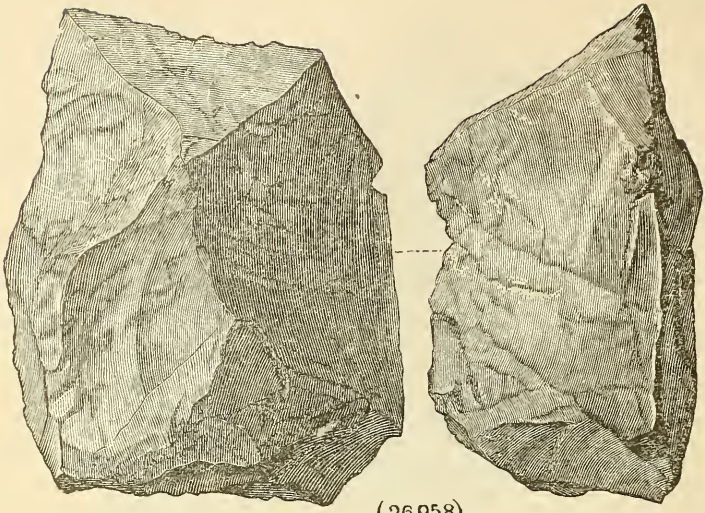
Utah. Dr. F. V. Hayden.



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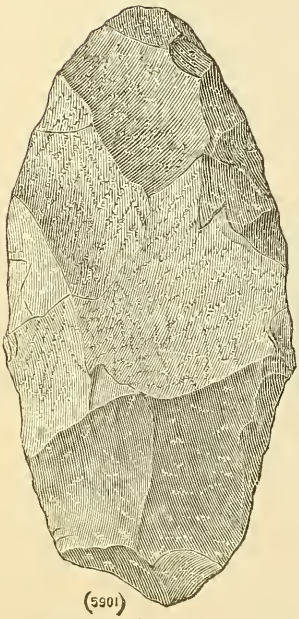
NEW JERSEY. DR. C. C. ABBOTT.



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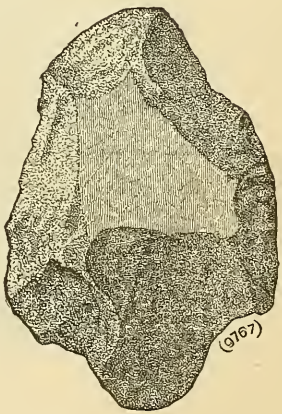
MARYLAND. O. N. BRYAN.



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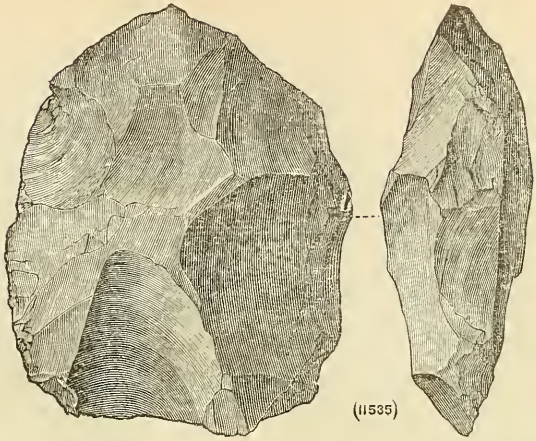
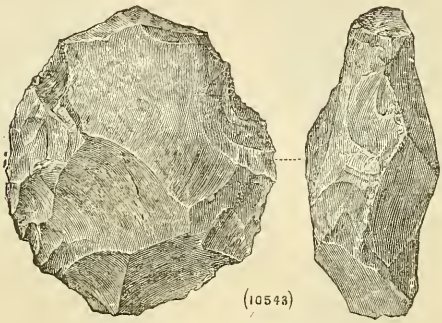


WYOMING TERRITORY ½ DR. JOS. LEIDY.



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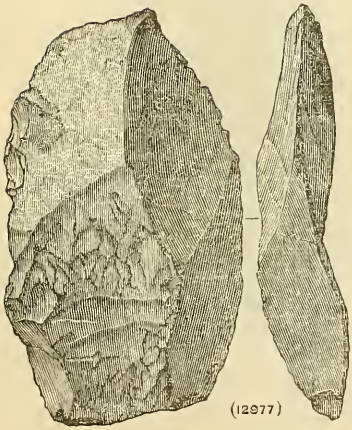
WYOMING TERRITORY. DR. F. V. HAYDEN.



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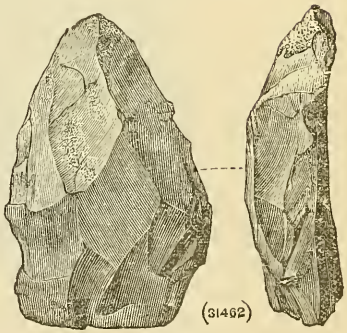
OREGON. PAUL SCHUMACHER.



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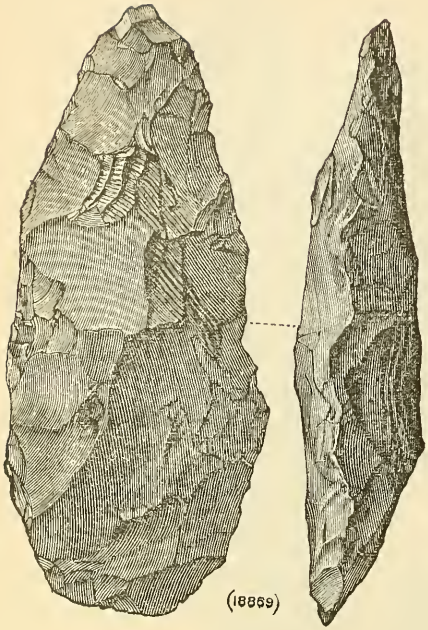
KENTUCKY. F. BRAUN.



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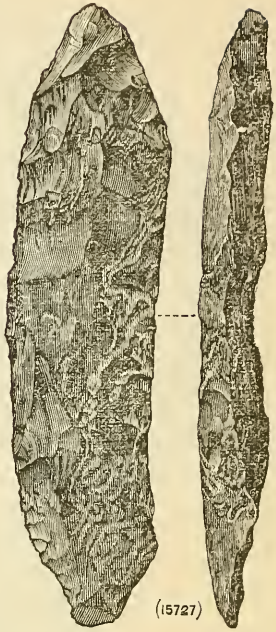
TEXAS. J. VAN OSTRAND.



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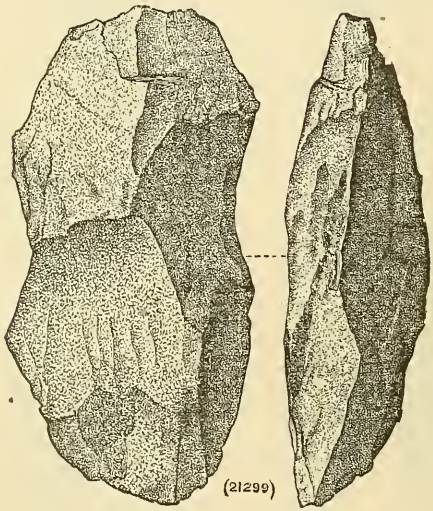
CALIFORNIA. W. G. HARFORD.



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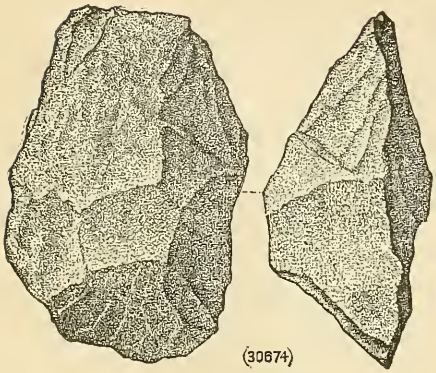
NORTH CAROLINA. HOWARD HAYWARD.



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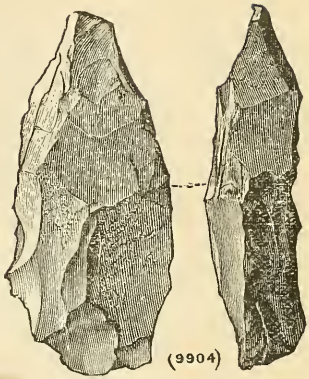
PENNSYLVANIA. A. F. BERLIN.



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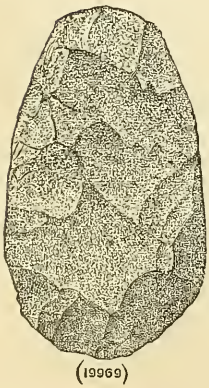
TENNESSEE. J. PARISH STELLE.



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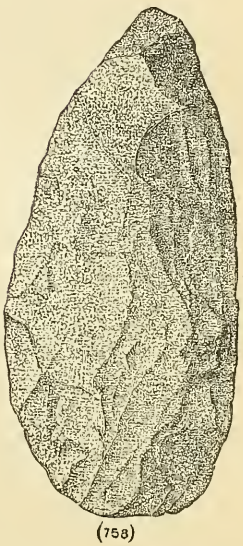
TENNESSEE. W. M. CLARKE.



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DISTRICT OF COLUMBIA. JAMES WEBSTER.

The Museum received two hundred and nine responses. The number of implements reported by the correspondents from twenty-three States and Territories is six thousand seven hundred and sixty-two, but twenty-eight persons report an indefinite number in their collections which is incapable of addition: "A few," "some," "many," "plenty," "hundreds," "a large number," etc. These have not been counted into this aggregate. Thirty-three persons sent one thousand one hundred and eighty-nine of the "rude implements" for which they all received an equivalent in exchange. The objects actually received from those thirty-three persons were nearly double the number mentioned. Those

which from their form, appearance, material, mode of fabrication, were decided not to be paleolithic, have been eliminated.

A tabulated statement showing the results accomplished by the distribution of this circular is here given:

Name of State.	Answers received.	Implements reported.	Number sent.	Original number in Museum.	Total.
Maine	9	196	19	3	218
Vermont	6	70	27	.....	97
Massachusetts	14	79	17	96	393
Connecticut	3	8	.....	19	27
New York	20	530	95	7	632
New Jersey	3	348	2	41	591
Pennsylvania	20	1,000	180	39	1,219
Maryland	4	33	.....	59	92
District of Columbia	8	869	239	298	1,406
Virginia	3	400	26	13	439
North Carolina	2	13	23	5	41
South Carolina	3	.....	.....	.....	.....
Georgia	.....	.....	.....	10	10
Florida	1	20	.....	31	51
Alabama	3	1	8	25	34
Texas	1	.....	.....	6	6
Ohio	29	1,215	71	66	1,252
Indiana	13	489	26	26	541
Illinois	17	189	.....	23	212
Kentucky	2	25	.....	15	40
Tennessee	5	48	30	18	96
Michigan	9	224	6	.....	230
Wisconsin	6	21	.....	6	27
Iowa	3	Few	10	2	12
Missouri	7	335	10	5	350
Arkansas	2	86	.....	4	90
California	5	57	.....	38	95
Minnesota	2	.....	.....	48	48
Oregon	.....	.....	.....	7	7
Kansas	5	.....	.....	.....	.....
Nebraska	1	.....	.....	3	3
Colorado	.....	.....	.....	8	8
Utah	1	.....	.....	25	25
Wyoming	.....	.....	.....	4	4
Arizona	1	.....	.....	.....	.....
Canada	1	106	.....	.....	106
	209	6,762	789	950	8,502

RECAPITULATION.

Number of implements reported		6,762
Number sent to Museum	789	
Number already in Museum	950	
		1,739
		8,501

In the science of prehistoric anthropology almost the sole means of study are the implements and monuments made and used by prehistoric man. To render this study available it becomes of prime importance that we should know not only the locality of the implement or object studied, but also its position, condition, and relation to other objects with which it may be found associated. It is coming to be recognized as the duty of every discoverer, if he would make his find of any value, to note carefully its condition, position, and association with other objects. His failure to do this destroys its principal value.

I have endeavored during the past year to secure such a description of all specimens received. The official catalogues of the Museum are furnished to us with their numbers completed, one line only to each number, and this is subdivided so as to give name, date, locality, donor, etc., which, with the official number, fills the line. It is manifestly impossible to give in this catalogue the description needed to make the specimen appreciated or valued. It is almost, if not quite, as impracticable to give the specimen its proper value if all the information concerning its discovery is allowed to lie in the registrar's files and to be found only there. Therefore I have briefed all letters giving such information concerning the specimens received, putting it in the most concise form possible, which I transmit with this report, to the end that they may be printed with it and so be made accessible to the student, to the public, and to the office.

The following are briefs of these letters. The type Solutreen mentioned refers to leaf-shaped implements, which would in Europe be classed as paleolithic. Whether they are to be so classed in America awaits future investigation. The other paleolithic implements, usually unmentioned in the brief, refer to Chellian implements which are not considered doubtful:

C. M. Sawyer, Mechanics' Falls, Maine, April 2, 1888. Sends sixteen specimens, seven of which are paleolithic (type Solutreen). Material, jasper. Found on the surface of the shores of Sebago Lake and at Raymond, Cumberland County, Maine. Accession 20446; catalogue Nos. 137593–137606.

Prof. G. H. Perkins, University of Vermont, Burlington, Vermont, February 15, 1888. Has many rude implements. Material, bluish-gray quartzite, argillite, hornstone, and some of granite. Found on the surface near streams. Deposit accidental. Sends forty-six specimens, eighteen of which are paleolithic, Accession 20554; catalogue No. 139429.

Prof. G. H. Perkins, University of Vermont, Burlington, Vermont, June 12, 1888. Sends eighteen specimens from Bristol Pond, Monkton. Vermont, four of which are paleolithic. Surface finds. Accession 20734; catalogue Nos. 139659–139665. Has very few larger than the largest of this lot.

Prof. G. H. Perkins, University of Vermont, Burlington, Vermont, July 16, 1888. Sends fifty rude implements, five of which are paleolithic. Found on the surface in the Mississco Valley, northern Vermont, *i. e.*, Swanton and Highgate. Accession 20878; catalogue Nos. 139724–139730.

Peabody Academy of Science, Salem, Massachusetts, February 6, 1888. J. Robinson, treasurer, in charge of Museum. Has a large number of rude implements from 1 to 6 inches in length. Sends seven specimens (paleolithic) from Essex County,

Massachusetts. Material, porphyritic felsite. Found down to 18 inches below the surface. Accession 20159; catalogue Nos. 137610–137616.

Willard Nye, jr., New Bedford, Massachusetts, May 9, 1888. Sends ten specimens; disks of quartz, porphyry, etc. Found on the surface at the west end of Martha's Vineyard Island, Massachusetts, associated with arrow and spear heads, drills, scrapers, and fragments of pottery. Accession 20579; catalogue No. 139439. These probably belong to the shell-heaps, and may not be paleolithic.

Merritt Willis, West Farms, New York City, February 12, 1888. Sends two rude implements (paleolithic) from Trenton, New Jersey, and one from West Chester, New York. Accession 20331; catalogue Nos. 139194–139195.

Dr. A. L. Benedict, Buffalo, New York, March 16, 1888. Sends thirty flint implements (type Solutreen) from Buffalo, New York, and five rude implements (type Solutreen) from Fort Erie, Canada. They were found on the sites of Indian villages associated with other stone implements. Deposit accidental. These rude implements are found in great number all around the falls on both sides. Accession 20365; catalogue Nos. 139291–139292.

F. Roulet, Newark Valley, New York, June 4, 1888. Sends sixteen specimens, fourteen of which are paleolithic (type Solutreen). Material slate, limestone, etc. All found in Pennsylvania, mostly along the banks of the Susquehanna River. Accession 20688; catalogue Nos. 139618–139620.

A. G. Richmond, Canajoharie, New York, June 17, 1888. Sends collection of three hundred and ninety-five specimens, embracing hammerstones, scrapers, and arrow-points (flint and chert), notched sinkers, fragments of pottery, shell, bones, etc., from old Indian village sites in the Mohawk Valley, Montgomery County, New York. Only four of these specimens can be classed as paleolithic. Accession 20784; catalogue Nos. 139667–139720.

Dr. B. D. Skinner, Greenport, New York, February 20, 1888. Sends twenty rude implements (paleolithic) of quartz; found upon the surface over glacial drift in the vicinity of Greenport, Long Island, New York. Accession 20238; catalogue Nos. 139037–139041. These probably belong to shell heaps, and may or may not be paleolithic.

W. W. Adams, Mapleton, New York, February 27, 1888. Sends five specimens (type Solutreen). Material, chert; found on the surface in the vicinity of Mapleton. Accidental deposit. Has no more. Accession 20248; catalogue No. 139150.

W. W. Tooker, Sag Harbor, New York, March 9, 1888. Has one hundred rude implements, majority of quartz, others of slate, argillite, etc.; found on the surface, in shell-heaps, on village sites, and in deposits from 3 to 5 feet in depth. Sends sixteen rude implements (paleolithic), principally of quartz; from the surface and from shell-heaps, in the vicinity of Sag Harbor, New York. Has never found them (rude implements) as described by Dr. Abbott. Has found them at the talus of the bluffs. Rude axes have been found in digging wells at great depths.

Accession 20418; catalogue Nos. 139340–139355. These probably belong to shell-heaps, and may or may not be paleolithic.

Howard B. Davis, Reading, Pennsylvania, February 18, 1888. Sends twenty-two specimens, six of which are paleolithic; found along the Schuylkill River about one mile south of Reading in freshly ploughed fields. Deposit accidental. Accession 20210; catalogue Nos. 139031–139036.

J. M. M. Gernerd, Muncy, Pennsylvania, February 13, 1888. Sends one hundred and fifty specimens and has one hundred and fifty left. These implements (type Solutreen) are from Muncy Valley, along west bank of Susquehanna River. Surface finds. None ever found in mounds. Accession 20191; catalogue No. 139026.

A. Sharpless, West Chester, Pennsylvania, February 6, 1888. Sends three specimens, two of which are paleolithic; found on the surface with chips of quartz on what was evidently an old camping ground near West Chester, Pennsylvania. Accession 20158, catalogue Nos. 137608–137609. Speaks of several nests (*caches*) found in his neighborhood on the Brandywine.

A. Sharpless, West Chester, Pennsylvania, March 30, 1888. Sends a leaf-shaped cutting implement from West Chester, Pa. Not paleolithic. Accession 20429; catalogue No. 139325.

A. Sharpless, West Chester, Pennsylvania, May 8, 1888. Sends thirty-two specimens, ten of which are paleolithic, all found on the surface at West Chester, Pennsylvania. Accession 20603; catalogue Nos. 139444–139447.

D. T. Millspaugh, M. D., Kendall, Pennsylvania, June 22, 1888. Sends a leaf-shaped implement and broken arrow-head from Pennsylvania, and one leaf-shaped implement from New York (not paleolithic). Accession 20907; catalogue Nos. 139738–139740.

D. T. Millspaugh, M. D., Kendall, Pennsylvania, May 16, 1888. Has two rude implements of impure silica found about 3 inches from surface on the bank of Tunnungwant Creek, 1 mile from Bradford, McKean County, Pennsylvania, associated with chippings, the latter, however, not in great enough number to be considered a manufactory. Deposit accidental. He says the locality is rich in mounds and the evidences of Indians.

E. R. Reynolds, Washington, District of Columbia, April 17, 1888. Has hundreds. Sends two hundred and fifty-nine specimens, two hundred and seventeen of which are paleolithic. Material quartz, quartzite, argillite, etc. All surface finds from different localities in the District of Columbia. Accession 20497; catalogue Nos. 139401–139412.

S. V. Proudfit, Washington, District of Columbia, March 17, 1888. Sends one hundred and thirty arrow-heads and one unstemmed spear-head from the District of Columbia. Not paleolithic. Accession 20358; catalogue Nos. 139244–139289.

Ernest Shoemaker, Washington, District of Columbia, February 12, 1888. Has about one hundred rude implements, all from the District of Columbia and neighboring country. Sends thirty-five specimens, twenty-two of which are paleolithic. Material principally of quartzite. Found on the surface. Accession 20175; catalogue Nos. 139007–139010.

Howard Shriver, Wytheville, Virginia, February 13, 1888. Sends two white quartz arrow-heads. Not paleolithic. Accession 20182; catalogue No. 139022.

Nathaniel S. Way, Accotink, Virginia, February 13, 1888. Has about four hundred of quartz and quartzite, found near Accotink on the surface. The implements are small near the river and larger inland. Sends twenty-two specimens, twenty of which are paleolithic. Accession 20185; catalogue Nos. 139028–139029.

Nathaniel S. Way, Accotink, Virginia, April 24, 1888. Sends six rude implements (paleolithic) of quartzite; found on the surface near Accotink, Fairfax County, Virginia. Accession 20507; catalogue No. 139413.

Howard Haywood, Raleigh, North Carolina, March 19, 1888. Has sixty specimens. Sends thirty rude implements, eight of which are paleolithic. All were found on the surface in the vicinity of Raleigh, on Crab Tree Creek, about 50 yards from the shore and about 12 feet above its level, associated with arrow-heads, broken pottery, and chips of flint. Light sandy soil with red clay subsoil. The deposit seemed to be accidental. Accession 20357; catalogue Nos. 139214–139243.

J. A. D. Stephenson, Statesville, North Carolina, February 6, 1888. Has quite a number, principally of quartzite containing some impurities which weathers slightly when long exposed. Found on the surface in Iredell, Alexander, and Catawba Counties, North Carolina. Sends three specimens of rude implements (type Solutreen). Material quartzite; found in *deposits* in Iredell and Alexander Counties, North Carolina. Many deposits of these implements found in this neighborhood; they are generally buried deeper in valleys and slighter on the mountains. No other implements found with them. Deposit intentional. None found in mounds. Accession 20183; catalogue Nos. 139023–139025.

J. A. D. Stephenson, Statesville, North Carolina, March 3, 1888. Sends thirty-four specimens, twelve of which are paleolithic. Material principally of quartzite—found

on the surface near Statesville, North Carolina. Accession 20479; catalogue Nos. 139356–139361.

J. R. Nissley, Ada, Ohio, March 14, 1888. Sends twelve specimens, five of which are possibly paleolithic (type Solutreen). Found on the surface at Red River Spring Creek and Elk Fork, Todd County, Kentucky, and Montgomery County, Tennessee. Accession 20345; catalogue Nos. 139200–139203.

J. Freshwater, Loudonville, Ohio, February 1, 1888. Sent one leaf shaped cutting implement. Not paleolithic. Found on the surface at Loudonville. Lives in a river valley where there is from 150 to 200 feet of drift; never found any worked implements in the gravel or drift. Accession 20189; catalogue No. 139027.

D. T. D. Dyche, Lebanon, Ohio, February 8, 1888. Sends forty-five specimens; all from Warren County, Ohio. Found on the surface, thirteen of which are paleolithic. Accession 20174; catalogue Nos. 138999–139006.

J. A. Stevenson, Akron, Ohio, March 16, 1888. Sends collections of three hundred and eighty-five specimens. Four rude implements (paleolithic) from Summit County, Ohio, and fourteen rude implements (paleolithic) from Juniata County, Pennsylvania. Accession 20371; catalogue Nos. 139293–139324.

Warren K. Moorehead, Xenia, Ohio, February 7, 1888. Has thirty rude implements of flint. Sends ten (paleolithic) implements from the undisturbed gravel, Little Miami River, Fort Ancient, Warren County, Ohio, and ten (paleolithic) from the gravel on the bed of "Old Town Run," 3 miles north of Xenia, Greene County, Ohio. Found 2 or 3 feet from surface, associated with flint flakes. Deposit accidental. Not found in mounds or tombs. Accession 20330; catalogue Nos. 139198–139199.

James C. Wright, Fredonia, Ohio, February 27, 1888. Sends fifty specimens, six of which are paleolithic (type Solutreen). Material flint or burr-stone. Found upon the surface in Licking County, associated with arrow and spear points. A few of the leaf-shaped implements have been found in mounds. Accession 20550; catalogue Nos. 139431–139438.

C. T. Wiltheiss, Piqua, Ohio, March 6, 1888. Sends fifty-seven specimens, principally of flint, seventeen of which are paleolithic (type Solutreen). These implements wash out of the east bank of the Miami River on the bottom lands, from a stratum of yellow clay covered by a layer of black loam 3 or 4 feet in thickness. Accession 20311; catalogue Nos. 139181–139193.

Carey Bell, Utica, Ohio, March 22, 1888. Has quite a number of rude implements, principally of chert or flint. Mostly surface finds, associated with finer (better finished) specimens. Sends twenty-five specimens, six of which are paleolithic. Accession 20413; catalogue Nos. 139326–139332.

H. W. Hanna, Warsaw, Indiana, February 9, 1888. Has several rude implements. Sends one specimen (paleolithic) of flint. Found on the surface in Wabash County, Indiana. Accession 20180; catalogue No. 139020.

W. H. Hanna, Warsaw, Indiana, May 28, 1888. Sends a small rude implement, a scraper, and three arrow-points. Found near the surface upon the bluffs above the bottom lands of the Wabash River, near Warsaw. Not paleolithic. Accession 20717; catalogue Nos. 139656–139658.

G. K. Green, New Albany, Indiana, March 17, 1888. Sends fourteen specimens (paleolithic), from ancient burying-ground at Clarksville, near mouth of Silver Creek, which empties into the Ohio about 1 mile east of New Albany, and is a dividing line between Clark and Floyd Counties, Indiana. Accession 20362; catalogue No. 139290.

G. K. Green, New Albany, Indiana, May 18, 1888. Sends eight rude implements (paleolithic). Accession 20633; catalogue Nos. 139494–139501.

Dr. E. C. Black, Wheatland, Indiana, February 10, 1888. Has fifteen rude implements, found in a *cache* in the eastern part of Knox County, Indiana. Sends one specimen (type Solutreen). Accession 20178; catalogue No. 139018.

W. H. Adams, Elmore, Illinois, February 8, 1888. Sends sixty implements—flakes,

scrapers, cutting implements, etc., from Kitchen Mounds, in Peoria and Knox Counties, Illinois; also a map or chart of these mounds. Nothing paleolithic. Accession 20177; catalogue Nos. 139011–139017.

W. H. Adams, Elmore, Illinois, April 1, 1888. Sends two rude implements (paleolithic) of flint—surface finds from Peoria County, Illinois. Accession 20481; catalogue No. 139339.

James C. Null, McKenzie, Tennessee, April 30, 1888. Has twenty-five rude implements of flint—surface finds. Sends a collection of two hundred and seventy-one specimens from Carroll County, Tennessee, thirty of which are paleolithic. Accession 20545; catalogue Nos. 139414–139428.

C. L. Stratton, Chattanooga, Tennessee, February 17, 1888. Sends box of stone implements from northern Georgia and Alabama (four hundred and sixteen specimens); nothing paleolithic. Accession 20240; catalogue Nos. 139042–139055.

C. A. Thompson, Quincy, Michigan, February 22, 1888. Has a few made of sandstone, slate, and chert; found along the streams and in sandy ground. None have ever been found in mounds. Deposit seemed accidental. Sends eighteen specimens, three of which are paleolithic (type Solutreen). Accession 20353; catalogue Nos. 139205–139213.

Charles Ruggles, Bronson, Michigan, February 15, 1888. Sends three rude implements (paleolithic), also drawings of others in his collection. All found on the surface along the banks of two small brooks in Bronson, Michigan. Accession 20208; catalogue No. 139030.

William H. Sheldon, Climax, Michigan, April 2, 1888. Has forty-eight rude implements. Forty-seven are of flint, one of ironstone. Three were found on the surface. Forty-four were in a nest or *cache*. Not associated with any other objects. Deposit of the forty-four specimens intentional. Sends ten rude arrow and spear heads, etc. Surface finds from Kalamazoo County, Michigan. Nothing paleolithic. Accession 20807; catalogue Nos 139624–139631.

J. E. Gere, Riceville, Wisconsin, May 21, 1888. Sends eighty stone implements—flakes, scrapers, arrow and spear heads, etc., and ten pieces of native copper. All from Wisconsin. Nothing paleolithic Accession 20653; catalogue Nos. 139511–139520.

Horace Beach, Prairie du Chien, Wisconsin, February 6, 1888. Has twenty specimens of flint, some found in mounds and others on the surface. Sends fifteen specimens, none of Chellian type, three Solutreen. Accession 20171; catalogue Nos. 138985–138998.

Dr. F. A. Steinmeyer, Bonaparte, Iowa, May 22, 1888. Sends five paleolithic implements, one large and four small, found in the vicinity of Bonaparte, at a depth ranging from 2 to 5 feet under the soil, which is clay. They were found in their original positions and the deposit appeared to be accidental. Accession 20684; catalogue Nos. 139622, 139623.

Davenport Academy of Natural Science, Davenport, Iowa. W. H. Pratt, curator, June 19, 1888. Sends fifty-two specimens from Iowa and other States and Territories. Five rude implements (paleolithic) from Louisa County, Iowa, and eight small rude implements (paleolithic) from Alabama. The implements from Louisa County are from what is locally designated "the Old Fort Grounds," now and for many years in a corn-field. Forty years ago it was surrounded by an earth-wall averaging 4 feet in height. (See Proc. Davenport Acad. Nat. Sci., vol. 1, p. 109.) Accession 20751; catalogue Nos. 139632–139655.

Marion Crawford, Kahoka, Missouri, February 27, 1888. Sends twenty-seven specimens from Clark and Lewis Counties, Missouri, ten of which are paleolithic. Found on the surface. Accession 20252; catalogue Nos. 139153–139179.

Charles Teubner, Lexington, Missouri, March 3, 1888. Has two hundred rude implements of chert, found on the surface in Boone, Montgomery, Warren, Gasconade, Osage, Cole, and La Fayette Counties, Missouri, principally La Fayette. Sends eleven card photographs representing flint arrow-heads, etc., from Gasconade and other

counties in central Missouri. Nothing paleolithic. Accession 20329; catalogue Nos. 139196–139197.

Dr. W. S. Newlon, Oswego, Kansas, February 8, 1888. Sends flint chips and fragments of leaf-shaped implements, found on the surface near Oswego. Not paleolithic. Accession 20181; catalogue No. 139021.

Dr. W. S. Newlon, Oswego, Kansas, March 16, 1888. Sends two flint cores, sixteen fragments of chipped implements, and one box of chips and flakes found on the surface near Oswego. Not paleolithic. Accession 20460; catalogue Nos. 139376–139378.

Dr. W. S. Newlon, Oswego, Kansas, May 7, 1888. Sends collection of flakes, arrowheads, shells, etc., from the site of an old Indian village at Oswego. Nothing paleolithic. Accession 20581; catalogue Nos. 139440–139443.

Dr. Henry W. Coe, Mandan, Dakota, February 27, 1888. Sends one rude cutting implement from a mound near Mandan, Dakota. Not paleolithic. Accession 20253; catalogue No. 139180.

ABSTRACT OF LETTERS RECEIVED IN ANSWER TO CIRCULAR 36.

Albert I. Phelps, Damariscotta, Maine, February 14, 1888. Has fifteen rude implements. Material, feldspar and porphyry. Found at Revere, Massachusetts, (surface) Penaquid Pond Damariscotta, Maine, and from shell-heap at Friendship, Maine. The implements from Revere were associated with arrow-points, those from Penaquid Pond with rude arrow-points, scrapers, and fragments of pottery, those from the shell heaps with flakes, arrow-points, bone implements, and fragments of pottery.

George A. Boardman, Calais, Maine, February 9, 1888. Has no rude implements.

James E. Knowlton, Damariscotta, Maine, May 5, 1888. Has one hundred and forty-four rude implements of porphyry, jasper, quartz, etc.; found in Lincoln and Knox Counties, on the coast between Kennebec and George Rivers, and on borders of lakes and rivers further inland, also in and beneath shell-heaps and associated with the usual fragments and implements. Sends seventeen specimens from Lincoln County, Maine. These belong to the shell-heaps, and may not be paleolithic. Accession 20612; catalogue Nos. 139448–139461.

"The shell-heaps in this region may be divided into two classes—the recent and ancient. The recent shell-heaps contain objects of European make associated with the implements of the stone age, and the rude pottery in these heaps has pounded shells mixed in with the clay. Shell-heaps of this class where undisturbed are arranged in small mounds resembling cradle knolls and are not over three feet deep. The shell-heaps of the older period vary in depth from three inches to thirty feet. The pottery contained in them has gravel, pounded rock, or mica, mixed in with the clay; it breaks with a shelly fracture, and was made inside a closely woven basket, while that in the recent heap breaks with a spiral fracture indicating that the coil-method was employed in manufacturing it, although most of it, like that from the older heaps, plainly shows the basket marks. With one exception objects of European make have never been found in the heaps of this class. Around and beneath the shallow heaps is a black stratum formed of ashes and decomposed animal and vegetable matter, while the deeper heaps are irregularly stratified from top to bottom. Animal bones, pottery, and implements are more frequently found in these strata than in the shells. The decaying of the branches used by the savages as bedding, the rubbish accumulating around a savage habitation, and finally the decaying of the habitations themselves have, I believe, contributed largely to the formation of these strata in and about the shell-heaps."

A. T. Gamage, Damariscotta, Maine, February 28, 1888. Sent five rude implements. Material, black hornstone and quartz. Found in shell-heaps at McFarland's Cove, on John's Bay in the town of Bristol, on the coast 1 to 6 feet deep, with other stone implements and pottery. Deposit accidental. Also one water-worn implement found on the beach near shell-heap. He has explored the shell-heaps of the county, and

found more of these kind of implements than perfect ones. He has never found any stone tools in or near the shell-heaps that he thought were deposited or buried with human remains, but Mr. Phelps and himself took from a deposit, which was found four miles from the salt water, about one hundred and fifty stone tools of different kinds, all perfect and some very nicely finished. They were mostly celts and spear-heads. Of the five rude implements which he sent four are paleolithic. Accession 20251; catalogue Nos. 139151, 139152.

Aug. C. Hamlin, Bangor, Maine, February 18, 1888. Has no rude implements and knows of none. Thinks he has seen a few similar, but believes them to have been of recent date.

J. L. M. Willis, Eliot, Maine, February 16, 1888. Has five rude implements. One from New Jersey, two from North Carolina, and two from Newbury, Massachusetts. (One of argillite, two of quartz, two of fine granite.)

Joseph Wood, Bar Harbor, Maine, February 7, 1888. Has four rude implements. Gives drawings in outline. No. 1 from Stoneham, Massachusetts; Nos. 2, 3, and 4 from Bar Island, Bar Harbor, Maine.

E. M. Goodwin, Hartland, Vermont, March 1, 1888. Has six or more. Sends outline drawings. Nos. 1 and 3 are flint found on the surface at Fairfield, Indiana. No. 2 is a dark flint found on the surface in Tennessee. No. 4 is of brown flint found on the surface near a mound in Illinois. No. 5 is white quartzite found on the surface near a system of earth-works in Missouri. Other relics were found in close proximity. No. 6 is a fragment of a polished implement of porphyritic stone found in a mound in Fairfield, Indiana, associated with arrow and spear-points, and stone ornaments.

John M. Currier, Newport, Vermont, February 8, 1888. He has gathered these implements in Castleton, Monkton, New Haven, and Lincoln, in Vermont. Nearly all have been donated to the University of Vermont, Vermont Historical Society, and to the Smithsonian Institution. Material, Hudson River limestone, quartzite, and jasper. Those of gray quartzite are the most common, next the Hudson River limestone, and black marble. They are found on the surface. Has found some from one-half to six inches in diameter.

Prof. Henry W. Haynes, 239 Beacon street, Boston, Massachusetts, February 15, 1888. Has a collection of paleolithic implements; 23 from Trenton, New Jersey (five his own find), Dr. Abbott; 2 from Allentown, Pennsylvania (A. F. Berlin), quartzite; 1 from Millbank, Tennessee (A. F. Berlin); 16 from Little Falls, Minnesota (Miss Babbitt), quartz; 10 from eastern Massachusetts (his own find), white quartz; 10 from northern New Hampshire (his own find), white quartz; 1 from Bar Harbor, Maine (his own find), white quartz; 1 from Perkins County, Georgia (his own find), white quartz; 30 from Wakefield, Massachusetts (his own find), brown felsite; 20 from eastern Massachusetts (his own find), brown felsite; 25 from Moosehead Lake, Maine (his own find) green felsite, speckled with white quartz; 4 from Plattsburgh, New York (Dr. D. S. Kellogg); 7 from Washington, District of Columbia (his own find), yellow, quartzite; 1 from Saguenay, Lower Canada; 1 from Castine, Maine (N. S. True), fine grain argillite; 10 from Burlington, Vermont (own find), pink quartzite; atotal of 162.

The green felsite speckled with white quartz, from Moosehead Lake (twenty-five specimens), is the same material of which most of the Indian implements are made, which he found in the shell-heaps in the southeastern part of Maine, at Frenchman's Bay and elsewhere. Has described his white quartz implements in Proc. Boston Soc. Nat. Hist., February 1, 1882, vol. XXI, p. 382. Many of these were found in "hard pan" or glacial till, 3 or 4 feet below the surface, and where no Indian implement could be found. But has found some associated with Indian implements. Their deposit seems to have been always accidental.

Professor Haynes, of Boston, read a paper, February 1, 1882, before the Boston Society of Natural History, vol. XXI, page 382, in which he reports the finding of similar implements in various localities in New

Hampshire, Vermont, and Massachusetts. He enlarges (and very properly to) upon his extended experience with the paleolithic implements of the world. He expresses, without hesitation or doubt, that these implements were the intentional work of man; that they were not made by, nor did they belong to the Indian of that country. He says, page 385:

But no such traces of Indian occupation has the most painstaking investigation revealed to me in many places where I have found the new types of rude implements in considerable quantities.

Again, page 388:

It will be noticed that all of these rude and simple tools have been fabricated out of the hardest, heaviest, toughest kinds of rocks that the region where they are found can furnish. They are commonly made of white or milky quartz, or quartzite, felsite, or of some very compact variety of syenite or granite. Often they have been fashioned out of a pebble from the glacial drift, which still retains a portion of its original surface or crust. This circumstance proves that they must necessarily be post-glacial in date, whether they have been found deeply bedded in the earth or upon the surface of ploughed fields.

Professor Haynes sums up his argument:

I infer the former existence in New England of a race of men different from and less advanced than the Indians, because I have found in many localities, where none of the ordinary traces of Indian occupation could be discovered, a large quantity of stone implements of ruder types and coarser make than those habitually used by them. Whether these are actual relics of primeval man, *i. e.*, of a race who lived long anterior to the Indians, or whether they are the work of the degraded descendants of an earlier people who had succumbed to the Indians, I do not undertake to pronounce.

The difference between Professor Haynes and myself is that he is unwilling to attribute these implements to a paleolithic period. He insists that to be evidence of this the implements in question should be found in the river gravels, or in a corresponding geologic stratum. I know that in many countries where the existence of a paleolithic period is undoubted, the implements (principally Chellian or of the earliest epoch) have been found on the surface, and they are identified as such, by comparison with others found in the river gravels. My experience with these implements in the two continents justifies me in identifying those found in America as belonging to the same stage of culture to which the Chellian implement of France and England belonged, and, consequently, enables me to call them paleolithic implements.

James J. H. Gregory, Marblehead, Massachusetts, February 6, 1888. Has found *caches* containing half a peck one foot below surface.

J. F. Frisbie, M. D., Newton, Massachusetts, February 16, 1888. Has none. Newton Natural History Society has a few. They are found quite abundantly in this vicinity. Many Indian relics found in this city and adjoining town—Watertown.

Samuel Henshaw, Boston, Society Natural History, Berkeley street, Boston, Massachusetts, February 9, 1888. Has no rude implements. "Our collection was presented to the Museum of American Archæology and Ethnology at Cambridge in 1867."

Samuel A. Green, Massachusetts Historical Society, 30 Tremont street, Boston, Massachusetts, February 14, 1888. Has a collection of rude implements, found at Groton and along the bank of the Nashua River.

E. J. Rockwood, Worcester, Massachusetts, February 27, 1888. Has no rude implements. Will spend next summer examining the valley of the Connecticut River near Mount Holyoke, and if successful will send specimens.

Jesse Fewkes, post-office box 509, Newton, Massachusetts, February 18, 1888. Has two hundred rude implements chiefly from Essex and Middlesex Counties, Massachusetts. Has many from shell mounds. Speaks of grooved ax found in moraine-deposit.

Frank A. Bates, Boston, Massachusetts, February 23, 1888. Has no rude implements, and refers to F. A. Adams, 233 State street, Boston, Massachusetts.

F. A. Adams, Boston, Massachusetts, February 23, 1888. Response received May 21, 1889. Has about five hundred specimens; about one-fifth are perfect arrow and spear heads, of porphyry, quartz, flint, obsidian, agate, etc., from Concord and Plymouth, Massachusetts, and various States of United States; deposits accidental, and found on or near the surface, associated with other neolithic implements.

MEM.—It is evident that this gentleman, like some others, has mistaken the implements inquired about, and so has misapprehended the questions.

Irving Holcomb, West Granby, Connecticut, February 8, 1888. Has five. Found a nest or *cache* containing a peck, 3 by 7 by ¼ inches, 2 feet under ground. Such as described in Abbott's Primitive Industry, page 195.

Irving Holcomb, West Granby, Connecticut, February 15, 1889. * * * "The rude stone implements I wrote about were found as follows: One on the bank of Salmon Brook, in the town of Granby, Connecticut. The specimen is of flint, and was found on a terrace. All other chips and unfinished specimens I have were found on the surface in plowed fields—all in different places. I have one rare specimen which is finished and was found about 12 feet below the surface nicely packed in with about twenty others of same shape, but different sizes, near Salmon Brook, on a place where arrow-heads were made." Has but one, which he bought.

G. L. Faucher, West Winsted, Connecticut, February 9, 1888. Has none and knows of none. Will explore the State in the spring and will notify us if he finds anything.

Rev. Jeremiah Zimmerman, Syracuse, New York, February 15, 1888. No information.

Rev. W. M. Beauchamp, Baldwinsville, New York, February 7, 1888. Has a collection. Will answer more fully later.

J. H. Norton, Plainville, New York, March 2, 1888. Has about two hundred, all of chert; found on the surface in Onondaga, Cayuga, and Oswego Counties. Has twenty-eight implements from a *cache* of fifty turned up by the plow. None in mounds. Deposit accidental.

Dr. Julius Pohlman, Museum Natural Science, Buffalo, New York, February 7, 1888. Has none in the museum and knows of none in the vicinity.

Edgar J. Klock, East Schuyler, New York, April 2, 1888. Has very few, in fact but one that is well defined, which he obtained from J. R. Nissley, Ada, Ohio.

Prof. Frederick Starr, Auburn, New York, June 26, 1888. Has one rude implement of argillite, found on the banks of the Delaware River, eastern Pennsylvania, 7 miles above Easton, near mouth of Martin's Creek. Probably a surface find. Arrow-heads of same materials and much affected by weather are not uncommon there.

D. S. Kellogg, M. D., Plattsburgh, New York, February 14, 1888. Has many rude and unfinished implements, but none that he considers as real paleoliths. None found in river drift. Can duplicate all our specimens.

George R. Howell, Albany, New York (no date). Has none, but thinks there are some in the New York State Museum in Albany. We should apply there.

C. M. Boughton, East Schuyler, New York, February 16, 1888. Has no collection, having sold it. But he has found these specimens in different places in the western part of this State. Will collect specimens if we wish from a sand-hill near.

Norman Cole, Glens Falls, New York, February 6, 1888. Has two hundred from this vicinity. In the valley of the upper Hudson, foot of Adirondacks, and near shores of lakes and streams.

James Angus, West Farms, New York City, February 10, 1888. Has some rude and unfinished implements from West Chester County, New York, and some from New Jersey. Gives large outline drawings.

C. H. Chapman, 364 and 366 Broadway, New York, February 14, 1888. Has none. Mr. J. Harris, Waynesville, Ohio, has them.

Arthur Hollick, recording secretary Torrey Botanical Club, Columbia College, New York City, February 15, 1888. Has none.

Natural Science Association of Staten Island, New Brighton, New York, February 16, 1888. No rude implements. Do not know of any having been found in this county; all thus far discovered belong to the shell-mounds.

Dr. C. C. Abbott, Trenton, New Jersey, but written at Cambridge, Massachusetts, February 15, 1888. (Answers for Professor Putnam.) Has thousands of implements of paleolithic character from various localities. Has the Abbott Collection from the Trenton gravels, but can give no approximation as to number. Would take a month to make a list.

Samuel Jackson, Freehold, New Jersey, March 19, 1888. His collection is in the Peabody Museum at Cambridge. Has three specimens like No. 10086—Utah, several like No. 5931—Maryland; found under the roots of a tree 18 inches deep in Monmouth County,—possibly a *cache*. He mentions a find containing a large number of specimens standing perpendicular and arranged in circles. One or two of these are in the Lockwood Collection at Cambridge, Massachusetts.

Frank D. Andrews, Vineland, New Jersey, February 18, 1888. Has found many of hornstone in Schoharie County, New York, but has sold his collection. Will try and collect some this summer.

Robert H. Engle, Moorestown, New Jersey, February 20, 1888. Has fifty. Material greenstone and quartz. Found on the surface in Watauga County, North Carolina, Burlington County, New Jersey, Summit County, Ohio, and Davidson County, Tennessee. Collection packed up; when unpacked will send duplicates.

Andrew Sherwood, Mansfield, Pennsylvania, March 27, 1888. Can not say how many rude implements he has in his collection. Writes about the "Puzzling Cobbler."

T. M. Nesbit, Lewisburgh, Pennsylvania, June 20, 1888. Has a great many rude stone implements of flint, found in the drift and bowlder clay.

A. F. Berlin, Allentown, Pennsylvania, February 11, 1888. Has twelve, eleven of quartzite, one of yellow jasper; found on the surface in the city of Reading, Pennsylvania, on the banks of the Schuylkill, on islands, and five or six from Allentown, Pennsylvania. See article in American Antiquarian, vol. I, No. 1, page 10, and article by Dr. W. J. Hoffman, American Naturalist, Vol. XIII, No. 2, page 108.

S. S. Rathvon, Lancaster, Pennsylvania, March 22, 1888. Has about three hundred and fifty, including all kinds. Material gray quartzite, white quartz, chert, jasper, hornstone, etc. Found along the banks of the Susquehanna and Conestoga Rivers and adjacent creeks and in plowed fields. Also found with fragments and chips, as if there had been places of manufacture. Have been described in the Transactions of the American Philosophical Society, 1878, pages 351–368.

G. W. Brodhead, Water Gap House, Delaware Water Gap, Pennsylvania, February 10, 1888. Has a number of hornstone, chert, yellow and brown jasper, silicious slate, and white quartz; found north and south of the Gap, always in the valley and on the surface. None found in mounds. Hornstone is found 1 and 2 miles north of Water Gap in a bed of Oriskany sandstone, yellow and brown jasper, from quarry near Easton, 24 miles south. Franklin Peale used to gather them twenty years ago.

H. L. Simon, Lancaster, Pennsylvania. Has a collection, but it is packed up. The material is flint and jasper; found on the surface at Mill Creek and Tumbury (?) Hill, on Susquehanna River.

Charles H. Stubbs, M. D., Wakefield, Pennsylvania. Has twenty-four. Sent *many* to Lehigh University, Pennsylvania. Peter Hiller, Conestoga Center, Lancaster County, has a collection. Material trap rock and sandstone; found on the surface at Caldwell's Island, Susquehanna River, and near Gap, in Lancaster County.

Oliver D. Schock, Hamburgh, Pennsylvania, April, 1888. No information.

G. S. Lamborn, Liberty Square, Pennsylvania, February 9, 1888. Has seven specimens of hard brown sandstone, black trap, quartzite, gray and black jasper. Surface finds from the banks of rivers and in plowed fields. No duplicates.

George S. Lamborn, Liberty Square, Pennsylvania, February 7, 1889. Since writing last has come in possession of a stone implement—very hard—of ash color, with small end somewhat broken. Inclosed a sketch. The dotted lines were probably the original edge, tolerably sharp. The outside lines were drawn looking at it the broad way; the inside are looking against the edge. The sketch is full size. He has never before seen one like it. It was found at McCall's Ferry, Lancaster County, Pennsylvania.

Rev. W. M. Taylor, Mount Jackson, Pennsylvania, April 12, 1888. Has but few rude implements. Will look for some this summer.

Norman Spang, Etna, Pennsylvania, February 6, 1888. Has had many hundreds.

F. W. Brown, Glen Rock, Pennsylvania, February 7, 1888. Has none and knows of none.

C. John Hexamer, 419 Walnut street, Philadelphia, Pennsylvania, February 7, 1888. Has none.

S. H. Zahm, Lancaster, Pennsylvania, February 27, 1888. Has six hundred rude implements, principally of gray stone or trap rock, white quartz, jasper, and flint, found on the banks of the Susquehanna River and in plowed fields in Pennsylvania and Maryland, and in Florida on the banks of a lake, associated with arrow and spear points, axes, etc. Deposit seemed accidental. Has some which he would exchange for objects not in his collection.

George H. Clapp, Pittsburgh, Pennsylvania, February 7, 1888. Has thirty of argillite and flint, found on the surface in the Ohio River Valley, 13 miles below Pittsburgh, associated with chips and finished arrow and spear heads. Deposit seemed accidental.

I. S. Geist, secretary Natural History Lyceum, Marietta, Pennsylvania. (No date.) Has none.

J. D. McGuire, Ellicott City, Maryland, February 9, 1888. Has about three hundred of quartz or quartzite, found on the Eastern Branch Potomac River, District of Columbia; Patapsco River near Relay, Baltimore and Ohio Railroad, Maryland; South River Neck, Anne Arundel County, Maryland, and a few from his farm, Howard County, Maryland. Found on surface at high flood-line of these streams. Has a *cache* of twenty from Anne Arundel County. Ten feet away was another *cache*. One *cache* of one hundred; one of twenty-six. All of the *cache* implements found near oyster-shell heaps.

MEM.—May not these belong to the prehistoric man who made the shell heaps? There are believed to have been two epochs of prehistoric culture represented in the kjoekenmoddings of Denmark. The shell heaps of America should be carefully examined for evidences of paleolithic man or for an earlier epoch than the neolithic period.

O. N. Bryan, Marshall Hall, Maryland, February 23, 1888. Sent a large number to the Smithsonian Institution last spring.

E. Stanley Gary, Baltimore, Maryland, February 6, 1888. No information.

Otis Bigelow, Avenel, Maryland, February 8, 1888. Has already deposited his collection in the Smithsonian Institution. Knows of workshop on the Mattapony in Guineys, Caroline County, Virginia.

Alexander C. Black, Army Medical Museum, Washington, District of Columbia, February 10, 1888. Has none. Has given all his specimens to the Smithsonian Institution. All were surface finds from Randolph County, Indiana. Never found in mounds.

Albert S. Gatchet, Washington, District of Columbia, February 7, 1888. Has none. Sends lists of museums in Switzerland.

Dr. H. C. Yarrow, Washington, District of Columbia, February 6, 1888. Has sent his circular to William Hallet Phillips, esq., of Washington.

John J. Hayden, 1325 K street, Washington, District of Columbia. No collection.

George H. Moran, M. D., Morgantown, North Carolina, February 23, 1888. Has none, but could find. Will seek. Has sent objects—"Gila monster"—to Professor Baird.

G. B. Lartique, M. D., Blackville, South Carolina, February 11, 1888. Has none.

S. E. Babcock, Chester, South Carolina. Has none.

J. C. Neal, M. D., Archer, Florida, February 10, 1888. Has twenty or more specimens of stone darts. A mound was opened on Tallapoosa River, farm of William R. Jordan, by a freshet. Large quantities of pottery, skulls, implements, etc., of silver and bronze were found.

Prof. N. T. Lupton, Auburn, Alabama, March 12, 1888. Has none.

C. M. Luttrell, Oxford, Alabama. Has none. A private collection at Taladega, Alabama, is for sale; owner dead.

J. P. Stelle, Mobile, Alabama, March 19, 1888. Does not know of any rude implements. Has lately been along the Gulf coast in Baldwin County, Alabama, and found the region very rich in aboriginal remains; two or three different races seem to be well represented. There are many large mounds, none of which seem to have been explored. The finest pottery he has yet met with is there; light and well baked.

Prof. G. F. Wright, Oberlin Ohio. Has four from Dr. Abbott.

E. T. Nelson, Delaware, Ohio. Has six hundred rude implements of flint; a large proportion were found in a single pocket or *cache* near the dividing line of Knox and Coshocton Counties in this State.

M. C. Read, Hudson, Ohio, February 7, 1888. Found about seventy-five mingled with animal bones and fragments of pottery in a rock shelter in Boston township, Summit County, Ohio. See Smithsonian Institution Report 1879, page 439.

G. W. Hornisher, Camden, Ohio, February 14, 1888. Has several paleolithic implements; never counted them; material, chert; found on the surface along the east branch of White Water River.

D. F. Appy, Granville, Ohio, April 28, 1888. Has sixty-three rude implements of flint or hornstone; found mostly on the surface in Licking County, but have found twenty-two in mounds within a radius of 4 miles of this place.

MEM.—But these are not paleolithic.

S. M. Luther, Garrettsville, Ohio, March 5, 1888. Has sixty rude implements, chiefly of chert; a few of quartzite; nearly all found on the surface. There are quite a number of what Dr. Abbott terms "Turtlebacks." All found within a radius of 20 miles of this place.

Henry W. Hope, Paint post-office, Ohio, June 5, 1888. Has twenty rude implements of flint or other fine-grained stone; found on the surface in Highland County, Ohio, and not associated with any other relics.

Robert Clarke, Cincinnati, Ohio. Has none.

J. F. Henderson, Newville, Ohio, March 15, 1888. Has no information.

W. M. Cunningham, Newark, Ohio, April 10, 1888. Has twenty-five rude implements, principally of flint; found on the surface and in mounds or earth-works in Licking County, Ohio, associated in some cases with arrow and spear points, axes, etc. Deposits apparently both accidental and intentional. Collection not in shape for exchanges.

John P. McLean, Hamilton, Ohio, February 23, 1888. Has a few of dark blue chert; found on the surface in Butler County, Ohio. In section 24, Hanover township, of this county, is a field where great numbers have been found. "If you request will try and find some more."

Dr. W. B. Rosamond, Milnersville, Ohio, February 10, 1888. He will send fifty or seventy-five found here on the surface. Will exchange for publications.

George W. Dean, Kent, Ohio, February 8, 1888. Has thirty-one rude implements of chert, from 3 to 4 inches in length by 1½ to 2¾ in width by ½ to 1 inch in thickness. From Trumbull, Portage, and Summit Counties, Ohio.

Dr. Herbert Twitchell, Hamilton, Ohio, March 28, 1888. Has nothing paleolithic. Sent tin-type of large spear-head.

A. P. Pease, Massillon, Ohio, March 24, 1888. Has ninety rude chipped implements of colored chert, varying in length from 2 to 5 or 6 inches, given him by farmers who plowed them up. Can exchange twenty for publications on this subject. Expects to get a *cache* of flints, found while digging a ditch. He has the largest private collection in this county (Stark), numbering over one thousand specimens, which he will sell for $500 cash.

I. H. Harris, Waynesville, Ohio, February 11, 1888. Has two or three hundred "*chips* and unfinished implements." All from Fort Ancient.

R. T. Manning, Youngstown, Ohio, March 5, 1888. Has twelve rude implements of flint; found in southern Ohio.

James H. Smith, Licking County, Pioneer Historical and Antiquarian Society, Newark, Ohio, February 8, 1888. Has none and knows of none.

Horace P. Smith, custodian Cincinnati Society of Natural History, 108 Broadway, Cincinnati, Ohio, April 10, 1888. Has but a small number of these implements in the collection. Cannot be sent for verification without the action of the executive board of the society.

John H. Lemon, New Albany, Indiana, February 14, 1888. Writes from Escondido, California. Has one hundred paleolithic implements of white, red, and gray flint; found on the surface near falls of the Ohio.

T. L. Dickerson, Fairfield, Indiana, February 13, 1888. Has many of these rude implements of chert, sandstone, sometimes of bastard granite, and striped slate; found on the surface near springs, camp sites, etc., and associated with broken implements and chips, indicating shops and manufactories. Deposit accidental, except where *cached*.

E. L. Guthrie, Adams, Indiana, February 20, 1888. Has a few very fine specimens (not paleolithic), found on the surface in this county (Decatur), Indiana. Sends many tracings of fine implements. Will not part with them—but gladly loan for comparison.

William W. Borden, New Providence, Indiana, March 23, 1888. Has quite a large collection of stone implements of various kinds. Has purchased several cabinets. Has the collection of the late Dr. James Knapp, of Louisville, Kentucky. Will forward some specimens soon.

C. S. Arthur, Portland, Indiana, March 20, 1888. Has seventy-five of flint; found on the surface in different localities in Jay County. A nest, or *cache*, of sixty were uncovered by the plow about 5 miles from here. Another lot was found in Adams County, buried in sand. They have never been described.

E. Pleas. Dunreith, Indiana, February 10, 1888. Has one hundred rude implements. Can spare thirty or forty from Van Buren County, Arkansas, and thirty from Henry County, Indiana.

Charles H. Bryan, Muncie, Indiana, February 9, 1888. Has a number found on the surface in Logan and Hancock Counties, Ohio, and Jay County, Indiana. Has some like No. 768 and No. 8904. Could collect fifteen or twenty specimens to send. Has some which he will give.

John W. Linck, Madison, Indiana, February 17, 1888. Don't know anything about paleoliths, but Jesse Wagner has a petrified head of a buffalo.

William Robertson, Farmland, Indiana, March 20, 1888. Has over one hundred, mostly of granite; found on the surface in Randolph County, Indiana.

MEM.—Surely not paleolithic.

D. A. K. Andrus, Rockford, Illinois, February 7, 1888. Has none and knows of none.

George E. Sellers, Bowlesville, Illinois. (No date.) The rude unfinished implements are very abundant in southern Illinois, more so in the more recent out-door workshops than in the mounds or the shops connected with them, and, in most cases, appear to be modified cores.

Dr. Merit L. Saunders, Thompson, Illinois, February 8, 1888. Will send arrow-points, chips, etc.

H. S. Hackman, Peru, Illinois, February 26, 1888. Has but few. His collection consists of higher finished implements. Has a steel spear found in a mound. Believes discoidal stones were used as mortars—has one with pestle fitting in it.

R. T. Miller, South Bend, Indiana, March 9, 1888. Has about one hundred rude implements; found on the surface near this place, in isolated localities. Sends photograph of image carved from gray sandstone.

C. L. Obst, Pittsfield, Illinois, March 20, 1888. Has a few rude implements of white and pink flint and jasper. Surface finds. Ten years ago found one of them in a drift-bed not less than 75 feet in height, in Calhoun County, Illinois. Never found any in mounds, tombs, Indian graves, or ancient structures of any kind.

George Newcomer, Franklin Grove, Illinois, March 2, 1888. Has twenty-four rude implements; twenty of white chert found on the surface in Whiteside County, and four of quartzite from Carroll County, Illinois.

John Brady, Aledo, Illinois, February 11, 1888. Has forty-five paleolithic implements of flint, some of which are light colored, others are blue and gray; found on the surface in Mercer County, Illinois.

E. H. Hamilton, Petersburg, Illinois, February 22, 1888. Has forty or fifty rude implements of white, yellow, and dark blue flint; found on the banks of the Sangamon River, associated with flint chips, broken pottery, etc. Identical with Nos. 5900, 9767, 11535.

William McAdams, Alton, Illinois, February 12, 1888. Has a number; found in river gravels alongside of Devonian and Silurian fossils.

John B. Tscharner, Champaign, Illinois, Feb. 11, 1888. Has six rude implements of white and dark flint; found on the surface in Washington County, Illinois, associated with flint arrow and spear points. Deposit seemed accidental.

D. F. Hitt, Ottawa, Illinois, February 27, 1888. Has very few; never thought them worth saving.

M. Tandy, Dallas City, Illinois, March 19, 1888. Has three rude implements of flint and others of various kinds, amounting to twenty-five specimens; found on the surface in this vicinity. Has, with very few exceptions, sent all the results of his collecting to the Smithsonian Institution.

Lawson S. Bliss, Dallas City, Illinois, February 13, 1888. Has a number of rude and unfinished implements. Has a large collection of arrow and spear heads, stone axes, etc. Is adding to his collection with intent to present to the Smithsonian Institution. Look at Mr. Tandy's collection already presented. Many mounds here.

James Shaw, Mount Carroll, Illinois, February 10, 1888. Has sent rude specimens to the Smithsonian Institution. Will send more in the early spring and summer.

W. H. H. King, Jacksonville, Illinois, April 25, 1888. Has one hundred implements of chert; found mostly on the surface in Morgan, Calhoun, and Pike Counties, Illinois. Forty specimens were taken out of a pocket or *cache*.

Dr. J. F. Snyder, Virginia, Illinois, April 30, 1888. Has nearly one hundred rude implements of white flint, found on the surface in Cass County, Illinois; also about thirty rude flints from Schuyler County, Illinois, and eight specimens somewhat resembling the District of Columbia specimens figured, of black slaty quartzite, plowed up in one deposit. Several flints from Saint Clair County, Illinois; ten of white cherty quartzite from Pettis County, Missouri; fifteen from Jefferson County, Missouri; eighteen of brown vitreous flint from Travis County, Texas; nine of pink and white novaculite from Garland County, Arkansas.

John E. Younglove, Bowling Green, Kentucky, February 9, 1888. Has twenty or twenty-five rude implements principally of blue flint, found in this region on the

surface, not in mounds. They are not regarded as valuable. Gave Professor Ward, of Rochester, forty specimens. Sends photograph of human bone (femur) pierced with flint arrow; highly interesting specimen.

J. G. Cisco, Jackson, Tennessee, February 9, 1888. Has twenty implements of gray quartz, most of them found on the surface (a few from mounds) in Madison County, Tennessee.

Benjamin F. Bush, Grand Blanc, Michigan, February 18, 1888. Has many pieces like illustrations in circular 36.

Miss F. E. Babbitt, Coldwater, Michigan, February 21, 1888. Has a large number of specimens which are misplaced or lost. Material, quartz. They are found in the gravels at Little Falls, Minnesota. Will try and get some this summer.

F. C. Clark, A. B., 42 Madison street, Ann Arbor, Michigan, February 15, 1888. Has some rude stone implements resembling those in circular 36. One from sand and gravel pit 12 feet under the surface, looks like "bath brick" rudely flaked. Studied archæology for ten years under Professor Winchell.

R. H. Tremper, M. D., Albion, Michigan, February 9, 1888. Has about one hundred and fifty rude implements.

N. Y. Green, Battle Creek, Michigan, March 16, 1888. Has twenty rude implements of flint, slate, and a kind of sandstone or sandy slate. All found on the surface in that locality. Drift formation.

Charles E. Barnes, Lansing, Michigan, January 9, 1888. His collection is boxed at Battle Creek. Has not seen it for four years.

C. L. Mann, 27 Erie street, Milwaukee, Wisconsin, February 6, 1888. All our collections contain them, but they are considered of small value. Has forty or fifty copper implements for sale. Will send photographs. They were uncovered by a storm—cyclone.

E. L. Brown, Durand, Wisconsin, February 17, 1888. Has one of bluish hornstone; found on the surface. He knows a Methodist preacher who has a collection of seventy-five. Does not know where he is. They were plowed up and said to have been placed on their edges close together.

W. M. Wheeler, Milwaukee, Wisconsin, May 4, 1888. Custodian of Public Museum. Has twelve rude implements of flint in the Museum collection. Surface finds. Will not part with any.

John Hume, Eglinton Place, Davenport, Iowa, February 25, 1888. Wants more time to examine the authorities.

Thomas J. Tidswell, Independence, Missouri, April 2, 1888. Has thirty rude implements of dark blue and gray flint; found on the surface in Jackson County, Illinois, associated with scrapers, perforators, hammer-stones, arrow-points, etc. Deposit seemed accidental. Will send twelve or fifteen.

Charles J. Turner, Brunswick, Missouri, March 20, 1888. Has a few mostly of flint. Some from mounds, some from the surface.

George J. Engelman, M. D., 3003 Locust street, St. Louis, Missouri, February 7, 1888. Has a large number of rude implements of red brownstone similar to porphyry. Surface finds from southeast Missouri. Deposit accidental. No one values them.

Sid J. Hare, C. E., Kansas City, Missouri, April 1, 1888. Has twenty rude implements of flint; found on the surface, in plowed fields, associated with arrow-points and stone axes, in the vicinity of Kansas City. Deposit seemed accidental. None found in mounds. Will send specimens next fall.

G. C. Broadhead, Columbia, Missouri, February 9, 1888. Has twenty of white chert, hematite, and porphyry. Surface finds from Missouri, Kansas, and Texas. Will not part with them.

W. Albert Chapman, Okolona, Arkansas, February 13, 1888. Has fifty points, from crude to perfect, also masses of chipped material, such as hornstone, flint, lydian stone, jasper, transparent quartz, quartz (various shades of white) gneiss, and mica schist. The specimens were found on the surface and down to 6 feet below, singly, and associated with chippings, broken and unfinished points, and other tools or im-

plements, in Clark, Nevada, Pike, Howard, Sevier, Polk, Hot Springs, and Montgomery Counties, Arkansas.

R. R. Smith, Fordyce, Arkansas. Has several dozen of rude and unfinished implements of flint of various colors. Found on the surface all over the country, but mostly near creeks and rivers, and also in mounds. Other objects found with them.

J. L. McInnis, College Station, Texas. Gives no information.

Dr. H. H. Thorpe, Liberty Hill, Texas, February 11, 1888. Has none. Has heard of but never gathered them. Has some mound relics which he will forward.

Stephen Bowers, San Buenaventura, California, April 18, 1888. Has fifty of chert, quart, agate, jasper, chalcedony, obsidian, porphyry, and basaltic rocks; found on the surface on old village sites, and sometimes buried with mortars, pestles, bowls, pipes, spear-points, and shell and bone implements. Only occasionally deposited with the dead.

Mrs. R. F. Bingham, corresponding secretary of the Society of Natural History, Santa Barbara, California. Has none and nothing similar. Has mortars, arrows, etc., found in graves—here and on adjacent islands.

H. F. Emeric, auditing department, Wells-Fargo Express, San Francisco, California, February 24, 1888. Has no collection. Knows the implements; material black flint; found all over California.

E. J. M. Knowlton, Big Lake County, Minnesota, February 20, 1888. Has nothing.

William Middagh, Rollag, Minnesota, March 6, 1888. Has nothing.

George W. Seymour, Taylor's Falls, Minnesota, February 16. Has none, but knows of mounds in his neighborhood which could be opened.

A. F. Davidson, Croston, Oregon, April 8, 1888. Has nothing.

William Cuppage, Winfield, Kansas, February 23, 1888. Has no rude implements. Sent his collection of stone implements to his sister in Ireland and his last copper ax to the Smithsonian Institution.

A. R. Bodley, Ohio Township, Franklin County, Kansas. Has two hoes and a pestle; nothing else. They are now in the University, Ottawa, Franklin County, Kansas.

T. M. Shallenberger, Bradshaw, Nebraska, February 9, 1888. Has very few of paleolithic type. Will forward in time what he has and agree upon exchange.

Clark F. Ansley, Lincoln, Nebraska, April 20, 1888. Has forty rude implements of clear quartz, flint, and greenstone.

Lewis A. Kengla, M. D., Tucson, Arizona, March 29, 1888. Letter of this date refers to collections from the District of Columbia which was left at his father's house. Can give no information as to numbers.

E. L. Berthoud, Golden, Colorado, March 6, 1888. Has seven implements from his neighborhood. Sent some to the Smithsonian Institution.

A. L. Siler, Ranch, Utah, February 21, 1888. Has none.

David Boyle, curator of museum, Canadian Institute, Toronto, Canada, February 8, 1888. Has one hundred rude implements of chert; found all over the province from 8 to 10 inches below the surface associated with implements of a more highly finished type. Can not send specimens. Refers to writer's report in the printer's hands.