EIGHTEENTH AND NINETEENTH ANNUAL REPORTS.

TO THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE —

The Trustees of the Peabody Museum of American Archaeology and Ethnology herewith respectfully communicate to the President and Fellows of Harvard College, as their Eighteenth and Nineteenth Annual Reports, the Reports of their Curator and Treasurer presented at the Annual Meetings, June 12, 1885, and April 9, 1886.

ROBERT C. WINTHROP,
ASA GRAY,
HENRY WHEATLAND,
THEODORE LYMAN,
SAMUEL H. SCUDDER,
GEORGE F. HOAR,
FRANCIS C. LOWELL.

CAMBRIDGE, MASS.,
July 31, 1886.
FRIDAY, JUNE 20, 1884. In accordance with the vote passed at the annual meeting in February, "That a meeting of visitation to the Museum and also for the transaction of business be held at such time during the present season as the President may appoint," the Trustees, at the request of the President, assembled in the Curator's room, Museum building, Cambridge, at 11 A.M.—Present, Messrs. WINTHROP, SALISBURY, GRAY, WHEATLAND, SCUDDER and PHILLIPS. Mr LYMAN was necessarily absent, engaged in his congressional duties at Washington.

After an inspection of the several rooms in the building and an examination of the various collections under the guidance of the Curator, Mr F W PUTNAM, the Hon ROBERT C. WINTHROP called the meeting to order and in a highly complimentary manner expressed to the Curator the satisfaction of the Trustees with the general appearance of the Museum and with the various methods adopted in the classification and arrangement of the collections. Others of the Trustees concurred in the opinion expressed by the chairman, and on motion of the Hon STEPHEN SALISBURY it was voted that the Secretary be requested to place upon record a notice of the visit of the Trustees to the Museum this day, and that the collections were found in a satisfactory condition in all the departments, and arranged in a manner well adapted for study and reference, and that an air of neatness pervaded every part of the building.

Gratification was expressed at the care and thoroughness with which the Curator had performed his duties, and of the great progress thus far made in the accomplishment of the plans of the Founder, specified in the Instrument of Trust.

Mr SCUDDER asked if any action was to be taken in relation to the explorations under the direction of the Curator. Mr PUTNAM then gave a sketch of the explorations he was conducting in Ohio, with the assistance of Dr C. L. METZ, exhibiting specimens, photographs and diagrams to illustrate that of the Turner Group of mounds in the valley of the Little Miami.

On motion of Prof ASA GRAY, the Curator was requested to prepare a full account of the Ohio Group for publication by the Museum, and also to present a paper on the same subject at the coming meeting of the American Association for the Advancement of Science, so that these important explorations may be more widely known. The Curator called attention to the desirableness of having placed at his disposal the sum of one thousand dollars to continue this work. Mr PHILLIPS, the Treasurer, said that no funds were in the treasury applicable to this purpose, but he considered that the importance of this work would warrant the propriety of an appeal to the friends of science for aid in this direction. It was voted to
request subscriptions in aid of the Curator in the continuance of his exploration

A letter was read from President Eliot in reply to one sent by Mr. Winthrop, requesting a conference to define more clearly the respective duties of the Trustees and the Corporation of Harvard College in the management of this Trust, and the prospective appointment of a professor of archaeology and ethnology. Referred to the committee of the Trustees appointed at a previous meeting, on this subject.

The Board then adjourned.

FRIDAY, JUNE 12, 1885

The annual meeting of the Board of Trustees was held at the Museum Building, Cambridge, this day at 11 a.m. Present Messrs. Winthrop, Gray, Wheatland, Lyman, Scudder, Hoar and the Curator.

Records of the preceding meeting were read and approved.

The chairman, Mr. Winthrop, said, Our annual meeting has been postponed from month to month owing to the deaths of two of our little number, and the absence of others from home. A quorum could hardly have been obtained until now.

We miss from our meeting to-day, almost for the first time, our venerable associate, the Hon. Stephen Salisbury, one of the original Trustees appointed by Mr. Peabody by his "Letter of Gift," dated Oct. 8, 1866. Mr. Salisbury had been one of our most devoted members. He was our Treasurer for twelve years from our first organization, and though he, then, in 1878, resigned that office, he kindly consented to act as Treasurer and to take charge of our funds, and even to be the subject of reelection for several years more. He was with us at our visitation of the Museum last June, and evinced a warm interest in the progress and prosperity of this Institution. He died at his home in Worcester, on the 24th of August following, at the advanced age of eighty-six years, respected by all who knew him. The place of Mr. Salisbury as a Trustee has been filled by the Hon. George F. Hoar, his successor as President of the American Antiquarian Society, in accordance with the terms of Mr. Peabody's "Letter of Gift." Meantime Mr. Salisbury's place as Treasurer, which had been temporarily supplied by Col. Lyman, was filled permanently, it was hoped, in 1882, by Mr. John C. Phillips, who had been elected a Trustee on the resignation of the Hon. Charles Francis Adams. To the deep sorrow of us all, Mr. Phillips died on the 1st of March last, at the early age of forty-six. He had become one of the most active and valuable members of our Board, and his loss to us and to our whole community is greatly lamented. The place of Mr. Phillips both as Trustee and as Treasurer will be the subject of election to-day.

Before proceeding, however, to that or any other business, the Trustees, I am sure, will desire to enter on their records some expression of sorrow at the loss, and of respect for the memory, of these valued associates, and I venture to offer the following resolutions:

Resolved, That the death of our venerable associate, the Hon. Stephen Salisbury, has taken from us one who will ever be held in grateful re-
membrance as the faithful and devoted Treasurer of this Institution from its first organization, until within three years of his death, and as one of the original Trustees, and that we desire to enter upon our records the deep sense which we entertain of his virtues and accomplishments, his liberality and public spirit, and of the sterling qualities of mind and heart which characterized his long and useful life.

Resolved, That the loss of our late associate, Mr. John C. Phillips, is deeply lamented by us all, that his services as Trustee and Treasurer for three years past had been of a character to inspire us with the warmest personal regard, and with a confident expectation of his remaining one of the leading managers of our trust long after many, if not all of us, had passed away, and that it is with sincere sorrow at his early death that we pay this heartfelt tribute to his memory.

The resolutions were unanimously adopted, and the Secretary was requested to transmit copies of the above to the families of the late Messrs. Salisbury and Phillips, respectively.

The chairman, Mr. Winthrop, read a communication supplementary to the statement made at the last annual meeting in regard to the relations which this institution holds to the university.

Voted that this communication be referred to the same committee (Messrs. Gray and Lyman) to whom the statement of similar import was referred at the preceding annual meeting, and that Senator Hoar be added to this committee.

Voted to proceed to choice of a Trustee and Treasurer in place of Mr. Phillips, deceased.

Mr. Edward W. Hooper was unanimously elected Trustee and Treasurer.

The report of the late Treasurer was read and accepted, and ordered to be printed as a part of the Eighteenth report of the Trustees.

The Curator's cash account audited by the Secretary was read, accepted, and ordered to be printed.

The report of the Curator was presented, accepted, and ordered to be printed.

The Board then adjourned.

Henry Wheatland,
Secretary

Mr. Hooper declining to serve, Mr. Francis C. Lowell was elected at a special meeting held on Monday, June 23, 1885, the record of which will be given in the next report.
The following resolutions, offered by the Hon. Robert C. Winthrop, Chairman of the Board of Trustees of the Peabody Museum, were unanimously adopted at the meeting of the Board on Friday, June 12, 1885, and ordered to be placed on record:

Resolved, That the death of our venerable associate, the Hon. Stephen Salisbury, has taken from us one who will ever be held in grateful remembrance as the faithful and devoted Treasurer of this Institution from its first organization, until within three years of his death, and as one of the original Trustees, and that we desire to enter upon our records the deep sense which we entertain of his virtues and accomplishments, his liberality and public spirit, and of the sterling qualities of mind and heart which characterized his long and useful life.

Resolved, That the loss of our late associate, Mr. John C. Phillips, is deeply lamented by us all, that his services as Trustee and Treasurer for three years past had been of a character to inspire us with the warmest personal regard, and with a confident expectation of his remaining one of the leading managers of our trust long after many, if not all of us, had passed away, and that it is with sincere sorrow at his early death that we pay this heartfelt tribute to his memory.
REPORT OF THE TREASURER.

To the Trustees of the Peabody Museum of American Archaeology and Ethnology, in connection with Harvard University

The Treasurer respectfully presents the following Annual Report —

Income Account

1884

April 1 Received United States 4 per cent Bonds,
2 coupons, $1 each ........................................ $2 00

July 1 " Pueblo and Arkansas Valley R. R
48 coupons $35 each ........................................ 1,655 00

" " " United States 4 per cent Bonds,
2 coupons, $1 each ........................................ 2 00

Aug 1 " Chicago, Burlington and Quincy R. R, 4 per cent
Bonds, 62 coupons $20 each ............................... 1,240 00

" " " Kansas & Missouri R. R
64 coupons $25 each ........................................ 1,550 00

Oct. 1 " United States 4 per cent Bonds,
2 coupons, $1 each ........................................ $2 00

1885

Jan'1 1 " Pueblo & Arkansas Valley R. R
45 coupons $35 each ........................................ 1,655 00

" " " United States 1 per cent Bonds,
2 coupons, $1 each ........................................ 2 00

Feb'y 2 " Chicago, Burlington & Quincy R. R,
62 coupons $20 each ........................................ 1,240 00

" " " Kansas & Missouri R. R
54 coupons $25 each ........................................ 1,550 00

$3,338 00

1884

July 1 Paid F W Putnam, Curator,
Account of Building Fund ................................ $1,555 00

Aug 1 " F W Putnam, Curator,
Account of Professors' Fund ............................. 1,500 00

" " " F W Putnam, Curator,
Account of Museum Fund ................................ 1,114 00

1885

Jan'1 1 " F W Putnam, Curator,
Account of Building Fund ................................ 1,555 00

Feb'y 1 " F W Putnam, Curator,
Account of Professors' Fund ............................. 1,500 00

" " " F W Putnam, Curator,
Account of Museum Fund ................................ 1,114 00

$3,338 00

JOHN C. PHILLIPS,
Treasurer

BOSTON, FEBRUARY, 1885
CASH ACCOUNT OF

<table>
<thead>
<tr>
<th>Dr.</th>
<th>F W PUTNAM, Curator, in Account with Peabody</th>
</tr>
</thead>
</table>

1884-85.

**To Building Fund**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance on hand from last account</td>
<td>$2406.17</td>
</tr>
<tr>
<td>Received from John C Phillips, Treasurer</td>
<td>3110.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$5516.17</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance on hand from last account</td>
<td>10.66</td>
</tr>
<tr>
<td>From Building Fund, on account of cases 1888-74</td>
<td>600.00</td>
</tr>
<tr>
<td>Public items sold</td>
<td>28.20</td>
</tr>
<tr>
<td>Received from John C Phillips, Treasurer</td>
<td>6228.00</td>
</tr>
<tr>
<td>Clinical services of Assistant on salary account</td>
<td>50.75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5917.61</strong></td>
</tr>
</tbody>
</table>

**To Museum Fund**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance on hand from last account</td>
<td>65.55</td>
</tr>
<tr>
<td>Received from Hon Robert C. Winthrop, Boston, Mass, 2nd subscription</td>
<td>50.00</td>
</tr>
<tr>
<td>Received from H A Home, Esq, Albany, N Y</td>
<td>5.00</td>
</tr>
<tr>
<td>&quot; &quot; Dr A H Thompson, Topeka, Kan</td>
<td>5.00</td>
</tr>
<tr>
<td>&quot; &quot; A E Douglas, Esq, New York, N Y</td>
<td>47.00</td>
</tr>
<tr>
<td>Received from Wm B Weedon, Esq, of Providence, R I, 3rd subscription</td>
<td>50.00</td>
</tr>
<tr>
<td>Received from Mrs Esther Herrmann, New York, N Y</td>
<td>50.00</td>
</tr>
<tr>
<td>&quot; &quot; John C Phillips, Esq, Boston, Mass, 2nd subscription</td>
<td>200.00</td>
</tr>
<tr>
<td>Received from Prof Asa Gray, Cambridge, Mass</td>
<td>13.60</td>
</tr>
<tr>
<td>&quot; &quot; Miss Maria Hovey, Boston, Mass</td>
<td>50.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>535.50</strong></td>
</tr>
</tbody>
</table>

**To Subscriptions for Research among Indian Tribes.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance on hand from last account</td>
<td>550.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$12,519.63</strong></td>
</tr>
</tbody>
</table>

*Cambridge, Feb. 2, 1885.*
THE CURATOR.

Museum of American Archaeology and Ethnology.

By Building Fund.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid Museum Fund, on account of cases 1883-74</td>
<td>$600.00</td>
</tr>
<tr>
<td>Cases, stock and labor</td>
<td>128.89</td>
</tr>
<tr>
<td>Furniture, stock and materials used</td>
<td>32.13</td>
</tr>
<tr>
<td>Repairs on building</td>
<td>22.55</td>
</tr>
<tr>
<td>Express</td>
<td>27.75</td>
</tr>
<tr>
<td>&amp;c. &amp;c. Check</td>
<td>500.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$847.32</strong></td>
</tr>
<tr>
<td>Balance, cash on hand to new account</td>
<td><strong>2408.55</strong></td>
</tr>
</tbody>
</table>

By Museum Fund.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collections purchased and special explorations</td>
<td>624.38</td>
</tr>
<tr>
<td>Balance, cost of 16th and 17th Report</td>
<td>214.61</td>
</tr>
<tr>
<td>Drawing and engraving</td>
<td>37.74</td>
</tr>
<tr>
<td>Library books, subscriptions, cards and various publications</td>
<td>185.57</td>
</tr>
<tr>
<td>Photographing and materials</td>
<td>99.92</td>
</tr>
<tr>
<td>Record Books</td>
<td>28.75</td>
</tr>
<tr>
<td>Stationery</td>
<td>111.67</td>
</tr>
<tr>
<td>Express, postage, telegraph, telephone</td>
<td>413.00</td>
</tr>
<tr>
<td>Extra labor</td>
<td>15.69</td>
</tr>
<tr>
<td>Taper trays</td>
<td>23.25</td>
</tr>
<tr>
<td>Fuel and gas</td>
<td>209.44</td>
</tr>
<tr>
<td>Water tax</td>
<td>20.84</td>
</tr>
<tr>
<td>Incidents</td>
<td>31.51</td>
</tr>
<tr>
<td>Salaries</td>
<td>3850.00</td>
</tr>
<tr>
<td><strong>Balance, cash on hand to new account</strong></td>
<td><strong>5903.70</strong></td>
</tr>
</tbody>
</table>

By Subscription for Archaological Research in America

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explorations in New Jersey</td>
<td>75.00</td>
</tr>
<tr>
<td>Explorations in Virginia and Ohio</td>
<td>133.10</td>
</tr>
<tr>
<td>Explorations in Ohio</td>
<td>283.51</td>
</tr>
<tr>
<td><strong>Balance, cash on hand to new account</strong></td>
<td><strong>491.01</strong></td>
</tr>
</tbody>
</table>

By Subscription for Research among Indian Tribes

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount to new account</td>
<td>550.00</td>
</tr>
</tbody>
</table>

**Total**                                              **$12519.63**

I have examined this account, with the vouchers, and find it correct.

March 17, 1885.

Henry Wheatland.
SUBSCRIBERS AIDING IN THE WORK OF THE MUSEUM.

1882-3.

Hon Stephen Salisbury, Worcester, Mass. $500.00
Hon Theodore Lyman, Brookline, Mass. 500.00
John C Phillips, Esq., Boston, Mass. 500.00
Miss Augustus Ilmenway, Boston, Mass. 500.00
Samuel D Warren, Esq. 600.00
Mrs Gardner Brewer, 300.00
Dr. C A Ware, 200.00
Dr R M Hodges, 100.00
Mrs G H Shaw, 100.00
Hon. Robert C Winthrop, 100.00
Wm B Weedon, Esq., Providence, R I, 50.00
Col A C Woodworth, Chicopee, Mass. 500.00
Mrs Susan C Warren, Boston, 250.00
Dr. Robert H Lamborn, New York, N Y. 200.00
George Peabody Russell, Esq., Isle of Wight, 100.00
Mrs Clara B Kimball, Boston, Mass. 100.00
Wm B Weedon, Esq., Providence, R I, 2d subscription, 50.00
Joshua W Davis, Esq., Boston, Mass. 50.00
A Friend, Buffalo, N Y 33.00
Dr. Wm F Whitney, Boston, Mass. 25.00
Mrs Geo O Shattuck, 5.00

Amount of above previously announced, $1,663.00

1884-5.

Hon. Robert C Winthrop, Boston, Mass., 2d sub., 50.00
H A Homes, Esq., Albany, N Y, 5.00
A H Thompson, M D, Topeka, Kansas. 5.00
A E Douglass, Esq., New York, N Y. 47.00
Wm B Weedon, Esq., Providence, R I, 3d sub., 50.00
Mrs Esther Herriman, New York, N Y., 50.00
John C Phillips, Esq., Boston, Mass., 2d subscription, 200.00
Prof. Asa Gray, Cambridge, Mass. 13.00
Miss Marian Hovey, Boston. 50.00
Hon. Stephen Salisbury, Worcester, Mass., 2d sub. 200.00
Prof. E N. Horsford, Cambridge, Mass. 100.00

$770.00

Total of subscriptions, $5,493.00

Additional subscriptions are solicited for the purpose of continuing the explorations.
REPORT OF THE CURATOR.

To the Trustees of the Peabody Museum of American Archaeology and Ethnology:

Gentlemen — The sad events to which the honored chairman of your board has referred, as causing the postponement of the annual meeting to this late date, lead me to request the privilege of stating our gratitude at being able to welcome him to his accustomed place after his long illness, and to ask to be permitted to add my personal acknowledgment of the kindly manner with which I ever was treated by the two members of the Board of Trustees whose absence is mourned to-day. By the office which they held successively I was brought necessarily into direct communication with them, and I know how much they were interested in the work of the Museum, and in the particular plans for explorations in America which it has been my pleasure to carry out, in large part by their cooperation, as they were the two largest contributors of money for that purpose.

The time covered by the brief report which I now offer, includes the year from February, 1884 to February, 1885. This period was a fruitful one in the number of specimens received at the Museum and in important results obtained from explorations conducted in its name.

The pecuniary aid which a few friends of American research furnished for the continuation of the explorations in Ohio, referred to in several preceding reports, has been the means of bringing to light many facts of the greatest importance in relation to the archaeology of the Ohio valley. The systematic explorations we thus far have been able to carry on have given a clew to the sequence of events which have taken place in that region of our country where archaeologists have hoped for important results.

In order to continue these explorations, however, we must ask for additional financial support from all who are interested and willing to aid in the work, which necessarily must be slow and ex-
pensive in its accomplishment. We also must ask the cooperation and good will of local societies and the owners of estates in the region of our work. It should be remembered by all interested in the subject, that these efforts are simply for the purpose of making known the facts relating to an important ethnological region, which, if properly worked out, will be of the greatest importance in understanding the complicated questions in regard to ancient American peoples, their connections with one another and with the tribes which occupied the continent at the time it was first known to our own race. These are great problems which can be solved only by long continued and systematic exploration such as we have undertaken in the region in question.

Unfortunately, the desire to possess relics of the past, regardless of their worth in a scientific sense, has led to much indiscriminate digging for "relics," and many have been found and scattered widely without a record of their discovery or their association with other objects.

While it is of the utmost importance to explore any mound in a thorough manner and to get from it a complete record of its construction, contents and relation to other works,—digging holes in a hundred places and obtaining here and there a few implements or ornaments, which by themselves are simply implements or ornaments and nothing more, is not working for scientific ends and should be discouraged by all scientific societies and by all owners of land upon which earthworks exist. Similar remarks apply, of course, to all ancient remains, be they mounds, burial places, fortifications, or sites of villages. Thorough exploration followed by careful study of the results should be the method of all explorers, and a conscientious record of the whole should be kept to be published eventually in some permanent form accessible to all workers in the science. The various objects obtained during such explorations never should be scattered or separated from the associated artifacts, nor should they be trusted to the vicissitudes of private collections, without proper protection from fire or provision for their ultimate deposition in a permanent and fire-proof museum.

It is upon this plan and by such a method, that the explorations in Ohio have been carried on by the workers of the Museum. We have chosen for particular and thorough work the valley of the Little Miami and the closely associated archaeological region. With the assistance of the enlightened residents of that region
and the hearty cooperation of Dr C L Metz, who, living in the valley, is able to give continuous oversight to the work, while I can be on the ground only at irregular though frequent intervals, it has been possible to execute what has proved already the most important archaeological exploration ever made in Ohio, and it is on hope to carry it on to the end. Not only are we exploring all kinds of mounds and earthworks, the old village sites and the burial places, but the banks of rivers, the gullies and the gravel and river deposits as well, in order to correlate all our observations and understand the successive occupations of the region.

The photographs, diagrams and specimens now exhibited to you, in addition to what I have stated, will give you an idea of the extent of the work we have undertaken, and I am sure you will fully realize its importance to American archaeology in adding to the Museum the means of making comparative studies which can but furnish instructive results.

It is not my intention at this time to enter into a detailed account of all the explorations and of the materials obtained, as that is being reserved for a special memoir on the archaeology of the Little Miami valley, which, in accordance with your expressed wishes, will be offered to you for publication in parts when the explorations of special places have been finished.

As the grounds where we are conducting our work are under cultivation at different times, we have been obliged often to leave a particular spot for a time and work at another until, after the gathering of some crop, we could return to the first. Owing to this necessary method of operations it is not yet possible to give a perfect account of much of our work. This year, however, has brought to completion the three years' work on the large group of mounds and earthworks on Mr. Turner's farm to which reference has been made in previous reports, and in order to preserve the record in its proper sequence, an account of the exploration of one of the outlying mounds of the group is given as a special paper in connection with this report.

My attention having been called to an account in the “Chillicothe Leader” of an interesting collection of objects obtained by some school boys from a mound in the Scioto valley which we had formerly visited, I requested Mr. Kimball to go to the place and make inquiries relating to the specimens, as the account seemed to indicate certain important associations with the people who made
the Turner group of mounds then in course of exploration. The result of his visit impressed me with the importance of making a comparative study of the group of mounds, from one of which the specimens had been taken. Through the friendly offices of the editors of the "Leader," who had obtained the right to examine the large mound, Mr. Edwin Harness, the owner of the land, kindly gave his permission for the exploration of the group. Although our exploration of this group has been as thorough as time would permit last autumn, it was not completed, but we hope to finish it at no distant time as it is included in the region we have mapped out as that which we hope to work over in a thorough manner. As in all other Ohio work, I had the hearty assistance of Dr. Metz. We soon discovered that we were exploring the group of earthworks surveyed by Squier and Davis in 1840, and described in their important volume under the heading of "Ancient works in Liberty township." With the aid of their plan the embankments forming the square and great circle still can be easily traced in the cultivated fields on both sides of the narrow gauge railroad track. A portion of the earthworks which formed the square are still faintly preserved in the woods beyond the field. In the next field, to the northwest, the lines of the walls which crossed the pike and connected the square with the small circle, can be seen, and the small circle can be followed in the woods on the west side of the pike, towards Mr. Harness' house. Several of the depressions or excavations noted by Squier and Davis, about and within the works, are still defined, and the little circle to the east of the square, with the long, single embankment running southward, can be made out.

Squier and Davis represent five small mounds inside the great square of twenty-seven acres. These have been levelled by cultivation, but we could trace the outlines of three at least, one of which we thoroughly examined, and found that it had been a simple mound of earth thrown up inside one of the "gateways" of the square. Three mounds, one twice the size of the others, are represented on the plan as just outside one of the "gateways" on the eastern side of the great circle of forty acres area. All three have been much reduced in height by ploughing over them, but probably only the superficial portions have been disturbed. These three mounds we examined with care, and found that the small one to the westward contained only a small bed of ashes.
The other two proved to be burial mounds of considerable interest. The human bones were much decayed. We found in these mounds various objects made of copper, stone, shell and mica, of the same character as those found in the large mound of the group, consisting of copper plates, spool-shaped ear-ornaments made of copper, a few small ornaments of copper, one small copper celt, a crescent-shaped ornament cut out of slate, another small stone ornament, a few large beads covered with copper, and a smaller one covered with silver over the copper, shell beads and numerous other small objects.

Another mound in the cornfield, north of the three above mentioned, was also dug over completely. In this we found a large bed of ashes and charcoal about at the level of the natural surface upon which the mound was made. This ash bed covered nearly the whole area occupied by the mound, and in it we found many fragments of pottery and cut pieces of mica, some of which were circular. A large piece of glass matting and a mass of burnt seeds, nuts and acorns, were found in the bed of ashes. In one place the charred matting was in several layers making a thickness of an inch or more. Near the centre of the mound, extending to the south, was a long, narrow pit, about 9 x 2 feet, which was a foot in depth. At the bottom of this pit were burned stones, and over them ashes and charcoal, fragments of pottery and a few burnt bones.

Thus it will be seen that the several mounds connected with the extensive earthwork were erected for different purposes and vary considerably in their structure.

Near the eastern corner of the part of the earthwork which we have called the "great square," and within the line of the circular embankment forming the "great circle," stands the largest mound of the group, which is known as the "Edwin Hamness mound." This mound proved to be of great interest and unlike any other we have explored. It is 160 feet long, from 80 to 90 feet wide, and from 13 to 18 feet high along the central portion, which rises gradually from the southern to the northern part. Up to this time we have made a thorough exploration of about one-quarter of the mound, and have ascertained that it is a burial mound of a remarkable character. In the northern portion, forty feet from the centre, we discovered the first of the burial chambers, of which we found a dozen in all. These chambers were made by placing logs, from 5 to 6 inches in diameter, on the clay which forms the lowest
layer of the mound, in such a way as to make enclosures 6 to 7 feet in length and from 2 to 3 in width and about a foot in height. In these the bodies were placed, evidently wrapped in garments, as indicated by the charred cloth and mats found in several of the chambers. With the bodies were buried various objects, such as copper plates, earings, shell beads, and in one instance, long knives chipped from flint. In two instances the skeletons were found extended at full length within the chambers, the outlines of which could be traced by the imprint of the logs in the clay, the logs themselves having decayed, leaving only a dark dust. On the breast of one of the skeletons was a thin copper plate or ornament. The chemical action of the copper had preserved the texture of a piece of finely woven cloth lying between the plate and the bones of the chest. In the other chambers the bodies had been burnt on the spot, as conclusively shown by the relative positions of the bones and the fact that in two instances portions of the body had fallen outside the fire and escaped burning. It became evident as our exploration progressed that these chambers were covered by little mounds of gravel and clay, and that in those where the burning had taken place the coverings of earth were placed in position before the bodies were consumed, shown by the small amount of ashes and the reduction of the logs to charcoal in their position on the clay floor of the chamber, which was burnt to a thickness varying with the amount of heat. It is probable that the burials and cremations did not all occur at the same time, and that, after all these little mounds had been made, earth was brought from various surrounding places and heaped over all. Then the mound was finished with a covering of gravel and a low border of loose stones was placed around its base.

It is of interest to note that Squier and Davis, in 1840, dug two pits in this mound. At the bottom of then pit A, which was just south of the centre of the mound, they opened one of the burial chambers, and they state that the skeleton in it was partly burnt, that it was enclosed in a framework of logs, and that with it were a copper plate and a pipe carved out of stone. They remark that the body seemed to have been enveloped in matting. Then pit B was about twenty feet northwest of the centre and there they came to another burnt skeleton, as shown by our exploration, although, deceived by the imperfect examination which the carving of the pit compelled them to make, they thought they had found an
"altar" and mention the burn burial chamber as such. They state that they found at this point several implements made of bone. At the side of then' excavation we took out about half a dozen pointed implements made from the leg bones of deer. Several months before our work was begun, as already referred to, the school boys, under the lead of Mr. Wilson, dug two pits in the mound, one of which was between those made by Squier and Davis over forty years ago, and the other at the side of Squier and Davis' pit B. In each of these many remarkable objects were found. So far as "relics" are concerned, the boys made a lucky hit and took out more objects from one of their pits than were found in all our exploration. The larger part of these we have been able to secure from the boys, and from Mr. Daniel R. Harness, who very kindly gave to the Peabody Museum all that he had purchased from the boys at the time, realizing that they would be of more importance and value to science if placed in the Museum, with the other objects from the mound, than if held in private hands as mere curiosities. Among the specimens thus obtained were two copper celts and three or four copper plates, also several copper ornaments, some of which were covered with meteoric iron in the same way as those from the Turner mounds in the Little Miami valley, and a celt made of meteoric iron. Thus we have an important link connecting the people who built this great mound and the earthworks about it in the Scioto valley, with the builders of the singular group on the Turner farm in the Little Miami valley.

In connection with Dr. Metz' part in these explorations in Ohio, I have great pleasure in stating that he has identified his archaeological interests entirely with those of the Museum and has made over to it the extensive private collection which he had formed during the past ten years. This collection was made in large part during the early period of the explorations of the singular burial place and ashpits in the Ferris woods, referred to in previous reports as the "Ancient cemetery near Madisonville." We have been able thus to secure many additional and interesting specimens from that place. There are also numerous objects obtained from the surface at places which our later explorations have proved to be ancient village sites. Hundreds of other specimens in the collection were obtained in various portions of the Little Miami valley, but principally in the vicinity of Madisonville and
Newtown. The whole collection is covered by sixteen hundred entries in the catalogue and comprises over forty-four hundred specimens, many of which are unique.

Thus Dr Metz, like Dr Abbott, has become thoroughly identified with the work of the Museum, and both have placed their important collections in a place of safety, and where, we may trust with them, they will do the most good for all time to come in the study which both have done so much to advance in their respective fields.

Dr. Abbott has continued to examine the Trenton gravel as opportunities occurred, and during the recent removal of a large amount of the gravel by the Pennsylvania Railroad company he was able to secure several interesting paleolithic implements from various depths in the gravel. The most interesting specimen, however, is a portion of a human under jaw which he found at the depth of sixteen feet from the surface, not far from where a piece of a tusk of a mastodon (or mammoth?) was found several years ago. It will be remembered that Dr Abbott had found a human tooth in this gravel, and had sent us several years ago a very thick and in several respects singular human cranium which was found in the gravel deposit, although at a considerable distance from the jaw and tooth. These several discoveries of portions of the bony framework of man are of great interest as corroborative testimony of his existence at the time of, and possibly preceding, the formation of the gravel deposits at Trenton, a fact which was proved by the previous discovery of his implements in these deposits. To Dr. Abbott alone belongs the credit of having worked out the problem of the antiquity of man on the Atlantic coast, for to whatever geological age these gravels may be assigned ultimately, in them unquestionably we find buried the relics of the representatives of the earliest men on the Atlantic coast.

In a former report brief mention was made of the explorations of shellheaps on the coast of Maine, and of the interesting results which were obtained. In that work Mr. Albert I Phelps was employed as an assistant and a plan was discussed with him for a more extended exploration along the coast from the Damariscotta to the Penobscot river. As other duties prevented me from conducting the proposed explorations in person I arranged with Mr. Phelps to take charge of the field work, which he did with thoroughness and obtained most satisfactory results. During the year Mr. Phelps made extensive excavations in the great Damariscotta
shellheap, which is twenty feet high, and secured samples of the material from its top to its base, and at various distances from the edge nearest the river. During these excavations fragments of pottery were found in the ashes of old fireplaces at the bottom of the heap. As these potsherds, probably, are as old as any pottery in New England, it is of interest to note that this ancient pottery is well made, and that the incised ornaments upon the pieces, although simple, are pleasing to the eye.

It would extend this report greatly to give a detailed account of the forty-six shellheaps examined by Mr. Phelps, with descriptions of the many interesting objects obtained from them and recorded in the catalogue under 687 entries. I can mention only the finding of several hundred bone points, a few of which are of particular interest from their close resemblance to harpoons and arrow points from the northwestern coast. There are also a number of stone implements, among which are chipped points of a rude character and several rude celts. Fragments of pottery with ornamental designs were found more or less abundant in most of the heaps, and, as in our last exploration, several articles of European manufacture were found near the surface of some of the heaps. The method followed in the exploration of the shellheaps, that of making sections, is such that the exact depth at which each object is found can be noted.

In every case a sample was taken at the top, middle and bottom of the heap, so as to show the actual condition of the material forming it, and in order to study the fauna of the time the heaps were being formed, large collections were made of the different shells and of the bones of fishes, reptiles, birds and mammals.

In connection with the study of the shellheaps of Maine we have again to thank Mr. James E. Knowlton for interesting specimens received from the shellheaps and old village sites along the shores of the Damascocotta River. Among the specimens which he has sent are some stone flakes which were found under such conditions as indicate considerable antiquity. Their decomposed surfaces give the flakes the appearance of great age and it is probable that they are the earliest traces of man yet found in the Damascocotta valley.

When we have room for the proper arrangement of the large amount of material obtained from the shellheaps of the Atlantic coast, it will form a most instructive exhibition illustrative of primitive life and art.
It is with pleasure that I can refer again to the important researches of Miss Fletcher among the Omahas, with whom she has become identified so thoroughly, both by her philanthropic and scientific work. Becoming convinced that the future welfare of her Indian friends depended largely on their being firmly located in their homes and accepting the conditions of civilization, she made a visit to Washington for the purpose of pressing the passage of a law granting patents to the Omahas for their land in severalty. This was secured at last, largely by her persistent appeals, which were endorsed by senators and others in high position, and, acting under the authority of the Secretary of the Interior, she had the satisfaction of returning to the Omahas to carry out the provisions of the bill and to assist her Indian friends in establishing their homes. This work she completed in July, 1881, but, unfortunately, at a terrible sacrifice in a protracted illness, causing her the loss of health from which she has not yet recovered. During this time her interest in the life and customs of the tribe never flagged and she continued to make observations and notes. The immediate results of these were given in part at the meeting of the American Association for the Advancement of Science in Philadelphia in August last, and an important paper by her is published in the Proceedings of that meeting under the title of "Land in severalty to Indians, illustrated by experiences with the Omaha tribe." Two other papers were read by her under the following titles: "Observations upon the usage, symbolism and influence of the Sacred Pipes of Fellowship among the Omahas," and "Omaha child-life." These are not printed in full in the Proceedings as they were abstracts from the series of papers on Omaha life and customs which she has prepared in connection with her ethnological work for the Museum during the past four years. It is hoped that these important papers will be printed in the next report.

When Miss Fletcher left the Omahas in July, she brought as a sacred trust to be confided to the keeping of the Museum, a collection of singular interest and inestimable ethnological value, as it never can be duplicated. This is nothing less than the collection of objects which for generations have been held sacred among the Omahas, the contents of "The Sacred Tent of War." One must enter fully into the inmost recesses of Indian thought and customs in order to appreciate the great importance of the trust the Museum has in its perpetual keeping. It will be understood...
better by reading the following letter with the incorporated pathetic speech of the venerable Omaha, who thus gave up all the most sacred belongings of the tribe at a time when his people were to start on the new pathway, which we hope will bring them fairly and fully to the benefits of civilization as well as to its responsibilities. I will add only that the objects mentioned in the letter have been cared for properly and placed in a case where they will be safe from injury, to be exhibited as the offering of the Omahas in proof of their earnestness in adopting their new life.

OMAHA RESERVATION, June 6, 1884

DEAR MR. PUTNAM,

It is with peculiar pleasure that I commit for preservation, to the Peabody Museum of American Archaeology and Ethnology the entire belongings of the Sacred Tent of War of the Omaha tribe. The articles are yielded to you by the descendants of the hereditary head chief of the tribe, to whose custody belong the ancient relics, and the presentation is made in behalf of the family by Mr. Francis LaFlesche and myself.

The sacred tent of war and its contents were the charge of the Wae-jun-ste gens, in which for several generations the office of principal head chief has been hereditary, and this official was initiated into the mysteries of the rituals connected with the articles contained in the tent. To the oldest man in the gens however, was confided the immediate care of the articles. These were always with the tribe, being carried with peculiar rites on the annual hunt, and sometimes they were taken into battle. These articles are as follows —

The two ceremonial war pipes (37531-2) 1 Two tobacco pouches made of elk bladders (37534), and two of very young elk skins (37535). A round pipe stem (37533) upon which the old man in charge of the tent leaned when calling the warriors to the ceremonies of the tent. Pouch (37537) containing the sacred shell. Fourteen human scalps (37558), trophies of battle. The avenging staff (37559). The sacred pack (37560), the strap with which it was carried (37562), the stuff (37561) upon which it was hung. The mystery of this pack was known only to the chiefs. The honor pack (37563) used in the ceremonial when honors were conferred upon warriors. Rope (37564) made of sinew.

The sacred tent of war was vital to the autonomy of the tribe. Without it war and chieftainship were impossible. It gave rank to the tribe among other tribes and caused the Omahas to be feared as enemies and consulted as friends. The present act of the keepers of the sacred articles is without a parallel. The putting away of these ancient signs and symbols of authority, without any iconoclasm, but with the sober appreciation that a

1The numbers given in parentheses are those under which the articles are recorded in the Museum catalogue.
new era is upon the people, wherein they have no part or place, marks the
Omaha tribe as possessed of men having extraordinary degree of mind
and character.

To our own race these relics may appear strange, trivial, or forbidding,
they are certainly objects unidealized to our thought, but they have a
significance which tells of courage and self devotion. These noble traits
lie at the base of the act that has gently laid these articles among the
historical remains of the Indian race, a race of the past, whose only
future lies in the possibilities of American citizenship.

Po-day as Ma-hun-thin-gae came to put his sacred charge out of his keep-
ing and into that of the Museum, I could not but wish that his brave and
unique act might find its worthy place in history. In a low voice he said:
"These sacred articles have been in my family for many generations, no
one knows how long. My sons have chosen a different path from that
troubled by their fathers. I had thought to have these things buried with
me, but if you will care for them, and place them where they may be
looked upon by my children when they wish to think of the past and the
way their fathers walked, you may do so. Should there come a time when
I care to look once more on that which has been with my fathers, I would
like to be permitted to do so. I know that the members of my family are
willing. I should commit these articles to your care, no other person has
a right to question my action, though there are men who will say hard
things of me because of this act."

It was late in the afternoon when we reached Ma-hun-thin-gae's lodge, the
sun had set. The old man was sitting alone outside his dwelling in the
fading light taking a last look at the ancient belongings of his gens. On
our arrival he led the way to where he had gathered them for delivery and
laid them into the wagon and with quiet haste "They are all there", and
turned away. We too turned and left as the round moon suddenly rose
over the valley.

Yours truly,

ALICE C. FLETCHER

To Mr. John Cone Kimball, who has been for several years my
companion in field work and a volunteer assistant in the Museum,
we are indebted for the thorough exploration of three mounds
on the bluffs of the Mississippi, in Atlas township, Illinois.
This work was carried on at his own expense with the kind assis-
tance of Mr. Alfred Stebbins and Mr. C. B. Dustin of Summer
Hill and Capt. Adams of Atlas. Two proved to be burial mounds
of simple construction. The earth of which they were made is
not adapted for the preservation of human remains, and fragments
only of the bones of several skeletons were found in each mound.
Although the earth forming the mounds was carefully removed,
section after section, the only things found, in addition to the
fragments of human bones, were potsherds which were obtained
here and there in the earth, but not associated with the human remains. If any articles were buried with the dead they must have been of a perishable nature. Further south in the state, and even as near as the bluffs along the Illinois river, mounds of a different character have been observed, and it seems probable that these explored by Mr. Kimball are burial mounds of tribes who have lived in this region within the past few centuries. The third mound was of a different character, and possibly the site of a dwelling.

During Mr. Kimball's visit to Pike county, Illinois, he was able to secure from several friends and by his own efforts a fair representation of the stone implements found on the surface of cultivated fields or during excavations of various kinds, both on the bluffs and on the bottom land. Among these are a celt of hematite, a few stone axes and celts, five agricultural implements chipped from flint, found together, and many chipped points made from the white flint of the region and similar to those from Missouri.

To another assistant, Miss Studley, we are indebted for three Indian skeletons, from Maton, Massachusetts. A clay pipe and other European articles found with these skeletons prove that they were of Indians who were buried after contact with the whites. In the collection of about two thousand cemans in the Museum there are but forty-nine from New England, and every addition from this region is important for comparative study. It is hoped that all our friends will bear this in mind and when they hear of the discovery of an Indian's skeleton that they will secure it, if possible, for the Museum, with all associated objects, be they copper or brass kettles, metallic arrowheads, glass beads, clay pipes, iron nails and other things obtained from the white man, or stone implements and other articles of native work. It is principally from the association of such objects with the bones that an approximate estimate can be made of the time of burial.

To Mr. H. R. Bennett we are indebted for another important addition to the collection of stone implements from Delaware.

From Mr. G. B. Frazar we have received several more lots of rude implements and stone flakes from the valley of the Charles river, particularly from the vicinity of Watertown. These specimens are of particular importance for a study of the stone age of our immediate vicinity. In this connection mention should be made of an old refuse pile, or shellheap, now nearly destroyed, in the Cambridge cemetery, for the knowledge of which I am indebted to Dr. S. W. Duvell, who awakened the interest of the foreman, Mr. Childs, so
that he saves for the Museum all specimens which are found. We have received already from him a few stone implements and a number of oyster shells found at this place. This is, I believe, further up the Charles river than any oyster shellheap found before.

In the last report, where mention is made of important material received during several preceding years from Dr. Flint in Nicaragua, attention was called to the discovery of human footprints in the tufa, under several layers of volcanic material, on the shores of Lake Managua. The four blocks of tufa containing the footprints were received at the Museum during the early part of this year, as mentioned in a footnote added to the last report, and they are now on exhibition with the Flint collection, which occupies about half of the first northern gallery. At the meeting of the American Antiquarian Society, April 30, 1884, I presented a brief notice of these footprints and gave Dr. Flint's statement of the geological conditions under which they were found. As no further information of importance has been received in relation to those conditions, which alone will furnish a correct determination of the age of the bed of lava containing the imprints, I need refer only to the Proceedings of the American Antiquarian Society, Vol. III, part 2, and to an article by Dr. Flint, printed in the American Antiquarian for March, 1884.

It has been long known that a considerable number of ornaments made of jadeite are found in the burial mounds of Costa Rica and Nicaragua, particularly in the former republic. The last invoice received from Dr. Flint contained several fine jadeite ornaments, one of which Prof. Cooke has been so kind as to compare with a cup of jadeite in his possession, which came from Pekin, and he has pronounced the two specimens alike in color, hardness and specific gravity. This of course implies, in the absence of any other known locality of this particular variety of the stone, that the American specimens came from the known localities in Asia. One of the Costa Rica specimens is a celt elaborately carved and bearing a characteristic Central American figure, and several other specimens are halves or quarters of celts which have been made into ornaments and perforated at one edge for suspension. These facts suggest that these specimens of jadeite were brought to America from Asia in ancient times in the form of celts, similar to the jade celts found in the ancient pile-dwellings of the Swiss lakes. It seems probable that, after a time, owing particularly to the custom of burying such things with the dead, the original
stock was greatly reduced and the value of the remainder proportionately increased, which led to cutting up existing celt and making the pieces into ornaments. The fact that two of the ornaments obtained by Dr. Flint are pieces of one celt, as he noticed when he found them, is conclusive evidence of this cutting, although several other pieces, as he also observed, have portions of the rounded or sharpened edge of the original celt remaining. It seems to me that such facts as these are worthy of consideration in connection with others pointing to an Asiatic origin of some of the Central American peoples, or at least to a very remote interchange between the two countries.

From Mr. G. H. Squier, a gentleman much interested in the archaeology of Wisconsin, we have received a box of human bones found in two mounds near Trempealeau, of which an account is given in the following letter. It is to be regretted that the examination of the mounds was only partial, owing to his having followed the old and unsatisfactory method of digging a hole in the centre, instead of removing the whole mound, section by section.

DEAR SIR

TREMPEALEAU, Wis., July 22, 1884.

After a somewhat longer delay than I anticipated, I have the material of which I wrote ready to send and will do so at once. Before describing the mounds which I have opened, some description of the general external characteristics of the mounds in this vicinity may not be without value.

Owing to the natural beauty of the place and some peculiar advantages, Trempealeau appears to have been always a favored locality with the Indians, and on the authority of the late Hon. Geo. Gale, there are within the limits of the township of Trempealeau between one and two thousand mounds, or more than in all the rest of the county or in any other adjoining county. Quite a number occur within the limits of the village. Our own house (built before we came to the place) is standing on a mound.

There is little evidence of intentional grouping of the mounds, beauty and convenience of situation alone appearing to have determined their location. The group of thirteen shown in the sketch is perhaps the most compact in the county, but, as will be seen, no definite plan seems to have governed the arrangement. At Dresbach, Minnesota, they are arranged in strictly straight parallel lines.

There appears to be some basis for separating the mounds of this vicinity into two types. Whether it will be found to possess any value in classification it is too early to say. In one, the base is round and the size moderate, varying from one to five or six feet high and from ten to thirty feet in diameter. In the other, the base is a short ellipse and the size much greater, ranging from five to fifteen feet high and from forty to eighty feet in longest diameter.
All three of the mounds from which I have taken human remains were of the first or round type. Of the other type, I have opened two, but obtained nothing.

My last excavations were made in the group shown in the sketch. I first opened mound B from the top by a hole six feet by two. I found nothing in it but a small fragment of bone near the natural level of the ground, about three feet from the top. Next opening mound A in the same manner I found portions of the skeletons of two individuals. About three feet from the top I began to find reddened earth and at four feet charcoal, where there had been an oak log. It would seem as if the log must have been covered with earth while still smouldering. The bones were to the eastward of the charcoal and several inches lower. The bones were broken and scattered about in such a manner that it seems to me that neither secondary nor intrusive burial can be admitted in this case, for the following reasons.

First. The remains occupy the natural surface of the ground over a considerable area.

Second. The area covered by the bones, and by the charcoal which extends still more widely, is so great that the uncovering of it would have necessitated almost the demolition of the mound.
Third The bones could not have been placed there after the fire without disturbing the charcoal layers and there is no evidence of such disturbance.

Fourth The bones, though in disorder, do not show the kind of disorder I should expect from remelting.

The mound opened two years ago was upon a hilltop and alone, it was about three feet high. On the natural surface was a bed of ashes and burnt earth (of which I failed to take a specimen), over which the bones were widely scattered in the same manner as in the mound already described. Their relation to the ashes was also such that they must have been in their places before the mound was made.

I am indebted to Mr. Tyler of our village for assistance in opening the last mounds and I hope to have his help in further work.

Hoping that the little I have been able to do will be of some value,

I remain,

Yours very truly,

G. H. SQUIER.

In the course of the special explorations for the Museum, a considerable number of human bones have been obtained which are of pathological interest. The first of these were collected and described by my predecessor, Professor Wyman. Some time since, Dr. Clarence J. Blake, in examining the cranial in the Museum, found much of interest bearing upon his special study of diseases of the ear, and has published an account of his observations.1 Several other gentlemen have visited the Museum from time to time for special study of our osteological collection, and Dr. Wm. F. Whitney, the Curator of the Museum of the Harvard Medical School, has examined the collection and prepared a series of notes upon all the bones, including the cranial, which exhibit anomalies, injuries and disease. These notes will be printed in connection with this report, and while they will prove of interest to pathologists and students of human anatomy, they will be of considerable importance to ethnologists.

Mr. Carr, Miss Smith, Miss Studley and Mr. Chick have continued, as heretofore, faithful workers in their respective departments, and to their ready cooperation I am indebted for much that has been accomplished during the year in the various departments of office and museum work.

As in former years, the books and pamphlets received for the Museum library have been sent to the College library for cataloguing, and the titles of the more important are given in full in

1 American Journal of Otolgy, April, 1880.

REPORT OF PEABODY MUSEUM, III 27
the quarterly Bulletin of the University. Analytical work on the
library has been performed by Miss Smith in such time as she could
give to it, and catalogue cards gradually are being provided with
references to special papers in various publications. The list of
donors to the library is appended to this report.

More entries were made in the Museum catalogue during the
past than in any other year, and by far the largest number of
specimens received in a single year were catalogued and cared for.
The total number of entries in the catalogue was 4,450, which
include more than 25,000 specimens. Of course time and care have
been required in unpacking this large amount of material, assort-
ing it for cataloguing, making a special entry of each lot, painting
the number on each specimen, then in checking off each specimen
by the catalogue in order to avoid errors of numbering, and in
mending broken specimens. After these matters were attended
to came the final arrangement of the different lots, either in cases
or in trays in the cupboards.

In addition to the specimens enumerated there have been received
over 7,000 bones of animals from the explorations of the shellheaps
of the coast of Maine, and more than 8,000 from the mounds of the
Little Miami valley. These are of importance in the study of the
vertebrate fauna of the two places during the times they were occu-
pied by the respective peoples in whose refuse piles the bones were
found. Similar collections have been made in former years from other
places, and as each lot is assorted and the bones are identified, many
points are observed of both ethnological and zoological interest.

Now is the time when all such material must be collected if at
all. Every year the farmer’s plough destroys alike the sacred
altars, the refuse piles and the graves of those who occupied the
land before him, and a constantly narrowing field is left for the
archaeologist. The time is coming soon when only a stone axe, or
some other almost indestructible implement, will be found by
chance where now are undisturbed village sites and burial places.
Realizing this we only can be thankful that during the past year
so many things have been secured from destruction and placed
where they will be for all time available to students of American
Archaeology.

Respectfully submitted,

F W. PUTNAM,
Curator.

June 12, 1885.
LIST OF ADDITIONS TO THE MUSEUM AND LIBRARY FOR THE YEAR 1884

ADDITIONS TO THE MUSEUM

33151-33152 Carved human heads of stone from Ozualama, Vera Cruz, Mexico —Presented by Mr E H Whorf
33153 Native club from the Tonga Islands —Presented by Mr SAMPFLY TUFFS
33154-33156 —Shell and glass beads and a brass bracelet, found with the skeleton of a Sioux child, from Fort Stevenson, Dakota —Collected by Dr Gray and MATTHEWS
33157-33161 Knives and arrowheads of stone from New Braintree, Mass —Collected and presented by Mr F O WARNER
33162 Chipped stone implement (?) from bank of Charles river, Watertown, Mass —Collected and presented by Mr Geo B FRAZAR
33163-33169 Palaeolithic implements, grooved stone axes and hammerstones, pestles and notched sinkers of stone, rubbing and smoothing stones, stone pendant with incised lines, fragment of a stone tube, numerous potsherds, and the usual varied assortment of implements of jasper and agate including knives, scrapers, points and arrowheads, from Trenton, N J —Exploration conducted for the Museum by Dr C C. ABBOTT
33270 Chipped stone implement from Trenton, N J —Collected and presented by Mr RICHARD M. ABBOTT
33271 Cube made of an astragalus of a deer, from a mound in Arkansas —Collected by Capt W P HUL and presented by Mr S H SCUDDER
33272-33293 Three grooved stone axes, piece of mica, with scrapers, knives, points and other implements of stone, from Trenton, N J. —Exploration conducted for the Museum by Dr C C ABBOTT
33294 Stone point from Trenton, N. J —Collected and presented by Mr RICHARD M. ABBOTT
33295-33303 Stone points and a chipped flake of argillite, from Trenton, N J —Exploration conducted for the Museum by Dr C C ABBOTT
33304-33323 Stone beads from a mound on the bank of Lake Nicaragua and a jade pendant from a mound in Costa Rica, earthen jar of animal shape, clay image of a man and human head in pottery from islands in the lake; human crania from Rivas, Nicaragua, four human footprints in tufa found at depths of from fourteen to fifteen feet under several beds of lava near Lake Managua, Nicaragua, and fossil plants and leaves from the beds of clay and lava overlying the footprints — Collected by Dr EARL FLINT and received from the Subscribers to the Research Fund of 1882-3

(419)
3326 Chipped stone celt from John's Island, Florida — Collected and presented by Mr. Joseph Wilcox
3327 Portion of a human jaw, found in the gravel sixteen feet below the surface in a railroad cut at Trenton, N. J — Exploration conducted for the Museum by Dr. C. C. Abbott
3328 Pebbles taken from the gravel at the spot where no 3327 was found — Collected and presented by Mr. F. W. Putnam
3329—3329 Drills, scrapes, knives, arrowheads and points of jasper, quartz and argillite from the surface, and rude implements from the talus in railroad cut at Trenton, N. J — Exploration conducted for the Museum by Dr. C. C. Abbott.
3330—3332 Three crania with under jaws more or less complete, and other human bones, from shell heaps of Laguna, province of Santa Catharina, Brazil — Collected and presented by Dr. J. Capistranio de Abreu.
3333—3335 Carved models of the sacred bull and of the lingam, such as are used in the Hindu temples, from Benares — Collected and presented by Mr. Alexander Agassiz.
3336—3337 Grooved stone axe and a steatite pipe from Granville county, N. C — Collected and presented by Dr. C. C. Abbott.
3337—3338 Grooved stone axe, flint points, stone celts, a stone hoe and some stones in natural forms, from the surface near Liberty works, Jefferson township, Ross co., Ohio — Collected and presented by Mr. D. M. Lunbeck.
3338—3339 Portion of a copper plate and a small fragment of cloth from the large mound in the Liberty works on land of Edwn Harness Liberty township, Ross co., Ohio — The former collected by Mr. Ock Neff and presented by Mr. J. V. Harness, the latter collected and presented by Mr. Robert Harness.
3339—3339 Portions of jade celts, with a human head and an ornament in terra cotta, from burial mounds at Liberia, Costa Rica — Collected by Dr. Earl Flint and received from the Subscribers to the Research Fund of 1882-3.
33398 Stone implements — two of more than sixty found three and a half feet deep in peat on south side of Christiana river, Wilmington, Del. — Collected and presented by Mr. Geo. G. Lobdell.
33400 Stone celt, found in digging a cellar in Bow street, Cambridge — Presented by Prof. N. S. Shaler.
33401—33405 Drills, semilunar knives, points, flakes and worked chips, all of flint, found near Gabes, Tunis — Collected by Captaine le Vicomte de Nadillac of the French army, and presented by M. le Marquis de Nadillac.
33426 Sacred axe from the South Sea Islands — Presented by Mr. Frederick H. Rindge.
33437 Obsidian knives from Guatemala — Presented by Mr. George F. Kunz.
33428. Flint point from Plattsburg, N Y—Collected and presented by Mr ROBERT D KELLOGG

33429. Silver ornaments from the grave of a Crow Indian near Topeka, Kansas—Collected and presented by Dr A II THOMPSON

33430. Chinese chains from Yokohama—Presented by Dr S KEELELAND

33431–33444. Four crania and skeletons of Indians, with a clay pipe of European manufacture, from Marion Mass, burnt stones and shells of different kinds on Indian hill, Wing's Cove, Marion, Mass, shells of several species from a shellheap and a worked bone from a shellheap under an old stone wall in Marion, and shells from the woods at Wing's Cove—Exploration of Mrs C A STUDLEY conducted for the Museum

33445–33446. Human bones and red ochre from a burial mound on the bluff at Stockland, Pleasant Hill township, Pike co, Ill—Collected and presented by Mr ALFRED SIEBENS

33447–33448. Human bones and broken flint implements from a burial mound on the bluff at Atlas, Pike co, Ill—Collected and presented by Mr JOHN CONE KIMBALL and party

33449. Hematite implement from the surface near the Adams mound—Collected and presented by Mr JOHN CONE KIMBALL and party

33450. Grooved stone axe from the surface of the Adams mound in Atlas township, Pike co, Ill—Collected by Mr JAMES GRAHAM and presented by Capt J G ADAMS.

33451–33472. Fragments of human bones and pottery, unio shells, animal bones, flint chips, burnt stones, and pieces of antler from a mound on the land of Capt J G ADAMS, portions of human skeletons, potsherds and samples of clay, loam and burnt earth, from mounds on land of Mr Kanada Long, piece of a stone axe from the surface, all on the bluff in Atlas township, Pike co, Ill—Exploration conducted for the Museum by Mr JOHN CONE KIMBALL and presented by him

33473. Flint point from a grave near the mounds in Atlas township, Pike co, Ill—Collected and presented by Mr ALFRED SIEBENS

33474–33480. Flint point and a stone axe from Lee county, Ill, stone celts, flint points and arrowheads from Atlas and Martinsburg townships, Pike co, Ill—Collected and presented by Mr CHARLES J WALKER

33481–33484. Broken stone axe and flint points from Martinsburg township, Pike co, Ill—Collected and presented by Mr ADAM SNYDER

33485. A catlinite pipe found while digging a grave on the bluff in Atlas township, Pike co, Ill—Collected by Mr NOAH WARD and presented by Mr ADAM SNYDER

33486–33499. Flint knives, points and arrowheads collected by Mr LUCNELL E OAKLEY, stone hoes and picks collected by Mr WILLIAM OAKLEY, all from Pleasant Hill township, Pike co, Ill—Presented by Mr JOHN CONE KIMBALL

33510–33511. Stone celt and a flint point from Atlas township, Pike
co, II—Collected by Miss Abbie Sibbings and Mr. John Williams and presented by Miss Abbie Sibbings

33512—33530 Flint knives, arrowheads and points from Atlas township, Pike co., Ill.—Collected and presented by Mr. William A. Dustin

33521 Hematite celt from Spring Creek township, Pike co., Ill.—Collected by Mr. James Graham and presented by Capt. J. G. Adams

33522—33527 Flint points from Martinsburg township, Pike co., Ill.—Collected and presented by Mr. Jasper Foster

33526—33537 Flint knives and points and a hematite celt with grooves from Martinsburg township, Pike co., Ill.—Collected and presented by Miss Mary E. Toolhacker

33538—33539 Stone celt and a flint point from Atlas township, Pike co., Ill.—Collected by Mr. Henry Simpson and presented by Mr. Frank W. Simpson

33540—33553 Two grooved stone axes, hammerstone, flint points and broken stone implements from Martinsburg township, Pike co., Ill.—Collected and presented by Messrs. G. Warren and Frank Graham

33544—33555 Skull of a Navajo Indian and fragments of another found near Fort Defiance, Arizona.—Collected and presented by Dr. Simpson

33557—33559 Two baskets, one for seed and the other for water, made by the Haalapii Indians, and an earthen bowl from the pueblo of San Ildefonso.—Collected and presented by Rev. Frederick Gardner, Jr.

33560—33571 A Chinese cap, Chinese newspapers, an ornament for a child, head ornaments worn by the women and girls, and sundry articles of food used in China—Given by the widow of the late Professor Ko to the Rev. F. W. Holland, and by him presented to the Museum

33572—33573 Counting machine from China and a toy boomerang made in London.—Presented by Dr. S. Knelland

33574 Case of Chinese gambling sticks.—Presented by Prof. C. E. Munroe

33575 Native sash of grass cloth from Africa.—Presented by Mr. Geo. R. Frazar

33576 Whizzer from the pueblo of Zuñi.—Collected and presented by Mr. F. H. Cushing

33577—33578 Shells of different kinds, animal bones, fragments of pottery, chipped stone implements, and flakes, arrowheads and hammerstones of stone, bone points, broken implements and pieces of cut and worked bone, all collected by Mr. F. G. Knowlton from shell heaps on the Damascottariver, portion of a human skeleton collected by Mr. Warren Morse from a shell heap at Davis' Point, Cushing, Maine, and chipped stone implements and a stone pestle, with one bone point and fragments of others, collected by Mr. F. G. Knowlton from the same shell heap, portion of a large earthen vessel, potsherds, chipped stones, and pieces of antler collected by Mr. F. G. Knowlton, from shell heaps on Carter's
Island, off Friendship, Maine; pieces of lead and iron, with fragments of clay pipes and copper ware of European manufacture from an ancient settlement on Domini-cove Island, and a broken stone implement and chips and flakes of stone from the surface near by, collected by Mr. W. J. Knowlton. Presented by Mr. James L. Knowlton.

33653—33654 Portions of human skeletons, shell of mussel, fragments of pottery pieces of bones, flint chips, charcoal and burnt earth from mounds at Trempealeau, Wis. Collected and presented by Mr. George Squire.

33643—33644 Fragments of pottery, bones of animals, flint and hammerstone and chipped stones from a shell heap at Sag Harbor, N.Y., chipped pebbles and points, hammerstone, rude stone points, chipped implement and a pointed stone from the surface, Sag Harbor N.Y., a long hammerstone from Bridge-Hampton, N.Y. Collected and presented by Mr. Wm. A. White.

33651—33659 Stone axe and knives of the same material, with arrowheads and spearpoints of different sizes and shapes, from Jones' river, and Morgan's Branch, Kent co., Delaware. Collected and presented by Mr. Henry R. Bennett.

33719 Joints of chewing (beads?) from west bank of the Susquehanna near Selings Grove, Penn. Collected by Mr. Geo. C. Wagensfels and presented by Mr. Henry R. Bennett.

33711—33713 Three heads in terra-cotta from the bank of an ancient reservoir on the Tampico Division of the Mexican Central Railway. Collected and presented by Mr. E. H. Whiting.

33714 Charnum found near Lamoine, Hancock co., Maine. Presented by Mr. John E. Clark.

33715—33725 Stone points from the surface of Lehigh Island, at Allentown, Penn. Collected and presented by Mr. A. F. Beairn.

33726 Fragments of human skeleton from a cave near Glasgow Junction, Ky. Presented by Mr. Lucien Carr.

33727 Idol of pottery made by the Mexicans in imitation of an antique. Collected and presented by Dr. F. F. Hinds.

33728 Stone implement (probably from the Pueblo Island) found in East Freetown, Mass. Presented by Mr. George A. Price.

33729—33731 Stone implement from southwestern Dakota, a stone point and an iron arrowhead from Smokey Hill river, Kansas. Collected and presented by Mr. Samuel Garman.

33732—33733 Stone point and a brass button from an Indian burial place, Agawam, Mass. Collected and presented by Mr. D. W. Lord.

33734 Ground stone sinker (?) from Lanesville, Mass. Collected and presented by Mr. R. S. Tarn.

33735—33740 Rude stone implements and stone points from East Wareham, Mass. Collected and presented by Miss C. A. Studley.

33741—33746 Stone points from Franklin county, Ohio, fragment of pottery from a shell heap in Florida, and a stone arrowhead from gravel brought to South City wharf, Boston. Collected and presented by Mr. H. W. Dyer.

33747—33761 Rude stone implements, stone gorgets, chipped drills.
and points, and a fragment of a clay pipe, from Beverly Cove, Mass.—
Collected and presented by Mr A K Omer
33752—33900 Rubbing, hammer and pitted stones, grooved stone axes and clubs, broken stone gorget and perforated stone, celt, pestles and notched stone sinkers, fragments of pottery, clay pipes and pipe stems, with a large assortment of knives, drills, scrapers, points, and arrowheads of Jasper and argillite of the usual New Jersey surface patterns, from Trenton, N J. In this collection there is a paleolithite implement which was found twelve feet from the surface in the tertiary deposit of marine sand in the bluff on which stands Dr Abbot's house. This bluff was dry land at the time the Trenton gravel was deposited—Collected and presented by Dr C C Abbott
33901—34086 Stone hammers and club, cores, points and chipped implements of stone, fragments of stone pestles, pottery and a soapstone vessel, from different places in Watertown, Mass., stone implements, chips, flakes, scrapers and points of stone, hammers and rubbing stone, the latter notched, piece of a stone pestle and fragments of a steatite pot from Arlington, Mass., stone chips, flakes, knives and points, with broken stone implements from Belmont, Mass., hammer-stone points and flakes of stone from Revere Beach, stone chips, arrowpoints and broken implements from Waltham and Lake Cochituate, stone chips, flakes and points from Kingston, Wayland, and Concord, Mass., fragments of pottery from Wayland—Collected and presented by Mr Geo B Frazar
34087—34100 Flakes and chips of quartz and eleven paleolithite implements of the same material, found fifteen feet below the surface in the modnied drift at Little Falls, Morrison Co., Minnesota—Collected and presented by Miss F E Babitt
34101—34260 A large and interesting collection of pots and jars of different sizes and shapes, in human, animal, bird and vegetable forms, some painted, some plain, and others ornamented with incurved lines and geometrical figures, from ancient graves on the Platte River, 120 miles N N W of Lambayeque, Peru—By purchase
34261 Earthen jar with animal head, from Peru—Collected and presented by Dr Geo J Engelmann
34262—34273 Grooved stone and quartz points from Rivendale, N Y, argillite points from Shinnecock, Long Island, iron tomahawk and quartz point from Greenwich, Conn., stone axe and a pointed stone cel, with handles of earthen dishes from San Domingo, W I—Collected and presented by Mr II Prime
34274—34279 Wooden spoons and tuars, with rope made of maguey fibre and different kinds of bark, all from Mexico—Presented by Mr John Conklin
34280—34284 Dried fruit of cactus used as food, stone pestle, and a stone mortar with top of basket work and a sample of the acorn meal and of the acorns from which it was made, all from the mission Indias of South Pasadena, Cal—Collected and presented by Mr H N Revm
34285—34302 Five human clamps, three earthen jars, varying in shape and ornamentation, shell beads, pieces of coal cut and polished, bone im-
Plements, shell of union, shell spoon and fragment of a chipped stone knife from stone graves on Mt. Oscar Noell farm near Nashville, Tenn., and circular stones and pieces of flint from the surface near by. Collected by Mr. Gro. Woods in continuation of the exploration by Mr. F. W. Putnam. 34305—34328 A broken stone pipe and stone implements of various kinds including axes, celts, mortars, points and flakes from Newtown, Hamilton co., Ohio, a circular flint core found three feet below the surface in Anderson township, Hamilton co., Ohio—Collected and presented by Mr. William Dunham. 34329 Cast of a stone ornament from a mound in Brown county, Ohio. Presented by Mr. C. F. Low. 34330—34336 Stone chips and broken points from the vicinity of the Natural Bridge, Va., and flint chips from Marietta, Ohio, collected by Messrs. F. W. Putnam and J. C. Kimball, boat-shaped stone from Gomez, Ohio, and large chipped stone points from the Muskingum valley near Marietta, Ohio—Exploration of the Curator conducted for the Museum. 34337—34350 A rude axe, celts, chipped points and a broken gorget, all of stone, with flint flakes and fragments of pottery, from a cultivated field about the Turner group of mounds in the Little Miami valley, Ohio—Collected and presented by Messrs. E. J. and J. M. Turner and received during the exploration of Mr. F. W. Putnam and Dr. C. L. Meitz. 34351—34357 Stone implements consisting of a mallet, celts, long points and a small axe from a ploughed field near the Turner mounds in the Little Miami valley, Ohio—Exploration of Mr. F. W. Putnam and Dr. C. L. Meitz, conducted for the Museum. 34358—34855 This collection, covered by five hundred entries in the catalogue, consists of a part of the articles found in the mounds of the Turner group in the Little Miami valley, Ohio. (Other specimens from this group of mounds have been recorded in previous reports.) In it are human crania and other human bones, thousands of animal bones, many pearl, bone, copper, shell and clay beads, implements of bone including needles, arrow points and chisels, a disk and cut pieces of mica, copper plates and earings, some of the latter covered with meteoric iron, copper celts, a cone and a nugget of copper, sea shells, some carved and perforated, also shells of Uni and Helix, handles made from antler—one with a stone point, another with a bone point still in place—also points and cut and worked pieces of the same material, red ochre, formations of iron and lime from the pits and flues, beast's teeth—some perforated, others with pearls inserted in them—also perforated teeth of other animals, celts, drills, scrapers, points, arrowheads, chips, cores, flakes and flake knives, all of stone, with polishing and pitted stones and hammer stones, fragment of a gorget and other carved and worked stones, fragments of pottery, some plain, some cord and cloth marked, and others ornamented with stamped and incised figures, burnt earth and bones, charcoal and pieces of soft coal cut in various shapes, and specimens of the earth, sand, clay and concrete layers of which the mounds were composed—Explor-
tion of Mr. F. W. Putnam and Dr. C. L. Metz, conducted for the Museum

34856—35134—Bumt human, animal and bird bones, shells of different kinds, some of them perforated, cores and chipped points of flint, ornaments made of stone, hammerstone and a discoidal stone, heads of pearl, bone and shell, canine teeth of large beasts, some of them perforated, teeth of deer and a shark’s tooth, ornaments made of copper, ear ornaments of copper, a few covered with a thin layer of silver and others with meteoric iron, small hemispheres of stone and of pottery, covered with silver, copper and meteoric iron, fragments of silver ornaments, a celt of meteoric iron and one of copper, ornaments and fragments of mica, portion of a pipe carved out of stone, a large mass of galena, cloth, seeds, nuts, corn and grass, all charred, fragments of matting partly burnt, ball of clay, fragments of pottery, bone handles, awl points and other implements of bone, braided grass, charcoal, ashes and burnt clay some of the latter still bearing the impress of logs of wood, portions of burnt and unburnt human skeletons, all from mounds belonging to the Liberty group on the land of Edwin Haines, Esq., in Liberty township, Ross co., Ohio—Explorations conducted for the Museum by Mr. F. W. Putnam and Dr. C. L. Metz

35135—35154—Charcoal, ashes and cut pieces of soft coal, animal bones burnt and unburnt, a bone awl, fossil coral, a fossil elephant’s tooth, broken stones, split pebbles, flint flakes and chipped points from the Dunham mound, Newtown, Little Miami valley, Ohio—Explorations conducted for the Museum by Dr. C. L. Metz and Mr. F. W. Putnam

35153—35161—Split and burnt animal bones, jaws and teeth of deer and bear, cut turkey bone, fragment of bone implement and skull of a deer with two perforations in it from the stone mound in the Edwards group, Little Miami valley, Ohio—Explorations conducted for the Museum by Dr. C. L. Metz and Mr. F. W. Putnam

35162—Bone point from the mound on the river bank near the Turner group, Little Miami valley, Ohio—Exploration conducted for the Museum by Dr. C. L. Metz and Mr. F. W. Putnam

35185—55185—Union shells, potsherd, a pottery disk, a hammerstone, and bones of birds, deer and turtle, from a refuse pile on the hillside at the Sand Ridge, with a stone celt, pitted stones, large sharpening stone and chipped stone implements of different kinds including knives and points from the Sand Ridge, Anderson township, Little Miami valley, Ohio—Explorations conducted for the Museum by Mr. F. W. Putnam and Dr. C. L. Metz

5186—56783—This magnificent collection is covered by 1600 numbers in the catalogue and consists of more than four thousand specimens. Among many other things, it contains over 200 cels, 36 grooved axes, 28 pipes, and 51 articles of copper. In part it consists of cut pieces of soft coal, disks of shell and pottery, heads of shell and copper, flakes, knives, points, drills, and scrapers of flint, a fossil tooth, cylinders of antler, shells of turtle and bysscon, twenty earthen pots and numerous.
fragments ornamented in different styles, pins, pendants and other ornaments of shell, pipes of stone and pottery, sharpening rubbing and pitted stones, with millers, celts, club heads, grooved axes, hammers, tables and implements of the same material, some of them carved finger rings, ornaments and hammered pieces of copper, five human clumps, one of them with an arrowhead embedded in the occupant, together with other human bones from the ancient cemetery in Fell's woods near Madisonville, Ohio. Pieces of iron, a perforated copper hammer and a piece of a mastodon's tooth, found in the leaf mold over the burials in the Fell's woods. Flint flakes, knives, points and scrapers, copper beads and pieces of hammered copper, soft coal, beads and whistles made of bird bones, shells of uno, some of them perforated, one shell containing red ochre, bones and teeth of deer, bear, wolf, rabbit, squirrel, beaver, raccoon, woodchuck and of birds, turtles and fishes, numerous cylinders, points, handles and agricultural implements of antler, burnt clay and bits of bone also burned, fish hooks, points, scrapers and implements of bone some of them perforated, ornaments made from teeth of animals, sharpening and rubbing stones, with celts, grooved club heads and pipes made of stone, toy vessels of pottery and fragments of large jars, charred corn, nuts, seeds, rope and grass matting all from the ashpits in the ancient cemetery near Madisonville, Ohio. Hammerstones and marked stones, earthen vessels and fragments of pottery, charcoal, shells of uno, some of them perforated, a stone celts, flint flakes, and points of various shapes and sizes from different mounds in the Little Miami valley, Ohio, and in Mississippi county, Missouri and in Arkansas. Besides these specimens there are numbers of flat flakes, drills, points and scrapers of the usual Ohio patterns, gorgets, pipes, club heads, hammer celts, peviles, millers, hoes and grooved axes of stone, fragments of pottery and disks of pottery and stone, shells and shell ornaments of different kinds, sharpening and rubbing stones, with other stone implements, including several of plummet shape, bone fish-hooks and points, handles cylinders and points of antler, pieces of cut coal, principally from Indian graves and village sites in Ohio, also a number of similar specimens from Indiana, New York and Missouri. Collected and presented by Dr. C. L. Metz.

36634—36650 Grooved axe, millers and fragments of a gorget, all of stone, and various chipped flint implements such as scraper, drill, points and flakes from the surface, Little Miami valley, Newtown, Ohio. Collected and presented by Mr. William Durham.

36650—36677 Pitted hammerstone and grooved stone axe from the Durham farm, hammerstone and burnt earth from the Broadwell mound near Newtown, Ohio, chipped flint points and scrapers from the surface, Anderson township, Little Miami valley, Ohio, stone miller from Newtown, Ohio. Collected by Mr. Matthias Britten, Dr. C. L. Metz and Mr. F. W. Pfeiffer and received during the exploration conducted for the Museum by Mr. F. W. Pfeiffer and Dr. C. L. Metz. Collected and presented by Mr. William Durham.

36678 Stone celts from Red Bank, Little Miami valley, Ohio. Collected and presented by Mr. James V. Harness.
36820. Stone celt from the farm of J D Mace, Scioto valley, Ohio.—Collected and presented by Mr J D Mace
36821 Stone miller found twelve miles north of Chillicothe, Ohio — Collected and presented by Mr J H Roads
36825 Chipped flint flake and points from the surface near the Liberty works, Scioto valley, Ohio — Exploration of Mr F W Putnam and Dr C L Metz, conducted for the Museum
36826 Chipped flint points from Amsterdam, N Y — Collected and presented by Mr P M Van Etts
36827 Stone implement from Concord, N H
36828—36829 Bone implement and cut bones from a shellheap on Damariscotta river, Maine — Collected and presented by Mr. Charles Mercull
36830—36854 Assegais from Madagascar, an Arab shield made of hippopotomus hide, from Zanzibar, knife, sheath and belt, with a club, an axe, assegais, bows and iron pointed arrows from different places in eastern Africa — Collected and presented by Capt A Ward Welker, U S Navy
36855—36858 Models of a native boat and of a gond boat bateau, necklaces made of seeds, from Surinam, Dutch Guiana — Collected and presented by Mr Fernando Neumann
36859—36866 Oyster, clam, mussel, quahang, Pecten, Natica and Buccinum shells, human bones, numerous fragments of pottery, teeth and bones of animals, pieces of worked antler, stone implements consisting of arrowheads, scrapers, celts, gouges and hammers, with flakes and chips of stone, polishing and sharpening stones, implements of bone some of them perforated, and among them over 500 bone points many of which are barbed, all from the shellheaps along the coast and on the islands of Penobscot bay and Damariscotta river, Maine — Collected by Mr A I Phelps in continuation of an exploration conducted for the Museum by Mr F W Putnam
36867—36869 Stone spearpoints from a muck swamp, and other stone points from a shellheap at Cushing, Maine — Collected and presented by Mr F C Hathorn
36867—36869 Pipes, tobacco pouches, human scalps, sacred pack, carrying strap, pouch containing sacred shell, rope of sinew and some other articles, the whole being the contents of the sacred war tent of the Omahas (See letter in report of Curator on p 411) — Presented by the family of the hereditary chief of the Omahas, through Mr Francis La Fletcher and Miss Alice C Fletcher
36870 Fragment of feather rope from a cave in Utah — Presented by Mr A G Richmond
36870—36873 Cut piece of shell and fragments of pottery from Walnut cañon, Arizona, bridle, saddle blanket, a hand loom, blanket of primitive pattern, silver tweezers and various articles contained in leather pouches, one of which is elaborately ornamented with silver; all of Navajo workmanship, from Arizona — Collected by Rev Frederic Gardner, Jr
36870—36890 Clay pot, pitcher, bowls and saucer of different colors and a wooden mortar and implement, from Surinam, Dutch Guiana — Collected and presented by Mr Fernando Neumann
ADDITIONS TO THE LIBRARY


Mr. J. M. Allen, Hartford, Conn. One volume

Dr. Richard Andre, Leipzig, Germany. Five pamphlets

Athens, Greece. Société Archéologique. One number Proceedings.

Dr. W. C. Barrett, Buffalo, N.Y. Pamphlet

M. le Baron de Baye, Baye, Maine, France. Pamphlet

Boston, Germany. Königlichen Museum. Two pamphlets.

M. A. Blomme, Temponde, Belgium. Pamphlet

M. le Prince Roland Bonaparte, St. Cloud, France. Folio volume


Boston, Mass. Massachusetts Institute of Technology. One volume


Dr. Daniel G. Brinton, Philadelphia, Penn. One volume

Buffalo, N.Y. Buffalo Society of Natural Sciences. Bulletin

Cambridge, England. Cambridge Antiquarian Society. One pamphlet, two volumes Report and Communications, one number Octavo Publications

Cambridge, Mass. Harvard College Library. One volume, four numbers Bulletin

M. Lucien Carr, Boston, Mass. Four volumes

M. Emile Cartailhac, Toulouse, France. Thirteen pamphlets

Col. Theo S. Case, Kansas City, Mo. Eleven numbers Kansas City Review

M. le Comte de Charencey, St. Maurice-les-Charencey, Oise, France. Pamphlet


Cincinnati, Ohio. Cincinnati Society of Natural History. Four numbers Journal

Cincinnati, Ohio. Public Library. Report

Cleveland, Ohio. Western Reserve Historical Society. One number

Tracts

Mr. John Collett, Indianapolis, Ind. One volume

Prof. G. H. Cook, New Brunswick, N.J. One volume

Copenhagen, Denmark. Congrès International des Américanistes. One volume

Dr. G. M. Dawson, Montreal, Canada. One volume

Mr. T. A. Dickinson, Worcester, Mass. Pamphlet

Mr. S. L. Elliott, New York, N.Y. One volume

Dr. H. Fischer, Munich, Germany. Pamphlet.

Miss A. C. Fletcher, Cambridge, Mass. Three pamphlets.

The full titles of books received by the Museum are given in the quarterly Bulletin of Harvard College Library.
Florence, Italy Società Italiana di Antropologia e di Etnologia. Four numbers Archivio


Mr. R. J. Gray, Westminster, England Two pamphlets.

Dr. E. T. Haney, Paris, France. One volume.

Prof. H. W. Haynes, Boston, Mass. Pamphlet.


Dr. W. J. Hoffmann, Washington, D. C. Pamphlet.


Mr. Ernest Ingerson, New Haven, Conn. Pamphlet.

Col. C. C. Jones, Jr., Augusta, Georgia Pamphlet.

Prof. H. Kato, Tokyo, Japan Pamphlet.


Dr. S. Knedlund, Boston, Mass. Seventy-seven volumes, thirty pamphlets.

Prof. J. Kollmann, Basel, Switzerland Two pamphlets.


Leipzig, Germany Museum für Volkskunde Report.


Liverpool, England Literary and Philosophical Society Three volumes Proceedings.


Rev. J. P. MacLean, Hamilton, Ohio Two pamphlets.

Prof. O. T. Mason, Washington, D. C. One volume, twelve pamphlets.

Dr. W. Matthews, Washington, D. C. Two pamphlets.


Minneapolis, Mina Geological and Natural History Survey Four Reports.

Dr. C. S. Minot, Boston, Mass. One volume.

M. G. de Montellet, St. Germain-en-Laye, France Three pamphlets.

Münch, Germany Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte Two numbers Correspondenz-Blatt.

Münch, Germany Münchener Gesellschaft für Anthropologie, Ethnologie und Urgeschichte Three numbers Contributions.

M. le Marquis de Nadaillar, Paris, France Four pamphlets.

Nashville, Tenn. Tennessee Historical Society Pamphlet, twelve pieces of Confederate money.

Newcastle-upon-Tyne, England Society of Antiquaries One volume, one pamphlet.


New York, N. Y. Editor Scientific American Paper for the year.

Ottawa, Canada Geological and Natural History Survey Report, two volumes, one pamphlet.

Mr. Henry S. Parcoast, Philadelphia, Penn. Pamphlet.
Di Carl Passavant, Basel, Switzerland One volume
Paris, France Société amérique de France Two numbers Archives, one pamphlet
Paris, France Société d'Anthropologie Three numbers Bulletin
Paris, France Société d'Ethnographie Two numbers Annual, one number Bulletin, Report, one pamphlet
Paris, France Société de Géographie Four numbers Bulletin, seventeen pamphlets
Philadelphia, Penn Library Company of Philadelphia Two numbers Bulletin
Philadelphia, Penn Numismatic and Antiquarian Society Report
Mo Henry Phillips, Philadelphia, Penn Two pamphlets
Prof L Pugnetti, Rome, Italy Pamphlet
Proceedings, B I Public Library Report, Monthly Reference lists for 1884
Mo F W Putnam, Cambridge, Mass Four pamphlets
Riga, Russia Gesellschaft für Geschichte und Alterthumskunde der Ostsee-und Russlands One volume,
M Leon de Rouy, Paris, France Two pamphlets
St John, N C Bryan's Natural History Society Report, one number Bulletin
St Louis, Mo Academy of Science One number Transactions,
St Paul, Minn Minnesota Historical Society Report
Salem, Mass Essex Institute One volume, nine numbers Bulletin,
Dr Emil Schmitz, Leipzig, Germany Pamphlet
Prof G Sorgi, Bologna, Italy Pamphlet
Mo E E Shepherd, Newfield, Ind Two volumes
Stettin, Germany Gesellschaft für pommersche Geschichte und Alterthumskunde Four numbers Baltische Studien
Di H C Ten Kate, Paris, France Two pamphlets
Mr Cyrus Thomas, Washington, D C Two pamphlets
Mr C O Thompson, Punta Hume, Ind Two pamphlets
Mr E H Thompson Wentzler, Mass One volume
Toronto, Canada Canadian Institute Five numbers Journal, three numbers Proceedings
Washington, D C Bureau of Ethnology Report
Washington, D C Philosophical Society Bulletin
Washington, D C Smithsonian Institution Report
Washington, D C U S Geological Survey One volume
Dr Herbert Walsh Gettysburg, Penn Pamphlet
Col Charles Whittleson, Cleveland, O Pamphlet
Wilkes Barre, Penn Wyoming Historical and Geological Society Pamphlet
Mo Joseph Wilbor, Middletown, Conn Pamphlet
Hon Robert C Winthrop, Boston, Mass Two volumes, twelve pamphlets
Mo T H Wise, Wheaton, Ill Three pamphlets.
Worcester, Mass  American Antiquarian Society. Two numbers Proceedings

Prof G F Wright, Oberlin, O  One volume

Dr Harrison Wright, Wilkes Barre, Penn  Two pamphlets.

By purchase. American Antiquarian for 1884

"  "  Revue d'Anthropologie for 1884.

"  "  Science for 1884.

"  "  One volume

PHOTOGRAPHS.

Cincinnati, O  Society Natural History  Photograph.

Mr O A Derby, Rio Janeiro, Brazil  Six photographs.

G J Fisher, M D, Sing Sing, N Y  Photograph.

Dr S Kneeland, Boston, Mass  Six photographs.

Mr Henry MeGwin, Saratoga Springs, N Y  Photograph.

Mr Peter Neff, Gambier, O  Photograph.

Mr. S H Scudder, Cambridge, Mass  Seven photographs.

By purchase  Twelve photographs.
NOTES ON THE ANOMALIES, INJURIES AND DISEASES OF THE
BONES OF THE NATIVE RACES OF NORTH AMERICA

BY WILLIAM F. WHITNEY, M.D.,
Curator of the Warren Anatomical Museum, Harvard Medical School.

At the request of the Curator a study of the osteological collection of the Peabody Museum has been made with a view to establishing, as far as possible, what diseases existed on this continent among its original inhabitants. The collection is especially valuable for this purpose as it contains such a large number of well authenticated specimens, which have been found in the mounds, and ancient cemeteries in various portions of the country. These remains have been dug up with particular care for the preservation of the bones of the body as well as those of the head. The importance of this cannot be overestimated, for not only can the sex and age be more accurately determined, but also it can be more easily settled whether any pathological changes are the results of a local affection or of a general (constitutional) disease.

The evidences obtained from even the richest collection must be meagre at best and only the existence of a very few diseases can ever be proved. All those which implicate the viscera alone will have to be excluded, and it is only to such as either primarily or secondarily leave marks on the osseous system that any clue can be obtained. Even when alterations are seen here, the possibility of their being the results of the action of the atmosphere, soil or plants must be constantly borne in mind. For appearances are thus produced which closely resemble those arising from morbid processes. And yet on the other hand these same agents may easily obscure a loss of substance which has taken place before.

REPORT OF PEABODY MUSEUM, III 28 (433)
death. In determining whether a loss of substance is of an ante-
or post-mortem origin, it is to be remembered that a zone of
heightened activity usually surrounds that which occurred during
life. This is shown by an increased vascularity or by the forma-
tion of new bone or by the thickening of the old bone in the
immediate vicinity.

The lesions which have been found may be conveniently grouped
into three classes. First, those which represent simply variations
from the normal type, so-called anomalies, second, those which
have followed injuries; and third, those resulting from disease.

**Anomalies.**

**Shape of the head.** One of the most striking variations is in the
shape of the head produced by a pressure, applied either through
design or accident. This should strictly be classed among the in-
juries, but as distortion of the head observed in life has not had
any bad effect upon the health, it is best considered here.

The skulls showing signs of this are either flattened or short-
ened. The former come chiefly from the northwest coast, while the
latter are common in the stone graves and burial mounds of Tenne-
see and the adjoining states. In the flattened skulls the deformity
is unquestionably intentional. The forehead is very low and re-
treating and the posterior portion of the head rounded and bulging.
Such a shape would follow the continued application of pressure on
the frontal during the growth of the bones of the head. Most of
the skulls from the mounds and stone-graves are short, the fore-
head and top of the skull high and rounded, while the occipital
region is flattened. It has been suggested that such a form might
be the result of post-mortem pressure, as it is a well established
fact that bones which have lain in some kinds of soil become very
much softened and can be readily distorted by handling. But a
careful study, especially of the base, will show that this occipital
flattening must have been brought about during the period of
growth. A good index of this universal action is the angle which
the basilar process of the occipital bone makes with a horizontal
line with the skull in the normal position. This seems to be con-
siderably larger than in natural heads. It is necessary to state here
that the difference of these angles cannot be expressed in degrees
and minutes, as it is impossible to find points which are constant
enough for the application of a goniometer. The eye is the best instrument of precision here, just as it is in recognizing the features of different nationalities that are met with in the street. Individual crania may be brought forward as exceptions but it is by the average that the whole is to be judged.

Associated with the posterior flattening are islets of bone interposed in the course of the sutures, so-called Wormian bones, as well as the frequent persistence of the interparietal suture, which causes the occipital to look as if divided in two by a transverse line. The exact way in which flattening produced these results cannot be stated positively. Each of these little bones must have risen from a separate centre of ossification and failed to unite with the main portion. But how the posterior flattening (implying pressure there, accidental or otherwise) could bring about this it is difficult to understand, and any explanation would be simply an hypothesis.

In one skull, 27205, from a stone grave, Brentwood, Tennessee, there is apparently a suture in one of the parietal bones. This is perhaps best explained on the ground of there being a large and abnormally situated Wormian bone. The left parietal is separated into two parts by an indented line following quite closely the temporal ridge and connecting the coronal with the lambdoidal suture. A second skull, 12797, from a stone-grave near Nashville, Tennessee, was found which showed the commencement of a similar line of division. But here although it started from the same place in the lambdoidal suture, instead of reaching the frontal, it turned downwards after a short distance and joined the squamous suture. Such a piece as this cut off would be properly regarded as a Wormian bone, and the larger and more extended one is best looked upon in the same light. Whatever view is taken of the matter these two should be studied together.

Another change which can be directly associated with this posterior flattening is a narrowing of the auditory canal in an antero-posterior direction. Here again the eye rather than the compasses must be the guide as to the general outline. And this narrowing, as will be shown farther on, seems to stand in the closest relation to the production of osseous tumors, which are found at the entrance of the canal.

A persistence of the frontal suture occurs in skulls from different

1 See account of these skulls in Proc. A. A. A. S., Vol. 32, p 290
localities but probably not in so large a number as in modern Caucasian heads: 6735, San Mateo, California; 9144, 9185, Santa Cruz Island, California, 18277, stone-grave near Nashville, Tennessee, 27377, 27378, stone-graves near Brentwood, Tennessee, New England Indian, 2598, Tiverton, Rhode Island, also 861 from Tennessee, R. C S London.

A bony union of the atlas with the occipital was found several times. This is usually regarded as due to the growth of the paranasal process, which springs from an eminence just behind the jugular fossa. In one case the body of the vertebra was more or less absorbed and new bone deposited in places, as if chronic rheumatic arthritis had also been at work. Vancouver's Island, 844, R. C. S, California Indians, 9183, Santa Cruz Island and 13287, Santa Catalina Island, 27290, stone-grave, Brentwood, Tennessee, 25135, ancient cemetery, Nashvilleville, Ohio.

The teeth are frequently irregular and marks of extensive caries and alveolar abscesses are found in skulls coming from all parts of the country, but these should be a special subject for study and will not be considered in this paper.

INJURIES.

The next class comprise those bones which clearly show the direct result of violence as seen either in a dislocation or a fracture.

Of the former there was found but one example, which however deserves more than a passing notice.

It was a luxation of the hip in a California Indian, a woman of middle life, 13448, Santa Catalina Island. The right femur had been pushed backwards so that the head rested upon the edge of the great scatic notch. The acetabulum had been partially obliterated and another socket formed for the bone in its new position. The head of the bone was roughened and the outline of the articular surface irregular. This as well as the greater part of the neck of the femur was covered by a sort of cap of new bone, which was not united to the new socket. It must, however, have been in opposition to it as one of the edges was faceted. The leg was shortened about eighteen cm and its motion must have been greatly restricted. Such an injury must have been received

*R. C. S. Collection of the Royal College of Surgeons, London.*
a long time before death, or these structural changes could not have taken place.

As might be expected from the rough life of these early people, fractures were of frequent occurrence. There seems to be no way of distinguishing those which occurred directly before death from those soon after. Of course any breaks which were made in exhuming the bones may be readily distinguished by the freshness of the edges. In recent cases the hemorrhage between the bones is the important diagnostic feature of an ante-mortem from a post-mortem crack. As this evidence passes away in the process of decay there is left nothing by which to decide whether, for example, a mutilated skull is evidence of a death blow, of the vindictiveness of man upon the dead, or of a fall of earth some years after burial.

Those on the other hand which were not immediately fatal give unmistakable evidence in the attempts at repair with which they are associated. These will be considered in the natural order of the bones from above downwards.

Fractures of the Skull. In 11371, Haunted Cave, Kentucky, there is a depressed break which shows itself externally as an oval indentation in the right parietal bone with a depression of the inner table extending over a larger area. There are no evidences of repair, and therefore its exact relation to the time of death must be a little doubtful.

From Vancouver’s Island is a specimen in the Royal College of Surgeons (No. 845) having a fissure in the posterior part of the right temporal bone, probably the result of an ununited fracture. There is very little evidence at the widest part of any reactive inflammation, the edges being simply rounded off. Beyond the opening, however, there is to be seen a faint line as if union had taken place here, while the fissure resulted from the absorption of the bone, at the part where the injury had been more severe. Such a loss of substance is recognized as following head injuries, and specimens can be found in all anatomical museums 3.

Among the California Indians, a skull, 13551, San Clemente Island, probably of a female past middle life, has, in the posterior parietal region of the left side directly over the mastoid process, a depression which will admit the tip of the finger. Corresponding

3 No 971 of the Warren Anatomical Museum illustrates this.
to this on the inner surface an elevation can be felt. The edges
of the hole are smoothed off and there is only a slight crack in the
bone at the bottom. The openings for the vessels are plainly
larger on this side of the head than elsewhere. The injury might
have been produced by a blow from a sharp pointed stick or stone.
The person, however, must have lived many years after the injury,
as appears from the manner in which all the sharp edges of the
bone are rounded.

Among the skulls from the ancient cemetery at Madisonville,
25126 is of interest. It is the cranium of a young adult woman,
which has an oblong, shallow depression (3.5 by 4.5 cm) in the
posterior and upper part of the left parietal bone. The surface is
slightly roughened and through the centre passes an ill-defined
fissure which can be followed for some distance in either direction
into the normal bone. A blow from a rather long blunt instru-
ment might make a fracture like this, and the irregular surface is
due to a slight superficial exfoliation of bone which supervened.

One of the most injured is the skull of a person about forty
years of age, 11278, from a stone-grave, Nashville, Tennessee. At
first glance it seems as if this trouble were the result of an ulcerative
process, such as has been probably at work, but closer inspection
shows that an extensive break involving the greater part of the
left parietal region was the starting point. The main line of
the fracture is indicated by a crack commencing near the middle
of the coronal suture and extending downwards and somewhat
backwards for about 6 cm. It is bridged over in several places
and the edges are rough as if from attempts at repair. A second
line starts from the anterior part of the fissure about 1.5 cm.
from the suture and sweeps downward and backward in a sickle-
shaped curve for about 4 cm. Then it turns sharply forwards
and downwards and ends at the upper point of the sphenoidal
suture. This line marks a slight depression of the bone behind
it, which has, however, become firmly united in its new position.
Above the fissure and extending anteriorly over the forehead is a
band with rather irregular edges averaging about 2.5 cm in
width where the outer table has been destroyed and the diploe
laid bare by a carious process. Although this is one of the cases
in which it is difficult to say how much the appearances have been
exaggerated by weathering, still there is no doubt that an inflam-
matory process has been at work far beyond the original line of
fracture. This is proved by the existence of a narrow ridge of newly formed bone at the lower edge of the eroded portion of the forehead.

The number of cases of cranal fractures is so very small that too much weight cannot be attached to their position and appearance, but in the three last described there is a strong presumption in favor of their being due to intentional violence. The seat, the left side of the head, especially favors this view, as it presupposes that the persons who gave the blows were right-handed.

Fractures of the Clavicle. Of this there are four probable cases. Among the skeletons of the California Indians is a clavicle from 13449 which shows a slight deviation from the normal line accompanied by a little thickening at one point which is suggestive of an injury early in life. From a stone-grave, Brentwood, Tennessee, 27405 shows a like appearance near the middle of the bone, while 15904, from a stone-grave mound, Oldtown, Tennessee, has an old and firmly united fracture of the right bone with marked displacement. 27186, from a stone-grave, near Brentwood, Tennessee, is from a middle aged man and the bone was broken near the middle. The ends overlapped for a considerable extent and although they are well united, a marked deformity must have resulted.

Fractures of the Arm. In 27235, stone-grave, Brentwood, Tennessee, the right radius was broken near the middle, and the fragments had slipped by each other for some distance. They are strongly fastened together, but a section through the bone shows that the medullary cavity had not been restored. In the same person, a woman of about fifty or sixty years of age, there was also an oblique fracture of the right tibia in its lower third. In this, with a strong union, there has been but little displacement. The two fractures appear to be of about the same date and are possibly the result of the same accident.

There seems to have been an old injury in 27218, stone-grave, Brentwood, Tennessee, which involved the tubercle of the radius. The bone is thickened at this point and the outline is irregular. This is a very unusual place for a break to occur, and as the joint shows evidence of chronic rheumatic arthritis, it is possible that this inflammatory process may have been the cause of the distortion.

The ulna was found broken in one case, 27285, stone-grave, Brentwood, Tennessee, a man fifty to seventy years old. The injury was at the junction of the middle and lower third. The ends
have grown together solidly, accompanied by the formation of a large callus, and without much deviation from the normal line.

Fractures of the Femur. Two undoubted and one questionable case are in the collection. This last is that of a Californian, 13234, Santa Catalina Island, a man of about fifty years. One femur is distorted and slightly twisted upon itself in such a way as to suggest an incomplete break which must have occurred in early life, as there is no evidence pointing to any change in the structure of the bone.

The others came from stone-graves in Tennessee. In one, 15875, Oldtown, the junction of the lower and middle third of the shaft of the left femur was the place of the injury. The lower piece had been drawn upward and backward for the distance of 9 cm. In this new position it had been firmly soldered by a strong bony mass to the opposing surface of the upper fragment. Both ends are rounded off and the opening of the medullary cavity is obliterated.

In the second 15226, Nashville, the lesion is at about the same place, but a much better line has been preserved, and it has been suggested that this may be the result of an attempt at treatment rather than accident. The bony union is firm and its appearance recalls what would have taken place if the two ends had been joined by a flexible strap and had gone by each other as far as this would permit, and then the strap had suddenly become ossified. The amount of shortening is about 7 cm.

Fractures of the Tibia. Two others, besides 27235 already mentioned, were found. In 26590, ancient cemetery, Madisonville, Ohio, there had been an oblique break of the right bone. The line is still visible passing from the upper part of the lower third on the outside to just over the inner malleolus, the bone is strongly knit together and there is a minimum of deformity.

In 26600, from same place as last, the seat was similar but there is a good deal of toughening from an ossifying periostitis about the point of fracture which extends for some distance both above and below but gradually diminishing.

These are all that have been noticed, and it is remarkable that no case of impacted fracture of the neck of the femur has been found, which is of such frequent occurrence in old people.

*The lesions found in the skulls and bones from the caves in Mexico have already been noticed by Miss Studley in the XVI Report of the Museum.*
DISEASES.

**Exostoses.** Although new growths of bone are often the accompaniment of the repair of injuries, yet at times a circumscribed growth of this sort is found which cannot be associated in any way with violence. Such must be called bony tumors, or exostoses. They do not have any tendency to generalize themselves throughout the system and are inconvenient only from the place where they grow.

One of the most frequent seats for these is at the entrance of the auditory canal and the attention of different observers has been attracted to it. Various explanations have been offered for the occurrence of the growth in this situation, but none of these is entirely satisfactory. There are a few facts which are capable of being sustained, the value of which can be better appreciated after a short consideration of the formation of the normal meatus auditorius.

In the symmetrical skull of an adult European, the canal of the ear has in general a round, slightly flaring opening. If the free edge of this is carefully examined, it will be seen that it is not continuous all the way round but at the upper and posterior part there is a gap of varying width. This, however, is filled out by a portion of the mastoid process of the temporal bone, with which the lips bordering the gap are more or less intimately fused. A good idea can be had of this by imagining a short trumpet-shaped tube along one side of which a V-shaped piece has been taken out and then this stopped up again by soldering the lips of the gap against a larger piece of the same material.

If now the flattened skulls are examined it will be found generally that the meatus is narrowed from before backwards and the lips are often slightly thickened and raised up. From this simple thickening all stages can be traced, up to the formation of round osseous growths as large as peas, which in one or two cases have completely blocked up the opening. In almost all cases the exostoses or rather hyperostoses could be directly referred to outgrowths from these lips. In a few cases a tumor was formed in other parts of the wall of the meatus, and there is no reason why they should not happen there as well as in any other part of the skeleton. When one lip alone was affected it was more frequently the inferior.

Other facts, brought out by a study of the cases in which the
hyperostoses occurred, were that the subjects were as a rule men past middle life, with massive bones.

There is no absolute demonstration possible that it is the narrowing of the meatus from posterior pressure in early youth that gives a vicious twist to the tympanic ring and places it in a condition favorable to give rise to such outgrowths in after years. All that can be said is that it occurs more frequently in such heads than in those that are normal or flattened by anterior pressure which does not apparently affect the shape of the meatus. And further the similarly flattened heads of the ancient Peruvians show also a large per cent affected with hyperostoses.

It is not claimed that this deformity is the sole cause, but that it simply increases a tendency which is universal.

These hyperostoses were found in a greater or less degree in the skulls from the following localities:

Colorado, La Platte Co., 14, 101. California, Santa Cruz Island, 9117, 9125, 9126, 9127, 9135, 9143, 9156, 9159, 9166, 9178, 9181, 9189, Santa Catalina Island, 13233, 13234, 14789, East Florida, 2909, 2984, Mexico, caves in Coahuila, 22046, 22047, 22049, 22052, 22079, 22082, 22087, Montreal, Iroquois Indian, 25530, Kentucky, mounds, 2342, 8046, circular grave, 8051, 8052, 8054, caves, 8087, 11343, Tennessee, stone-graves, 11850, 11968, 12295, 12297, 12300, 12306, 12310, 12323, 12802, 12803, 12805, 12816, 14003, 14006, 14090, 14091, 14096, 14118, 14256, 15211, 15218, 15215, 15219, 15827, 15839, 15909, 15904, 15910, 15913, 15995, 15997, 16003, 16006, 17279, 18248, 18251, 18258, 18274, 18277, 18280, 18405, 18503, 18504, 18505, 18576, 18599, 18609, 18614, 18620, 20729, 20733, 20736, 20738, 20762, 20781, 27282, 27284, 27292, 27305, 27318, 27366, 27370, 27377, 27387, Iowa, 16092, Arkansas, mounds, 21198, 21246, 21260, 21264, 21329, 21334, 21489, 21515, Ohio, ancient cemetery, Madisonville, 25123, 25589, also from Tennessee, 870, 875, R. C. S., London.

Besides these, other exostoses were seen on various parts of the skeleton but none of very large size.

From the Californian Indians, a skull 9112, Santa Cruz Island, has a slightly raised and thickened formation of new bone about 1.5 cm in diameter in the upper part of the right parietal. Skull 9160, from the same place, has a small growth (0.75 cm in diameter) on the right side of the frontal bone. 9170, Santa Cruz Island, has a similar nodule on the left side, 2 cm in diameter.
and about 2 mm in thickness. At the posterior third of the sagittal suture in 9185, also from Santa Cruz, is a rough, irregularly shaped, oval exostosis (2.5 cm long by 1.25 cm wide by 0.5 cm thick). This possibly followed some old injury of which it is the only remains. A skull from Santa Catalina Island, 13238, has a small bony tumor on the body of the first sacral vertebra.

Among the skulls from Tennessee and Ohio, there is frequently a tendency to thickening along the alveolar process of the upper jaw. One of the most marked cases is 13825, stone-grave mound, Oldtown, Tennessee, where this has become almost a perfect fringe of nodular tumors, most marked over the molar teeth. Not much stress is to be laid upon these except as one of the local expressions of the rugged character of the bones of this old people. Other specimens are 27200, 27236, and 27282, stone-graves, Blountwood, Tennessee.

Skull 11970, from a stone-grave mound, near Nashville, Tennessee, has a rough growth of bone, which recalls the appearance of the bark of a tree. Its general shape is oval (7 cm. by 5 cm.) and its centre is situated at the point where the sagittal suture joins the lambda and from there extends over a portion of both parietals and the occipital. It is in all likelihood to be referred to a blow, as there is an indistinct line passing through it which can be traced for a short distance on either side.

From a stone-grave in the Blountwood cemetery, is one specimen, 27242, which shows a slight thickening over the left orbit. In another is a small exostosis on the inside of the right max bone.

In one of the ash-pits in the ancient cemetery at Madisonville, Ohio, was found a metatarsal bone, 27723, with numerous small ivory-like nodules along the shaft.

Periostitis. The next series of lesions are those which are the result of an inflammation of the periosteum. This is manifested by a deposit of new bone of greater or less extent, along the shaft or some of the long bones, especially the tibia. 5

In 12027, from a stone-grave near Lebanon, Tennessee, the whole shaft is irregularly thickened mostly from two oblong nodular enlargements one about the middle and the other near the upper part. The structure of the deposit is light and porous.

*For the evidence necessary to prove this, as well as other changes, are the results of syphilis, see Best Med. and Surg. Journal Vol 108. p 365.
ville, Tennessee, show a generally increased thickness rather more marked at the upper part, but occurring throughout the circumference of the bones, and a section clearly shows the periosteal origin of the trouble.

In 15882, stone-grave, Obitown, Tennessee, the affection is still more nodular in character and confined to the upper portion. Here the bone itself seems to have taken an active part.

The right tibia of 27232, stone grave, Brentwood, Tennessee, shows a marked enlargement in the inner side, commencing below the spine and extending downwards for about 10 cm. It is in general smooth, but not eburnated, with a tendency to increased vascularity.

A portion of a tibia, 27261, also from Brentwood, has a firm smooth thickening along the crest.

The same general conditions also exist in 27283, 27306, from the stone-graves in Brentwood cemetery, and 12041, stone-grave mound near Lebanon, Tennessee, 26630, from ancient cemetery, Madisonville, Ohio, and 13241, from Santa Catalina Island, California.

The disease known as chronic rheumatic arthritis has left its marks in roughness and deposits on the edges of articular surfaces and on the bodies of the vertebrae.

One of the most marked examples is from a Californian, 13553, San Clemento Island, where the edges of the articular surface project some distance owing to these osseous growths.

The following cases of articular affection are all from stone-graves, Brentwood, Tennessee. In 27218, the bones of a man past middle life, both elbow joints are roughened and irregular and the surface in spots looks like ivory. His joints must have grated like a rusty hinge when he attempted to move them, and the stiffness and restricted motion must have been the same as is seen in the rheumatic cripple of to-day. The vertebrae also show a similar condition.

27232 Large bony growths along the edges of the vertebrae. In this case, also, it will be remembered there is thickening of the tibia, which may be considered as another expression of the rheumatic diathesis.

27234 Thickening along the edges of the vertebrae.

27237 This has a thickening of the odontoid process and about the edges of the articular surfaces of the atlas.
27315. A jagged thickening on the borders of the lower articular surface of the right ulna.

27311. A pair of femora from an adult and 27332, a tibia, have a raised ridge of bone about the border of the joint.

Caries Three remarkable specimens are in the collection.

The first 17223, stone-grave mound, near Nashville, Tennessee, affected the spine and there resulted an extreme case of anterior angular curvature. The disease had destroyed almost the whole of the bodies of the lower cervical, or upper dorsal vertebrae, and they had then become united into a firm mass. The spinal column at this point was bent forward so as almost to touch, there being but a few centimetres distance between what are taken to be the bodies of the 4th cervical and 5th dorsal vertebrae. The amount of deformity must have been very great.

In this connection it is curious to note that there are in the Museum, found in the stone-graves of children in Tennessee, little clay images which are faithful representations of persons affected with Pott's disease, and that many of the water-bottles from the stone-graves of Tennessee and from the mounds of Missouri, represent women with hunchbacks.

From the mental acuteness which is so often associated with this malady, it is easy to conceive that such deformed people may have been held in peculiar veneration, or there may have been some superstition in regard to their protective influence. At all events this spine furnishes the veritable proof of the existence of persons so afflicted.

The second case of caries is found in bones, 27372, from a stone-grave in Brentwood, Tennessee. The articulating surfaces of the right femur and tibia forming the knee joint show marked erosions of the smooth hard layer of bone on which the cartilage rests. At first sight this might be attributed to the results of weathering; but closer inspection reveals the fact that there is a marked increase in the size of the openings for the nutrient vessels for some distance from the joint on either side, and that here and there the shafts are roughened by small pieces of newly formed bone. From this the inference is justified that the destruction noted above is the result of a chronic inflammation which in no way differs from the so-called "white swelling" of the knee that is always to be found in the surgical wards of any large hospital.
In the third case, 11891, stone-grave mound, Nashville, Tennessee, it is the ankle joint that is implicated. The opposing surfaces of the left tibia and astragali are entirely honeycombed by deep depressions separated by irregularly shaped bony trabeculae with rounded or roughened edges. In the lower part of the tibia is seen a cavity communicating with the external surface by a small canal opening through the inner malleolus. Lying free in the cavity is a piece of dead bone, too large to pass through the hole.

These cases are interesting from the fact that such processes are now supposed to be the result of a local tuberculosis, and if this existed it is fair to assume that the internal organs must have suffered also from tuberculosis, the most common seat of which is in the lungs in some form of pulmonary consumption. This assumption is verified by one of the early writers on the habits and life of the Indians, who says of them, "C'est peut-être du même principe et de ce qu'ils ont toujours l'estomac et la poitrine découverte, qu'ils contractent une espèce de phthisie, qui les minant peu à peu, en conduisant la plus grande partie au Tombeau et à laquelle ils n'ont pu encore trouver du remède."

There remain to note a few skulls which have cicatrices pointing to more or less extensive inflammation, the cause of which is still obscure.

The skull of a female of middle life, 18264, from a stone-grave mound, on the Little Harpeth river, Tennessee, has a number of slight cicatized depressions, more or less distinctly connecting, passing completely round the head on the line of the forehead. Their form is chiefly linear but in one or two places they cover spots as large as a finger nail. The parietal protuberances and frontal bone show the most extensive marks and from the latter it passes down over the bridge of the nose. The right lacrimal canal is filled by a new and symmetrical growth of bone almost occluding it.

Another skull presenting somewhat similar cicatrices, is 733, from a mound in Kentucky, in the Army Medical Museum at Washington. The whole surface of the parietal, frontal and occipital bones is covered by shallow cicatrices having a firm base, and near which are minute perforations through the intact outer table into the diploe. Some of these depressions look as if they had been made by placing a finger on the softened bone, while others

---

6 Luftau, Vol II, p 360, Paris, 1724. This reference was kindly furnished by Mr Lucien Carr.
are slightly star-shaped or else are linear and anastomose surrounding islands of unaffected bone.

The general and extensive changes of these two skulls can be explained best by the assumption of a syphilitic affection. But the appearances are not quite characteristic. There is wanting the peculiar ivory-like lustre to the healed spots and the accompanying sclerosis of the bone in general.

In No. 20180, an imperfect calvarium from the Stanley Mound, St. Francis River, are a number of very slightly depressed and radiating eustacées situated chiefly on the frontal bone. The grooves for the arteries are very deep on the inside, but the bone is not in general sclerosed.

The maxillary bones are of interest and it is a pity that the bones of the face are in such a fragmentary condition that the exact extent of the lesions cannot be satisfactorily made out.

In the right antimon of Highmore the posterior wall is thickened, and the superior is covered with specular exostoses, while a large linear one reaches from near the opening across the bottom. The whole inner surface of the bone is rough and to it the lower part of the palate bone is intimately blended. Only a narrow strip of the hard palate is left and it is difficult to decide how much of the loss must be attributed to post-mortem action. But just in line with the lacrimal canal, is a rounded and roughened edge, which must have formed part of a perforation into the mouth that existed during life. A fragment of the right side of the "sella Turcica" with an attached bit of the great wing of the sphenoid and pterygoid plates shows marks of roughening similar to that on the maxilla and palate bones as if an inflammation had extended upwards from this point. The edge of the anterior nares seems more rounded and deeper than normal.

There is less remaining of the left maxilla than of the right, but the same roughness of the internal surface is seen, and this has extended forwards partially filling up the edge of the anterior nares on this side. The socket of the first molar which lies directly beneath has evidently been the seat of an abscess, and it is possible that this stands in a causal relation to the changes seen on the bones bounding the nasal fossae. It would be difficult, however, to bring this into relation with the eustacées on the forehead.

At the Army Medical Museum in Washington are the bones of
the face, with the frontal bone attached (748), from a mound in Kentucky, showing the probable effects of a large tumour. This had completely filled up the nasal fossae and had rounded off the edges of the nasal and maxillary bones forming the boundaries of the anterior nares. The septum of the nose and turbinate bones have entirely disappeared and the ethmoidal cells were freely opened. Through the hard palate there is an oval opening extending from just behind the alveolar process through the entire length of the hard palate, leaving a narrow strip of bone on each side. The edges of this opening are rounded off similarly to those of the nose. Possibly there may have been a congenital cleft palate into the opening of which the new growth extended.

From the foregoing account it will be seen how great is the necessity of preserving the bones of the skeleton as well as the skull, and how much is still to be filled out by the help of future explorations, which will allow what has now to be laid aside to be pronounced upon with certainty.

In closing, thanks are due to the curators of the Royal College of Surgeons in London, of the Société d'Anthropologie in Paris, and of the Army Medical Museum in Washington for the facilities which were so kindly extended for the study of the collections under their charge.