**Report of the United States Commission to the Columbian Historical Exposition at Madrid : 1892-93 : with special papers.**


**Contributors**

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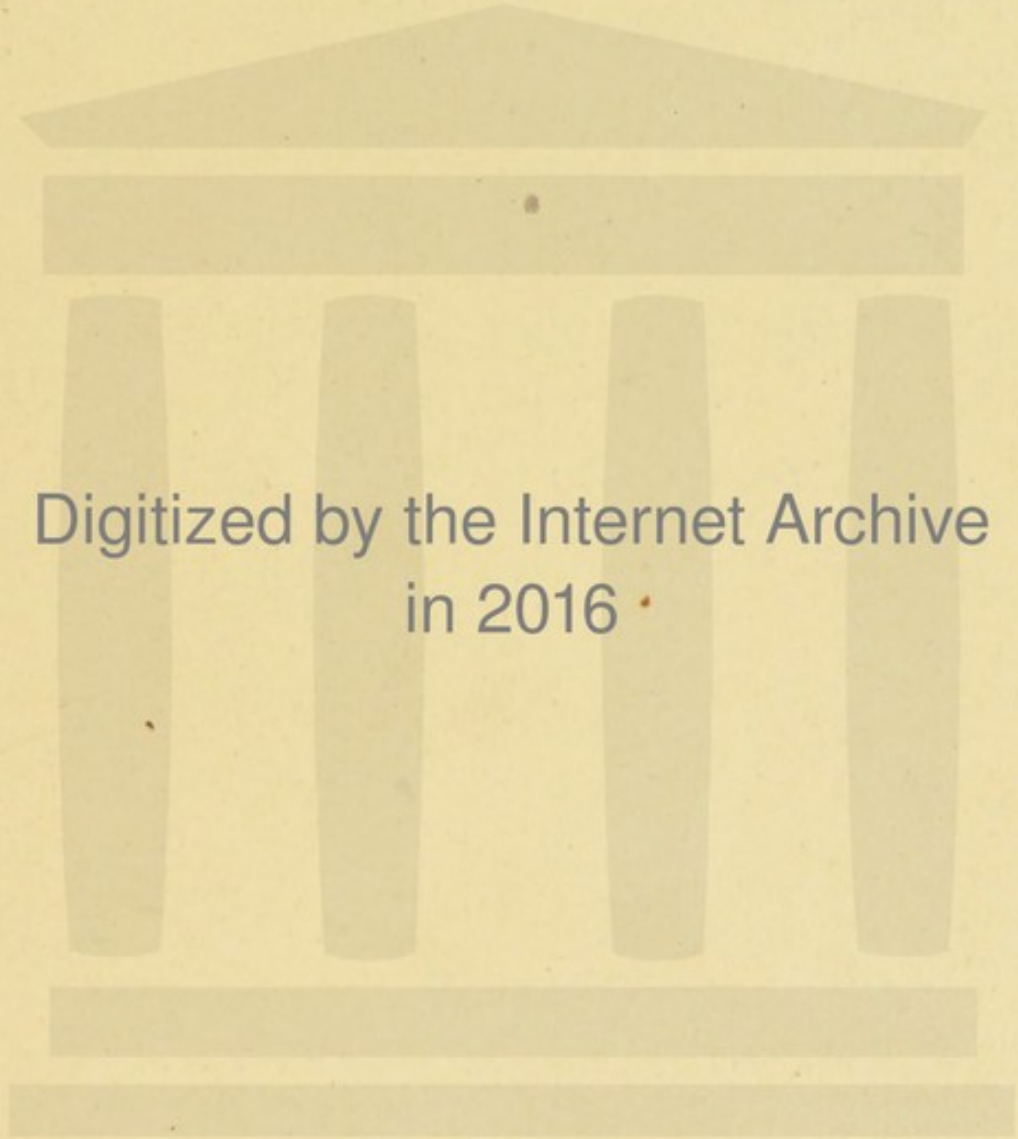
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# REPORT

OF THE

# UNITED STATES COMMISSION

TO THE

# COLUMBIAN HISTORICAL EXPOSITION

# AT MADRID.

1892-93.

WITH SPECIAL PAPERS.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1895.

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# MESSAGE

FROM THE

# PRESIDENT OF THE UNITED STATES,

TRANSMITTING

*The report, with accompanying papers, of the Commission of the United States for the Columbian Historical Exposition at Madrid in 1892 and 1893.*

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DECEMBER 11, 1894.—Referred to the Committee on Foreign Affairs and ordered to be printed.

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To the CONGRESS OF THE UNITED STATES:

I transmit herewith a communication from the Secretary of State, inclosing the report, with accompanying papers, of the Commission of the United States for the Columbian Historical Exposition in Madrid in 1892 and 1893, constituted in virtue of the act of Congress approved May 13, 1892.

GROVER CLEVELAND.

EXECUTIVE MANSION,
*Washington, December 10, 1894.*

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To the PRESIDENT:

I submit herewith, with a view to its transmission to Congress, a communication from Prof. G. Brown Goode, inclosing the report, with accompanying papers, of the Commission of the United States for the Columbian Historical Exposition, held in Madrid in 1892 and 1893, constituted in virtue of the act of Congress approved May 13, 1892.

Respectfully submitted.

EDWIN F. UHL,
*Acting Secretary.*

DEPARTMENT OF STATE,
*Washington, December 7, 1894.*

COMMISSION OF THE UNITED STATES OF AMERICA
FOR THE COLUMBIAN HISTORICAL EXPOSITION IN MADRID,
*Washington, December 5, 1894.*

SIR: I have the honor to submit the report of the Commission of the United States of America for the Columbian Historical Exposition in Madrid during the months of November and December, 1892, and January, 1893.

The time which has elapsed since the conclusion of the Exposition has been necessarily occupied in the completion of the special reports. This work has not been so rapidly forwarded as it would have been had not the time of most of the persons engaged upon these reports been absorbed for a considerable period by duties in connection with the World's Columbian Exposition in Chicago.

Very respectfully,

G. BROWN GOODE,
*Acting Commissioner-General.*

The SECRETARY OF STATE.

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# HISTORY OF THE PARTICIPATION OF THE UNITED STATES IN THE COLUMBIAN HISTORICAL EXPOSITION AT MADRID.

By the Commissioner General, Rear-Admiral STEPHEN B. LUCE, United States Navy.

WASHINGTON, D. C., *May 2, 1893.*

SIR: The Columbian Historical Exposition at Madrid having closed, and the Commissioners having completed the duty assigned to them, the Commissioner General begs leave to submit the following report:

By virtue of an act of Congress approved May 13, 1892, the President appointed a Commission to represent the United States at the Commemorative Celebration, in Spain, of the Fourth Centenary of the Discovery of America. The text of the act runs as follows:

*Be it enacted, etc.*, That for the expense of representation of the United States at the Columbian Historical Exposition to be held in Madrid in eighteen hundred and ninety-two in commemoration of the four hundredth anniversary of the discovery of America, fifteen thousand dollars, or so much thereof as may be necessary, to be expended under the direction and in the discretion of the Secretary of State; and the President is hereby authorized to appoint a Commissioner General and two assistant Commissioners, who may, in his discretion, be selected from the active or retired list of the Army or Navy, and shall serve without other compensation than that to which they are now entitled by law, to represent the United States at said Exposition; that it shall be the duty of such Commissioners to select from the archives of the United States, from the National Museum, and from the various Executive Departments of the Government such pictures, books, papers, documents, and other articles as may relate to the discovery and early settlement of America and the aboriginal inhabitants thereof; and they shall be authorized to secure the loan of similar articles from other museums and private collections, and arrange, classify, and install them as the exhibit of the United States at the said exposition; that the President is authorized to cause the detail of officers from the active or retired list of the Army and Navy, to serve without compensation other than that to which they are now entitled by law, as assistants to said Commissioners; and the said Commissioners shall be authorized to employ such clerical and other assistance as may be necessary, subject to the approval of the Secretary of State.

This act was supplemented by the act approved August 5, 1892, which appropriated the additional sum of $10,000 for the expenses of the Commission.

Under the provisions of the former act the following members were appointed: S. B. Luce, rear-admiral, United States Navy (retired),

Commissioner General; James C. Welling, LL. D., president of Columbian University, and George Brown Goode, LL. D., assistant secretary of the Smithsonian Institution, Commissioners; Lieut. John C. Colwell, United States Navy, special disbursing officer; Mr. William E. Curtis, and Prof. Thomas Wilson, assistants; Mr. Stewart Culin, secretary, and Mr. Walter Hough, assistant.

Dr. Welling was, unfortunately, obliged to resign at a very early period, by which the Commission was deprived of all the advantages of his ripe scholarship and sound judgment; and Dr. Goode, soon after reaching Madrid, found himself compelled, through physical disability, to return to the United States. The loss thus sustained by the Commission of two gentlemen so eminent in their respective domains, was severely felt, the more so from the fact that, for the time being, it was irreparable. Later on, Prof. Thomas Wilson, by reason of family affliction, returned to the United States, which reduced the actual working force to but two members, Messrs. Culin and Hough. Fortunately, there was at this juncture an important accession to the party in the person of Dr. Daniel G. Brinton, whose wide reputation and high standing in the world of science renders any special notice here unnecessary. Dr. Brinton was commissioned by the President as successor to Dr. Welling. Lieut. J. C. Colwell, United States Navy, was detached February 2, 1893.

The Spanish Government, in pursuance of a royal decree under date of January 9, 1891, provided for a series of international celebrations, prominent among which were the two joint historical expositions held in Madrid—one the Exposición Historico-Americana, the other the Exposición Historico-Europea. This report deals with the former only.

The Historic American Exposition was intended to illustrate the state of civilization of the New World in the precolumbian, Columbian, and postcolumbian periods; while in the Historic European Exposition was exhibited the evidences of the civilization of Europe, or, more particularly, that of the Iberian Peninsula, at the time when the New World was discovered and colonized. It was expected that, by the aid of these exhibitions, students and visitors generally would be enabled to understand the state of artistic and industrial civilization in Europe and in America during this important epoch, and to realize the influence which the one may have exercised upon the other.

The period which the distinguished scholars in charge of the Historic European Exposition desired especially to illustrate was that during which American history was most closely identified with that of Europe. This, it was assumed, extends from 1492, when the Spanish caravels first reached the Antilles, to 1620, when the *Mayflower*, setting forth from a Dutch seaport, brought the English Puritans to what is now known as New England.

"The Columbian Epoch," extending from the end of the fifteenth century through the first third of the seventeenth, includes most of

the principal initial efforts for the exploration and colonization of the new continent by Europeans. By bringing together, in a retrospective exhibition, what remains to illustrate the arts and industries of Europe at this time, it was the aim of the Spanish authorities, to quote their own language, "to teach the people of to-day what were the elements of civilization with which, on the side of the arts, Europe was then equipped for the task of educating a daughter, courageous and untamed, but vigorous and beautiful, who had risen from the bosom of the seas, and who, in the course of a very few centuries, was to be transformed from a daughter into a sister—a sister proud in aspiration and in power."

This great and laudable design, it may be briefly stated here, was well carried out, and the success of the enterprise fully justified the hopes of the projectors.

The exhibits of the Historic American Exposition were divided into three great series. The first included American prehistoric remains, the earliest indications of the existence of man in caves, neolithic monuments, lacustrine dwellings, and the arms and utensils of this primitive age. The second illustrated the characteristics of the American aborigines just prior to the discovery. The third represented the period of discovery, of conquest, and of European influence up to the middle of the seventeenth century.

There were other "functions" in connection with the Columbian anniversary, such as the meeting of the Congress of Americanists, which was held at Huelva in commemoration of the four hundredth anniversary of the departure of the caravels of Columbus from the port of Palos; and, on the 11th of October, there was unveiled near the ancient monastery of La Rabida, in the presence of the Queen and her court, and a vast assemblage, a monument erected to commemorate the discovery of America; while congresses representing various scientific and mercantile interests were held at various times and places.

The management of the commemorative celebration was, according to the decree already referred to, entrusted to a royal commission, the President of which was the Prime Minister of Spain, His Excellency Don Antonio Cánovas del Castillo. Subcommissions were organized in each of the Spanish-American Republics, and special commissions were appointed by the governors of the Spanish provinces and the governor-general of the Antilles and the Philippine Islands.

By the terms of the royal decree the Exposition was to have been opened on the 12th of September, 1892, and closed on the 31st of December following. But, from one cause and another, the rooms were not thrown open to the public until the 30th of October.

On the 11th of November the Exposition was formally inaugurated by Her Majesty the Queen Regent, Maria Christina of Spain, assisted by their Majesties the King and Queen of Portugal.

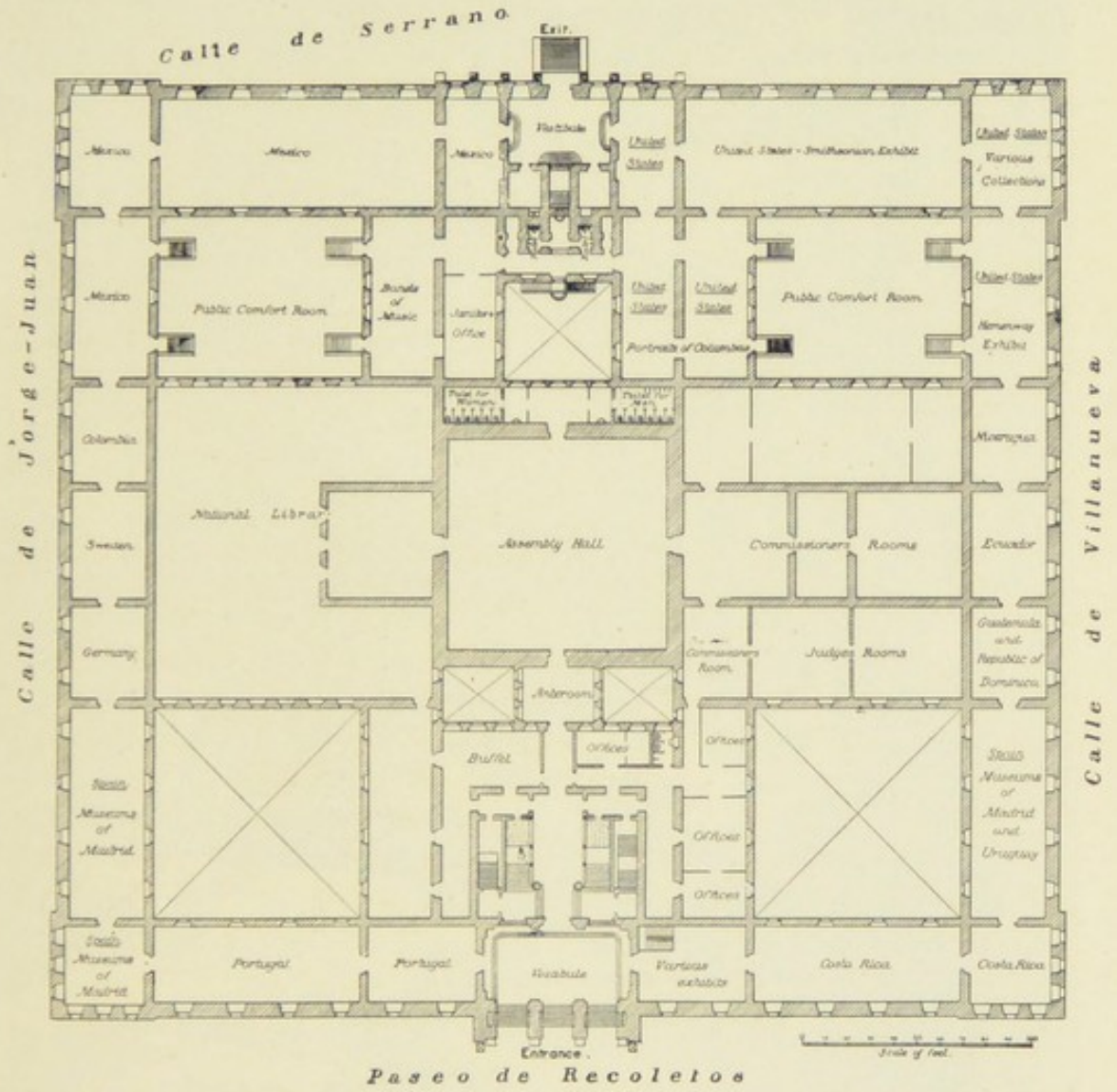
The Historic American portion was closed on the 31st of January.

The following countries, named in alphabetical order, furnished exhibits: Argentina, Bolivia, Colombia, Costa Rica, Denmark, Ecuador, Germany, Guatemala, Mexico, Nicaragua, Norway, Peru, Portugal, Spain and her colonies, Sweden, United States, and Uruguay. The total number of objects presented reached nearly two hundred thousand.

The Exposition was held in the new and handsome building known as "El Palacio de la Biblioteca y Museos Nacionales," its imposing façade looking upon El Paseo de Recoletos. The eastern entrance, the one which, for its greater convenience, was habitually used by the United States Commissioners, is on the Calle de Serrano. Entering from thence the vestibule, the rooms assigned to the United States exhibit were on the left, as will be seen by reference to the accompanying plan. There were six rooms in all, the largest being 37.60 meters long by 14.30 meters wide and proportionately high. The total area of the allotted space was 14,500 square feet. The first room of the series was intended as a reception room (Pl. I). It was hung with tapestries, kindly supplied for the occasion from the royal palace; furnished with figures and pictures from the United States National Museum illustrative of Indian life; and was tastefully draped with the national colors of Spain and Portugal, Italy, Austria, and the United States. Passing through this the visitor came at once into the principal room occupied by the exhibit of the National Museum. Immediately on the right were the two rooms designated in the catalogue as the "Iconografia Colombina," consisting of a fine collection, made through energy and enterprise of Mr. William E. Curtis, chief of the Bureau of Latin-American Republics, of every available portrait of Columbus and pictures relating to his life and voyages. Originals were procured wherever possible, and, in default of such, well executed reproductions. These rooms were artistically decorated, and, from the rarity and unity of the collection, attracted no little attention.

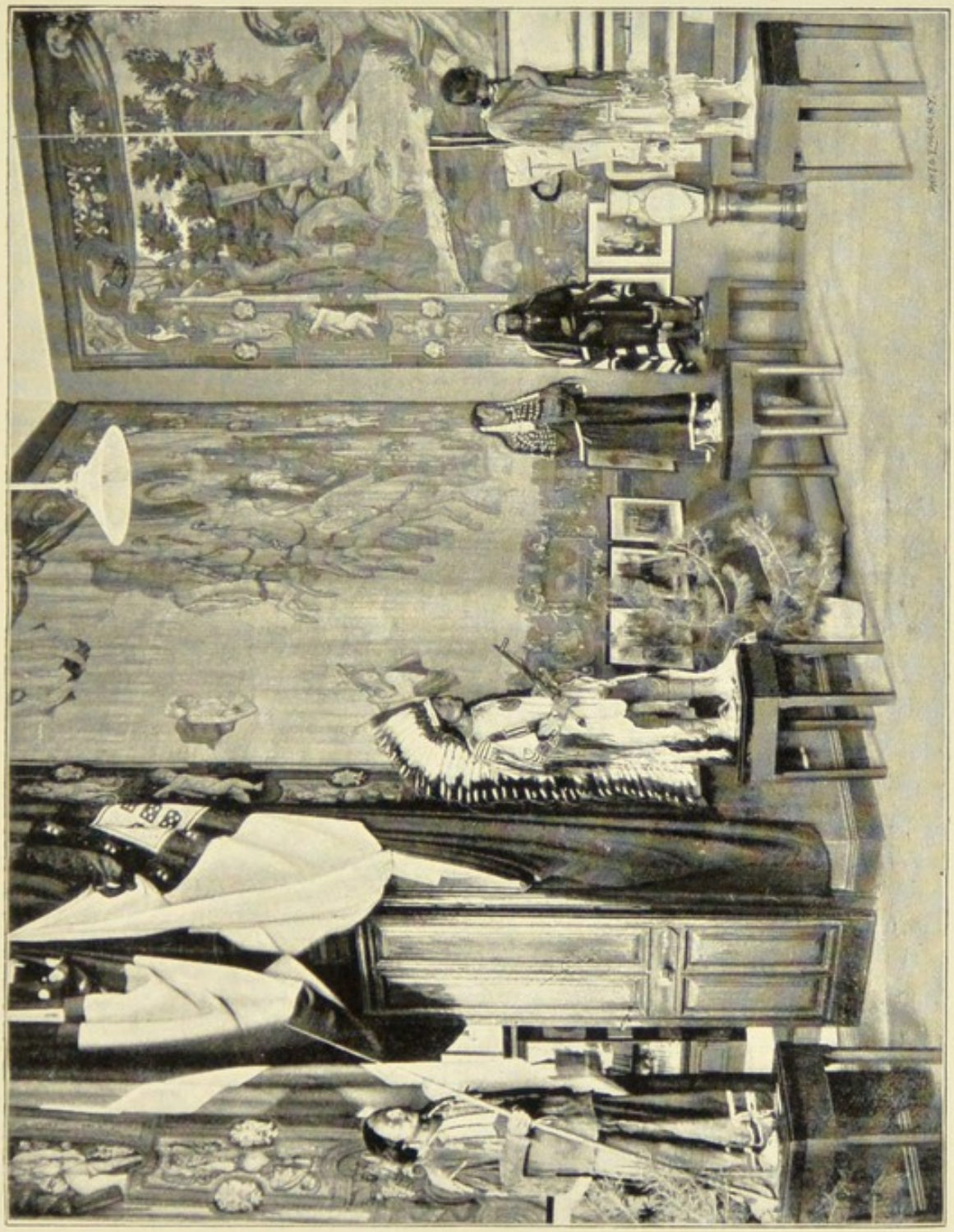
Returning to the main salon, indicated on the plan as No. 2, the eye was at once arrested by the fine proportions of the room as well as by the variety and extent of the exhibit. (Pls. II and III.)

The excellence of the general arrangement was due to the large experience and practical, as well as theoretical, knowledge of Dr. George Brown Goode. The system of installation observed in the National Museum, Washington, was adopted throughout, and proved very effective. The principal object of interest found here was the fine ethnological collection from the United States National Museum, illustrative of the life of the American aborigines, and largely explanatory of the prehistoric objects. It consisted of manikins and photographs of the Indians, pictures of scenery, models of houses, weapons and equipments of war and the chase, such as bows, arrows, quivers, armor, daggers, clubs, spears, fishing lines, hooks, etc. There were also objects connected with the preparation and serving of food and

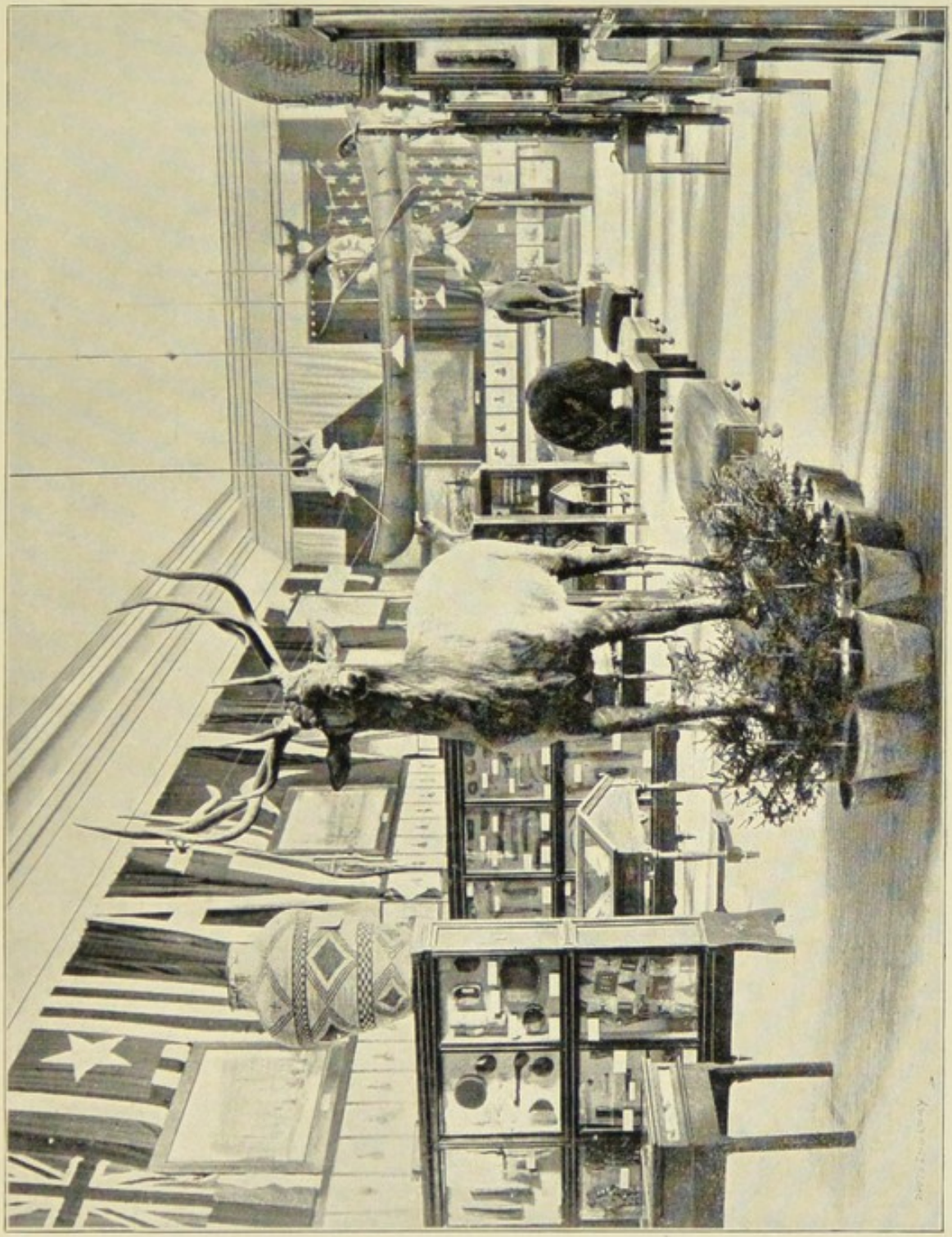



PLAN OF THE LIBRARY AND NATIONAL MUSEUM, MADRID, SPAIN.

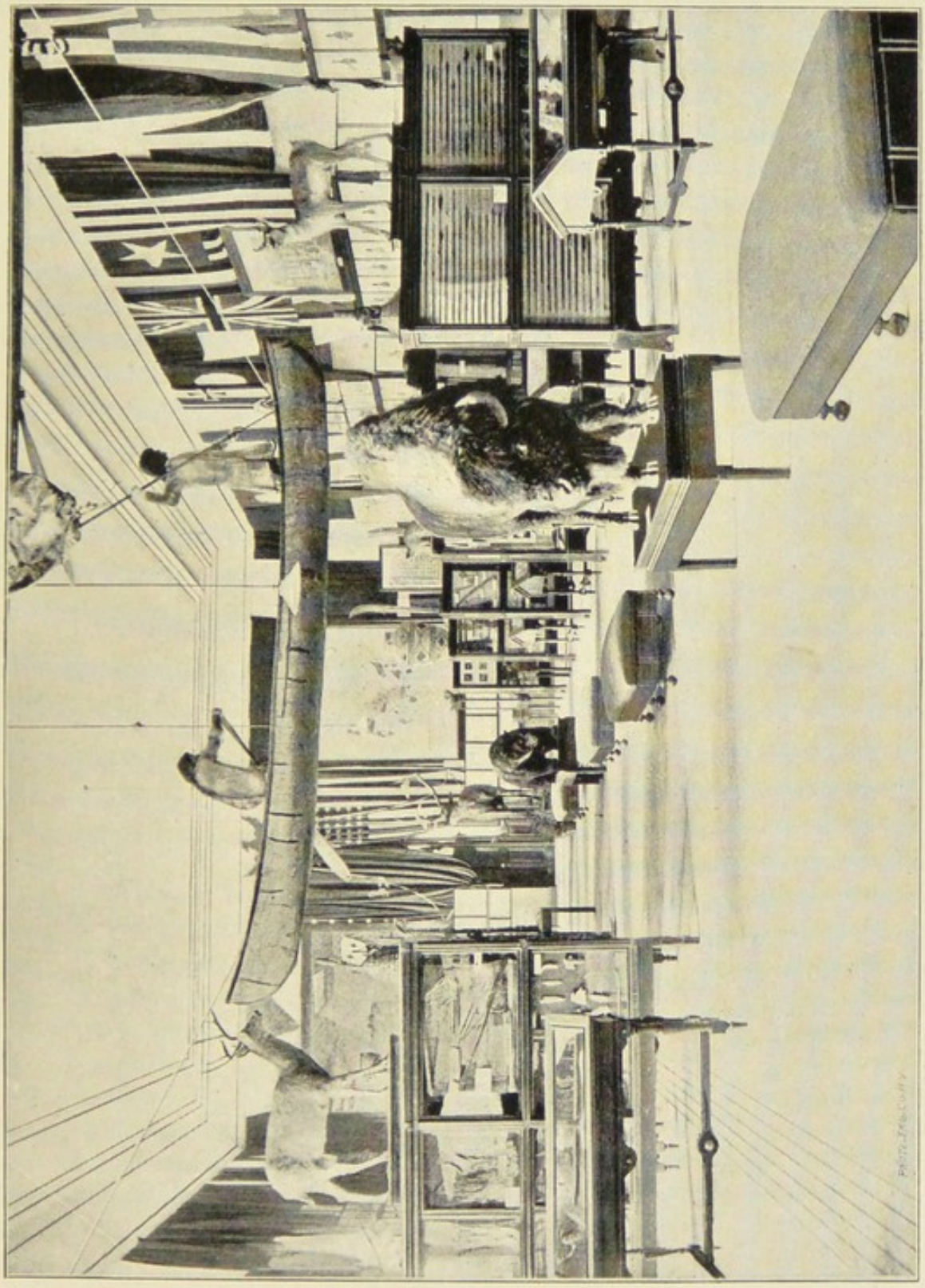
Showing the location of the American exhibits.



VIEW OF RECEPTION ROOM, UNITED STATES SECTION.



VIEW OF MAIN HALL, UNITED STATES SECTION (LOOKING NORTH).



VIEW OF MAIN HALL, UNITED STATES SECTION (LOOKING SOUTH).

drink, cradles, and household furniture. Canoes, snowshoes, sledges, etc., showed the means of transportation.

The aboriginal arts claimed a large share of attention. Weaving was illustrated by looms and spinning apparatus and finished textiles, and the methods of operation were explained by diagrams and photographs. Baskets in process of manufacture, and similar articles of industry, leading up to the finely ornamented hats and wallets, made a good display.

The tools and apparatus connected with the arts of the tanner, potter, miller, shoemaker, basket maker, arrow maker, carver, jeweler, etc. and, in many cases, the finished products were shown after the most approved museum methods.

There was a series of pipes finely carved from stone and bone, and a number of snuff mortars, snuff tubs, etc., connected with the use of narcotics, filling one case.

Higher up in the scale of ideas were the pictured blankets, engraved bones, and scratched sheets of birch bark, showing the stage of writing or the system of recording events common among the American aborigines.

Primitive money and means of exchange were shown by shell money, bits of copper, pelts of birds, etc., forming the native medium of circulation.

There were many musical instruments, consisting of rattles, flutes, whistles, reed instruments, and drums, from various tribes. Quite a large number of objects of clothing and of personal adornment, the products of many diverse trades, revealed the aesthetic side of the Indian character.

Religion and superstition and closely-connected ceremonies were explained by many different fetiches, charms, amulets, masks, figures, picture of the rain-making ceremony, dances, etc.

One case of "mound-builder" pottery, from the area east of the Mississippi, was very interesting from the representation of human and animal forms and the style of decoration. Two jars in form of human heads, among the most remarkable specimens ever taken from the mounds, attracted much attention. Another case of ancient and modern Pueblo pottery gave a good idea of the forms and decoration of this class of ware.

Four cases of stone implements, rejected in process of manufacture, taken from seven ancient quarries in the United States, claimed a great deal of attention and provoked no little discussion among the visitors. They were collected and arranged by Mr. W. H. Holmes for the Bureau of Ethnology, and were well illustrated by photographs, plans of sections of the quarries, and monographs on the subject.

The Bureau of Ethnology also exhibited their great map showing the distribution of the Indian linguistic stocks, upon which Major Powell and his assistants have been working assiduously for a number of

years. This Bureau exhibited a large number of photographic transparencies of scenery, Indian villages, their inhabitants, etc., which adorned the windows of the halls and were greatly admired.

Another group of objects well deserving of mention seemed to give evidence of the existence of man in the paleolithic or chipped-stone period, such as petrified human vertebræ found in the quaternary strata of Florida. A section of a prehistoric rock "shelter" in Pennsylvania revealed the remains of the two cultures, neolithic and paleolithic.

There was also a very fine collection of jade implements.

The Carlisle Indian School sent photographs of pupils on matriculation and on completing their course; specimens of art and industrial work, etc., of the Indian scholars. This exhibit proved of general interest.

The Geological Survey sent maps, pictures, and relief models of the United States and various portions of the country, which, in connection with the prepared animals from the National Museum, were intended to give a just conception of the environment of the aborigines.

A nearly complete library of the writings of authors upon the American Indians, maps and historical works relating to the discovery, formed an important feature of the United States exhibit, which was again and again remarked by visitors to be a comprehensive presentation of the precolumbian, Columbian, and postcolumbian civilization of our country.

The different bureaus of the United States Government sent maps, charts, publications, and statistical works.

Several historical and patriotic societies were represented.

A large number of private exhibitors also added their portion toward the perfecting of this very creditable display. A full list of all exhibitors in the United States exhibit will be found appended.

Room No. 5, situated in the southeast angle of the building (see plan), was devoted to the exhibits from the department of archæology and paleontology of the University of Pennsylvania, Philadelphia. Here were to be found cases containing arms and implements, mostly of flint stone, such as hatchets, arrowheads, the points of lances, and similar objects found at various points on the shores of the Delaware River. There were also stone pipes, shells beautifully wrought, etc., found in mounds in the State of Ohio. A collection of forty-four crania, sent by the Academy of Natural Sciences, Philadelphia, represented thirty-five extinct tribes. It forms part of the remarkable collection made by Dr. S. G. Morton, of Philadelphia, of human crania; and which was used by that gentleman in the composition of his great work entitled Crania Americana.

In this room was to be found a very valuable collection of medals and coins exhibited by the United States National Museum, and a similar collection contributed by the Numismatic and Antiquarian Society of Philadelphia; paper money of the British Colonies in North

America, from 1756 to 1776; Treasury notes, paper money, and United States bonds, from the United States Bureau of Printing and Engraving, and a complete set of postage stamps and stamped envelopes, kindly furnished by the Postmaster-General.

Of all the contributions by private individuals, that of Mrs. Mary Hemenway, of Boston, was the most considerable.

The Hemenway expedition owes its existence and support solely to Mrs. Hemenway, whose interest in the Celebration of the Fourth Centenary of the Discovery of America impelled her to send a specialist, Dr. J. Walter Fewkes, to convey to Madrid some of the most valuable objects in her collections. Dr. Fewkes remained with the Hemenway exhibit during the entire period of the Historic American Exposition, was recognized as a member of the United States Commission, and took part in the deliberations of the delegates when called together by the delegate-general.

The Hemenway exhibit was designed to illustrate the precolumbian and contemporaneous life of a single tribe of North American Indians. For this purpose an Arizona village tribe, called the Mokis, was chosen. The exhibit contained about 3,000 objects, besides many books and photographs, all of which relate to the Tusayan Indians. In order to develop the plan of a monographic exhibit, this collection may be divided into two parts: the one embracing objects referring to archæological, the other to ethnological sides of life. These were so arranged as to demonstrate that these two aspects are very similar, and that the ancient and modern life of the Mokis is practically identical. The object of this method of installation was, in other words, to show that these Indians are in very much the same condition to-day that they were at the time of the discovery of Arizona.

The exhibit of ancient pottery, in which was included some of the most instructive specimens from the Keam collection, represented in series the different kinds of ceramics, passing by gradations from the rough and coiled ware into the black, the black and white, variegated polychrome, orange and red. The decorated jars and food basins, some of the finest texture, showed the types of symbolism for which these Indians had a widespread reputation. The collection of stone implements and fetiches contained in a single case represented grinding stones, mortars, stone shovels, ornaments, pipes, fetiches, and similar objects. A special case was devoted to the various stone hammers, mauls, and similar objects found in ancient Tusayan ruins. A large exhibit of modern pottery from the present pueblos was placed in juxtaposition to the finer and more artistic ware to show the resemblance.

The Hemenway exhibit also contained a number of ethnological objects. The large collection of dolls, with various symbolisms, naturally attracted attention, being a novelty in European museums. The ceremonial objects—dress, paraphernalia, masks, and decorated head tablets, offerings to gods, photographs of shrines, and a few Tusayan musical

instruments—gave an idea of this side of the subject. Phonographic cylinders, on which music of the pueblos had been recorded and sacred songs written on the European scale, were shown, and the publications of the Hemenway expedition and important collection of copies of ancient papers bearing on the documentary history of Arizona and New Mexico filled one case in the room.

The Hemenway expedition exhibited, for the first time in a museum or exposition, sacred pictures made of sand, called dry painting. An Indian charm altar with medicine bowl and corn, corresponding to the six cardinal points, were likewise shown and justly attracted attention.

Photographs of sacred dances and ceremonials, reaching over a hundred in number, were also exhibited. The collection of ornamented tiles and small mortuary objects filled two large cases. The ancient ladles, with handles ornamented with symbolic decorations, were among the most curious in the collection. The mural adornments of the rooms, also exhibited by the expedition, were objects made by the Tusayan villagers. Baskets or plaques, made of twigs and arranged in the form of stars and arches over the windows, occupied a prominent place on the walls. Many large Navajo blankets were exhibited. The symbolic figures on the walls were copied from decorated objects made by the Indians and represented various gods of their mythology. All objects exhibited were provided with printed labels, and a special catalogue was prepared for visitors.

The Peabody Museum exhibited, in the room of the Hemenway expedition, a single case of books and pamphlets, all their own publications, on American ethnology and archæology; and two upright screens hung with photographs of excavations made in various scientific studies. The collection of photographs from the ruins of Labnah and Copan, made by members of the Peabody Museum, Honduras expedition, was especially worthy of mention.

This brief enumeration of a few of the objects exhibited is designed merely to indicate the general character of the several installations. The catalogue printed by the Commission, and which forms part of this report, will be found to contain full particulars. There were altogether some eighty exhibitors, as will be seen by the list hereunto annexed.

Articles 60 to 67, inclusive, of General Regulations for the Historic American Exposition of Madrid provided for an international jury, which jury was, according to certain rules, divided into subjuries. Each subjury was required to "examine and grade the objects belonging to the class assigned to it; and subsequently to deliver to the president of the jury a report regarding the merits of the objects, and of the collective importance or scientific or artistic interest, together with a detailed statement of the various gradings."

Article 66 runs as follows: "The awards will consist of diplomas bearing the following characters: Grand Premium of Honor; Gold

Medal; Silver Medal; Honorable Mention. The diplomas will be accompanied by a medal commemorative of the Exposition, which will be the same for each premium."

Under the provisions of these articles there were seventy-seven awards to the United States, the grand premium of honor naturally going to the United States Government.

A full list of the awards is hereunto annexed.

Article 7, of the royal decree, designated the monastery of Santa Maria de la Rabida, at Huelva, near Palos de Moguer, as the place of the meeting of the Congress of Americanists; and by Article 17, of the same instrument, the celebrations (las fiestas) were to begin at Huelva on the 3d of August and be continued from time to time until November 3. One of the most interesting, and the spectacle most worthy to be remembered, of all these fiestas was the ceremony attending the unveiling of the monument which had been erected near La Rabida to commemorate the Fourth Centenary of the Discovery of America. This ceremony took place on the 11th of October. All the delegates in chief, with but few exceptions, attended these various fiestas, by invitation of the Spanish Government. One of the exceptions was that of the delegate-in-chief of the United States. The reason of this exception was obvious. The majority of the delegates-in-chief held diplomatic relations with the Spanish Government, either as ministers plenipotentiary or as chargés d' affaires. It was in their diplomatic character that they were expected to take part, and did take part in the various festivities. The delegate-in-chief of the United States having no diplomatic character was not expected to take part, and did not take part—no official part at least—in several of the most interesting ceremonies. Thus it happened that on certain occasions he was placed, in respect to his colleagues of the Exposition, in a situation the reverse of enviable. In any future representation which this Government may send to a country where the rules of etiquette are inflexible, it would be well to insure that the United States delegates are placed upon a footing of official equality with those of other countries.

It only remains to tender the cordial acknowledgments of the Commission to each and every expositor, both public and private, who, by their aid and sympathy, contributed to the success of the United States exhibit at the Columbian Historical Exposition in Madrid.

Very respectfully submitted,

S. B. LUCE,

*Rear-Admiral, U. S. Navy (Retired), Commissioner-General.*

Hon. W. Q. GRESHAM,

*Secretary of State, Washington, D. C.*

## LIST OF EXHIBITORS OF THE UNITED STATES OF AMERICA.

United States National Museum, Washington, D. C.
Smithsonian Institution, Washington, D. C.
United States Mint.
Society of the Sons of the American Revolution.
Plymouth Pilgrims Society, Massachusetts.
United States Navy Department.
Bureau of Ethnology of the United States.
Department of Public Instruction of the United States.
Census Office of the United States.
United States Coast and Geodetic Survey.
Army Medical Museum, Washington, D. C.
United States Fish Commission.
United States Geological Survey.
United States Meteorological Survey.
United States Post-Office Department.
Department of Agriculture.
Forestry Division, Department of Agriculture.
Mrs. Hazen, widow of General Hazen.
Dr. G. Brown Goode.
S. Brownlow Gray, Bermuda.
School for Indian adults (industrial), Carlisle, Pa.
F. S. Perkins.
Byron E. Dodge, Michigan.
C. M. Crounse, New York.
Dr. Hilborn T. Cresson.
Dr. John E. Younglove.
Prof. Thomas Wilson.
Mrs. Mary Hemenway, Boston, Mass.
Historical American Association, Washington.
American Folk-Lore Society.
Anthropological Society, Washington.
Virginia Historical Society, Richmond.
Department of Archæology and Palæontology of the University of Pennsylvania.
Numismatic and Antiquarian Society of Philadelphia.
Academy of Natural Sciences, Philadelphia.
Museum of Comparative Zoology, Cambridge.
Peabody Museum of Archæology and Ethnology, Cambridge, Mass.
Mrs. Zelia Nuttall.
Dr. T. H. Bean, Washington.
Walter C. Clephane, Washington.
Col. Gates J. Thruston, Nashville, Tenn.
Stewart Culin, Philadelphia.
Rev. Stephen G. Peet, Avon, Ill.
Dr. James C. Welling, Washington, D.C.
John G. Bourke, captain Seventh Regiment, U. S. A.
Dr. Henry Carrington Bolton, New York.
Dr. C. Hart Merriam, Washington, D. C.
J. C. Pilling, Geological Survey.
Prof. Otis T. Mason, United States National Museum.
Walter Hough, United States National Museum.
W. H. Holmes, Bureau of Ethnology.
James Terry.
Dr. Joseph Jones, New Orleans, La.
Rev. J. Owen Dorsey, Bureau of Ethnology.
Dr. Cyrus Thomas, Bureau of Ethnology.
Prof. Edward S. Morse, Salem, Mass.
James Mooney, Bureau of Ethnology.
H. W. Henshaw, Bureau of Ethnology.
Col. F. A. Seely, Patent Office of the United States.
Mrs. M. E. Stevenson, Bureau of Ethnology.
James Stevenson.
Lieut. A. P. Niblack, U. S. N.
Warren K. Moorehead, Xenia, Ohio.
Joseph Sabin, New York.
Houghton, Mifflin & Co., New York.
Harper Brothers, New York.
Charles B. Reynolds, New York.
Col. H. M. Flagler, U. S. Army.
Alexander Brown, Norwood, Virginia.
William E. Curtis, chief of Latin-American Department, World's Columbian Exposition, Chicago, Ill.
Dr. Franz Boas, Worcester, Mass.
Eben Norton Horseford.
Frederick Starr.
Ellen Russel Emerson.
H. C. Mercer.
Dr. R. H. Lamborn.
Dr. Cyrus Adler.
Dr. W. J. Hoffman.
H. H. Bancroft.
Edwin E. Howell.
Charles Scribner's Sons, publishers, New York.

## LIST OF MEDALS (DIPLOMAS) AWARDED TO THE UNITED STATES EXHIBITORS.

### Grand Diploma of Honor to the Government of the United States.

### Gold Medal, Diploma.

United States National Museum.
Smithsonian Institution.
Bureau of Ethnology of the United States, Washington, D. C.
Mrs. Mary Hemenway, of Boston, Mass.
Department of Archæology and Paleontology of the University of Pennsylvania.
Dr. George Brown Goode.
Mr. William E. Curtis.
Dr. J. Walter Fewkes.
Geological Survey of the United States.
United States Mint.
Industrial school for adult Indians, Carlisle, Pa.
Rear-Admiral S. B. Luce.

### Silver Medal, Diploma.

United States Navy Department.
Military Medical Museum.
Prof. Thomas Wilson.
Numismatic and Antiquarian Society, Philadelphia, Pa.
Department of Public Instruction of the United States.
Academy of Natural Sciences, Philadelphia, Pa.
Peabody Museum of Archæology.
Mrs. Zelia Nuttall.
Mr. Stewart Culin.
Prof. Otis T. Mason.
Mr. Walter Hough.
Mr. W. H. Holmes.
Mr. H. C. Mercer.
Mr. James W. Ellsworth.
United States Fish Commission.
United States Census Office.
Mrs. M. E. Stevenson.
Mrs. M. M. Hazen.

### Bronze Medal, Diploma.

Society of the Sons of the American Revolution.
Postal Department of the United States.
Meteorological Survey of the United States.
Coast and Geodetic Survey of the United States.
Warren K. Moorehead.
Dr. James C. Welling.
Dr. Cyrus Adler.
Department of Agriculture.
Forestry Division of the Department of Agriculture.
Dr. John E. Younglove.
Dr. W. J. Hoffman.
H. H. Bancroft.
Edwin E. Howell.

### Honorable Mention.

Mr. Brownlow Gray.
Pilgrim Society (Plymouth).
F. S. Perkins.
Byron S. Dodge.
C. N. Crounse.
Dr. Hilborn T. Cresson.
Dr. T. H. Bean.
Walter C. Clephane.
Col. Gates F. Thruston.
Rev. Stephen G. Peet.
Capt. John G. Bourke.
Dr. Henry Carrington Bolton.
J. C. Pilling.
James Terry.
Dr. Joseph Jones.
Rev. J. Owen Dorsey.
Dr. Cyrus Thomas.
Prof. Edward S. Morse.
James Mooney.
H. W. Henshaw.
Col. F. A. Seely.
James Stevenson.
Dr. C. Hart Merriam.
Lieut. A. P. Niblack, U. S. N.
Joseph Sabin.
Houghton, Mifflin & Co.
Charles Scribner's Sons.
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Col. H. M. Flagler, U. S. A.
Alexander Brown.
Dr. Franz Boas.
Eben Norton Horsford.
Dr. Frederick Starr.
Ellen Russel Emerson.
Dr. R. H. Lamborn.
Harper Brothers.

(Total, 80.)

# REPORT

UPON THE

# COLLECTIONS EXHIBITED AT THE COLUMBIAN HISTORICAL EXPOSITION.

BY

DANIEL G. BRINTON, M. D., LL. D., D. SC.,

COMMISSIONER OF THE UNITED STATES OF AMERICA.

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# REPORT UPON THE COLLECTIONS EXHIBITED AT THE COLUMBIAN HISTORICAL EXHIBITION AT MADRID.

## INTRODUCTORY.

The Exposición Historico-Americana at Madrid was planned by the Government of that country to display the character of the civilization of Europe in the centuries immediately succeeding the discovery of America; and also to represent the condition of culture which was found on the continent of America by the first explorers.

The first of these was exhibited by a large collection of objects from various countries of Europe, especially from Spain itself, these objects being of a class which would show the progress of the arts and sciences in the century following 1492, and in a general manner the genius of that civilization which was introduced into the New World in that period. It included many thousand specimens of secular and ecclesiastical articles drawn from the rich stores of the museums and public and private collections of Europe.

Leaving for the present this portion of the Exposition, I will describe more especially that section of it which illustrated the culture of the native tribes of America at the time they first came in contact with the European invaders, and from that date until about the year 1750.

This portion of the Exposition was arranged originally on a geographical plan, the objects forwarded by each government in America being separately arranged; but in some instances, numerous specimens from various localities which had come into the possession of some museum were displayed together. This fact required that the study of any one culture in the American continent should be conducted by visiting several departments of the museum. Indeed, a certain number of objects distinctively American were exhibited on the upper floor, which was theoretically reserved for European displays exclusively. This was the case with some of those rare and valuable manuscripts, the composition of native American scribes, which have been preserved by accident to our own times.

The arrangement under each country was left entirely in the hands of the representatives of that country, and consequently there was no uniform system observed in the display of the objects. Moreover, in some instances, the collection forwarded by a given country consisted

of several minor collections—the property of different individuals or different institutions—which were necessarily kept apart. This also interfered with the systematic display, such as would be desirable for scientific purposes. It may be noted further that in many instances, indeed in most, there was no relation expressed between the objects displayed and the tribes or nations which occupied the localities from which the objects were derived within the historic period.

It will be a prominent purpose with me in this report to point out this connection wherever practicable. As to the ethnologists, the most if not the only value of the study of such works, is to illustrate the culture and development in art of a given tribe or nation, or, in default of that, to show that the tribe dwelling in a given locality within historic times were not the authors of a series of works found within their area, and that these, therefore, are witnesses to a migration apart from the history of the country as it is known to us. The absence of such identification is always to be regretted.

This observation, however, does not reflect in any way on the board of directors of the Exposition, inasmuch as it was not in their power to secure information of this kind after the materials had been sent to the museum. Much of it, moreover, had been collected by persons who gave little or no attention to close identification of locality, and much of it also had been transmitted from earlier generations, before archæology had reached the dignity of a science, and its rules were not yet formulated.

## The Mexican Department.

A large portion of the Mexican exhibit related to the researches of Señor Plancarte, derived from his excavations in the State of Michoacan. These were made with much care, and the results clearly catalogued and displayed. The catalogue, which has been referred to, gives minute descriptions where the various objects were found, and also assigns them to their probable original makers.

The most ancient of these relics are attributed by the finder to certain prehistoric peoples whose names are unknown and of whose work we have only a few specimens, three of which are shown and described in the catalogue as belonging to "prehistoric races."

One of these is a rough stone, somewhat circular in form, rudely worked and with an elliptical cavity in the center; the second represents a human head roughly outlined, the eyes shown by mere cavities and the nose by a protuberance; these were found together near Jacona, along with an obsidian lance head, the surface of which indicated marks of extreme age. The human head was of a basaltic lava with a circumference of a little less than half a meter. The evidence would not seem to be conclusive that these objects are to be attributed to a race foreign to that known by history to have inhabited that locality, although the fact that no signs of pottery were found along with them is negative evidence of some weight.

It is well known that the greater part of the area of Michoacan was inhabited at the time of the conquest by a nation of natives called Tarascos. They were in a condition of civilization nearly if not quite equal to that of their neighbors, the Nahuas or Aztecs, constructing temples and houses of stone and brick, and making use of a calendar in all respects allied to that employed by these.

The study of the antiquities of Michoacan has been profitably conducted of late years by Dr. Nicolas Leon, who has published in reference to them a number of valuable essays, and has made a collection of numerous books and objects throwing light upon the culture of the ancient inhabitants. His labors in this direction are admirably supplemented by the collection of Señor Plancarte exhibited in this Exposition. Among these objects, 1,325 are assigned by their finder as without doubt representing the manufactures of the Tarascos. They included objects representing domestic utensils, tools used in the arts, ornaments, and decorations, and others supposed to have reference to their religion, to their method of carrying on war, and to other purposes consistent with the culture of Mexico.

Among the domestic utensils, there were many of clay, more or less decorated and painted, and showing a great variety of forms. Some of these have handles and feet, others are flat like a dish, some have narrow necks with the edges flattened horizontally, others approximating closely to the form of a bottle. The clay of which they are formed is usually carefully worked and burnt. The character of the decoration is various. In some instances we find a series of Greek patterns varied with lines, circles, and spirals; in others the decoration has been formed by a series of impressions on the soft material, evidently made by a hollow tube or cone, these impressions being disposed in symmetrical forms. There does not appear to have been any attempt at representing objects by hieroglyphics, the figures shown being conventional or geometrical.

Among such domestic objects are a number of corn mills, called metates, with their grinders or pestles. Some have two or three feet, and are similar to those found in many other parts of Mexico. The roller or pestle employed for breaking the corn is usually of a cylindrical shape. They were intended to be used by pressing and crushing, rather than by grinding.

It is interesting to find among this collection several examples of very diminutive forms evidently intended to be used as playthings for children, imitating in their games the labors of their elders.

The industries which are represented by the utensils used in the arts are principally those of the potter, the mat maker, the paper maker, and the worker on stone and in metals. The smoothers, apparently used in the potter's art, were of burnt clay, with rectangular form and a handle on the upper surface; others of basaltic lava or of diorite or of black porphyry. The under surface is sometimes smooth, sometimes marked by longitudinal lines or flutings.

A number of chisels or celts are shown of stone, generally basalt or diorite. Similar forms are presented in copper, which may have been for hatchets or chisels. These appear to have been made by hammering the copper rather than by casting. Interesting objects in this connection are the needles of copper wire. They are manufactured with an eye in the head, but this is not obtained by piercing the material itself, but by drawing out the wire at the head and twisting it back again upon the body of the needle, leaving a small opening at the extremity, which thus gives the aperture necessary in which to insert the thread or string. Probably this form of a needle with an eye is the only one which could be obtained on the American continent in objects made from metal. In needles of bone the eye is not unfrequent, as in Nos. 478 and 479 of this collection.

The use of obsidian to produce flakes with a cutting edge is illustrated by the presence of a number of nodules, from which the flakes have been broken for such purpose.

A large number of spindle whorls are exhibited from different parts of the state. Many of these are in the form of a double cone, which is rather rare throughout Mexico, but extremely common in Michoacan. Some of the examples are polished, others are without polish; a few are painted. They are employed by running a piece of wood through the aperture in their center, and they impart greater facility to the spindle in the process of obtaining the thread from the material; sometimes their surfaces are ornamented with various designs impressed on the soft clay before burning. It should be added that it has been maintained that many objects of this common form were intended to be strung upon cords and worn around the neck as ornaments, and were not for the more practical purpose of aiding the process of spinning.

In the department of ornaments we find in this collection a number of objects used for suspending in the ear and to the lip, which members are perforated so as to enable them to support such decorations. The earrings found are somewhat like a shirt button, and may be made of bone, metal, or stone of various character, instances of all of which are presented. The labrets, or lip stones, are somewhat similar in form. Some of them are of shell, others of metal, or of obsidian. Fragments of shell of different shapes and sizes, perforated to be strung upon a cord, are frequent; also angular pieces of copper and a few pieces of amber, evidently intended for a similar purpose. Some good specimens are shown of mirrors formed of obsidian highly polished on the surface, so that the reflection of the countenance could easily be seen. A number of bells of copper in the usual form found in ancient Mexico are displayed; also quite a number of beads, some of copper, others of chloritic stone and of burnt clay. It is evident that these constituted a favorite method of decoration of the person among the ancient Tarascos. Some of these beads are in the shape of tubes, made from pieces of shell bored or perforated longitudinally.

What impresses the observer most in this collection as unusual are the numerous smoking pipes of clay, many of them elaborately ornamented, sometimes painted. Although the use of tobacco was known among the ancient Mexicans to some extent, it would appear that they very rarely smoked it in pipes. Such, however, could not have been the case in Michoacan, for the large number of these pipes and the skill with which they are made indicate that they were looked upon as a favorite object with the smoker. Probably nowhere else in America, south of the Mississippi Valley, do we find so many and varied forms of the smoking pipe as within the State of Michoacan, and the number of these presented in this collection is such as to show conclusively that this was a popular method of consuming that narcotic plant.

A series of vases from the same locality, intended for decoration or for holding flowers, is shown. The substance from which they are made is generally a red or black clay, but a few are of alabaster, basaltic lava, or other stone. Some of these represent figures—one a man upon his knees with his hands above him; another a human figure bearing a vase upon his back; another a human head, and still another the head of a monkey with his four members in low relief.

Such figures bring us to those objects which are classified as belonging distinctively to the religious experiences of the natives. These are principally in clay and stone, and represent figures of men and women, sometimes only the heads, others only the bodies or busts. They are rude, and do not show any careful study of the dimensions of the human body. There are also a few masks of obsidian and calcite, and a number of amulets of stone and bone and burnt clay, usually representing an animal, such as a bird, a snail, a frog, etc.

Quite a number of musical instruments are included in the collection, but it would not appear from them that the natives of Michoacan had in this respect developed anything different from their neighbors, the Mexicans proper. We find, for instance, quite a number of whistles and flutes made of burnt clay, either red or black, producing the sound on the same principal as the clay whistle formerly in use in Nicaragua and other parts inhabited by the Nahuas. Copper bowls and rattles were displayed, also a large conch shell employed by the Indians as a wind instrument, and a curious instrument of percussion formed of a human thigh bone, cut on the surface into a number of notches, examples of which are also obtained from Mexico proper.

The implements of war and the chase consist principally of arrowheads of obsidian, quartz, bone, flint, and copper. They are in most respects similar to those of the surrounding nations. Some display on the surface a peculiar discoloration, which it has been suggested is indicative of great age.

Nearly all the objects above referred to were obtained on the site of an ancient city a short distance west from the present town of Jacona.

Its locality is marked by the presence of a number of small mounds, the remains of the ancient temples and dwellings of the former inhabitants. Near by, on the site of this ancient city, is seen a curious construction called the chief temple, now badly mutilated by excavators and the effects of time, but which has been ingeniously restored in wood by Señor Plancarte in a model exhibited in this collection. The character of the architecture is quite distinct from that which prevailed among the Aztecs or among the nations east of them near the Gulf of Mexico. It is not easy, from the examination of the model, to explain the purpose of the structure, and, unfortunately, here, as elsewhere, the native arts and traditions met the fate of a general destruction at the hands of the ruthless invaders.

The remainder of Señor Plancarte's collection, which numbers in all, 2,803 specimens, is derived from other sources and other localities, and are attributed by him to various surrounding tribes. Of many of these we are in considerable uncertainty as to their relationship. These tribes are as follows: Matlazincas, Otomis, Tepanecas, Acolhuas, Mexicanos or Nahuas, Chalcas, Tlaxcaltecas, Huexotzincas, Cuetlaxtecas, Mixtecas, Zapotecas, and Mayas.

The objects from these have a general similarity to those already described, and they do not bring before us any notable difference in the civilization of the peoples from whom they were derived. There is necessarily some uncertainty as to the localization of the tribes, and there is not in all instances a sufficiently clear indication as to where the objects individually were obtained.

His statement that practically all the specimens belonging to the Otomis are characterized by a marked deficiency of skill, showing that they had little knowledge of the arts, is in accordance, indeed, with the general opinion about these people, but is in contradiction to several excellent authorities who are inclined to the belief that the assertions in reference to the rudeness of the Otomis is mainly owing to the fact that the statements to this effect were taken from other nations, and especially from the Aztecs.

The general display of the Mexican Government was under the care of Rev. Paso y Troncoso, director of the National Museum of Mexico, and celebrated for his acquirements in the Aztec language as well as for his intimate acquaintance with the history of his country.

The articles exhibited included both objects of use among the early tribes, and also a large number of their manuscript records, many of which were brought to the notice of visitors for the first time. Among the latter should especially be mentioned the painted records (*lienzos*) known as those of Tlascala, Jucutácuto, etc., as well as two codices, respectively called by the names Porfirio Diaz and Baranda. These have been recently issued by the Government of Mexico, and deservedly rank high among the modern native documents following closely upon the era of the conquest. Similar to them in character was a

large picture record, known as the Mapa de Mizquiahuala. Eight native calendars were shown, in which each month was designated by its appropriate name drawn from the date with which it began, according to the system adopted throughout the calendar. This system is well known and has been exemplified in detail by the studies of Mrs. Zelia Nuttall, who believes that by following out its rules dates could be recorded without confusion extending over several thousand years.

The elaborate computations drawn up by this lady relating to this subject were displayed by an exhibit in one of the rooms attached to the Mexican department. It presented on a large sheet the arithmetical enumeration and names of a series of years arranged according to the theory which she believes was carried out by the Mexican astronomers and priests with a degree of accuracy superior to that which at the same date prevailed in Europe. Her studies, with ample illustrations and explanations, will be published by the Peabody Museum of Archæology, at Cambridge, Mass., and therefore do not require extended notice in this connection.

One of the most conspicuous objects in the Mexican collection was a reproduction in wood of the temple, sacred edifices, and inclosure of the famous ancient city of Cempoallan, visited by Ferdinand Cortez, on the shores of the Gulf of Mexico, a little north of Vera Cruz. This important and populous locality disappeared from history after the Conquest and became covered with a dense tropical forest, which in some measure preserved the structures which its inhabitants had erected. A series of explorations were conducted by the Director of the National Museum on the site, and he succeeded in recovering, with great exactness, the dimensions and general appearance of these edifices. They owe their origin to the tribes known as the Totonacos, who at this point occupied the shore of the Gulf south of the Huastecas, who inhabited the rich valley of the River Panuco.

Another wooden model, carefully executed, was presented of the structure known as the temple of Tajin near Papantla, in the State of Vera Cruz, a monument of prime importance, and still so well preserved that its outlines and appearance can be accurately determined. Several other such models served to present the visitor with a clear idea of the peculiar style of architecture in vogue among the native tribes within the territory of Mexico.

From the same tribe of the Totonacos there was exhibited a quantity of material gathered by the energetic Director of the Museum, among which may be named, as of special interest, numerous small clay heads presenting a remarkable diversity of feature and characteristic traits. These, although derived from the State of Vera Cruz and the province historically occupied by the Totonacos, are strikingly similar to those which are so familiar to collectors, from the celebrated site of Teotihuacan, northwest of the City of Mexico; a fact of the more worth because, according to their own ancient traditions reported by the

earliest Spanish writers, the Totonacos claimed to be the builders of the great pyramids of the sun and moon which are such striking monuments on the sacred plain of Teotihuacan.

Several specimens were displayed of the so-called "sacrificial yokes," made of carved stone, highly polished, whose use has been the subject of large discussion. They were supposed at first to have been intended to fasten the human victim to the sacrificial stone at the time his heart was cut out and offered to the gods. Others have believed them to be heavy ceremonial ornaments or insignia, or objects intended to be worn on state occasions by high dignitaries or priests. Another and recent theory of their use has been that they represent symbolically the creative forces of nature, and they have therefore been brought into relation with the crescent and the semicircle in the symbolism of the Old World. A more practical use which has been suggested for them is that they were intended to form the aperture through which, in the favorite game of ball of the Mexicans, the ball had to be thrown in order to win the game. This last-mentioned theory seems the more probable, as they are not all yokes—that is to say, some are opened at one end and some are closed, thus bringing them into a form closely resembling that of the acknowledged stone aperture for the ball shown[1] at Tula and other places in ancient Mexico. Although vaguely similar to the stone yokes which have been found in considerable numbers in some islands of the West Indies, they do not, like these, present a formation of rights and lefts so as to be worn on one or the other shoulder, but the two arms of the yoke are always the same.

Other objects from the same locality, presented in numerous specimens, are the small double cups of terra cotta, the hollow in each being a little larger than that which would hold the tip of the finger. It has been a standing puzzle to explain the purpose of these curious articles, specimens of which are common in all collections of Mexican antiquities. It has been suggested that they were intended to hold some votive offerings to the gods, while others have maintained that they were incense burners.

The collection also offered a number of objects in stone having handles rudely resembling in shape a flatiron with equal ends. These were labeled as grinding stones used for the purpose of rubbing the meal into a finer consistency. Some of them, instead of a handle, presented a pointed protuberance by which they could be grasped and moved to and fro over the smooth surface of a large corn-grinding stone. In a few instances this protuberance had a three-cornered or cocked-hat appearance, which is seen so clearly in a number of stone implements of the same general shape from the West India Islands. The latter have been generally regarded as ceremonial objects, but appearances, in some instances at least, favor the view that they were intended for nothing more than rubbing stones.

[1] See Charnay, Les Anciennes Villes du Nouveau Monde, p. 73

A number of examples, varying in shape and marking, of stones with flat, striated sides, supposed to be for pounding leaves and bark so as to reduce them to the condition of fibrous cloth or paper, were also noticeable.[1] Closely related to them in appearance were a number of stamps and seals in stone and terra-cotta derived from Aztec provinces. There is no doubt that these were used for the purpose of stamping designs on clothing, examples of which have been found in some of the ancient remains.

In terra-cotta objects from the Totonacos, should also be mentioned numerous toys in baked clay, little dishes and small figures clearly designed to be used as playthings by children. From the same material there were a large number of those half spherical objects, pierced with a hole in the center, usually classed as "spindle whorls," and which no doubt were often used as such; but which also in some cases were employed as ornaments, being strung on a cord and suspended around the neck.

An interesting exhibit in this collection was an especial collection from Campeche, on the coast of Yucatan, known as the "collection of Pedro Baranda," principal of the Institute of Campeche. It contained a number of clay idols of small size, some peculiar in form, and also stone objects, weapons, arrow points, chisels, etc.

The whole of the collection from Mexico was extremely well arranged, and afforded a pleasing spectacle to the eye of the visitor. The labels were well-written and clear, and a large number of casts of the most important objects in the National Museum of Mexico, which, on account of their value or size, could not be sent to Madrid, conveyed a correct idea of the riches of that governmental institution. These casts included the famous calendar stone, the sacrificial stone, the statue of Tlaloc, and many others. The only criticism which might be offered was concerning the names of some of the tribes to which certain objects were referred. For example, it can scarcely be held advisable at present to refer products of human art to such doubtful, if not fabulous, peoples as the Olmecs, the Toltecs, or the Teochichimecs; but this slight objection does not in any way derogate from the general high character of the exhibit displayed by the Government of the Republic of Mexico.

All the articles were well displayed for easy inspection and study. In connection with them were a number of copies of ancient Mexican documents, offering a valuable basis on which to erect an explanation of the intricate method of counting time adopted by these ancient nations. Several remarkable objects in stone should be classified with these. They represented a number of rods or canes tied together into a bundle, these rods or canes being fifty-two in number, as indicated by the cutting of the stone on its two extremities and surfaces. These curious

[1] On these see Walter Hough, in Science, January 6, 1893, and my remarks in the same journal, March 10, 1893.

objects are what the Aztecs call "the tying together of the years," a function which took place with solemn ceremonies at the close of each period of fifty-two solar years, the exact time being noted by the position of the constellation of the Pleiades in the nocturnal sky. To maintain in memory these several cycles of years, such stone images of the "tying together" were carved and placed in the temples, each bearing a mark upon it indicating the cycle to which it belonged.

## The Department of Guatemala.

The section devoted to Guatemala contained a number of manuscripts and several collections, one offered by the Government of the state, a second, the collection belonging to Joaquin de Minondo, and a third, which was the property of Julio de Arellano. From these various sources a very good idea could be obtained of the general character of the antiquities of that country.

The historical manuscripts included one which has been long known under the title of "Isagoge Apologético General de las Indias."

This work has been quoted by various writers on the history of Guatemala, but has never been published. The catalogue gives a brief statement of its contents. They relate to the conquest of the country by the Spaniards in the sixteenth century, the foundation of the first city of Guatemala, the journey undertaken by Hernan Cortez, as described in his fifth letter, and the efforts of the missionaries of the religious order of St. Dominic to convert the natives of Guatemala.

The second manuscript described was in three large folio volumes bearing the title of "Historia de la Provincia de San Vincente Ferier de Guatemala y Chiapa."

This work has been familiar by name to historical students, having generally been considered to be the production of Father Ximenes. This fact is questioned, however, by the authors of the catalogue. They consider it rather to have been the result of the labors of various monks of the order of St. Dominic. It would appear to be an error to state, as we find in the catalogue, page 18, that it was unknown to the writers on the history of the country, inasmuch as it is distinctly referred to by the distinguished historian, Garcia Pelaez.[1] The extracts taken from it in the introduction of the catalogue are chiefly from the Spanish translation of the Popol Vuh, the whole of which translation was published by Dr. Scherzer at Vienna, in 1857.[2]

Other manuscripts of interest contain the municipal acts of the first city of Guatemala and autograph letters of Columbus.

Turning to the objects, utensils, weapons, and similar relics displayed in the collection of the Government of Guatemala, some of the

[1] Garcia Pelaez, Memorias para la Historia de Guatemala, p. 18, et al.

[2] Las Historias del Origen de los Indios, etc.

most striking are idols of stone in human form varying in height from a quarter to half a meter.

That numbered 1 in the catalogue is a black stone, skillfully worked, representing a human figure seated on a stool of the same substance, which has four feet. It is stated according to tradition to represent the god of old age.

Another idol, also of stone somewhat similar, has the left arm crossed upon the breast, the right resting upon the legs.

Still another, No. 6 of the catalogue, also of stone, presents the figure of a woman with her arms crossed upon the breast and a broad collar on the lower part of the neck.

No. 7 is an idol of stone showing a human head—that of a man, and, what is noteworthy, bearing a well-marked beard.

No. 74, 48 centimeters in height, is of clay. It represents a human figure holding in the hands a circular bowl, or vase, with small prominences on the external surface; the nose is prominent, and the mouth is open as if in the act of laughing. It was found in Escuintla, which was inhabited by the Pipiles, of Nahuatl affiliations.

Somewhat similar is No. 100, made of fine clay, and representing a chief seated, wearing ornaments on the head, earrings in the ears, and a collar around the neck. Upon the head is a cap, from the sides of which hang two pendants. On his back he is carrying two small human heads.

No. 177, also of clay, burned, shows a human figure seated and holding in his hands a cup or bowl. He also wears a collar, earrings, and nose rings. The majority of these idols were derived from the province of Quiché.

Although these articles were classified as idols, and therefore supposed to be objects of worship, it is not certain that they were not portraits or small statues of living persons, or of the dead, intended to be kept as memorials by the family or the tribe.

In this same collection there are a number of vases, cups, and jars of terra cotta, either red or black, the clay from which they are made usually finely worked and bearing a high polish. Some of them are painted or decorated by lines and geometrical figures. Several of them present the form of familiar animals, such as No. 94, where we see the head of a crocodile, from which is proceeding a human face.

No. 106 is a human head with large circular earrings in the ears and a surface ornamented by lines forming geometrical figures.

No. 126, which was obtained from Copan, also shows a human head with similar large earrings, and rising above the head a circle of feathers.

Among the objects in stone in the Government collection there is one (No. 12) representing an armadillo.

No. 14 is a monkey, his right hand lifted to his head in the act of scratching himself.

Nos. 32 and 33 are fine specimens of corn mills, metates, with the pestle which usually accompanied them.

An interesting piece of terra cotta modeling is No. 36, the face of a man asleep.

No. 37 is an owl, or similar bird, and No. 38 represents a dog. Upon his back there is a small excavation in the form of a cup. These also are from the Pipil territory (Escuintla).

No. 46 is a small stone image with the body of a monkey, but with the head and tail of an owl.

Nos. 66 to 69 are stone masks representing human faces. They have small perforations at the top and sides, evidently intended to attach cords by which they could be hung.

Quite similar masks of the same material were represented in Nos. 76 to 80. All of these come from the territory inhabited by the Quiché.

No. 87 is a vase or jar of marble which represents the body of a monkey resting upon its knees with the hand stretched above the head, and bearing upon its back a vase.

There are also various arrows and lance heads of stone, and an Indian drum, obtained from the Indians of northern Guatemala, known as the Lacandones.

A choice small collection is represented principally from the territory of the Quichés by Señor Minondo. It contains a number of specimens of pottery in red and black clays, masks of the same material, a few images in stone, arrow and lance heads, millstones, and ornaments of burut clay, some with hieroglyphic characters.

The collection displayed by Arellano, while showing much of considerable interest, is less distinctly localized than the preceding, the catalogue rarely stating where the objects were found. They are, however, of the same general character of those already described, and display the influences of the same civilization.

Some of these objects in clay have a peculiar value from the hieroglyphs rather rudely painted upon their sides.

Special attention may be called to No. 23, which is stated to have been found near the capital city of the ancient Quichés. It is well known that the two principal nations which owned the soil of Guatemala at the period of the Spanish conquest were accustomed to preserve the facts in their national history and the knowledge of the sciences which they possessed by means of a method of writing closely allied to that which prevailed in Yucatan. In consequence, however, of the wholesale destruction by the early Spaniards of the manuscripts of the natives, not a single example of these has been preserved to stand in confirmation of their arts in stone and clay. This lends peculiar value to the preservation of every example which will throw light upon the manner in which they made use of the Maya characters.

From the examples in the present collection, it is quite clear that they did not differ materially from their neighbors of the east, north and west in the formation of their glyphs.

Those which are referred to above are evidently allied to the signs of the calendar, which these nations, like most belonging to their stock, had either originated or adopted, and which was identically the same that prevailed throughout southern Mexico.

The objects in this collection which established this fact must therefore have a peculiar value in the eyes of all students of the ancient history of America, and their presence should stimulate to further investigations on the sites of the ruined cities of Guatemala.

The ethnography of Guatemala at the time of the Conquest has been carefully studied of late years, and we are now in a position to refer such objects as are above mentioned to the various ethnic groups to which they belong.

Except the small tribe of Xincas on the south coast, who were in a condition of savagery, practically all the soil of Guatemala was divided between the representatives of the two powerful and highly civilized stocks, the Mayas and the Nahuas. The former were represented by the Quiches, Cakchiquels, Tzutuhils, Mams, Pokomams, Ixils, Chols, Lacandons, Chortis, and other tribes with Maya dialects. They occupied nearly all the central and northern portions of the present State. The Nahua stock was represented by the Pipiles, in the department of Escuintla, and the Alaguilacs, northwest of them, on the Rio Motagua.[1] There are obvious differences in the art products of these two culture centers, as there were in the languages, traditions, usages, and mythologies of the two stocks. There is a probability that the Nahua element reached the soil of Guatemala at a considerably later date than the Maya element, and brought with it the principles of a civilization already well developed in its northern home.

### The Department of Nicaragua.

The collection from Nicaragua was forwarded in part by the Government of that Republic, and consisted in part of a private collection of Mr. Julio Gavinet. The former included 775 labels, the latter 426. They were both obtained with great care from comparatively recent excavations, usually clearly localized, and presented, therefore, a satisfactory picture of the former industry of the indigenes there resident at the time of the Conquest.

It is well known that the area about the Great Lakes of Nicaragua and Managua was inhabited by diverse populations, varying widely in the stages of their culture. The two most developed of these nations were the Chorotegas, now shown by their language to have been in near relations with the Chapanecs who lived in the western portion of the Chiapas. They had extensive settlements along the shores of Lake Managua, and their usual name, indeed, which is that of Mangues, is identical with the appellation of the lake. While they had not reached to a like development with many of the tribes of Yucatan and

[1] On this, see Otto Stoll, Zur Ethnographie der Republik Guatemala. Zürich, 1884.

Guatemala, they were far superior to the wild hunting hordes who roamed the district between Lake Nicaragua and the ocean to the north. They manufactured pottery of fine character, and were skillful in the art of polishing, boring, and chipping stone. Their houses were usually of wood thatched with straw; they apparently had none built of stone and were unacquainted with metals.

Their neighbors, the Nicaraos, whose chief seat was upon the northern neck of land between Lake Nicaragua and the Pacific Ocean, and who also occupied several islands in the lake, were of Nahuatl descent, and spoke a language which was a quite pure dialect of the tongue of the Aztecs in the Valley of Mexico.

As will be mentioned under the Republic of Costa Rica, their arrival in this part of Central America was probably not more than a century before the Spaniards reached the same district. The Nicaraos brought with them the developed culture of the Aztecs, and erected an important temple on one of the islands in the lake in which they set up the stone images of their ancestral gods. A restoration of this temple is referred to in this report under the Swedish department.

Reverting to the objects exhibited by the Republic of Nicaragua, we find among them an extensive series of articles in pottery in the form of urns, dishes, plates, cups, whistles, flutes, figures of men and animals, symbolic and fantastic representations, and many fragments of handles and feet indicative of their artistic character. Many of these specimens of Nicaraguan pottery offer a facing of white clay adorned with figures in red and black. The ornamentation is frequently elaborate and the paintings often disclose considerable spirit. Quite a number have three feet in the form of the human head or that of animals, hollow, and containing a small ball of clay, dried and loose, so that in moving the vessel, it emits a slight sound.

The funerary urns from this part of the continent are noticeable from their abundance, their size, and their peculiar shape. On account of the latter they are usually known as "shoe-shaped" urns, their form being vaguely similar to that of a shoe or gaiter. In these receptacles the bones were placed after the body had been destroyed by fire, or by exposure for a considerable time in moist earth. The urn is sometimes molded to represent the head of an animal, as in Nos. 48, 344, and 432 of this collection, and others.

A series of human figures in various colors (often rather rudely out lined, representing both sexes), in the collection of Mr. Gavinet, would appear to have been for religious purposes, probably gods of the household.

Industry in stone is displayed by arrow and lance heads, chisels, axes, pounders, clubs, millstones, mortars, and rude figures. One of these objects, No. 1162, is what has been called a "pulp-pounder," and by some is supposed to have been employed in the manufacture of pottery. A further description of these somewhat puzzling implements is given in Science, referred to on p. 31.

Some of these stone articles, the arrow points and the knives, are of obsidian, the product so much in favor for the same purpose in Mexico, and always selected where obtainable on account of the keen cutting edge which it offered. In ornaments, colored stones, some of them quite brilliant, were polished and bored, and used as beads strung upon a cord. Examples of these in the Gavinet collection are exhibited in Nos. 1183, 1184, 1199, and 1200. Their number, in each instance varies, some necklaces having from forty to eighty of these stone beads. They are not always globular, some being oblong, varying in diameter, and occasionally an attempt has been made to carve them into the representation of an animal object.

The especially noteworthy features of Nicaraguan pottery are its brilliant and elaborate polychromic designs, the symmetry of the jars and vases, and the fine polish of the external surface, which in some cases might easily be mistaken at first sight for a glaze. These characteristics were well brought out in the display at Madrid. Another peculiarity is the evident liking of the native potters to mold objects of amusement, such as whistling jars, musical instruments, etc., out of clay, bringing their art in this respect into analogy with that of Peru. Archæologists in the United States have been made familiar with these traits by the excellent study of Dr. J. F. Bransford, published by the Smithsonian Institution.[1]

## The Department of Costa Rica.

The Republic of Costa Rica presented a rich collection of specimens, many of them recent acquisitions and all of them admirably arranged under the intelligent administration of Señor Manuel M. de Peralta, envoy extraordinary and minister plenipotentiary of his Government, and Mr. Anastasio Alfaro, director of the National Museum of Costa Rica, who had superintended many of the excavations of the objects.

The collection in general embraced several special collections belonging to individuals, besides that sent by the National Museum of Costa Rica. The first was one obtained by Bishop Thiel, whose works upon the native languages of that country are well known to students of these subjects.

An interesting feature of this collection was a series of small images in gold, eighteen in number, weighing in all 282 grams. Several of them represented the human figure in whole or in part; others were figures of birds, frogs, and ornaments. Of greater antiquarian interest than these were the vases in stone. One of them, measuring in height a meter and a quarter, showed three symbolic animals united together. Another, a bird belonging to the owl species, holding in its beak a figure of a man. This is supposed to be a symbol of the creation, the bird representing the primeval power which placed man upon the surface of

[1]Archæological Researches in Nicaragua, by J. F. Bransford, M. D., United States Navy, Washington, 1881.

the earth. This explanation is supported by an ancient myth referred to in L. Fernandez, Documentos Ineditos, Tom. III, page 337.

The height of this object was 80 centimeters, and it may be regarded as one of the most remarkable specimens in the collection.

Six curious examples were shown of the stone stools or seats which were used by the chiefs or priests when they performed certain religious ceremonies. Other objects in stone which may be enumerated were heads of animals, grinding stones for maize, axes of the same material, and a number of worked specimens of vases and ornaments in greenish stones, which are usually classed among the jades or nephrites.

Quite a large number of specimens in burnt clay represent the industry of the potter. One of these is a burial urn, which was found to contain human bones, showing that this method of interment, common in the adjacent territory of Nicaragua, was also not unknown in Costa Rica. Of the 78 vases in terra cotta represented, a number are in the form of animals rather accurately portrayed. The earthenware flutes or whistles, so frequent in this portion of Central America, are represented by 24 specimens of different forms, varying from 12 to 35 millimeters in height.

Of miscellaneous objects, 3 native drums, 2 blowpipes, 2 staffs used by the chiefs, 21 bows, several specimens of native weaving, and various utensils for lighting fire, were displayed from existing tribes.

Another department of the collection was derived from the Troyo family, who have generously given to the National Museum a variety of valuable objects. Among these may be mentioned several chisels and spoons in stone, masses of stone intended to be used as maces or war clubs, others with polished surface and fitted to the hand for use as polishers or smoothers, grinding stones of various sizes and forms, mortars and vases of the same material, and a line of small human figures usually in a sitting position, probably intended as memorials of the dead or as household gods.

The relics in clay in this collection include several specimens of jars, plates, spoons, whistles, rings, bells, and flower holders. Of these about one-half display designs upon the surface, either in low relief or engraved upon the clay, and about one-fifth are decorated with paintings in different colors.

Industry in copper and gold is represented by a series of objects principally taken from natural history, such as eagles, frogs, lions, and a number of curious little figures perhaps intended as images of special deities.

A few skulls taken from native graves offer a means of examining the cranial characteristics of the natives.

A collection of antiquities, 380 in number, obtained in the immediate vicinity of Nicoya, is of peculiar value on account of its strict localization. The objects which it presents are in stone, pottery and in a few

instances of metal. A prominent feature in it is the number of fine stones, green or bluish, belonging to various varieties of jade and jasper. They bear frequently a high polish and have been worked up into objects of ornament.

Another collection is that of Señor Julio de Arellano, which was excavated principally from the slopes of the volcano Yrazu and from Nicaragua. It includes ornaments in copper, numerous figures in stone representing men and animals, corn mills, and a line of vases and utensils in clay, several of them handsomely colored or presenting designs in relief.

Over 1,000 relics which were obtained in 1891 in exploring the native cemetery of Guayabo, situated on the slope of the volcano, form a conspicuous part of the collection from Costa Rica, and one highly illustrative of the industry of its earlier inhabitants.

Besides the archæological collections there are in this section a great many ethnographic specimens obtained from the tribes which still exist scattered throughout the northern and southern portions of the Republic in small settlements. These include bows and arrows, blowpipes, woven material, feather work, collars made of teeth, nets, hammocks, fishing lines, drums, etc.

There are displayed by means of photographs and oil paintings representations of individuals of the native tribes, their present habitations, and the ancient sepulcher opened and explored by Mr. Anastasio Alfaro, whose intelligent activity has thrown so much light on the pre-columbian history of this part of Central America.

Prominent among the objects represented is a series of metates of unusual size and elaborate workmanship. They are of a fine gray stone, resting upon feet of the same material, and are elaborately decorated with human and animal heads in relief along the sides.

One of these is of such size and bears such an amount of decoration as to seem to unfit it for a domestic utensil, and it has been called a sacrificial stone. A comparison, however, with a number of similar objects would seem to leave little doubt that its purpose was the humbler and more peaceful one of forming a surface for the grinding of corn on a large scale.

Peculiar interest attaches to the archæology and ethnography of Costa Rica on account of its situation on the only highway of migration between South and North America. The relations of its native population at the time of the Conquest have offered problems of much obscurity, which can not be said to have been completely solved up to the present time. An admiral résumé of our existing knowledge of this subject was prepared by Señor de Peralta, the president of the commission from Costa Rica to the Exposition in Madrid, and was incorporated in the catalogue of that department. It condenses so much information not easily accessible into such clear outlines that the following extract from it is inserted:

On the shores of the Pacific, in the peninsula of Nicoya, in all that territory which now constitutes the province of Guanacaste, and embracing all the vicinity of the gulf of Nicoya to the point of Herradura, lived the Chorotegas or Mangues, divided into various tribes or chieftancies, feudataries of the Cacique of Nicoya, to wit, Diria, Cangen, Zapanci, Pococi, Paro, Orotina, and Chorotega, properly so called, in the valley of the Rio Grande. By the side of these dwelt the immigrant Nahoas, who carried this far the arts and traditions of the Aztecs, and the cultivation of cacao, and obtained a supremacy over the previous inhabitants. The Chorotegas spoke the language of the same name, or the Mangue, a branch, if not the trunk and origin, of the Chiapanec. They extended through Nicaragua on the shores of the lakes, and by the way of Nequepio on the gulf of Fonseca or of Chorotega Malalaca, in what now forms the Province of Choluteca, in Honduras, and part of San Miguel, in Salvador, to Chiapas, in which mountaneous region they held the important post of Acala.

Between Chiapas, which we may call Chorotega-Acala, and Nequepio, or Chorotega-Malalaca, intervened the colonies or provinces of the Nahuas, Cakchiquels, Popolucas, and Pipiles of Guatemala and Salvador, as between Nequepio and Managua intervened the Maribios and Matiares; and between Masaya and Nicoya, the Nahuatl colonies of Nicaragua, sometimes isolated and rulers of the soil, as at Rivas, sometime adjoining or intermingled with the Chorotegas, as in the peninsula of Nicoya.

Between the Chorotegas of the peninsula and those of the eastern shores of the gulf, that is, between Nicoya and Orotina, were the Corobicies; but owing to the facile communication by water the Chorotegas of both coasts were in frequent relations.

Geographically the Chorotegas formed five provinces:

(1) Old Chorotega, their only home, and Orotina, on the east coast of the gulf of Orotina or Nicoya, between the port of La Herradura and the river Avangares. Between the river Avangares and the Zapandi, or Tempisque, were stationed the Corobicies.

(2) Nicoya, the peninsula of this name, and its prolongation to the lake of Nicaragua, including the towns or chieftancies of Zapandi, Nacaome, Paro, Cangen, Nicopasaya, Pocos, Diria, Papagayo, Namiapi, Orosi.

(3) Managua, or Mangua, country of the Mangues, called in the Nahuatl language Xolotlan, including the towns of Masaya, Nindiri, Diria, Diriomo, Diriamba, Jinotepe, Mombacho, Niquinohomo, and Nandaime.

(4) Nequiepio, or Chorotega-Malalaca, Nacaome, Goascoran, Orocuina.

(5) Chiapas, or Chorotega-acala, Chiapa, Acala, Suchiapa, Copainala.

The Nahuas, whose most important colonies controlled the isthmus of Rivas between Lake Nicaragua and the Pacific, were established in Nicoya and spoke the Mexican or Nahuatl language.

A Mexican colony also existed in the valley of Telorio (valley of the Duy, or of the Mexicans) near the Bay del Almirante, and inhabited the island of Tojar, or Zorobaro (now of Columbus), and the towns of Chicaua, Moyaua, Quequexque, and Corotapa, on the mainland, this being the farthest eastward in Costa Rica, or in Central America, to which the Nahuas reached, so far as existing evidence proves.

Between the lake of Nicaragua and the gulf of Nicoya, to the east of the volcano of Orosi and the river Tempisque, near longitude 85° west of Greenwich, dwelt the mysterious nation of the Corobicies, or Corbesies, ancestors of the existing Guatusos. To the east of the same meridian were the Votos, occupying the southern shores of the Rio San Juan to the valley of the Sarapiqui.

To the east of the Sarapiqui, and from the mouths of the San Juan on the Atlantic to the mouth of the river Matina, was the important province of Suerre, belonging to the Guetars, who occupied the ground to Turrialba and Atirro, in the valleys of the Reventazon and the river Suerre or Pacuar.

Between the river Natina and the river Tarire were the provinces of Pococi and of the Tariacas. To the east of the Tarire to the Bay del Almirante, dwelt the Viceitas, Cabecares, and Terrabas (Terrebes, Terbis, or Tiribies).

On the Bay del Almirante to Point Sorobeta or Terbi there was the Chichimec colony, already referred to, whose cacique Iztolin conversed in the Mexican language with Juan Vasquez de Coronado in 1564.

The Changuenes occupied the forests about the headwaters of the Rio Ravalo.

The Doraces, south of the Laguna of Chiriqui, and at the foot of the Cordillera, adjoined in the valley of the river Cricamola or Guaymi with the warlike nation of the latter name.

The Guaymies occupied the coast and the interior lands situated between the rivers Guaymi and Conception, of Veragua.

In front of the valley of the Guaymi lies the Island del Escodo, the governmental limit of Costa Rica; so that the Guaymis were distributed in nearly equal parts between the jurisdiction of Costa Rica and of Veragua.

In the interior, in the highlands about Cartago, on the slopes both of the Atlantic and the Pacific, were the provinces Guarco, Toyopan, and Aserri; farther west, toward the gulf of Nicoya, Pacaca, Garabito, and Chomes adjoined along the summits of La Herradura and Tilaran with the Chorotegas.

These provinces formed the territory of the Huetares, or Guetares, *uei tlalli*, in Nahuatl, "great land," a general term, which included various tribes and chieftancies of the same linguistic stock, one entirely diverse from those of the neighboring Mangues and Nahuas, toward whom they were unfriendly, although maintaining commercial relations.

The province of Guarco was considered by both the natives and the Spaniards as one of the most favored localities in the country, and for that reason was selected by the Guetares, and later by the whites, as the sight of their principle town. It was here that the city of Costa Rica was founded in 1568. The name is a corruption of the Nahuatl Qualcan, from "qualli," good, convenient, with the locative suffix "can." Qualcan means, therefore, "good place," or, as it is translated in Molina's Vocabulary, "a well-sheltered and desirable place," which answers well to the valley of Cartago.

Southeast of Chorotega and the heights of Herradura, and south of the Guetares, extending to the Pacific Ocean, between the rivers Pirris and Grande of Terraba, was the province of the Quepos, of which the Spanish Government formed the district of Quepo, whose extreme limit toward the southeast was the old Chiriqui River.

According to the most probable conjectures, the Quepos belonged to the family of the Guetares and lived, by preference, on the coasts. They were also enemies of the Mangues and the Cotos and Borucas, and in consequence of their wars with them and with the whites, and with the burden of labors laid upon them by the latter, their towns disappeared in the middle of the eighteenth century without leaving any positive traces which will enlighten us upon their origin.

Adjoining the Quepos, the Cotos or Coctos occupied the upper valley of the river Terraba, formerly known as the Coto.

These formed a numerous and warlike tribe, skillful in both offense and defense.

They are not known in Costa Rica by this name; but there is no doubt that the Borucas are their descendants. These Borucas occupied the region about Golfo Dulce, formerly the gulf of Osa, east of the river Terraba, and gave their name Buricas, Burucas, or Bruncas to the province of Borica, discovered by the Licentiate Espinosa in the first voyage of exploration made by the Spaniards to this region in 1519, and also to Point Burica, the extreme southern limit of Costa Rica, in latitude 8° north.

The province of Burica extended toward the east to the Llanos of Chiriqui, and formed a part of the government of Quepo. It belongs to-day to the district of Punta Arenas.

The Terrabas, who have given their name to the river formerly called the Coto, do not belong to the tribes of the Pacific Slope. They were brought to the location there, which they now occupy, in Aldea or Terraba, partly by the persuasion of the missionaries, partly by force, having been obliged to abandon the rough mountains to the north about the head waters of the Tilorio or Rio de la Estrella, the Yurquin, and the Rovalo, about the year 1697. They have been variously called Terbis, Terrebes, Terrabas, and Tirribies, but there are no differences of dialect between them and their relatives to the north, other than would necessarily take place in any tongue from a separation of this length.

At the time of the Conquest, therefore, the tribes occupying the territory of Costa Rica were Nahuas, Mangues, Guetares, Viceitas, Terrabas, Changuenes, Guaymies, Quepos, Cotos, and Borucas.

The Nahuas came from the north, and landed in Nicaragua somewhere about the year 1440.

As to the Mangues, we must admit as the most probable opinion that they extended from the shores of the gulf of Nicoya along the lakes of Nicaragua and Managua (Xolotlan) into southern Mexico, where up to within a few years their language was spoken at Acala.

It is almost impossible to determine the ethnic affinities of the Guetares as long as no vocabularies of their tongue can be found, though such were certainly written by such able linguists as Fray Pedro de Betanzos, Fray Lorenzo de Bienvenida, Fray Juan Babtista, and other Franciscans, who founded missionary establishments and taught the natives around Cartago; but the testimony of archæology proves that if they were not related to the Nahuas, they were subject to their influence, perhaps through the active commerce they had with the Chorotegas and Nahuas about the gulf of Nicoya.

That the Guetares were by no means rude savages is shown by the ornaments in gold, and the precious stones finely cut, which have been unearthed in the excavations about Agua Caliente and Turrialba. That they presented an honorable difference from their neighbors to the north and also the Chorotegas in not being cannibals is testified to by Benzoni, who was among them in 1544, and also by other documents of the time.

As to the Guaymies, Terrabas, Changuenes, and Borucas, their affinities to the tribes to the east of them are well marked, and it would not be surprising if they were also closely related to the natives between Paria and Darien, and even with the Chibchas of Colombia, as has been maintained by Brinton.

The total number included by these tribes about 1564 may be estimated in round numbers at 100,000 souls. At present their representatives are very few.

The Nahuas and Mangues of the Nicoya region have completely disappeared, although the former survive in Mexico, and the latter have still a few descendants at Masaya, Nicaragua, and Acala, Mexico.

It is unnecessary to say that the Nahuas have left many admirable monuments proving their proficiency in the arts, and a language of a perfection proving that those who developed it were a thoughtful and cultured race.

The Chorotegas or Mangues, a proud and independent people, are also shown by the relics they have left to have been a people skillful in the arts of pottery, and in working stone and gold. Nothing remains of the Corobicies or Corvesics except the name Corobici or Curubici, applied to an affluent of the Rio de las Cañas, a branch of the Rio de las Piedras, tributary to the Tempisque. There are many reasons, however, for believing that the modern Guatusos are the descendants of the Corobicies, whose language, according to Oviedo, was quite distinct from that of the Guetares, or Chorotegas, or Mexicans. It is possible that they are descended from those Votos Indians who inhabited the southern banks of the Desaguadera, or Rio San Juan, and whose village was situated near the first rapids of that river. In

either case, neither the Votos nor the Corobicies have left any traces of the character of their culture.

Among the objects from the Guetares is an instrument of wood for making fire according to the system employed in Mexico, a cord or line for fishing, and various ocherous earths used in painting the body, a custom which Fernandez de Oviedo mentions as common among the Chontales of Nicaragua, near neighbors of the Votos.

### Department of the Island of Cuba.

The objects sent to the exhibition from the Island of Cuba were principally economic in character, including an admirably arranged and extensive series illustrating the mineralogy and metallic wealth of the island and reflecting credit upon the school of mines in Havana which had forwarded it.

There was also a fine case manufactured from the choice woods of the island, containing documents relating to the transportation of the bones of Christopher Columbus from the cathedral of Santo Domingo to that of Havana, in the year 1796. Its contents have a high historical value and by many are considered conclusive upon this much debated question. A second volume, handsomely bound, contained a number of photographs of various views and buildings in Havana and objects relating to Christopher Columbus, among them one of his portrait presented to the city of Havana by his descendant in the seventh degree. It is claimed to be the most genuine of any known.

No collections of archæolgical specimens, illustrating the industries of the indigenous inhabitants of the island, were included in the exhibit.

### Department of the Dominican Republic.

The material in the department of the exhibition occupied by the Dominican Republic in the island of Santo Domingo, or Haiti, had reference partly to the early establishment of the Spanish power in that island and partly to the condition of its primitive inhabitants as shown by their remains. The first of these consisted mainly of paintings and engravings of notable buildings and places upon the island which had been the scenes of various transactions relating to the first settlement.

The early writers have left us considerable information about the state in which the inhabitants found themselves on the arrival of the Spaniards. This was not dissimilar to that of the tribes of northern South America, with whom they were closely affiliated in language and blood. The picture thus drawn by the earliest European visitors is borne out by the remains which have from time to time been collected. Those in the present exhibition include small idols of stone, clay, and wood, also points for lances or arrowheads of the same material, figures and utensils in pottery, and collars of stone, supposed to have been used on ceremonial occasions. Among the engravings is one of the celebrated circular construction of upright stones designed according

to tradition as an arena for playing ball, having in its center a stone seat of great size, supposed to have been a throne for the queen.

The fact of the burial of Columbus in the cathedral of Santo Domingo surrounds this building with an historical interest. Numerous views of it are presented from different aspects and others showing the leaden casket in which his mortal remains rested until the year 1795, when they were transferred to the city of Havana.

The native population of Haiti, of whom we have in this exhibit the evidence of considerable cultivation, remained long of undetermined affinities, although many of the words of their language, their customs, and their myths were preserved by the early settlers and missionaries. They were popularly supposed to be Caribs, or related to the Carib stock, or connected with the Mayas or Mexicans.

In a study of the Arawack language of Guiana, published in 1871, I brought the Haitian language, I believe for the first time, into unquestionable and close connection with that important South American stock, and showed at the same time that it was the same dialect which prevailed throughout Cuba and the Bahamas.[1] The whole West Indian Archipelago was peopled from South America exclusively, and contained no tribes linguistically related to any north of the Isthmus of Panama upon the continent. The definite recognition of this fact in ancient native migration is of prime importance in the study of collections of aboriginal relics from these islands.

## Department of the Republic of Colombia.

The Republic of Colombia presented perhaps the most brilliant of all of the displays in the strictly American portion of the Exposition. The numerous magnificent specimens of native gold work and their tasteful arrangement attracted the attention of all visitors. They also excited the admiration of those of antiquarian taste, from their novelty as well as for the perfection of their designs. The credit for the collection of this unusual series as well as for their judicious arrangement rests mainly with the distinguished Colombian archæologist, Señor Ernesto Restrepo.

Señor Restrepo took advantage in connection with this Exposition, and of the interest excited by the invitation to his country to participate in it, to publish several valuable contributions to the study of the ancient history of that portion of the continent. These appeared at Bogota, under the following titles: Estudios sobre los Aborígenes de Colombia; Viages de Lionel Wafer al Isthmo de Darien; and Ensayo Etnográfico y Arqueológico de la Provincia de los Quimbayas.

They are most creditable to the extent of his scholarship and the energy with which he has pursued investigations in the library as well

[1] The Arawack language of Guiana in its linguistic and ethnological relations, by D. G. Brindton, M. D., in the Transactions of the American Philosophical Society, for 1871.

as in the field. They give us for the first time a fairly complete statement of the native tribes present in this portion of South America about the time it first became known to the European invaders. The map which accompanies the first named locates with great accuracy a large number of tribes whose precise residence has heretofore been vague.

According to the minute and extensive investigations of this scholar, the territory of Colombia was occupied by a great variety of tribes in different stages of culture, not subject to any general government, but constantly at war with each other. When the objects obtained from the graves in different parts are carefully examined, a considerable difference is manifest in the style and in the perfection of their artistic execution. It is quite obvious that the condition of those who manufactured them was one of isolation, and that very little communication even of a commercial character was frequent between them.

With regard to the work in gold, for which this territory was particularly famous, it is found to be divisible into three different groups, clearly characterized by contrasting traits, both in the objects represented and in the style of workmanship. These three groups are called those of the Chibcha, the Antioquena, and the Quimbaya; these are so clearly of independent character that a person who has thoroughly familiarized himself with their traits will run no danger of mistaking one for the other. Nor does it appear that the artistic development of the one exerted an influence upon the others, or that the products of the one entered by exchange or purchase into the territory of the others. The excavations in the ancient graves reveal objects almost entirely native to the locality, and very rarely specimens which could be attributed to the workmanship of neighboring tribes.

This statement is equally true in reference to any objects which might have been made, subsequent to the Conquest, in Central America and Peru. The native graves of early date in those regions often contain metal work, pottery or ornaments, which show that the interments took place after the arrival of the Spaniards, and include some objects either brought by them, or imitated from those so introduced. For instance, in both countries, images in pottery of Spanish soldiers or monks are not extremely unusual in the native cemeteries of old date. Nothing of this kind appears to have been the case in Colombia. When the invading forces swept down upon this thickly settled land, peopled by small tribes not possessing any strong military force and no cohesion among themselves, the whole industry of the country became paralyzed and ceased, once and forever.

How small comparatively even the most important of these nations was, may be seen from the fact that the one which has most occupied the attention of historians and antiquarians, to wit, the Chibchas, did not control even the tenth part of the present area of the Republic of Colombia.

The means for studying through material objects the degree of culture of this nation have always been limited, and much of the celebrity which it has enjoyed has been owing to the literary studies of Duquesne and Humboldt, and rests on insecure foundations. Indeed, all the known objects previous to the present exhibition, which were at the command of the students, were not over a hundred as represented in the various works on this field. At Madrid, on the other hand, there were represented 237 specimens and 167 hitherto unpublished drawings and paintings of specimens in other collections not heretofore represented in any public work. The character of these objects and the variety they presented, illustrating ancient workmanship, may be judged from the following list:

In objects of gold there were 69 human figures, 6 masks, 23 figures of animals, 19 instruments, and 38 bones for ornament, making in all 155 articles in this metal of more or less pure alloy. In copper there were 24 figures of animals and of the human subject; in pottery, 38 vases and figures; and 20 utensils of stone. The illustrations offered of other objects not on exhibition number 167; making in all 404 new specimens, serving to illustrate not only the technical culture of the Chibcha nation, but also throwing light upon its mythology and symbolism.

But no doubt the most unexpected result of Mr. Restrepo's studies, one abundantly proved by the unequalled collection which he presented to view, was that the Chibcha Nation was not the leader in general culture or in artistic workmanship among those who inhabited the soil of Colombia at the time of the discovery. This distinguished place was taken from them to be assigned to a nation or tribe hitherto wholly unknown to historians or antiquarians, and whose affiliations remain in complete obscurity. This tribe is that of the Quimbaya, who occupied a territory on the right bank of the River Cauca, between the fourth and sixth parallel of north latitude. The area they controlled does not appear to have been more than 50 miles long and 30 wide, and from the very little that can be learned about their traditions, they had entered this district at no remote period before the Conquest.

Concerning their language, we have no other information than a few proper names and two or three words, which offer no affinity with neighboring tongues. In this locality, guided by a native artistic instinct, and favored by the abundance of gold, usually impure, found in the streams, they developed probably the highest workmanship of any people on the American continent. They appear to have been peaceful, given to the enjoyment of life, and limited in other respects in their cultivation.

These characteristics combined to insure their early extinction on the arrival of the Spaniards. Those avaricious strangers remorselessly pursued the Quimbaya to extort from them their hoards of the

precious metal. The tribe was soon scattered, its survivors fled to the forest, and in a very short time even its name was forgotten by the rapacious invaders.

Through the assiduous labors of Mr. Restrepo we are now in a position to appreciate the high artistic sentiment which inspired this departed people, and to restore to them the credit on the page of history which is their due. The specimens of their work exhibited at Madrid, make up a total of 1,012 objects, enough, as Mr. Restrepo remarks, to enable those interested to decide whether this tribe of barbarians did not do honor to the human species by their love of the arts, their excellent taste, and their really prodigious skill.

These specimens are in gold of more or less alloy, in copper, in clay, and, in a few instances, in stone, wood, bone, and shell. They represent figures of the human body, and of various animals, diadems, crowns, scepters, collars, earrings, ornaments of various character, rings, bells, flutes and whistles, vases, and sepulchral urns, chisels, needles, spindles, etc.

The graceful forms and varied sizes of the gold vases from this region impressed every observer. They indicate a true sense of symmetry and proportion in their makers, and they vindicate for them a high position as genuine artists. The vases of clay are decorated in colors, with figures accurately traced, and are of varied and original forms. They do not resemble, either in the material of which they are constructed or in the methods of decoration employed, the pottery of the Chibcha or that of Central America. They would seem to present the product of an evolution of art belonging strictly to the nation who manufactured them.

In the third region, that which has been referred to as about Antioquia, there have been numerous extensive collections made at different times, which have abundantly proved that the tribes there resident were rich in gold, and manufactured it into various articles, with a skill greater than that of the Chibcha, but less than that of the Quimbaya. In the Madrid collection, the industries of this region, represented either in the relics themselves or by accurate photographs, made a total of 438 pieces, quite sufficient to give a correct idea of their progress in the arts. Here, again, we are at a loss correctly to state, from the evidence of language, what relationship these tribes bore to each other or to other stocks on the continent.

A fourth region, not generally included in the continent of South America, though at present under the government of the Republic of Colombia, is that included in the Isthmus of Panama and the territory westward of it to the line of Costa Rica. This embraces the rich antiquarian region of the bay of Chiriqui. It is well known that the ancient graves in that district have been ransacked for many years on account of the wealth of gold images which some of them contained. Although the greater portion of the relics thus obtained found their

way to the smelting pot of the goldsmith, a sufficient number were preserved by collectors to make the character of the Chiriqui gold work quite familiar to all interested in such studies. The same tribes were also skillful in the manufacture of clay into utensils and objects of adornment. In the Madrid collection the Republic of Colombia displayed about 200 pieces of pottery from the region in question, loaned by Bishop Peralta, of Panama, and 28 more from Mr. Restrepo's collection. The peculiarity about these pieces of pottery, and that which distinguished them from the similar products from the tribes of the south, was the method of ornamentation they adopted, choosing usually figures of animals, and also their selection of bright colors. The hands and feet of some of the vases are ingeniously arranged to be rattles, being hollow, and containing a loose ball of burnt clay which makes a light noise on moving the plate or jar.

Another class of objects represented in this collection is one which affords peculiar interest to the student of the aboriginal methods of recording ideas. These are the inscriptions or writings upon stones or rocks dating from precolumbian times, which occur at various places within the Republic of Colombia. Some of these had previously attracted the attention of travelers, and in 1890 Mr. A. L. Pinart published in Paris a photographic album containing 10 plates of such inscriptions existing near the Isthmus of Panama.[1] It has been ascertained that such inscriptions, examples of which may be found in various parts of the American continent, present a series of similarities limited to certain districts, indicating that at some remote time a uniform method of rock writing prevailed over a considerable area, and was limited to that area.

The examples of the inscriptions and engravings on stone shown by the delegation from the Republic of Colombia are contained upon twenty-eight sheets. They represent monuments of this character from a great many sites in different parts of the country, and differing much in the elaborateness of the designs and the skill with which they were executed. An inspection and comparison of them does not permit a classification into well-marked varieties. Still less can they be attributed to any one system of inscriptions. It is probable that several of them reveal the influences of the civilized Peruvian tribes who dwelt to the south.

A small portion of the collection includes ethnographic objects obtained from the existing tribes of the Cunas and Goahibas, such as arrows, bows, lances, flutes, whistles, scepters, collars, combs, etc.

A few skulls are shown indicating that the habit of compression of the frontal region was common among various of the ancient tribes.

Those who have studied the description of the Chibcha numeral system, astronomic calendar, and mythology, as described by Alexander

[1] Limite des Civilisations dans l'Isthme Américain, Pétroglyphes, etc., par A.-L. Pinart. Paris, 1890.

von Humboldt, from the MSS. of Dr. Duquesne, will desire to learn if those remarkable statements are borne out by these later investigations. Such inquirers are referred to Señor Vicente Restrepo's careful monograph, Critica de los Trabajos Arqueologicos del Dr. José Domingo Duquesne, Bogota, 1892. It is sufficient to say that later research, as well as an examination of Dr. Duquesne's own writing, leave little doubt but that Humboldt was too credulous in attributing any such advance in culture to the Chibcha nation.

## Department of Ecuador.

The exhibition of the Republic of Ecuador was under the care, as president of the commission, of Señor Antonio Flores, formerly president of that Republic, and now minister plenipotentiary from it to the court of Spain.

The geographical position of Ecuador surrounds it with special interest to the student of the ancient history of America. It lies in the extreme northern portion of the former "Empire of the Incas," and is located between the numerous tribes subjected to their rule and a number of independent nations of a certain degree of cultivation to the north of them. Its earliest history is carried back by tradition some five or six hundred years, or as some would say, a much longer time, before the arrival of the Spaniards. The first that we hear of it concerns the nation of the Caras who are reported, somewhere about the ninth century, to have descended the coast from the north and to have landed on the shore near the mouth of the Esmeraldas River. From there they journeyed inland and established their main seat about the city of Quito, where they continued their rule down to about the middle of the latter half of the fifteenth century. At that time the Inca Huaynacapac conquered the country, and incorporated it into the nation of which he was chief.

According to the evidence of language and many traditions of great antiquity, the great Kechua nation itself first appears within the territory of Ecuador, from which locality it gradually advanced, in two streams of migration, conquering as it went, until it had brought under its influence tribes as far south as the thirtieth parallel of south latitude.

However this may be, it is certain that in Ecuador we find many examples of art products which show conclusively the influence exerted by the Kechua people.

The present collection includes in all 1,327 numbers in its catalogue, many of which were exhibited by the Government of the Republic, and others were loaned from private collections. Among the first there were a number of utensils in stone, one a mortar with large ears, each bearing a figure of an animal cut upon it. Another was a long stone with resonant qualities, used as a bell, or to sound warnings,

emitting a loud and sonorous report upon being struck. Various circular or globular stones, some bored, were doubtless used to attach to the ends of clubs to give greater force to the blow. A few rough figures in this material and a number of axes were also shown. Pottery was represented by a collection of vases, jars, and plates in red and black clays; also masks of the same material. Several specimens of copper, usually in the form of axes or hatchets, indicated that this material was employed for objects of utility.

A valuable collection, including relics both in copper, stone, bone, and wood, was exhibited by Mr. August Cousin. The general character of the specimens was similar to those in the collection of the Government, and in many instances the workmanship deserved special attention from its perfection and artistic inspiration.

Minister Flores personally exhibited a curious collection of ethnographic articles presented to him, when President of that Republic, by a chief of the nation of the Macas. They included a whistle of clay, vases of the same material, stone axes, head dresses of feathers and skins, ornaments for the ears, collars of teeth and other substances, and the instruments for boring the ears.

Within the limits of Ecuador the Jivaro Indians reside, celebrated for their skill in extracting the bones from the human head, and drying the soft parts and the hair in such a manner as to preserve them permanently. These heads they cherish as trophies. An interesting specimen was contained in the collection deposited by Señor Brao y de Liñan, consul-general of Ecuador to Spain.

Quite a number of the vases in pottery exhibited were of considerable size, some of them resting upon feet, others pointed at the end like the Greek vases and evidently for the same purpose, that is, that they might be placed securely in sand or soft ground by inserting the pointed extremity. Many of them were plain, others were in animal forms of in rude representations of the human figure.

Several cases in this collection were filled with coins and medals struck at various times by the Government of the Republic.

## Department of Peru.

From the Republic of Peru only a small and unsatisfactory exhibition was made, considering the unusual riches which that country offers in articles of American antiquity. It consisted of about fifty specimens in pottery of the ordinary forms and texture which are so familiar from that country. A few objects in silver and gold compared unfavorably with the much richer display from Ecuador. There were also some idols in wood, and various textile materials from cotton, wool, and the product of the vicuña. These were supplemented by a somewhat larger series from several private collections, consisting mainly of specimens of pottery of black clay obtained from the coast

lands. Most of these are technically known as "huacos," a term applied indiscriminately to aboriginal relics in Peru. About sixty of them were disinterred from the immediate vicinity of the famous Temple of the Sun, in the valley of Pachacamac, and the Temple of the Gran Chimu, so well described by our countryman, the late Mr. E. G. Squier, in his work on Peru.[1] The specimens referred to are chiefly of clay, finely tempered, and offering some unusual forms. It may be that they are examples of the real "Chimu" work, which belonged to a different culture center from the Kechuas or Incas, and one believed by many historians to have been much older.[2] The natives of the coast about Trujillo were the Chimus or Yuncas, speaking a totally different language from the Kechua, and having been subjected by the Incas about the middle of the fifteenth century.

## Department of Bolivia.

The Government of Bolivia was represented by a very small collection, chiefly ethnographic in character and throwing but little light on the many interesting questions which relate to the ancient history of that part of South America. Among them were two idols in stone, found among the ruins of Tiahuanaco, some models of the curious rafts used still by the Indians of Lake Titicaca, several idols in wood as manufactured by the present Indians of the Aymara tribe, some plates of native manufacture, various textile materials, the result of native labor, and the complete costume of a native Indian man and Indian woman.

The native tribes represented were the Aymaras and the Moxos. The first mentioned now number several hundred thousand of pure and mixed blood. Their archæological history is peculiarly interesting on account of the probability that their culture was considerably older than that of the Kechuas, and that these had derived from them many elements of their later civilization—a view ably maintained of late by Dr. Middendorf.[3]

The home of the Moxos is on the head waters of the Rio Mamore. They speak a dialect of the Arawack stock, the same which has been referred to as the prevailing language throughout the West Indian Archipelago. The opinion is now generally held that the original home of this widespread family of languages was somewhere on the Bolivian highlands,[4] which lends special interest to an ethnographic study of them in that locality.

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[1] Peru; Incidents of Travel and Exploration, Chaps. IX, X. New York, 1877.

[2] See Dr. E. W. Middendorf. Das Muchik, oder die Chimu-Sprache. Einleitung. Leipzig, 1892.

[3] Die Aimarà-Sprache. Einleitung. Leipzig, 1891.

[4] See Brinton, The American Race, p. 249. Philadelphia, 1891.

## Department of Uruguay.

The exhibition from the Republic of Uruguay was presented chiefly under the auspices and care of Señor Juan Zorrilla de San Martin, envoy extraordinary and minister plenipotentiary from that Republic to the Court of Spain and president of the commission, known also as a distinguished author in both literary and scientific directions.

All the specimens shown from this country may justly be attributed to the race and tribes who inhabited its area at the time of the discovery. None of them were found at any great depth beneath the surface, or in any such relation to older strata as to lead us to assign them to that much older age which has been claimed for some of the relics found on the watershed of the Rio de la Plata. These tribes occupied a geographical position intermediate between the stocks which inhabited Brazil and those who occupied the vast area toward the west, known as "El Gran Chaco." They were in blood and language affiliated to both of these, and they possessed traits of culture common to both.

The majority of the relics were obtained from what is known technically as "village sites," such as are called in South America "paraderos." These, as the name indicates, were localities which have for a greater or less length of time been chosen by the natives as places suitable for the construction of their more permanent residences. They present, on investigation, many utensils, weapons, burnt stones and clay, remains of hearths, bones of animals, fragments of shells, etc., indicative of the life of the inhabitants, but, as a rule, few, if any, human bones, showing that they were not used as places of burial, nor did the natives who occupied them make a habit of consuming human flesh. The bones of the animals found are those of the same species which still exist, or are known to have existed recently, in the same vicinity, not presenting any examples of extinct species.

The cemeteries of these tribes are occasionally discovered. They present the appearance of a number of small mounds, upon opening which human bones are found, usually in a sitting position and accompanied by stone and bone implements, rude specimens of pottery, and, in some rather rare examples, by articles of European manufacture, such as glass beads, showing that these interments continued to be made after the natives had come into contact with the whites and entered into commercial relations with them.

Here, as elsewhere, in the ordinary soil of the country, various products of the earlier inhabitants, such as arrowheads and stone and bone implements, occur. The specimens presented in this collection were obtained, and to some extent classified, with reference to their discovery on the village sites, in the cemeteries, or in ordinary soil.

Among the examples in stone, single flakes, "teshoas," used for cutting, are abundant. They are generally small, the edges sharp and well suited for the purpose for which they were destined. Some of

them are slightly grooved and retouched upon the edges, so as to offer a serrated border, for which reason they are classified as saws. Another common form of stone implement is that of the scraper. They are usually chipped on one side only, the other being left in its natural condition, the front edge being more or less grooved, while the opposite end is arranged for adjustment into a wooden handle. They offer a variety of forms, some being circular, others oblong, elliptical, etc. Somewhat similar in character are flakes and pieces of stone, usually oval in outline, which have been chipped to a point at one end, the border being sometimes also chipped to an edge, at others left blunt.

The use of stone arrowheads and lance heads was very common in Uruguay. More than 9,000 specimens are mentioned in the catalogue as having been found, showing the various forms with which we are familiar in those obtained in the United States. The material of which they are made is generally jasper or quartz, and they are worked with a great deal of skill, with symmetrical outlines, testifying to the long practice of their makers.

Although no mention is made of the discovery of quarries, yet the material from them in the form of cores or nuclei is abundant on these village sites. They were evidently brought, as in the United States, from some locality more or less distant, and worked up at the village at leisure.

Another implement found in considerable numbers shows that the same character of technical industry prevailed here as in the northern continent. These are the hammer stones, the use of which was to break the flakes from the core and chip its sides.

A rounded fragment of hard rock, of various sizes to suit the hand and the weight of the blow desired, was its simplest form. Some of them are oblong in shape, and they often present a small depression on each surface, no doubt intended as pits for the extremities of the fingers, thus allowing them to be used for striking a blow with greater accuracy. Others, again, have a groove around the center, evidently for the purpose of permitting them to be fastened securely to a handle.

This form of hammer stone brings them into close relation to a stone implement more common in this part of the continent than in any other, and almost unknown throughout the area of the United States. These are what are called the sling stones or bolas, which are characteristic of the greater portion of South America, south of Brazil. They are in the shape of a roundish stone, generally polished, with a groove around the center, by which they were fastened to a cord or string. They were used in two methods by the primitive inhabitants, the one intended to capture the animal, the other to kill him. In the former, two stones were tied together at the two ends of the cord, about six feet apart, although three could be used, on cords fastened together in the form of the letter Y. This form is quite common to-day in Patagonia, where it is the favorite method of capturing ostriches; but it is

believed to be a later development of the former, and it is doubtful whether, at least in Uruguay, the natives were acquainted with it at the time of the Conquest. The manner of its use is, that one of the stones, the smallest of the three, is taken in the hand, and the others are slung several times around the head and then hurled at the animal in such a manner that his feet become entangled in the cord, and he falls an easy prey to his pursurer.

The simple or single bola is merely a stone attached to the extremity of a cord about 3 feet long. The other extremity is taken in the hand, whirled several times around the head, and the stone is dispatched to strike the animal or the enemy in some vital part. Often heavy and large stones are used for this form of the bola.

Nearly all the bolas present the circular groove above referred to; but there are some which do not. These appear to have been wrapped in skins or thongs and by this method attached to the cord. Those bolas which are taken in the hand are usually smaller than the others; are highly polished, oval, and have the groove extending longitudinally. Not a few of them are so perfectly symmetrical in outline that it is difficult to believe that they have not been made by machinery.

Another variety of stone weapon presenting a generally spherical outline, with a transverse groove and often with conical prominences, are the heads of war clubs or of maces. Many examples of these are shown. They were fastened to the extremity of a handle and were entirely weapons of war.

Axes or hatchets of stone often occur on the village sites. They are usually highly polished, some having a groove, others not.

A comparatively few examples are shown of stone disks. It is not clear for what purpose they were made, and the suggestion of the catalogue that they were sling stones is not probable.

There are two varieties of stone utensils presenting concavities, evidently mortars for breaking corn and other grain; the other smaller in size and probably for use in grinding paints or similar coloring matters.

Perforated stones are not unfrequent, for what use has not been clearly defined. It has been suggested that they may have been attached to handles for the purpose of carrying nuts or hammering on soft substances. They are of various diameters and usually circular in outline.

Two of the most interesting objects in the exhibition in this department are two stones, the one representing rudely an ax or hatchet bearing an outline of the human face, and the other approximating to it in form, but evidently intended to represent a bird. A stone rudely chipped or polished resembling the latter has been exhumed from some of the ancient stations on the coast of Brazil, and the peculiar character of such objects prompts to the suggestion that they may have proceeded from the same inspiration; which, indeed, is not improbable,

inasmuch as the natives of this part of Uruguay belonged in part to the same stock, the Tupi-Guarani, which at an early date spread itself along the coast of Brazil quite up to the mouth of the Amazon and to the north of it.

On all the village sites fragments of pottery are found. It is not very well baked and is usually coarse, the clay being mixed with grains of sand and small gravel in order to give it consistency. On the surface it is reddish, in the interior dark. Most of the vases are conical or globular, and they generally have holes in the rim which were intended for cords by which they could be suspended. A few of these fragments show some rough decoration in points or straight lines in low relief, giving simple geometrical outlines.

The graves which were examined yielded polished stones and human and animal bones. In some instances funerary urns inclosed the remains, and the bones were occasionally painted, showing that they had been brought from a distance after the flesh had decayed, according to a custom well known in both North and South America. The funerary urns show a higher grade of pottery than was found on the village sites, and the attempt at decoration in red and white clay and with various combinations of straight and grooved lines indicate a more ambitious style of art.

## Department of the Argentine Republic.

The Argentine Republic, occupying as it does the southern extremity of South America and including an area extending from the extreme southern point of the continent almost to the limits of the Tropics, is rich in the remains of these ancient inhabitants. It has within the last few years especially attracted the attention of geologists as well as archæologists by its claims to contain in the strata of the pampas both the bones and the industrial relics of the oldest examples of the human race on the American continent. Indeed, there have not been wanting some daring spirits who have intimated that in this region existing evidence indicates that man had his first home. It is unquestionably true that his bones and the relics of his village sites have been discovered in contiguity with the remains of extinct animals which have been reasonably assigned to the Quaternary formation.

The Government of that Republic has, with judicious liberality, made preparation for the collection of a large number of such relics in the museum of La Plata, under the intelligent care of its director, Señor F. B. Moreno. In this depository, a great variety of specimens have been collected, illustrating the natural history as well as the antiquities of the state. It was not deemed desirable by the authorities connected with it to forward to Madrid the best pieces. Instead of these, a full and valuable series of water colors depicting them were exhibited, serving as a means of comparison for the study of visitors. Even

these were far from exhausting or even giving a full conception of the riches in this direction owned by the national museums of that Republic. They present, however, in an attractive manner, the size and coloring of a large number of painted vases of clay, usually decorated in a conventional manner by representations of the human body and various animals, especially the serpent. The majority of these were from the Province of Catamarca, and were funerary urns obtained from the cemeteries of that region.

It is well known to students of the subject that precisely in this province some of the most difficult enigmas present themselves concerning the history of the civilization of South America. Here alone, in any part of the continent east of the Andes, were found tribes constructing walls of cut stone, and erecting edifices of the same material, some of which were of great extent and admirably designed for defensive works. There can be little doubt but that the influence of ancient Peru made itself felt upon the arts of this province, but whether its inhabitants, the actual builders of these stone works, belonged in language to the great Kechua stock, is a question upon which linguists have not reached a unanimous opinion. The articles depicted in the collection from the Argentine Republic at Madrid will extend an interest in this question, and will prove the comparatively high artistic skill which had been acquired by this unknown people.

The natives of Catamarca were known as the Calchaquis, and were in a much higher stage of culture at the time of the Conquest than their neighbors, the tribes of the Gran Chaco, or those which roamed over the pampas to the south. None of the latter had developed an agricultural or sedentary life, while the Calchaquis were distinctly city builders.

Although the province of Catamarca and its inhabitants became early a field for missionary effort, and a grammar of the language was prepared by the apostolic laborer, Father Alonso de Barcena, the work is lost, and all that remains of the tongue is a series of place-names. From an analysis of these, various conclusions have been reached. I have endeavored to prove that they belong to a dialect of the Kechua, of Peru, a conclusion which, if accepted, would bring the remarkable remains of the Calchaquis as well as themselves into genetic relation with the great culture-center of the Incas. Von Tschudi, however, thought they were a part of the Atacameños of the Pacific Coast; and Samuel A. Lafone-Quevedo, who has long studied the problem on the spot, is inclined to look upon them as an independent stock, without known affiliations.[1]

[1] On this question the following may be profitably consulted: Brinton, The American Race, pp. 227, 319, seq.; S. A. Lafone-Quevedo, Catálogo de las Huacas de Chañar-Yaco, La Plata 1892; Gunardo Lange, Las Ruinas del Pueblo de Watungasta, La Plata, 1892.

## Department of Spain.

### THE NATIONAL MUSEUM OF ARCHÆOLOGY.

The National Museum of Archæology of Spain is an institution of the highest class, and one most creditable to the scientific spirit of the nation. It is installed in Madrid in extensive and beautiful grounds and contains a vast collection of objects most useful to a student of antiquarian scenes. Only a comparatively small portion of these treasures were exhibited in the Columbian Exposition, but the selection was very judicious and furnished the attentive observer a large mass of material for his consideration.

The National Museum of Archæology owes its foundation to the liberal mind of Charles III of Spain, who about the year 1773 collected together the objects of interest in natural history and antiquities, and with them formed a large collection at the capital. He also sent various scientific men of the day on voyages to America for the purpose of adding to this material for students. Later on it was increased by the efforts of officers attached to the Spanish navy, by a private collection of ancient vases from Peru, and by a large number of objects exhumed from the sepulchers of that country, including remains, textile materials and utensils of all kinds, and also by a collection of antiquities forwarded by the Government of Guatemala in 1789, and from other sources.

The materials on exhibition were disposed, in the main, geographically, and are so classified in the published catalogue. Beginning with the West Indian Islands, we find a number of examples of the fetiches or so-called *zemis*,[1] which are so common through Cuba, Puerto Rico, and other islands of that archipelago. These are sometimes in stone, sometimes in baked clay. They usually represent rudely the human figure in part or in whole, or a figure of some of the lower animals. Besides these, from the same locality there were stone axes in diorite or serpentine, stones used for milling purposes, often of the peculiar triangular shape known as "the cocked-hat stone,"[2] collars of stone principally diorite, stone implements of the same material, rudely shaped idols and arrow points, one of which, from Cuba, was of obsidian.

Quite a number of arrowheads, a few objects in bone and stone, and fragments of pottery were from the United States, their exact locality not being stated.

Of greater value than these are the extensive series from Mexico, these unfortunately also being rarely strictly localized, and therefore difficult to be referred to a particular ethnic civilization. They included a large collection of what were called religious objects, such

[1] Allied to to the Arawack, *semeti*, medicine-man, sorcerer, or priest.

[2] On the purpose of these consult E. F. im Thurn, "On West Indian Stone Implements" in the Journal Timehri, Vol. I, Part II.

as idols in stone, terra-cotta masks, amulets and seals or stamps, rows of beads, and models of temples. Among the weapons of warfare were shown lance points, knives, some from a peculiar yellow stone, nuclei of obsidian from which the flakes had been detached, and numerous examples of the form in which these flakes were obtained.

The musical instruments from the same state included spherical jars of burnt clay, whistles made of the same material, and rattles.

Certainly the most celebrated of the objects in this collection was the ancient manuscript written before the discovery by the natives of Yucatan, known as the "Codex Troano." It is divided into two portions, and for a long time they were considered to be two separate ancient hieroglyphic books, but now most of those who have carefully studied the relationship existing between the two have reached the conclusion that they are parts of the same manuscript, which have been detached and separated. They are written upon long strips of the native paper, made from the maguey plant, which was covered with a white sizing and folded on the principle of a screen. Both sides were written, or rather painted upon, and the pages are to be read first along one side, and then, by turning the manuscript, along the other, in a direction inversely of the first.

This precious manuscript has been carefully reproduced and is now accessible to all students of the subject.[1] It may justly be considered one of the most remarkable remains of the literary culture of the natives of southern Mexico. The characters in which it is written are distinctly those which we find inscribed on walls of the oldest cities of Yucatan, Tabasco, Honduras, and Chiépas, and are not at all like those which are familiar to us in the manuscripts obtained from the area occupied by the ancient Aztecs.

Various religious objects, specimens of pottery, weapons, domestic utensils, and a few archæological remains are shown from the cities of Guatemala, Nicaragua, Costa Rica, and undetermined portions of Central America.

From South America there was a series of relics shown from Colombia, among them a large number of small idols, in bronze, and copper and gold, from the celebrated nation of the ancient Chibchas. These merited examination the more, as not only was this nation one of the most highly civilized of any within the area of that State, but, as is shown by recent researches, it alone of all the South American nations appears to have extended its influence and language into North America certainly as far as the western boundary of Costa Rica, and perhaps even farther. (See above.) One of the remains which was alleged to illustrate the sacrifices offered by this nation in the Temple of the Sun at their capital city, Sogamoso, was a piece of the great stone upon which the human victims were immolated.

[1] First published by the Abbé Brasseur de Bourbourg, Paris, 1869; *Manuscript Troano*, etc., and later by others.

Another relic from this nation, one that has excited considerable attention from its curious form, is a stone marked No. 345, formerly supposed in some way to indicate the calendar of the tribe, but which at present is generally considered to have been intended as a mold on which thin plates of gold were hammered in order to bring them into a desired shape. Reference will be had to this fact in speaking of the exhibit of the German section.

Several of their instruments of music, such as whistles and bells, were included among the objects shown, and also pieces of cloth woven by the ancient inhabitants of the country, obtained from sepulchers in the vicinity of this primitive capital. They are of cotton, some white and other portions dyed in yellow and blue.

On reaching the State of Ecuador, we find in the objects shown distinct marks of the influence of the great cultured state of the Incas to the south; for instance, in a looking-glass of obsidian of circular form, polished on both its surfaces, and with a prolongation having a hole bored through it, evidently for the purpose of fastening by a cord or suspension. There is also a fine series of polished and well-shaped stone axes, usually of a greenish or blackish diorite, and several good specimens of pottery, some of elegant form and fine clay.

The collection from Peru is peculiarly rich and includes a vast number of objects illustrating the highest degree of art of the ancient inhabitants. It was obtained principally from various localities along the coast or in the warm western valleys of the Andes, and therefore represents more especially the industry of the Yuncas, the tribe who dwelt in that locality, and who, as has already been remarked, spoke a different language and belonged to a different stock from the ruling nation, the Incas, who occupied the higher land in the interior. Among religious objects exhibited were a large number of idols made from burnt clay, from copper, from silver, from bronze, and rarely from stone.

Among them was one which was especially prominent by being alone in a case separate from the rest. It represented a human figure seated upon a throne which was inclosed by two snakes. In the hands of the figure were two tables on which were inscribed characters distinctly resembling the Chinese script. An image of the sun rested on the head of the figure, and around its neck was a collar bearing three eggs; the hair was plaited, somewhat resembling the queue of the Chinese, but which is also occasionally seen among some of the natives of the higher Andes. This object is alleged to have been discovered near the Port of Truxillo, but no detailed description of its finding could be obtained. Inasmuch as it is not supported by any other finds of a similar character, and is left without verification as to the method or date of its exhumation, the observer is justified in harboring serious doubt as to its genuineness.

Among the weapons of war presented, there are a number of stone

hatchets of serpentine, diorite, and amphibolite; also a series of mace heads, some in the form of a ring, and others with conical points or knobs. These were intended to be fastened to the extremity of a handle. There were also hatchets of copper and bronze, and lance points and arrow points of the same material. Among the objects used as utensils, those of copper, principally chisels and awls, knives and hoes, were especially noteworthy. It has been long known that the inhabitants of this portion of South America were acquainted with an alloy of tin and copper from which they manufactured a great variety of implements and utensils, the resulting metal compound furnishing a hard substance capable of yielding a good cutting edge.

There were six examples from the same part of the coast, of scales or balances, which were attributed to the ancient inhabitants, and were supposed to have been used in weighing gold and silver or other precious substances. The beams were sometimes of wood, and several of them were worked with a great deal of fineness and care. In one, the cord which sustained the balances was ornamented with a row of rich beads of colored stones and rude fragments of shell. These remarkable objects deservedly attracted the attention of many visitors, as there is very little evidence to show that in no other part of America any balances or scales of such a character were used by the primitive inhabitants. It is, indeed, open to question whether outside of the ancient Empire of Peru the notion of estimating quantity by weight ever occurred to the native American race. Certain it is that nowhere in North America has any evidence been adduced to show that even the most highly cultivated nations distributed their produce or in any way measured the amount of objects by means of weights.[1]

The sepulchers along the Peruvian Coast also contributed to this exhibit a great number of domestic utensils, decorative objects, musical instruments, vases, and figures in terra cotta; some of curious forms, others representing animals, objects such as birds, alligators, snakes, fishes, fruits, and so on. There were a great many vases of the double form, some without handles, others intended as toys or as games. They vary in quality, but among them are many of the best style of art of the natives.

Passing on toward the south there were a large number of bolas shown from Uruguay, the peculiar arm used by the natives of that State in hunting; also, from various parts of South America, the precise locality not defined, numerous domestic utensils and industrial objects, a number of mummies from the coast of Peru, a collection of skulls from the coast and from the interior of the same country, textile materials, clothing and garments, both modern and ancient, from the same region, and an excellent collection of the military outfit of a warrior from Brazil.

[1] I have discussed this subject in my Essays of an Americanist, pages 434, 449, Philadelphia, 1890, and also in the Proceedings of the Numismatic and Antiquarian Society at Philadelphia, 1892.

From Ecuador and Peru were a number of arrowheads, lance points maces, bows and arrows, weapons, etc.

A series of small boxes contained a collection of medical and pharmaceutical specimens brought back from America about the year 1777 by the botanists sent thither by Charles III. The large series of cinchona bark is especially interesting as being the first at all complete collection ever brought to America of this invaluable drug.

Among the postcolumbian or recent ethnographic objects from the museum should be mentioned, in the first place, those obtained in the expedition of the Corvettes, Descubierta, and Atrevida, in the year 1791. They included four models of kayaks, the fishing boats in use by the Esquimaux, and waterproof clothing which the fishermen don in exposure to the weather. From Nootka Sound there were specimens of carvings in wood, as masks, human faces, the human figure, and boxes in the form of a bird; also stone implements, axes, amulets, and wooden carvings of various descriptions from Vancouver Island, southern Alaska, and the Straits of Fuca.

From the area of the United States the museum exhibited skins dressed and painted from New Mexico, feathers and ornaments and various garments from the same locality, stone weapons and bows principally from the tribes in the southwestern United States.

More important than these were the collections from Mexico of articles manufactured since the Conquest, and of small images representing various native types. Modern Mexican pottery was set forth by a collection of 956 vases from Guadalajara and Cartegena of very varying forms, usually having feet and covers of the same material and differing widely in perfection of work. Other objects which may be mentioned were the peculiar Mexican hats, Mexican leather work, cups and dishes of cocoanut very elaborately decorated, textile materials from the Indians and from the Spanish inhabitants of the country, groups of figures, representing various characters, extremely well made and remarkably close to life.

A series of twenty-four paintings, with incrustations of mother of pearl, recalling different episodes of the Conquest of Mexico and dated from the year 1698, were of much historic interest. Others, painted on copper and variously decorated with paper and feathers, memorialized certain scenes of a religious character and were intended for exhibition in the churches. Some life-like figures were in wax; one, a collection of thirty species of birds, modeled in this substance, and carved with designs appropriate to the various species represented. This was a work of the Indians of central Mexico.

From South America specimens were shown of amulets used by the Indians of Colombia, flutes made of cane from the same locality, combs of vegetable fiber, vases made from shell of the fruit of a tree, and baskets of cane for the purpose of carrying water. A number of ethnographic specimens, such as collars and bracelets, garments and

weapons from Ecuador, illustrated the native industries of that State. Similar collections were present from Peru, Bolivia, Chile, Brazil, the Argentine Republic, Uruguay, Patagonia, and the southern extremity of the continent. As in most instances the tribes from which these articles were obtained were not stated, their scientific value was merely of a general character. This was still further the case with a series of objects exhibited from America in general without other determination of the locality whence obtained.

A portion of the Exposition was set apart for objects from the Philippine Islands, a valuable colony of Spain. It is well known that their native inhabitants generally belong to the great Polynesian branch of the Malayan race, and, of course, are entirely disconnected by blood or culture with any of the American tribes. Historically, however, these islands came under the domination of Spain at about the same time as many of her American possessions, and for this reason the collection was placed parallel to this from the American continent. It included a number of specimens of the ancient and modern industries of the inhabitants, and also a series of skulls, some of them being from cemeteries believed to be anterior to the year 1519. Interesting examples were shown of the early and later industries; also of their work in clay and the accuracy in moulding which they displayed previous to the arrival of the Spaniards. A curious series was one of cones of gold and silver; and although it has been denied by some authorities that these objects were used as coins, there is sufficient evidence to accept it as probable.

The national board of mining engineers contributed to the Exposition a series of models and plans of mines, specimens of charts and collections of works upon every branch intended to illustrate the geological and economical character of the country first visited by Columbus, including the island of Cuba and other portions of the West Indies. Of these it may be said in brief that they embraced all the material requisite to prepare a memoir of the mineral riches of Spanish America with considerable completeness.

Secondly, a collection of 600 specimens of rock and soils from the island of Cuba.

Thirdly, a collection of 214 fossils from the same island, carefully revised and classified and properly catalogued.

Fourthly, a collection of 150 specimens of minerals from the island of Cuba; maps, plans, photographs, and sketches of mines in the island; collections of minerals from the islands of Puerto Rico and Santo Domingo and from some parts of Mexico, Peru, etc.

This portion of the Exposition would be found of much utility in studying the development of the mining industry during the period of Spanish occupation of the New World. It was highly appropriate, therefore, that it should find a place in an exposition devoted to illustrating the growth of America in the early centuries of its subjection to European influence.

## THE ROYAL ACADEMY OF HISTORY.

The Royal Academy of History displayed from the rich stores of its library a number of remarkable manuscripts, originals of the ancient "histories of the Indies."

Perhaps the most notable of these was a fragmentary history of Mexico by Father Bernardino de Sahagun, being the original draft, or rather a portion of it, consisting of only four books, from which he composed his complete work, the only complete manuscript of which in existence is found, not in Spain, but in Italy. That in Madrid has been described on several occasions, especially by myself and by Dr. Seler, of Berlin, and portions of it have been published by both of us.[1]

The original manuscript of the extensive general history of the Indies, by Fernandez de Oviedo, was also on exhibition, consisting of seven folio volumes, written in the sixteenth century; all of which, however, has been published by the Spanish Government.

Another manuscript, which has attracted great attention since the first production of a portion of it by the Abbé Brasseur, is the description of Yucatan by Bishop de Landa. It appears to have been copied from an original which is now lost. It is especially celebrated for the light which it throws upon the system of writing invented by the natives of Yucatan, and which is preserved in a few manuscripts written by them before the Conquest, and also in numerous monuments carved in stone upon their temples. The students of such inscriptions in modern times have usually taken as their starting point the so-called "alphabet," as given in this volume.

Although the results have not been very successful because the alphabet which he gave was not intended for use in the manner of those employed in modern languages, yet its value can not be doubted as a genuine production of native invention. It may be added that the first time this manuscript was published in a correct form was in 1881, when it was issued by means of a photographic representation in a folio volume referring to the hieroglyphic writing of Central America, edited by Señor Juan de Dios de la Rada y Delgada.[2]

Another of the manuscripts in this collection was one written in the sixteenth century, of 668 folio pages in the first volume and 272 in the second, being the "History of the Indies," by the illustrious Las Casas. The history, which is here included in full, was published in Mexico, in part, but a considerable portion of the manuscripts of this author has not yet seen the light. It may be said of them that a great many of his chapters treating on ancient classical religious history would have no interest or value to the modern reader, and in an edition of his work would scarcely merit that they should be reproduced in type.

[1] See the Compte-Rendu de la VII[e] Session du Congrès International des Américanistes, p. 83.

[2] I have also given a photographic reproduction of this alphabet in my Essays of an Americanist, page 242.

Other portions, on the other hand, as coming from one of the earliest and certainly the most sympathetic observer of his time, are of value as indicating the state of feeling and the methods of treatment which in the age of the writer existed between the two races on the American Continent.

The National Library of Spain exhibited a series of very valuable documents in manuscript, referring to Columbus and Cortes, to Pizarro and to others of the early conquerors and explorers, the most of which, however, have already been printed in the extensive work entitled, "A Collection of Documents Hitherto Unpublished, Relating to the History of Spain and her Colonies."

Another item of interest was the original manuscript, bearing the date 1575, of the history of the Indies and of New Spain, by the Friar Diego Duran, in the original form. The paintings in this work are generally colored, and from a note in the catalogue it would appear that the supposition is that these colors were not reproduced in the edition of Duran published at Mexico under the auspices of the late Señor Ramirez, minister to the Emperor Maximilian. Such, however, is not the case, as the atlas which accompanies Duran's work in that edition gives an accurate representation of the colors of the copy of the original manuscript as it appears in Mexico.

Another interesting manuscript is the synopsis of the history of Paraguay by the Jesuit Nicolas del Techo, bearing the date 1684. It is signed by the author, but was written by Indians of the mission in imitation of printed letters, the initials and head and tail pieces to the chapters being engraved on wood. This curious document is quite unique in its character.

Along with these are many old printed books and other manuscripts of less importance, also a collection of maps and plates relating to the early voyages to America, showing the geographical notions of the continent which were prevalent in the first two centuries of this discovery. Several paintings are shown, once the property of Christopher Columbus and Hernan Cortes; and a small but valuable collection of early and rare printed books relating to the languages and the native tribes of the New World, to which reference will be had later.

Among the rarest of these scarce imprints should be noticed as probably the only complete copy in existence that of Bernando de Lizana's History of Yucatan, published in 1633. From an incomplete fragment of this work, the Abbé Brasseur extracted the chapter relating to the ancient ruins of Yucatan which he appended to his edition of Bishop de Landa's description of that country. It is hoped that this extremely rare volume will at some time in the near future be reprinted.

Among other very early editions of historical works may be mentioned the Relation of Cabeza de Vaca, dated in 1555; the Ordenazas and collection of laws relating to the management of the affairs of New Spain, printed at Mexico in gothic letters in 1548; a similar volume on

the same subject printed at Seville in 1553; the edition of Vespucius, printed at Milan in 1519; the History of Chiapas and Guatemala, of Father Remesal, printed at Madrid in 1619; the works of Solorzano on the laws of the Indies, published in Madrid between 1629 and 1648; and a variety of other works of early Spanish and Mexican writers.

These constitute but a small portion of the riches of the National Library of Spain, both in manuscript and printed works; but they serve to indicate how much has yet to be examined in that country before its resources relating to the early history of the New World can be exhausted.

The Provincial Library of Toledo exhibited several manuscripts relating to the civil relations of Peru and the history and geography of the Province of Guatemala, and a number of folio volumes, including different papers relating to the history, the commerce, and the missionary labors in North and South America.

Among the exhibitions from private libraries in this connection was a collection of postage stamps used at the present time by the various Republics of America and a large number of other nations, the exhibitor being Señor Candida de Zaragoza.

Under No. 828 in this department, Mrs. Zelia Nuttall, of the United States, displayed her calculations and mathematical scheme of the ancient calendar of the Mexicans already referred to and furnished for the catalogue a description covering two pages as to the theory which she had adopted in carrying out these extensive computations. This brief résumé was by no means adequate to give a clear understanding as to the method by which she overcame the numerous difficulties offered in this investigation. It states in brief that the Aztecs made use of three different calendars, the one founded on a lunar year of 9 months of 265 days, the second on a solar year of 18 months and 365 days, while the third would appear to have been a combination of these two methods of counting. The result was that the method by counting the solar years which was the ordinary one in use, was from time to time corrected by the more accurate observations of the lunar years, so that at the end of 13,515 days, when the new cycle commenced, they both contained the computations of the sun and the moon, the latter being the first day of its appearance as a new moon, these bodies having the same position in the heavens that they did at the beginning of the previous cycle of the same length. A preliminary communication of this subject was presented by Mrs. Zelia Nuttall to the Ninth International Congress of Americanists which met at Huelva, Spain, in October, 1892, from which this epitome was prepared.

Mrs. Zelia Nuttall also exhibited photographic reproductions of the manuscript of the history of New Spain, written by Father Sahagun, after the manuscript copy which is preserved in Italy; and also a photolithographic reproduction of a valuable and unique manuscript, preserved in Florence, the early publication of which she has in view.

Among other objects in this department from private individuals were a series of publications by Mr. Stewart Culin, of Philadelphia, chiefly referring to Chinese and East Indian games of dice, and others for the purpose of telling fortunes; from the University of Pennsylvania, reports relating to the Museum of American Archæology; from the Numismatic and Antiquarian Society of Philadelphia, reports of its proceedings; from Prof. E. N. Horsford, of Cambridge, Mass., a number of his works giving his theory of the early visits of the Northmen to the coast of New England; a critical study by Emile Travers on the disposition of the remains of Columbus; from Mr. Alfred Maudslay, London, a collection of photographs and views of ruins and monuments discovered by him in Yucatan and Guatemala; rare maps and paintings from the collection of Señor Feliciano Herreros de Tejada, of Madrid, and a series of autographs and original documents from the collection of Francisco de Uhagon, of Madrid. The Royal Society of Berlin presented a copy of the Entdeckung Amerikas by Kretschmer, a large folio volume of 368 pages, issued in 1892, with an atlas of magnificent maps, intended to be commemorative of the fourth centennial of the great discovery.

An exact reproduction of the famous map of Juan de la Cosa, pilot for Christopher Columbus, was exhibited by Antonio Canovas y Vallejo. This celebrated document must be considered the general foundation for the history of cartography of the Western Hemisphere, and its reproduction in its present accurate form must be welcome to all scholars.

A noteworthy department of the Exposition was that occupied by the manuscripts and historical documents and rare printed books from the various depositories in Spain. The many sources from which these were supplied were, first, the archives of the Indies in Seville, in Alcala de Henares, in Simancas, and the national archives in Madrid. Others were derived from the rich library of the Royal Academy of History of Spain, the Provincial Library of Toledo, the National Library, the Royal Academy of Fine Arts, and from a limited number of private collections. It would be of considerable advantage to give a notice and catalogue of all these which bear upon the study of the history and conditions of the native Indian tribes and on the history of the United States.

One of the leading topics on which collections were displayed was the life and achievements of Christopher Columbus. These were drawn chiefly from the archives of the Indies, in Simancas, and in Seville. Among them may be mentioned the accounts of the treasurer of Seville, who paid over moneys to Columbus in the year 1487; the instruction and letters of the King and Queen to him at various times; the documents conferring upon him the title of admiral of the Indies; the privilege signed by the King and Queen in 1497 confirming the grants made to him in consequence of his discoveries; orders to pay over to him moneys at various times for the prosecution of his discoveries; a sketch

of his life between the years 1426 and 1493, in which are confirmed the agreements made with him and the privileges conceded him; copies of the Bull of Pope Alexander VI, granting to the King of Spain and his successors all the lands discovered by Columbus; minutes of the royal order, granting him and his successors 25 square leagues in the Dominion of Veragua and several jurisdictions, from which grant his descendants at the present day derive their title; documents relating to Luis Columbus, one of which gives him the authority to remove the bones of his ancestor, the first admiral, and of his son, Diego, deposited in the monastery of Las Cuevas, outside of the city of Seville, and to transport them to the Cathedral of Santo Domingo; and a considerable number of Governmental acts relating to the claims of Diego Columbus and Luis Columbus and their successors in connection with the lands they held from the Crown.

Another series of documents related to Pinzon, principally referring to the claims made by his descendants and heirs on account of the services he had rendered the Crown in his expedition with the first admiral. From the island of Santo Domingo were a considerable number of documents, one of which, by an anonymous hand, described the customs of the natives of the island and the use of tobacco; several letters from missionaries who were at work among the native tribes; an account of gold which was reduced in the island in the year 1715; a letter urging Charles V to send negro slaves to the island; various reports relating to the expeditions of Hernan Cortes, which was preparing in the island; a description of the services of Ponce de Leon, and a number of legal documents.

From the same source, the archives of the Indies, there was shown a considerable mass of documents referring to the early history of Mexico or New Spain. One of them, by an anonymous writer, described the division of land made by the Indians in the period before the Conquest, and the order of their succession and their possessions. This appears to be the same as that published in a French translation by Ternaux Compans. Various documents are shown from the pen of the first bishop of Mexico, the celebrated Juan de Zumarraga. Other papers of interest were a map of the ports visited by the English corsair, Drake, made in a semicircular form and in colors; a map of San Miguel de Teopa with inscriptions in the Mexican language; a number of other early maps, various letters, and accounts of explorations of New Spain carried out shortly after the Conquest; an original letter of Francisco de Montejo, describing the country in the vicinity of Vera Cruz; a royal grant giving to Cortes the control of various towns in New Spain and vassals to the number of 23,000 as a reward for his services; various papers referring to the services of the well-known military author, Bernal Diaz, and the famous interpreter, Dona Marina, who so greatly assisted Cortes in his Conquest, and whose descendants appear to have been properly rewarded. One

document by the early missionary, Motolinia, explains the method by which the Indians were accustomed to pay tribute previous to the Conquest. Another, which was written on maguey paper and in hieroglyphics, describes the town of Azcapuzala, not far from Mexico, at the time it was visited by the licentiate Sandoval. A manuscript of forty-nine pages, by the licentiate Quinones, describes the numerous towns which he visited in New Spain, and the customs and usages which he found among them.

It is evident that the efforts of the celebrated Bishop Las Casas to improve the condition of the Indians met with violent opposition even from his fellow missionaries, for we find a letter from the devoted Motolinia to the King describing in amplitude what he calls the errors and false statements of the bishop; and this is but one of a number of documents in this collection directed against the "apostle of the Indies" on account of his fearless exposure of the brutality of the Spaniards and the pastors sent to take care of these flocks. That he was quite correct in his statements is also evident from many pieces in this collection; for instance, one from the town of Tenayuca, which is accompanied by drawings and paintings made by the Indians themselves, representing some of the cruelties to which they had been subjected.

Some curious specimens were shown of playing cards manufactured in the City of Mexico in the year 1583. They offered a combination of European and native American characteristics.

The Territory of Florida is the subject of a number of documents describing its geographical election, rivers, towns, soil, and ports. A series of original manuscripts of the expedition of Ferdinand de Soto, and letters from the early governor, Aviles, are all of much interest to the historian of that State. Some of these have been published at various times, but several of them have not yet been printed.

In the same department were preserved numerous interesting originals and copies bearing upon the early history of Guatemala, Panama, Peru, Chile, Venezuela, Quito, New Granada, the Rio de la Plata, and America in general. Several of these would appear to contain much valuable ethnographic information; such as that by Francisco de Toledo (No. 272), which includes the answers of a number of natives obtained through interpreters as to the idolatry in use in Peru before the Conquest, the methods of burial, and the customs of the indigenous inhabitants.

A curiosity is the original manuscript of the second and third books of the General History of the Indies composed by Las Casas; another is the Bull of Paul III, ordering that the Indians be instructed in the Catholic religion, and forbidding them to be sold or considered as slaves. It would appear from Nos. 370, 371, 373, and others, that the histories written by Gomara, Las Casas, and Sahagun met with very serious opposition when in the manuscript stage from the official censors of the press; for which reason, doubtless, the two last named never saw the light in print during the Spanish domination.

The works on the native languages of America in this collection deserve especial mention, as many of them are still in manuscript, and others refer to tongues of which there is very little material accessible to students. The following list of the more important will prove of utility to those who are engaged in this branch:

138. Libro de Cartas escritas á S. M. por los Obispos Gobernadores, Oficiales Reales, Caciques é Indios de la Provincia de Yucatan. MS. (This contains several letters written in the Maya language by natives educated in the use of the European alphabet.)

560. BBC. Carta Escrita en Indio por Varios Caciques á S. M. el Rey. de España D. Felipe II. MS.

563. Cuaderno de Algunas Reglas y Apuntes sobre el Idioma Pame. MS. (This also contains a Doctrina Christiana, translated into the Pame, which is a dialect of the Otomi stock, spoken in the State of Queretaro, Mexico.)

625. Preceptos y Observaciones sobre Moral Christiana; en Lengua Mexicana. MS. (A MS. of the sixteenth century, containing eight leaves, from the Library of the Cabildo de Toledo.)

626. Fr. Andres de Olmos. Arte de la Lengua Mexicana. MS. (A manuscript copy written in the sixteenth century. This work was first printed in Paris, in 1875, from two MSS. in that city. The present very ancient one would be valuable for comparison with the printed edition.)

662. P. Joseph de Anchieta. Arte de Grammatica da Lingoa mas usada na Costa do Brasil. Coimbra, 1595. (The rare first edition of this valuable grammar of the Tupi language.)

663. Fray Juan de la Anunciacion. Sermonario en Lengua Mexicana, con un Cathecismo en Lengua Mexicana y Espanola; con el Calendario. Mexico, 1577. (A good copy of this very rare issue of the Mexican press. The calendar referred to is that of the Roman Church, not that of the natives.)

667. Arte y Vocabulario de la Lengua Morocosi; compuesto por un Padre de la Compañía de Jesus. Madrid, 1699. (An extremely rare work on the language of a tribe of South America, among whom the Jesuits established a mission.)

685. Fr. Balthasar de Castillo. Luz y Guia de los Ministros Evangelicos. En Castellano y Mexicana. Mexico, 1694. (A scarce quarto volume, valuable for the Nahuatl texts it contains.)

691. F. Juan de Cordova. Arte en Lengua Zapoteca. Mexico, 1578. (The rare original edition, especially valuable, not merely for its linguistic material, but as the only source whence we can obtain satisfactory information of the early Zapotec calendar.)

696. Declaracion y Exposicion de la Doctrina Christiana en Lengua Mexicana, hecha por los Religiosos de la Orden de Santo Domingo. Mexico, 1545. (This is probably a unique perfect copy of one of the first books printed in America. It is a small quarto, in Gothic letters, and on page 10 has the autograph of Fr. Alonso de Molina, the author of the first Vocabulario en Lengua Castellana y Mexicana. In Icazbalceta's Apuntes para un Catálogo de Escritores en Lenguas Indígenas de America, the first edition of this doctrina was assigned to the year 1548. An earlier edition, assigned to 1539, is referred to in the Cartas de Indias, Madrid, 1877.)

703. Pedro de Feria. Doctrina Christiana en Lengua Castellana y Zapoteca. Mexico, 1567. (This Doctrina is the first work published in the language of the Zapotec nation, of Oaxaca.)

731. Fr. Martin de Leon. Camino del Cielo, en Lengua Mexicana. Mexico, 1611. (A scarce work, useful for its Nahuatl texts, and for the light it throws upon some of the Pagan rites and ceremonies which were still practiced by the natives.)

747. Alonzo de Molina. Vocabulario en Lengua Castellana y Mexicana. Mexico, 1555. (The first edition of this standard dictionary of the Nahuatl tongue is rarely seen. It is a creditable specimen of early typography.)

773. Fr. Bernardino de Sahagun. Psalmodia Christiana y Sermonario de los Sanctos del Año, en Lengua Mexicana. Mexico, 1583. (Of the voluminous writings of Sahagun in the Nahuatl language, this appears to have been the only one which was published during his lifetime. His profound knowledge of the tongue gives his texts a high value.)

778. Fr. Domingo de Sancto Thomas. Gramatica ó Arte de la Lengua General de los Indios de los Reynos del Peru; y Lexicon ó Vocabulario de la Lengua General de Peru. Valladolid, 1560. (There were three so-called "Lenguas Generales" in Peru, the Kechua, the Puquina, and the Yunca. The present work is in the Kechua, or Quichua, that used by the Government, and presents the tongue in its ancient and pure form.)

799. P. Luys de Valdivia. Arte y Gramatica General de la Lengua que corre en todo el Reyno de Chile, con un Vocabulario y Confessonario. Lima, 1606.

800. P. Luys de Valdivia. Doctrina Christiana y Cathecismo en la Lengua Allentiac. Lima, 1607.

(These two works by Father Luys de Valdivia are upon the tongue spoken by the native Indians of Chile. The Allentiac is one of the "Chaco" dialects in use at San Juan de la Frontera.)

810. Villegas. Libro de la Vida y Milagros de N. S. Jesu Christo en dos Lenguas, Aymara y Romana; trad. por el P. Ludovico Bertonio. Iuli, 1612. (Father Bertonio is almost the only authority on the Aymara language, spoken on the highlands of Southern Peru and in Bolivia. There has been much discussion whether his Dictionary and grammar of it present the tongue in a pure form. The present work is one of the rare issues of the Jesuit press established at the mission of Iuli, in the province of Chucuyto.)

## Department of Portugal.

The Kingdom of Portugal exhibited at the Exposition an attractive collection classified under four different headings.

Section first included documents and books relating to the discoveries of the Portuguese, both in the New World and in southern Africa and in Asia. Some of these referred especially to the centenary of the discovery of America. A valuable collection of maps, drawings, and pictures throws considerable light on the achievements of the Portuguese navigators in the fourteenth and fifteenth centuries.

The second section was devoted to ethnography, especially American. It embraced remains, instruments of music, weapons of offense and defense, domestic utensils and ornaments, textile materials, masks, costumes, and pottery, principally from Brazil. Some of the specimens in clay came from the celebrated prehistoric site on the island of Marajo. Others, more modern, were from the provinces along the river Amazon, in which were noticeable attempts at decoration in the same style as in the former, but carried out with less skill, showing a retrogression in artistic science and in technique. Some of the gourds and shells used by the modern Indians are delicately painted in Italian style, owing their peculiar beauty, probably, to the instruction of the Europeans.

The remaining two sections were devoted to ornamental art and to articles used in maritime service. These were indicative of a highly developed state of economic skill in the nation which presented them, but have no particular relation to the immediate topic of this report.

## Department of the Empire of Germany.

The collection forwarded by the Empire of Germany was displayed under the intelligent care of Dr. Edward Seler, associate director of the Ethnographic Museum of Berlin.

Most of the objects exhibited were in originals or photographs, pictures or casts from specimens in the Berlin Museum. As a rule, however, the casts were so well prepared and the selection so judiciously made of articles of general interest in the ancient history of America that this portion of the Exposition formed by no means the least interesting and instructive of the departments.

Most prominent among the casts were those in plaster of paris of the remarkable stone monuments, discovered at Santa Lucia Cozumalhualpa, in the department of Escuintla, Republic of Guatemala. They were first described by Dr. F. Habel in 1862 in a report which he afterwards presented to the Smithsonian Institution at Washington,[1] and subsequently attracted the attention of Dr. C. H. Berendt, who urged the museum at Berlin to obtain possession of them, and spent the last few months of his life in seeing to their proper packing and forwarding to that destination. Only a part of the considerable number found in the locality are now in the museum, the others having been left at various points on the way. The character of these remains has been made familiar to the public by the monographs of Prof. Charles Rau, of the Smithsonian Institution, and Prof. A. Bastian, of Berlin. They present many points of peculiarity, differing entirely from the remains of the Indian tribes of Guatemala, who descended from the Maya stock, and scarcely less so from the known relics of those of the Nahuatl lineage who inhabited Escuintla at the time of its discovery by the Spanish explorers. Nevertheless, there are traces both of the mythology and of the workmanship of the latter so well marked that we may safely conclude that they are the production of some branch of the Nahuatl peoples. There was a tradition that at a remote time emigrants from the north passed through this portion of Escuintla, and while there they erected these monuments as a memorial to their principal chief and high priest, who had there met his death.

There were sixteen of these casts, representing the full series as found in Berlin, of the size of the originals.

Another series of casts, representing a number of remains from the ruins of Tula, the reputed capital city of the ancient Toltecs, about 40 miles north of the present City of Mexico, were due to the generosity of Dr. Antonio Peñafiel, by whom they were presented to the Museum of Ethnography at Berlin. One of them showed a support for a building in the form of a warrior whose face is represented within the open mouth of a serpent. Like other remains from this famous site, these do not betray any marked superiority over others from various parts of

[1] The Sculptures of Santa Lucia Cosumalwhuapa, by F. Habel, M. D., Washington, 1878.

the Mexican Empire, thus proving that the alleged extraordinary culture of the Toltecs, or ancient inhabitants of Tula, was quite fictitious.

A very interesting feature of this collection were the relics and photographs of the explorations of Mr. Hermann Stübel in that portion of the State of Vera Cruz, Mexico, which lies within the boundaries of the ancient provice of the Totonacos. This province was supposed to have been occupied in ancient times by two distinct nations, the one of which, and probably the older, were the Totonacos, and the second, some branch of the Nahuatl stock, who appeared later on the scene as conquerors. This fact is reached from the very different character of the remains which are discovered in localities closely adjoining. Some of these bear unmistakable identity with the productions of the Nahuas, while others show a character of industry which we do not find where that stock exclusively inhabited.

For instance, the earthenware in some places is richly painted and decorated with designs whose style is in all respects similar to the pottery found on the table-land of Mexico. These specimens have often, superposed on the red or black clay of which the object is made, a fine white clay disposed so as to form ornamental designs; whereas another variety of pottery is coated with fine red clay deriving its color from an oxide of iron, and this is scaled off so as to show the whitish clay beneath, and in this manner produce the desired decoration. The motives of the decoration itself also differ, that of the Totonacos representing in preference such objects as alligators, fish, snakes, monkeys, or rude faces of men.

Among the specimens of pottery from this source are also found a great many small figures apparently made in imitation of living persons. There is one type quite frequent where the face is broad, the head flattened, and a certain expression present in the physiognomy which recalls that so common on Chinese porcelain. The relics which have been found presenting the greater similarities to these types are those of their neighbors of the north, the Huastecas, on the river Panuco, who were a cultivated people of the Maya stock, and who have left in their own locality many traces of a comparatively high civilization.

From this part of Mexico there are derived a class of antiquities which have much puzzled the archæologist. These are heavy yokes of stone, some weighing as much as sixty pounds, the surface either polished and plain or carved, and often elaborately, with complex figures in relief. The purposes which these could have subserved have already been discussed above in connection with similar specimens exhibited by the Government of Mexico.

The researches in Peru of Drs. Reiss and Stübel, which have become so well known through other magnificent publications, are illustrated by a few original objects and a large number of sketches, designs, and chromographs. These researches were especially in two directions—one in exploring the ancient cemetery of Ancon, the other in examining

the mysterious ruins at Tiahuanuco, in several respects the most extraordinary on the American continent.

In Ancon the bodies were in the condition of mummies. They were seated wrapped in their clothing, or swathed in mummy cloths, and surrounded in their graves with their household utensils, their jewelry, and those objects which had been most useful or pleasurable to them in their life. Many of them were tied with cords and a false face placed in front of the real one, so as to retain a more natural aspect in death. Articles of food, such as maize and beans, and cups, which had no doubt contained water, were placed by their sides for use in the spirit land. In consequence of these beliefs, the cemetery of Ancon, which is miles in extent and contains the graves of many thousand persons, offers an enormous treasure-house of relics, displaying the mode of life and the manufactures of the race who once inhabited that portion of Peru.

Among the photographs represented are several of those peculiarly cut stones from Colombia, which have usually passed under the name of the "Calendars of the Chibchas." They are now, as has already been stated, generally recognized to have been intended for molds on which the ancient goldsmiths hammered out their fragments of the metal into thin leaves of the form of the depression. Plausible proof of this is given by a collection of ornaments made upon these very stones by hammering out gold leaf by a person in Berlin.

One of the interesting models which was shown for examination is that of the celebrated monolithic door, which is found in the ancient ruins at Tiahuanuco. It is an accurate reproduction, having been made on the exact measurements taken by Dr. Stübel.

From the museum at Stuttgartt, in Würtemberg, were two ancient Mexican shields, such as were carried by the war captains of that nation, and also in their religious dances. They are of cane, woven with strong cord, and ornamented with feather mosaics. They belong to a class of antiquities very beautiful in themselves, and once extremely common, but which have become correspondingly rare through the extinction of this once favored art in Mexico, and the destruction of the older examples of it, through moths and worms.

### Department of Denmark.

The exhibition contributed by Denmark was composed of two parts, the one illustrating the life of the Esquimaux in Greenland, a province subject to Danish rule, and the other exhibiting the grade of civilization reached in the Middle Ages by the inhabitants of Iceland, who were the first explorers of the new continent.

Under the former heading there were specimens of the costume made of sealskins, now in use by both sexes among the natives of Greenland. Models were also shown of their boats, their tents made of seal skin, their winter houses, and the sledges on which they journey in winter.

Among the utensils exhibited were boxes and bowls of wood, and plates and lamps of stone. An interesting feature was a series of objects obtained from the ancient inhabitants, and tombs of the white settlers who occupied the coast in the eleventh century.

The articles illustrating the civilization of ancient Iceland included some specimens of mediæval manuscripts, casts of stone containing Runic inscriptions, others of ancient doorways, and various ornaments of an architectural character.

### Department of Norway and Sweden.

The commission from Norway, presided over by Dr. Gustave Storm, exhibited an exact reproduction, one-fourth the original size, of the ship of the Vikings of Norway, which was found in a mound in that country in the year 1880. It was considered to have dated from about the year 900, and in vessels of this size the ancient Norwegian Vikings made their excursions to the south of Europe and also, in the tenth and eleventh centuries, to Ireland, Greenland, Iceland, Labrador, and farther south on the American continent.

The delegation from Sweden was composed of the distinguished navigator Baron Nordenskiöld and Dr. Charles Bovallius, the latter already known to students of American antiquity by his work on the ancient remains of Nicaragua.

The objects exhibited referred to the ancient geography of the central parts of America, to the ethnography of the tribes of both coasts about Bering Straits, to the ancient remains in Nicaragua, and to the results of some explorations of the cliff houses in the State of Colorado by the younger Nordenskiöld.

In the first of these there was a collection of various works on mediæval cartography, maps of the same period, and globes, largely from the private library of Baron Nordenskiöld. They illustrated excellently the gradual development of the knowledge of the western ocean and shores in the fourteenth, fifteenth, and sixteenth centuries.

Among the ethnographic objects, there was a kayak or boat of the Esquimaux, complete with its implements, and occupied by two figures. A series of utensils in use by the modern tribes in Alaska, which were obtained by Baron Nordenskiöld during his voyage, occupied an adjoining case; while a still larger collection from the Siberian coast, principally from the tribes known as Tchukches, furnished a correct measure of their general culture.

The collections from Colorado exhibited by Gustave Nordenskiöld, jr., were made by him in the year 1891. They comprised a number of photographs and an exact model of one of the houses of the class called "estufas;" a sepulcher of one of the inhabitants in its original condition and the remains found therein, together with several skulls and various utensils.

The objects from Central America collected and arranged by Dr. Bovallius, comprised various ethnographic specimens from the Talamanca Indians in Costa Rica, a number of articles obtained from the existing natives of Nicaragua, and a collection proceeding from his excavations in the islands of Lake Nicaragua in the year 1883. Near these was a model in wood on a small scale, giving his idea of the architectural character and proportions of a temple of the natives, such as once stood on the island of Zapatero in Lake Nicaragua.

### Department of the United States of America.

The United States of America was efficiently represented in the exhibition by large and valuable collections, covering a wide range of subjects and contributed by various individuals and institutions.

As these will be made the subjects of detailed descriptions in the general report, it will be sufficient to name the sources from which collections were sent:—

The United States National Museum, Washington; The Smithsonian Institution, Washington; The University of Pennsylvania, Philadelphia; The Academy of Natural Sciences, Philadelphia; The Numismatic and Antiquarian Society, Philadelphia; The Hemenway Exploring Expedition, Boston; The Columbian Collection of Mr. W. E. Curtis; The Peabody Museum of American Archæology and Ethnology, Cambridge.

These extensive collections covered in great part the archæology and ethnology of that portion of the American continent comprised within the area of the United States, and threw much varied and new light upon the early history of the discovery and exploration of the New World by the white race.

### Department of European History.

It was originally intended to limit the European display to objects which would illustrate the culture status of Europe at the period of the discovery of America; but later, and with good reason, the scope was extended to embrace all that portion of the history of civilization in Europe which was contemporaneous with the Conquest of the New World, down to the middle of the eighteenth century.

As my own time did not permit a close examination of this extensive department, and as it may have less interest to those engaged in researches strictly American, I will quote the brief but sufficiently full description of it prepared for the trustees of the British Museum by Mr. Charles Hercules Read, Assistant Keeper of the Department of British and Mediæval Antiquities and Ethnography, Secretary of the Society of Antiquaries of London, Vice-President of the Anthropological Institute, etc., who was sent by the museum to examine and report

upon the contents of the exhibition. His report was published by the trustees of the museum in March, 1893. The portion of it in reference to the European department is as follows:

The most striking feature of this part of the exhibition, and that which distinguishes it from any other, is the extraordinary display of Flemish and Spanish tapestries and carpets, and Persian and Arab textiles, with which the walls of every room on the upper floor are lined. Most of the Flemish tapestries from the Escorial and the other royal palaces are already well known, both from their being generally shown to visitors, and from the excellent photographs published by M. Laurent, of Madrid. But in addition to these, many from private collections and from religious establishments, some of them fully as important as those of the royal collections, have come to light, and are now seen for the first time.

The most striking case of this kind is probably that of the Cathedral of Zamora. The authorities at Zamora were asked to contribute to the exhibition some of their works of art, and sent, among other things, several beautiful tapestries of the fifteenth century, of great size, of fine design, and in a good state of preservation. With this consignment came a statement that if more tapestries were required for the decoration of the walls, the chapter possessed fifty others. It seems impossible that so wonderful a series of precious tapestries could have lain entirely unknown, probably for centuries, and doubtless unseen except by such as attended the services at the cathedral on certain special festivals. Such a case, and it seems to be by no means an isolated one, illustrates in a forcible manner the unknown riches of the religious establishments of Spain, unknown even to the comparatively few persons in the country who are specially interested in such matters.

It is said, and probably with strict justice, that however remarkable the collection of ecclesiastical objects at the exhibition may seem to a stranger it does not represent one-fifth part of the possessions of the cathedrals of Spain, some of which have been reluctant to entrust to any hands but their own precious or fragile objects which could never be replaced. The difficulties of communication in Spain, once the main routes are left, and the absence of any general interest in antiquarian matters, account for much of the ignorance of the riches of isolated institutions.

A certain number of the principal objects in the exhibition are mentioned in Señor Riaño's Industrial Arts of Spain, an excellent book, and references to this, rather than to more pretentious works, which are not so accessible, may be given.

The Monastery of Las Huelgas at Burgos has sent one of its greatest treasures in the standard of the Almohade Sultan, captured by Alfonso VIII at the famous battle of Las Navas in 1212, a wonderful specimen of Arab silk weaving, still preserving in many parts the original colors. Though much restored it still possesses the most important of its original features. It is covered with verses of the Koran, the Mohammedan formula, and other Arabic inscriptions. This precious relic is traditionally stated to have been given by the victorious king to the monastery which still possesses it, and it is only used in the procession of Corpus Christi. Señor Riaño thinks it probable that "Alfonso VIII" should be Alfonso XI (1312–1350), as he considers the banner to be of fourteenth century work. An appropriate pendant to this comes from the Cathedral of Burgos, the standard of Alfonso VIII, carried at the same battle, or to speak more accurately, all that now remains of it, representing the Crucifixion, the Virgin, and St. John.

An Arab standard of similar work to the first belongs to the Cathedral of Toledo. This is the Bandera del Salado, made in Fez in the year 1312 A. D. The central design is very original, and the combination of colors singularly beautiful. It is formed of sixteen crescents of gold, arranged in four lines, each having within it, in white on a green ground, the Mohammedan formula repeated eight times, each crescent containing one-half of the formula; and around is a broad border formed by chapters of the Koran, written in intertwined Cufic letters. The effect of the

alternating tints of gold, green, red, and white, which appear to be but little affected by time, is very rich and harmonious.

The display of church vestments is naturally very large, but for the most part they are of an uninteresting period, viz, the end of the sixteenth and beginning of the seventeenth century, rich in effect but too heavily charged with gold and raised embroidery to produce a pleasing result. A good series of the kind is shown by the Marquis de Cubas (room 23).

In agreeable contrast to these later developments of embroidery are a few earlier examples of the highest quality. First of these comes a cope of opus anglicanum of the end of the thirteenth century belonging to the Cathedral of Toledo, and stated to have been the property of Cardinal Gil de Albornoz (1367). It is of the usual semicircular shape, embroidered in many colors with sacred subjects and figures of saints under canopies. Along the straight side are six figures of bishops, a king and queen, and the rest of the surface is entirely covered with a radiating design, the central subjects being the coronation and assumption of the Virgin, the nativity, the annunciation, and the Virgin and Child, and on either side of the outer edge figures of the following saints: John the Evangelist, Edward the Confessor, Laurence, Mary Magdalen, Ethelbert, Dunstan, Margaret, Catherine, Thomas of Canterbury, Olave, Stephen, Helen, Dionysius, Edmund the King, John the Baptist, and a bishop without name. The inner circle is composed of eight figures of Apostles SS. Paul, Simon, Philip, James, Andrew, Thomas, Bartholomew, and Peter. The names are inscribed upon scrolls in Lombardic capitals. In the spandrils are placed birds, executed in brilliant colors. It will be seen that certain of the saints are especially English, and thus help to confirm the cardinal's description of his own cope, as well as the internal evidence of the design and method of work, both of which point to the conclusion that the cope is of English work.

The Archæological Museum of Madrid exhibits (room 12, 219) a similar "capa pluvial" of the same date and work, but neither so rich in design nor so interesting, nor is it in such a good state of preservation. This example has, moreover, been described and figured in Lady Marion Alford's Needlework as an Art (London, 1886, pl. 59.) The Diocese of Vich sends, among other choice objects, a very perfect and beautiful abbatial miter (room 8, 100) of silk, embroidered with the Annunciation, the two figures of the subjects being inclosed in quarterfoils on the two sides of the front of the miter, with a border of crockets along the upper edge, and of fylfots along the lower. The composition and drawing are of the refined style found at the beginning of the fourteenth century, and the work was probably executed in France. Except for the fading of the colors it seems in perfect preservation, even the infulæ being complete.

From the Cathedral of Mondoñedo have been sent the pastoral staff and sandals of the Bishop Don Pelayo II of Cedeira (1199–1218), which are of interest from the date being fixed. The former is of Limoges champlevé enamel, of the usual simple crook form, the head inclosing a figure of St. Michael killing the dragon, and having a large flattened knop supported by gilt scrolls. The shoes are of somewhat inelegant outline, reaching to the ankle, made of stuff, originally purple in color, with bands of gold thread across the instep and down the middle of the foot to the toe. The soles are nearly two inches thick, somewhat like a Chinese shoe, and the edges are ornamented with stiff interlacing floral scrolls of the style usually found in works of art at this period.

Although they are not church vestments, it may be well to mention here the mantle, berretta, and piece of the coat of the Infante Don Felipe of Castile, brother of Alfonso the Wise and of Eleanor of Castile. These objects were taken from the tomb of the infante at Villalcázar de Serga (Valencia). The mantle is of a rich woven pattern, in gold and silk, of Moorish design, made in Granada, with the word "blessing" in ornamental Cufic. The cap is very different in design, though it still retains much of the Moorish character. It is cylindrical in form, somewhat longer

at the back than in front and is entirely covered with quarterfoils inclosing castles and eagles, displayed alternately red on gold, and gold on red. The colors are of course scarcely discernible, but both the cap and mantle are in singularly perfect condition when it is considered that they come from a tomb. Both these objects were exhibited in the Spanish Exhibition at South Kensington in 1881, and they are of considerable interest from their early date.

The display of church plate is of the greatest interest, and the more so that it is almost entirely of Spanish work. There can be no doubt that so rich a collection of material for the study of Spanish gold and silver smiths' work has never been before brought together. A great portion of the objects exhibited is naturally of the late sixteenth and early seventeenth centuries, but many fine pieces of earlier and more interesting periods are to be found.

The silver chalice and paten of late thirteenth or early fourteenth century from Toledo Cathedral are remarkable among these, both for the beauty of the work and for the unusually large size of both objects. The chalice is more than a foot in diameter at the base, and 17 inches in height, while the paten is 16 inches in diameter. The latter is sunk in the center, the depression having twelve foliations around the edge, and within it is engraved the Crucifixion with the Virgin and St. John, the whole inclosed within a stiff floral border. The chalice has a plain bowl, widening rapidly upward (and in this it differs conspicuously from Spanish chalices of later date), the knob is ornamented with the evangelistic symbols in repoussé, and the stem is quite plain, except for two bands of quarterfoil tracery. The base is in design much like that of the Dolgelly chalice, viz, it has three concentric bands of flat lobes or scollops in slight relief, upon which are engraved figures of angels, and the edge is molded in twelve foliations, supported upon a slight tracery of quarterfoils, and in each foliation is a figure of an apostle. The chalice is as early in date as any in the exhibition, and its large size renders it the most remarkable. It is stated in the catalogue that it was probably used on Holy Thursday, when two hosts are consecrated, one being reserved till Good Friday, when it is consumed by the priest. This second host is usually kept in a chalice of large size and ancient work.

Another chalice and paten of much the same date is sent from the Cathedral of Santiago, and possesses additional interest from the decoration of the knop being in niello. The paten is of similar design to that from Toledo, but the central subject represents Our Lord seated within an engraved quaerfoil, the engraved design being all within a depression of eight foliations. The bowl of the chalice is again of the shallow form, and the stem is slender and somewhat longer than is found in English and other northern chalices. The knop has circular medallions with nielloid scrolls, but without any sacred emblems. The base is plain, with the exception of a narrow engraved borderof stiff scroll work, and on one side is engraved a group of the Virgin and Child seated, with a female figure kneeling in adoration at the side. The presence of this group is the only instance in the exhibition of the practice so common in English chalices, of placing a cross or other sacred symbol upon the side of the chalice to be held next the priest during the celebration of mass. The catalogue attributes this chalice and paten to the twelfth century.

Of later chalices there are a great number dating from the early sixteenth century to the middle of the seventeenth, a period which would include by far the greatest proportion of all the church plate exhibited. It will be sufficient to notice three of the sixteenth century as being fine examples of their kind, and at the same time characteristic of the style peculiar to the period.

The first, from the Cathedral of Seville (No. 49), is remarkable in having a cover, which fits closely into the bowl, and has a central socket into which the foot of some object has been placed, perhaps a short cross. The bowl is deep, and has round the base, outside, a row of pear-shaped settings containing knot-work medallions of cloisonné enamel, the patterns being an inheritance from the Moorish artists, and their

prototypes are seen in perfection upon the sword of Boabdil belonging to the Marques de Viane. The stem, knop, and foot are Gothic in design, the tracery being fairly pure in style, but the foot is ornamented with embossed designs of the rich floriated style common in Spanish and Portuguese objects of the Renaissance. This mixture of Gothic and Renaissance motives is, in fact, the remarkable characteristic of the church plate of the Peninsula in the sixteenth century, and the exhibition furnishes numberless examples of it. This chalice has upon the foot the arms of an archbishop in enamel.

The second chalice, of about the same date, from the Cathedral of Valencia (No. 50), is of a somewhat different design and in many details recalls the drawings of cups by Holbein, though here again the border at the foot is of Gothic tracery. But for an unfortunate heaviness of the base, this vessel would be of very graceful design. It is singularly secular in its details, which are chiefly composed of festoons of flowers and fruit and cherubs, and upon the knop tiny cupids riding dolphins The only indications of its sacred character, apart from its shape, are six circular medallions let into the foot, which are engraved with the Crucifixion and other designs of the same character. These have once been enameled, but the enamel has now entirely disappeared, owing to the vessel having been passed through the fire to freshen the metal, a practice which seems to have been common in Spain, as a large proportion of the enameled details on church ornaments of all kinds are now bare metal, owing to this somewhat barbarous practice.

The third chalice, from the church of Osuna, has, perhaps, a more peculiar feature than either of the others, in having the bowl and knop surrounded with small bells, ten on the former and six on the latter. It is unusually rich in detail, with the customary mixture of Gothic elements with florid Renaissance foliage. The knop is composed of rich canopy work, beneath, or rather inside, which are seated figures of Apostles, and upon the foot are highly-embossed scenes from the Passion. The inscription on the paten is a curious instance of the misspelling of Latin, *Pax Domini sit senpir bobiscvm.*

Among the paxes are several deserving of special mention.

The Cathedral of Valencia sends the most beautiful of these. It is of fine gold, elaborately chased and enameled in brilliant colors. The front is in the form of a chair, in which is seated the Infant Savior, the whole of the figure being enameled; the back of the chair is covered with elaborate scroll work of beautiful design and filled with enamel; the lower part of the chair beneath the seat is hollow and has two small doors, which open and display a group modeled in the round, and representing the Nativity. The pediment above the back of the chair is edged with two elegant scrolls in open work, and at the base of the pediment on each side is a figure of a warrior standing. The back is minutely engraved and enameled with sacred subjects, the Adoration of the Magi, Christ among the Doctors, etc. This specimen is by far the most remarkable of all the paxes exhibited, and its attribution to the hand of Cellini is much more reasonable than is generally the case with works assigned to that artist. A certain delicacy and refinement in the designs points rather to Italy than to Spain as the country of its origin, though whether it is really by Cellini is a far more difficult point to decide. This appears in the will (A. D. 1566) of Don Martin de Ayala, archbishop of Valencia, who bequeathed it to the cathedral.

A pax of perhaps greater interest, and of nearly equal beauty, is that from the Cathedral of Ciudad Real. The interesting feature about this specimen is that it has for its central subject a carving in black stone of Byzantine period, representing the Descent into Hell, with the legend above, "H Anactacie," i. e., Resurrection, and behind the figure of Our Lord stand the Emperor and Empress, crowned, and with halos round their heads. The frame is in the best style of the Spanish Renaissance, of silver gilt and enameled, and its bears the date 1565. On either side are square projecting stages, supported on well-designed caryatid figures,

and containing four figures of saints, and at the top is a frieze in relief representing a combat between horsemen and men on foot; the pediment represents the Assumption of the Virgin, with figures of Virtues at the sides, and the apex is surmounted by an enameled figure of Our Lord holding the orb. The back, though by no means so richly decorated as the front, is of great beauty. The handle is formed of a female caryatid figure with wings, surmounted by the Cross of Santiago, and toward the bottom the terminal base of the figure divides into two serpentine scrolls, which curve toward the edges of the pax. For beauty of line this charming figure compares favorably with any work of the period, and it would be difficult to speak in terms too high of the masterly character of the design.

Another pax possessing unusual features is that from the Cathedral of Parazona. The central portion, if not the whole pax, is certainly of north Italian work. It is of silver gilt, and has in relief the subject of the Flagellation, a group of well modeled figures of late fifteenth-century style. The peculiarity of the work is that the flat background is painted in enamel, with a mountainous landscape, in the style common in north Italy at this period, and of which there are several good examples in the British Museum collection. The inscription at the bottom of the central subject, "Borgia·Car. Mon. Regal," would seem to indicate that it was the property of Cardinal Borgia, archbishop of Monreale, in Sicily, who died in 1503. The frame is of uncommon design, and may be of the same work as the center, but it is possible that it was added in Spain. Two pilasters which form the sides are somewhat poor in execution, and the cresting round the curved top of the pax is curiously classical in feeling, and consists of groups of two winged lion monsters, looped together at the necks and tails, the junctions of the latter being surmounted by palmettes. There is a certain clumsiness about the design which is scarcely Italian.

The only other pax worthy of special note is that from the Cathedral of Madrid-Alcala, an excellent example of Spanish Gothic metal work of the late fifteenth or early sixteenth century, without any trace of later style. The subject is the Descent from the Cross, modeled in high relief and enameled. This is surmounted by an elaborate canopy filled with rich tracery, and on each side are pinnacles with buttressed bases, surrounded with figures of saints. The back is good in design, the handle being a plain semicircle pierced to represent a dragon, while the edges are bordered with bold tracery in relief. The work of the whole is excellent, and little is wanting to make it a beautiful object, but a certain squatness and want of elegance of form in the general design suffice to make it fall short of true beauty.

One of the best specimens of Spanish Gothic, and a remarkable object for its great size, is the monstrance from the Cathedral of Jativa, which, without the modern silver base upon which it is now placed, stands 5 feet high. The occasion of its construction was in itself notable. Pope Alexander VI was a native of Jativa, and had this gigantic monstrance made for the cathedral from the first consignment of silver received from America. The shape is very graceful, and consists of a stem rising from a many-sided base and supporting a shaped oblong platform, the edges of which are bordered by a light arcade. Upon this platform rest four pillars, which sustain the roof, and from this rise three slender towers pierced with tracery, with rich canopy work at their bases. The actual monstrance, or receptacle for the Host, is a circular disk of a size proportionate to the rest, with an elaborate open-work border of what in England would be called late Tudor style, and it is held up by two angels kneeling at opposite sides. The effect of this beautiful object is much destroyed by the whole having been regilt, and by the enamels in the foot having been renewed; but in spite of this drawback it remains one of the most beautiful, as it is the most conspicuous, objects of ecclesiastical art in the exhibition.

The processional crosses, of which a very large number are shown, form a very interesting and instructive series, possessing many features differing from similar objects in other countries. The Marqués de Cubas (room 23) exhibits a good collection, which is supposed to represent all the types from the eleventh century to the seven-

teenth. Whether the series begins so early is perhaps doubtful, but some of the examples may well be of the twelfth or, more probably, thirteenth, century. These earlier crosses are flat plates of copper, gilt, and decorated with champleve enamels in the style of Limoges, but neither so well drawn nor so perfect in execution as the French examples, though it is by no means improbable that the Spanish enamel of this kind is an imitation of that of Limoges. The most noticeable peculiarity in design in the Spanish crosses of this period is the presence of four oval plates upon the four limbs of the cross, projecting beyond the edges of the limbs, and in each plate is a subject in enamel, but those upon the horizontal arms seem always to be the Penitent and Impenitent Thieves. The form of the cross remains practically the same up to the sixteenth century, and the four oval plates are frequently found at that date, though these two are then no longer reserved for the two thieves, but are sometimes devoted to figures of saints, the Evangelists, etc.

A very large cross from the diocese of Vich merits special notice. It is of silver, nearly 5 feet in total height, the surface quite plain, except for a circular disk upon each arm, in the center of which is a six foil with a subject in translucent enamel. This cross differs so much from all the others that it might be thought to be of foreign make, but the probability is that it was made in Catalonia, and, perhaps, near Vich itself, where the influence of French designs would be more felt than in the more southern parts of Spain. It is attributed, and I think rightly, to the fifteenth century.

The Spanish crosses of the sixteenth and late fifteenth centuries have a character fully as peculiar and national as those of earlier date. Those of the sixteenth century are characterized by a richness of detail that makes them look at a little distance like filigree work, but a closer examination shows that this rich effect is produced by a multiplicity of canopies, edgings, and pendants, symmetrically designed in a semigothic style. The richest and at the same time the best in general design of this kind, is that from the Cathedral of Osuna (Seville), though many others from Salamanca, Astorga, and other cathedrals are very good. Nearly all, however, have suffered, and their enameled details are destroyed by having been passed through the fire to render them bright.

A very interesting class of remains to be found in Spanish churches is that of the caskets placed upon the altar and used as reliquaries, and in one case as a receptacle for the Host. Many of these are of pure Moorish work, with Saracenic designs and inscriptions. The earliest and most important of these is a large casket of carved ivory with mounts of champlevé enamel, exhibited by the Provincial Council of Palencia. The whole surface is carved in relief with scrolls of conventional leaves of the style common in the ornamentation of the Alhambra, the stems being interlaced. On the sides are hunting scenes; on the body of the casket are broad borders formed of pairs of birds and deer alternating, each pair facing, and above them a series of triple arches. The cover is in the same style but that the borders are much simpler, and in one panel a piece from another casket has been inserted. The enameled mounts are an interesting feature and form an important landmark in the history of enameling in Spain. The patterns of these are the simplest geometrical designs, and the colors blue and white; but there is every appearance of these being the original mounts, and if this be the case they must be of the middle of the eleventh century. For the great historical value of this object consists in its bearing the date of its manufacture, A. H. 441 (=A. D. 1049–50), the name of its maker, Abd-er Rahman ibn Zeyyan, who made it at Cuenca for Hosam-ud-Daulat Abu Mohammed.

Another casket of nearly equal importance comes from the Cathedral of Gerona, where it is usually placed upon the High Altar. This, though equally of Arab work, is very different in style, as well as material. It is entirely covered with plates of silver gilt, embossed with open scrolls inclosing symmetrical flowers, the details of which are inlaid with niello. Around the edge of the lid, as in the pre-

vious example, is a Cufic inscription stating that it was made in Cordova by the order of Al-Hakam II, the Caliph of Spain, more celebrated for his studious habits than for warlike achievements, who died in A. D. 976. The inscription states that Al-Hakam ordered it for his son and gives the name of the maker (Riaño, p. 12). But for this inscription the style of the ornament would probably have led to the casket being assigned to a later date.

These two caskets are without any mixture of western motives in their decoration, and are of special interest in the history of art industries from the precision of their date and country of manufacture.

Among the altar caskets one of the most beautiful is a cylindrical ivory box from the Cathedral of Saragossa. It is of Oriental work, the sides pierced with delicate tracery, and with bands of Arabic inscriptions in relief round the edge. These boxes, though by no means common, are well known, and two in the British Museum have always been thought to be of Persian origin, and it is possible that the example now in question may be also of Persian work. It has, however, an enrichment of bands of delicate filigree work, passing over and around it, which are certainly Moorish and of the late fifteenth century. This is decided by their similarity in style and work to the mounts of the sword of Boabdil belonging to the Marques de Viane. In both specimens there are Arabic inscriptions outlined in thin wire running over the surface, a peculiar method that seems to have been employed only by the Moors, and about this period. At the Cathedral of Saragossa this is used to contain a cylindrical pyx, which is also exhibited. The pyx is quite plain, of silver gilt, but upon the flat cover is engraved and enameled a coat of arms surrounded by an inscription.

A painted ivory casket, of the style usually called in England Sicilian, is shown by the Royal Academy of History. This bears upon it, many times repeated, the arms of Aragon-Sicily, and is said to have belonged to the King Don Martin of Aragon, who died A. D. 1410. The ornamental scrolls between the shields are of unusual beauty and freedom, and a band of carved Cufic letters of an ornate character gives it an Oriental aspect, which is but faintly seen in the other designs. Though the painting is not in the best state of preservation, this box is a charming specimen of the semi-moorish art of Sicily.

The mudejar style, that is, the combination of Moorish or Saracenic and Christian art, is perhaps even better shown in a pair of wooden doors with gilt bronze fittings from the Cathedral of Seville. The paneling of these might be from a Cairene mosque, so purely Saracenic are their designs, while their borders are composed of Biblical texts in well-carved black letter, and the bronze fittings are in accord with the ornament. The purity of the two styles is the remarkable feature of these doors, each keeping unmixed its own peculiar characteristics and yet remaining in perfect harmony. The very early and interesting "Arquilla de los Reyes," the reliquary of King Alfonso III (el Magno) and his Queen Ximena, should properly have been mentioned earlier, but that its style and work are quite foreign to the Moorish taste. Alfonso the Great reigned as King of the Asturias and Leon from 866 to 910 A. D., and the shrine is therefore interesting as an authentic monument of a period of which few remains exist, though it can scarcely be said to have high claims as a work of art. It is of the usual oblong form with pyramidal lid, and nearly covered with silver plates embossed and otherwise ornamented. Upon the lid is the inscription "Aldefonsvs · Rex + Scemena Regina," with a figure of the Agnus Dei between the two names. Upon the sloping sides are embossed the symbols of the Evangelists, Lucas and Johan being upon the front slope (the eagle very like a dove), and the angel of St. Matthew on the left, with the word "Angelvs" in place of the name of the Evangelist. On the slope at the back is a cartouche or frame of the last century, with the names of the Saints Diodorus and Deodatus, whose relics were doubtless contained in the shrine. The front is in two stages, each consisting of six round-headed arches formed of cloisons, some of which still

contain the triangular or pear-shaped slabs of glass and stone, with which originally all were embellished. Within the arches are, upon the upper ranges, embossed trees or plants more or less symmetrical, and in the lower, figures of angels facing the middle, three in each direction. The execution is throughout of the rudest character, the figures of the angels being reduced to the most elemental representations of the human figure, and their wings more like leaves than any feathered limb. The presence of the cloisonné work, as a survival of Visigothic methods, gives the object a peculiar interest, though it should at the same time be pointed out that it is not cloisonné enamel. There can be no doubt that the stones or glass were cut and placed in position without the application of heat, and do not therefore constitute enamel

Some other altar ornaments of different styles and dates are deserving of mention. The Cathedral of Astorga sends a very beautiful globular vessel of rock crystal, engraved in the East with elegant scrolls in relief. This is attributed, and probably with justice, to the eleventh century; its beauty is, however, much lessened by a seventeenth century gilt mount, which has transformed it into a tall two-handled vase.

An equally beautiful object, but of far different character, is the crystal Navecilla, a crystal ship on wheels, with elaborate Gothic mounts of silver gilt, from the Cathedral of Toledo. It is about 15 inches in length, the body of the vessel made of rock crystal, above which is a considerable superstructure of silver gilt, in which the ribs of the ship are indicated. At the prow and stern the bulwarks are formed of a band of elegant tracery surmounted by a cresting of leaves. The figurehead is a wivern in full relief, and the keel is formed of a band of boldly modeled leaf work. All the lines of the construction are very graceful, and the composition is pleasing as well as unusual. It is said to have been the property of Doña Juana la Loca, and probably became the property of the cathedral as a votive offering. Another ship, of which the body is formed of a large turbo shell, is shown from Saragossa, but this, though very quaint, and of perhaps a somewhat earlier date, can not be compared for beauty with the crystal ship of Toledo.

The Cathedral of Huesca exhibits three very fine chasses of Limoges champlevé enamel, one of which is of unusually good quality and early date, though not old enough to have been the property of Don Ramiro II, of Aragon, who reigned from A.D. 930 to 950, and their traditional history will therefore scarcely pass muster.

Although the cathedrals and other religious establishments of Spain have only sent a small proportion of their marvelous riches to the exhibition, and many interesting and well-known objects are not to be seen there, yet, on the other hand, many things have been sent, which from their size no one would expect to find elsewhere than in their natural resting place. To this latter category belongs the recumbent effigy of Maurice, Bishop of Burgos and founder of the cathedral, from which it is now sent. It is a life-sized figure, now resting upon a wooden base, round which is written "Pius hujus ecclesie Pontifex et Fundator Mauricius obiit A.D. 1240, 4 Oct." This may be a copy of an older inscription, but the date of the death is two years later than that given by the modern authorities. The effigy is modeled in wood, covered with thin plates of bronze or copper, cut with some regard to the lines of the design and nailed on round the edges, and the whole appears to have been once gilt. The vestments are covered with a carefully engraved lozenge diaper of fleur-de-lis and castles, and the end of the effigy, at the feet, has an elaborate design consisting of castles of Castile, and possibly some other devices; but from the position of the figure and the worn state of this part, it was not possible to determine this point.

The borders of the vestments and the miter are edged with settings now empty, but which once contained stones or glass pastes. The hands are raised, the left one in such a position as it would assume if it held a crozier, and the right in the attitude of benediction. The hands seem to be solid bronze, and, from the finger nails

being seen, would appear to be bare, but the presence of a jewel on the back of the right hand shows that they are intended to be gloved; upon the two fingers raised in benediction are two rings, upon the first and second joints respectively. They are cast with the hand, and are set with simple square stones within a quarterfoil. The face is a mask of thick bronze, stopping short at the hair and the ears, and it has every appearance of being an actual portrait. The head rests upon a plain cushion, enriched on the upper face with champlevé enamel. The pattern upon this is a lozenge diaper filled with open crosses. The monument as a whole is a most dignified and impressive composition, and it has an additional interest apart from its great intrinsic merits, and the remarkable character of the ecclesiastic it represents, in the fact that the tradition in Toledo is that he was of English birth. He was a trusted and valuable adviser to his King, San Fernando III, whom he aided with counsel in matters far removed from his episcopal functions.

This tomb must have been in part, if not entirely, of French work, as the enameled portions differ from any examples of Spanish champlevé enamel, and on the other hand, agree in style with the known examples of similar work made at Limoges. This is not surprising, for the bishop was a traveled man, and had relations with many of the European states, and with France he could scarcely fail to have been very intimate. It is, moreover, an established fact that the workmen at Limoges did go into foreign countries to execute such work, even to England.

The collection of arms and armor is, as would be expected, of great interest and of considerable extent. From the royal collection many pieces of historical interest are shown, the jousting suits of Charles V and Philip II, three swords stated to be those of Boabdil, Pizarro, and Cortez, a steel turban inlaid with gold and silver formerly belonging to Barbarroja, as well as numerous suits and single specimens of interest in themselves. Private collectors also have contributed largely, the Conde de Valencia sending a series of swords of high quality, while the Marques de Casa-Torres has filled one of the smaller galleries with an excellent collection of arms and some good suits of armor, and Señor Don José Estrech, of Barcelona, has a well-arranged series, intended to show the history of arms and armor from the eighth century down to the present time. The Marques de Mondejar also shows one of the well-known papal swords, this specimen having been presented by Pope Innocent VIII in 1486 to Don Iñigo Lopez de Mendoza, second Conde de Tendilla, ambassador at Rome.

The collection at the Royal Armory in Madrid is, however, so rich in arms and armor, both of the highest excellence in themselves, and a large proportion of them of an historical importance equalling their technical perfection and artistic merit, that it is an ungrateful task to attempt a detailed description of those in the exhibition. It is no injustice to say that, fine as many of them are, they can not be placed in competition with the accumulated treasures of the Armeria Real.

It seems, for this reason, a better plan to give some account of the few objects of this class which are either unrepresented in the Royal Armory, or have interests of a different kind.

Of these the most remarkable are the several swords stated to have once belonged to Boabdil, the last Moorish king of Granada. One of them has been already mentioned as coming from the Royal Armory, but it is plain in make, and its principal interest is its history. It is far otherwise with the beautiful swords belonging to the Marques de Viane and the Marques Campotejar, and another sword, belonging to the Archæological Museum of Madrid, though somewhat older, belongs to the same class. This last is made entirely of metal, the hilt and guard being of bronze with gilt details, the blade of steel, the total length 40 inches. The pommel is globular, flattened on the two faces, on each of which is a circular medallion engraved with ornamental Cufic characters; the grip is fusiform, engraved with circles joined together by a single twist, and containing also Cufic letters. The guard is of the peculiar form characteristic of the Moorish swords of the late fifteenth

century, viz, rounded shoulders ending, on either side of the blade, in a narrow limb running parallel with it, the outer edge of the limb curving inward to the end where it suddenly turns outward in a hook, the hollow formed by this curving of the limb being filled up in this case with a plate of metal pierced with circular holes. The faces of the guard are quite flat, and engraved with conjoined circles, like those on the grip, the spaces between them being filled with engraved floral designs. The bands forming the circles are in all cases gilt. The blade is straight and two-edged, and has upon one face the stamp of the armorer, a circle containing badly written characters which have not yet been read, but they are conjectured to be Hebrew from the fact of the Jews in Spain devoting themselves to the manufacture of arms. This sword came from the Church of San Marcelo, the warrior saint, at Leon, and was there long connected with him. It is believed that it may have been a gift by the King Ferdinand the Catholic on the translation of the body of the martyr from Africa.

The Boabdil sword of the Marques Campotejar is of the same general type, but is infinitely more sumptuous in execution, and, in addition, it retains its scabbard complete. The mounts both of the sword and scabbard are of silver gilt, embossed and richly chased with formal floral designs of the same style as those of the ivory casket of the Cathedral of Palencia (supra p. 81), though of course the sword is of a much later date. The mounts are further enriched with bands and medallions of translucent cloisonné enamel, a feature which this sword has in common with that of the Marques de Viane. An interesting and to some extent peculiar circumstance connected with this sword is, that notwithstanding the pure Moorish character of its ornament, yet it would seem to have been the work of a Christian artificer, working for the Moors at Granada. The bonds of amity which existed between Boabdil and Ferdinand for some years, before the final stand made by the Moors for the possession of Granada, would account for the presence in the Court of Boabdil of Christian workmen, who doubtless succeeded in serving two masters in different capacities. Upon the plain backs of one of the two tabs to which the sword belt was attached is stamped, in characters of the period, the name "Ivan Abad" * * *, with the pomegranate of Granada as well as another stamp, not easy to interpret. This Christian stamp illustrates a remark of Señor Riaño (in his introduction to the Catalogue of Spanish Works of Art in the South Kensington Museum). "The continued contact of the Christian and Mohammedan races, notwithstanding the barbarism of the time and the difference of creed did not oblige them to live perpetually as enemies. * * * This contact could not fail to influence works of art and industry, and for this reason many archæological objects of the Spanish Middle Ages possess a peculiar character."

The third sword of this type and, like the last one, once the property of Boabdil, is that belonging to the Marques de Viane, who exhibits also the velvet jacket, another sword and a dagger, stated to have been taken from the Moorish king at his defeat (in 1492) and given by Ferdinand the Catholic to one of the ancestors of the present owner. One of these is the most perfect example in the exhibition of the refinement and richness of effect of which Arab art is capable. It combines the highest efforts of the enameler, the carver, and the goldsmith, and, doubtless, the blade is of corresponding quality, and in every part it is well preserved. The actual grip is of ivory, the rest of the hilt is of gold, entirely covered with granular work and filagree, in which are set at intervals eight-pointed and cruciform panels of translucent cloisonné enamel.

The ivory grip is deeply carved with geometrical designs forming panels of various shapes, filled with Arabic inscriptions alluding to the weapon, and ornamental leaves and other devices, and where the ivory joins the metal are two broad bands of cloisonné enamel (the cloisons being here, as upon other parts of the mounting, of gold) composed of scroll work of the greatest beauty interrupted by shaped panels containing Arabic inscriptions, among which might be expected the name of the

artist, but this nowhere appears. The pommel is spherical, but at the upper end is prolonged as a straight point, and is entirely covered with the granular work and enameled panels mentioned above. This granular goldsmith's work is of the same style as that of the bands of the Persian casket from the Cathedral of Saragossa, and might, in fact, be the work of the same artist. The ground is filled with minute pellets of gold, through which run lines of Arabic inscription, outlined in flat gold wire, thus leaving the interior of each letter empty. The enameled crosses upon the pommel are changed into a different form by the exigencies of the shape of the pommel, the artist finding it necessary to reduce the four limbs of the cross to three, and the corresponding outlines of the eight-pointed panels are ingeniously altered and adapted to the same end. The surface of the guard is ornamented with similar work, and it is only necessary to mention that the two ends running parallel with the blade terminate in the heads of monsters, from each of which springs an elegant openwork border of spiral scrolls enameled in white and other colors. The blade is straight and has the stamp of the armorer upon one side. The sheath is of red leather, though very little of this foundation is visible, as one-half of its length is hidden by mounts matching those of the sword itself, and these fit into each other so closely that when the sword is in the scabbard it is impossible to distinguish where the guard ends and the scabbard mounts begin. This sword is described, and the inscriptions are given, by Señor Riaño (*op. cit.*, p. 84).

The enameled details upon this sword are of peculiar interest, not only for their intrinsic merits, which are very great, but also as serving to decide the origin of the beautiful stirrups in the Forman collection. These stirrups were exhibited before the Society of Antiquaries of London, and are described in their Proceedings (Vol. XIV, 179). It is sufficient here to say that they are of Moorish form, of iron, plated with silver, which is engraved with Oriental designs; while upon the sides are semicircular plates of silver with nielloed designs somewhat in the style of the arabesques of Aldegrever. Around these are borders of cloisonné enamel on gold, in style and execution so like the sword just described that there can be little question as to their common origin, though it is probable that the sword is earlier in date by, perhaps, a quarter of a century. The niello plates of the stirrups also could very well be of a Spanish make, as the use of niello is not uncommon, both in Moorish and Christian work of mediæval and later times. An example of this is near at hand in the second sword shown by the Marques de Viane. This is more a weapon for use than for parade, and is of simple form, by no means beautiful, though the details are planned and carried out with the greatest skill. Like the other, it has a straight blade, apparently also of Christian make, or, at least, not Moorish. The handle is entirely of ivory, the grip cylindrical, with a thicker cylinder above and below, that forming the pommel being slightly curved inwards at the sides. The whole handle is engraved with beautiful scroll work, brought into relief by an inlay of black substance, probably akin to niello, and upon the sides of the pommel is the shield of arms of the kings of Granada, as seen upon the azulejos of the Alhambra. The scabbard is in keeping with the modesty of the sword, being a plain, leather sheath, tooled like a bookbinding with a scale pattern, and having a silver mount and chape, the former engraved and nielloed with Arabic inscriptions and the shield of Granada, and the chape engraved in a similar manner. The contrast between this simple and useful weapon and the gorgeous blade shown beside it is most remarkable and instructive, and the fortunate owners of them both may be congratulated on the possession of hereditary treasures of a kind and quality but seldom seen.

It is somewhat surprising to find among the ecclesiastical objects from the various cathedrals so few painted enamels that are worthy of note. A good triptych belonging to the Cathedral of Saragossa would seem to be from the hand of Nardon Penicaud or of his school. The central subject is the Adoration of the Magi, painted in the usual manner, the faces somewhat round, and here and there the small raised jewels or rosettes backed with foil. The Conde de Valencia has also a triptych by the same

artist, who seems to have been popular in Spain, to judge by the comparative frequency of his works. Three other enamels in the collection shown by the Conde de Valencia de Don Juan are, however, of far greater interest and beauty. The first of these is of North Italian work of the fifteenth century, a circular pectorial medallion, with a hinged front displaying both sides and out scenes from the Passion painted in the exquisite style characteristic of this period and country, and of which we have a few good examples in the British Museum. The back of this charming pendant is formed of a plate of pearl shell engraved with the Crucifixion, and every part seems in perfect preservation.

The two other enamels are of Limoges, the more important being a brilliant triptych, unsigned, but, doubtless, by Leonard Limousin, the second an equally brilliant, but small plaque, painted by Pierre Reymond in 1537, with the Good Shepherd giving crooks to the shepherds, and the exhortation to the shepherds is inscribed in two panels at the top. The triptych represents the Last Supper, and has the arms of Lorraine beneath, quarterly and an inescutcheon of pretence of Lorraine, while on the wings are the arms of Lorraine (on a bend three alerions) and those of France, as well as a motto, which would point to the piece having been made for a personage of distinction. The Conde de Valencia also exhibits a large and interesting series of the small champlevé enamel plaques from horse trappings, most of which have devices of an armorial character, both Moorish and Christain. These little ornaments were used in all European countres in mediæval times, and a large number, such as are to be found here, could scarcely fail to produce some interesting results if time were given to their study.

The absence of any large number of Limoges or Italian enamels is not so surprising as the entire want of Flemish plate of the period of Charles V or earlier. There are, no doubt, some pieces which, on examination, would prove to be of Flemish manufacture, but there is certainly nothing like a display of such objects, and it seems scarcely credible that great quantities of church plate and objects of domestic use were not brought from Flanders, a country where art of this kind had attained to such perfection.

There now remains to notice the collections of pottery which are confined almost entirely to the lustred wares so well known and so highly appreciated all over the world for their decorative qualities. Before describing these, however, it is desirable to allude to an altogether unexpected, though by no means unimportant, exhibit of mosque lamps of pottery and glass sent by the Imperial Ottoman Museum at Constantinople. Of the pottery lamps the most curious, though the least ornamental, is one with two rows of handles, covered with oil gilding, and decorated only with two narrow bands of inscription in blue, the rest of the surface being plain white; probably a product of the potteries either at Cairo or Damascus. Far more beautiful, and of unusually large size, are two richly-colored lamps of Rhodian ware, with bosses round the lower part filled with elegant arabesque designs, the rest of the surface covered with inscriptions and ornament. The red and turquoise colors are of unusual brilliancy, and the execution of the ornament, as well as the outlines of the lamps themselves, leave nothing to be desired.

Four small lamps, painted entirely in pale blue, though neither so unusual nor so immediately attractive, are fine specimens of their kind. Their principal decoration consists of bands of ornamental Cufic, the spaces between being filled with delicately-penciled devices that recall the illuminated Persian manuscripts of the fifteenth century. The glass lamps seem to be of Venetian manufacture, and probably of the fifteenth or early sixteenth century. They are all of lace glass of various patterns, somewhat coarse in make, and they preserve the usual form of the mosque lamp. In addition to these, there are two trumpet-shaped lamps of the same kind of glass, which have been used either as the oil receptacle of a pottery lamp or perhaps independently, as they would be too large for any but the largest size of lamp. Some of these Venetian lamps have been thought by their Mussulman owners to be

too simple in style, and accordingly they have been painted with flowing scrolls in gold, which gives them rather a tawdry appearance.

Of Spanish wares the only collections of any note are those of the Conde de Valencia de Don Juan, Señor Don Guillermo de Osma, and of the Archæological Museum of Madrid. Unfortunately, the latter collection must be dismissed with but little notice, for the objects were arranged in panels upon the walls of the room, reaching to the ceiling, and it was therefore barely possible to see them, and quite out of the question to examine any of them at all closely. One of the plates is said to have an Arabic word written upon it, a most unusual thing, but as it was at least twelve feet from the floor it was not possible to verify this statement, which has already been doubted. Among the objects nearer at hand was, however, one of the famous Alhambra vases, a fine specimen, standing more than 4 feet high, but, unfortunately, wanting one of its handles. It is decorated in yellow, or pale luster, and blue, with a profusion of arabesque designs and inscriptions, one of the latter referring to its use as a water jar. This vase came from the parish church of Hernos (Jaen), where it was used as a holy-water vessel. A similar story is told of an equally fine vase, now in the museum at Palermo. Another jar of Toledan make is interesting as bearing the name of the maker. It is an oviform vessel of common clay, nearly three feet in height, unglazed, and with two projecting ears, or handles, on the shoulders. The ornament consists of impressions from oblong stamps, with animals, monsters, etc. Near the neck are impressed three stamps, inscribed in black letter "En toled° me feci dj° perez." This dates probably from the sixteenth century

The collections of the Conde de Valencia and Señor de Osma are shown together, and comprise a superb series of the lustered wares of the various Spanish factories, a number of tiles, interesting for their devices as well as for the technical processes of their manufacture, and a large and unique series of a curious ware believed to have been made in Andalusia in the fifteenth and sixteenth centuries, but of which the history is at present somewhat uncertain. Among the lustered wares the most remarkable pieces are two dishes painted in blue and luster, with figures in fantastic costumes of the fifteenth century, one of the dishes representing a fishing scene, carried round the dish in a quaint fashion. Two covered bowls are also worthy of remark, both from their rarity and the originality of their design, the covers being of the same shape as the bowls, but somewhat larger in the mouth, and when placed together the form is that of a barrel with narrow ends. Many other pieces of this beautiful series deserve mention, if space permitted. The Andalusian ware, however, is less known, and therefore deserves more particular notice. Though it can scarcely be said to possess so great a charm as the lustered wares, yet it has an originality and vigor which is rarely found in any but the earliest productions of Valencia and Malaga. It recalls in appearance the Italian sgraffiato wares, though the process of manufacture is of quite a different character. The method employed is, however, not quite clear, but seems to have been to draw the outlines of the design in some substance which was thrown off in the furnace, leaving little or no trace of its presence, but which, before the firing, possessed an antipathy to the colored glaze used to fill up the design, so that these glazes could be applied close up to the edge of the outlines without in any instance impinging upon them. In no case is the clearness of the outline interfered with, though it is rare to find an instance of the glaze being otherwise than close to its edge. The glazes are thick and heavy, probably with a base of tin, and the colors used are rich and full, amber, green, slaty blue, yellow, and manganese. The collection comprises five large dishes, twenty-four small, an oviform vase, two large panels with the arms of Castile-Leon and Aragon-Sicily, as well as tiles. The designs of the dishes are vigorously, if somewhat coarsely, drawn, and include a head of a young man in the costume of the late fifteenth century, a deer and other animals, heraldic lions, and motives derived from plants and trees. Some of the tiles have inscriptions in black letter, and the oviform vase bears the legend, "Mjel rosado coad," honey of roses. It may be of inter-

est to mention that this ware is being imitated in Spain at the present time, and a good many examples of these imitations are to be found in the shops in Madrid; and though the character of the work lends itself easily to imitation, there are essential differences between the old and the new.

It should be stated that in addition to the classes of objects described above, the exhibition contains a very large and important collection of charters, illuminated manuscripts, and printed books. Among the latter is a considerable series printed on vellum; the former include a number of early charters of the orders of the Knights of St. John of Jerusalem, the Holy Sepulcher, Santiago, and of Calatravas, an early manuscript of the treatise on astronomy by Alfonso the Wise, believed to be the original, besides many other important works from the National Library and other public institutions.

# CATALOGUE

AND

# DESCRIPTION OF THE OBJECTS EXHIBITED

BY

THE UNITED STATES NATIONAL MUSEUM, THE UNITED STATES INDIAN INDUSTRIAL SCHOOL, THE UNITED STATES NAVY DEPARTMENT, THE UNITED STATES ARMY MEDICAL MUSEUM, THE UNIVERSITY OF PENNSYLVANIA, THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, THE NUMISMATIC AND ANTIQUARIAN SOCIETY OF PHILADELPHIA, THE UNITED STATES MINT, AND THE UNITED STATES POST-OFFICE DEPARTMENT

AT THE

# COLUMBIAN HISTORICAL EXHIBITION IN MADRID.

# CATALOGUE OF THE DISPLAY FROM THE DEPARTMENT OF PREHISTORIC ANTHROPOLOGY, UNITED STATES NATIONAL MUSEUM.

By THOMAS WILSON, Curator.

The Department of Prehistoric Anthropology of the National Museum was represented at the Exposición Historico-Americana, Madrid, 1892, by about 5,000 objects, selected from the department, and intended to present a synopsis of aboriginal industry. The objects were exposed in nineteen double slope-topped cases, which were distributed throughout the main hall assigned to the United States at the Exposition. The objects were classified, so far as possible, in such way as to show a series of implements and objects in each case or in each portion of a case. General labels descriptive of the series were printed in Spanish and distributed in their appropriate places. A description of the objects displayed, together with the names assigned them, the material used, the mode of manufacture and probable purpose, is attempted to be set forth in the following pages.

## PALEOLITHIC AGE.

The first appearance of man on earth has been assigned in Europe to the Quaternary Geologic period; in the United States to the close of the Glacial Epoch, though this has been denied.

The Paleolithic implements are the first known works of man. They have been found over the world in the Quaternary deposits, associated many times with the remains of extinct animals belonging to that geologic period. The different epochs of human culture of the Paleolithic age have, in western and southern Europe, received the designations of Cave-bear, Mammoth, Reindeer, Bison epochs, after the animals which characterize them, and after the deposits, Alluvial and Cavern, and all after the localities, Chelleen, Moustierian, Solutrien, Madalenien epochs. They are periods represented in this display.

### ALLUVIAL PERIOD.

#### CHELLEEN EPOCH.

Block of cemented sand and gravel from the Quaternary gravels of the river Marne at Chelles, east of Paris, in which Paleolithic implements have been found. Pieces of worked flint are to be seen in it, while other fragments from the loose sands beneath are by its side. This station has given its name to the earliest epoch of the Paleolithic age.

Seven Chelleen implements from the Quaternary gravels of southern England. Similar implements have been found on the surface. They are of the flint of the country, and have been chipped to their present shape. Many of them show signs of use. They are almond-shaped, thick in proportion to their width, and have the cutting edge at the point.

Four Chelleen implements from the Quaternary gravels of the river Somme at St. Acheul and Ameins, northern France; of flint, pointed, almond-shaped, crust of pebble left for grip, and with cutting edge at the small end. (Fig. 1.)

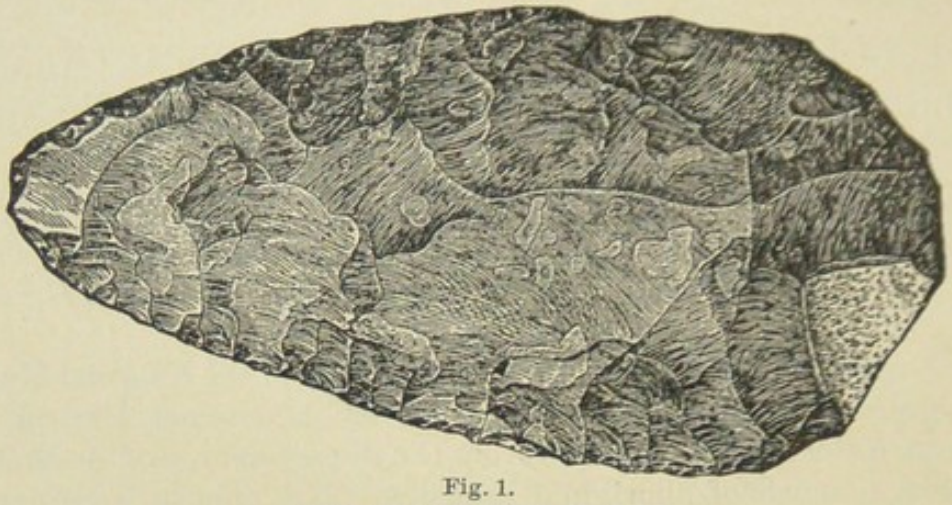


Fig. 1.
PALEOLITHIC IMPLEMENT OF FLINT.
Chelleen Epoch, Alluvial Period. St. Acheul, France.

Thirty Chelleen implements from different localities in northern, central, southern, and northwestern France. They are of flint and have the same general form as those mentioned from England.



Fig. 2.
PALEOLITHIC IMPLEMENT (QUARTZITE.)
From near Madras, India.

Three Chelleen implements from central France, of the usual thick almond form. They are of flint, which, from weathering or exposure to the chalk bed, have become whitened. In the highlands of the interior these are sometimes found on or near the surface.

Two Chelleen implements from the gravels of the river Garonne, near Toulouse, made from quartzite bowlders. They are rudely chipped, and thick, and the cutting edge is at the point as in other paleolithic implements. They resemble the specimens from Piney Branch, near Washington, D. C.

Two smaller Chelleen implements of quartzite, from the celebrated workshop of Bois-du-Rocher in Brittany. Discovered by MM. Micault and Fornier. These are more in the form of disks, chipped on both sides and to an edge all around.

Paleolithic implements have been found in isolated localities throughout northern Italy and in Spain and Portugal. These specimens are from Lake Garda in the Tyrol. (*See* Cartaillac for locality.)

Twenty Paleolithic implements of flint, which, with many others, were found in the foothills on the left border of the Nile, Egypt, by Prof. H. W. Haynes, of Boston. He received a bronze medal from the Association Française for his discovery.

Four Paleolithic implements from the Laterite beds near Madras, southwestern Hindostan, Asia. (Fig. 2.) Similar ones have been found near Nerbuddah, northwestern Hindostan. They are of quartzite, rudely made, but have the usual characteristics of thickness and the cutting edge at the smaller end. Also 3 specimens found near Yokohama, Japan, possibly Paleolithic.

## CAVERN PERIOD.

Six specimens of quartzite chips and implements of human art work, from Cresswell Caves, Yorkshire, England, associated with remains of Mammoth, Rhinoceros, and other extinct animals. Collected by Prof. W. Boyd Dawkins, of Manchester, England.

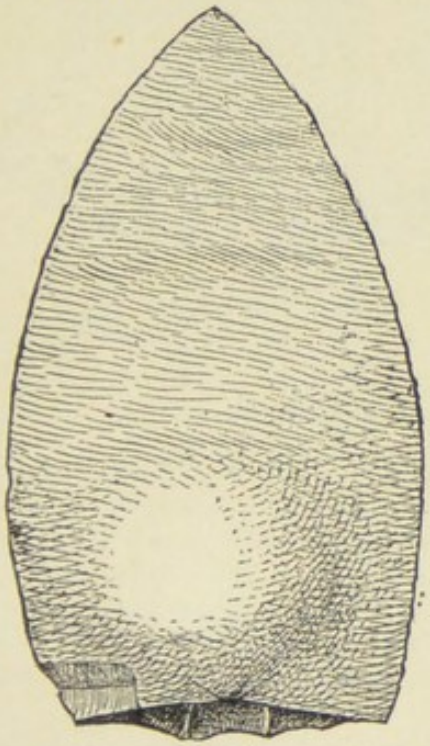


Fig. 3.
MOUSTIERIAN POINT, SPEAR OR OTHERWISE (FLINT).
From Cavern of Le Moustier.

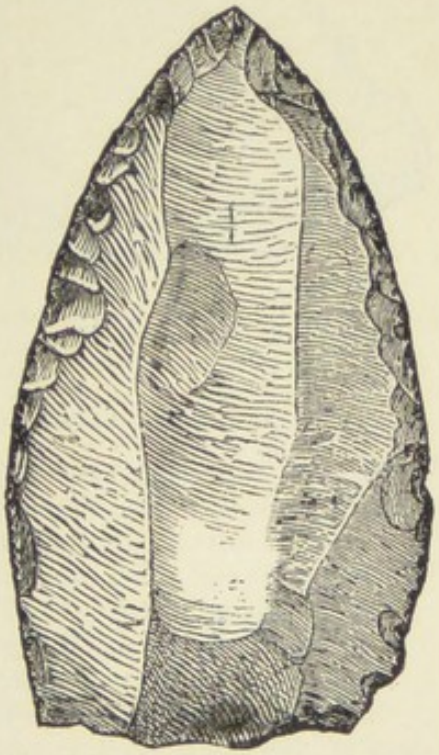


Fig. 4.
OPPOSITE VIEW OF FIG. 3.

Five specimens of red earth from lower stratum of Kents Cavern, Torquay, containing tooth of Cave-Bear, with a section of the overlying stalagmitic deposit. In this were found teeth of Elephant, Rhinoceros, and Hyena, associated with Chelleen implements. Collected by Mr. W. Pengelly, of Torquay, England.

## MOUSTIERIAN EPOCH.

Seven Moustierian points from Cavern of Moustier, France (Figs. 3–4). Scrapers the same, with cutting edge on the side and not at the end (Figs. 5–6). Cave-bear tooth.

SOLUTRIEN EPOCH.

Twenty-five specimens of flint, 9 of bone, from Solutré, near Châlons-Sur-Saône, France. Horse bones abounded. Reindeer appear during this epoch. The chipped edge of flint scrapers is changed from the side to the end. Two kinds of flint points, presumably for weapons, are found; one small, rechipped only on the back, with stem and shoulder on one side, the other the leaf shaped, long, broad, and very thin, some are 16 inches wide and but three-eighths of an inch thick. This was an epoch of fine flint chipping.

MADALENIEN EPOCH.

Eighteen specimens of flint, 15 of bone. From the Rock-shelter of La Madeleine, on the Vézère, Dordogne, France. Flint chipping continued during this epoch; scrapers, knives, points, and flakes are found. Bone points, daggers, and harpoons were common. The man of this epoch was an artist. More than 400 specimens of engraving on bone, horn, ivory, and stone have been found in the Caverns of this period.

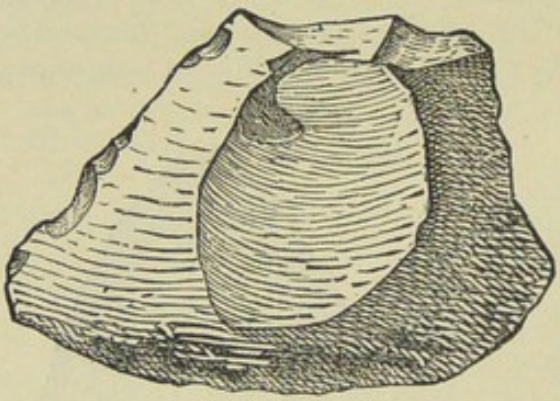


Fig. 5.
MOUSTIERIAN SCRAPER, SHOWING BULB OF PERCUSSION (FLINT).
From Chez Pourè.

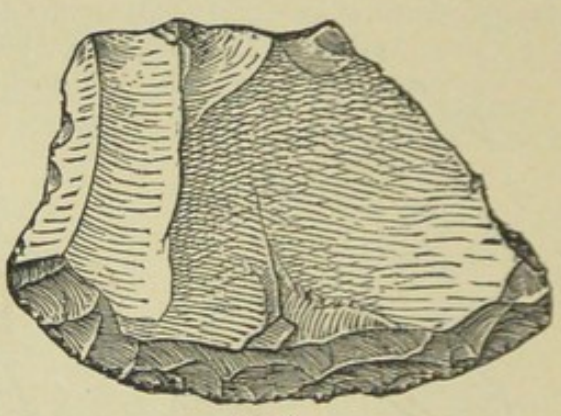


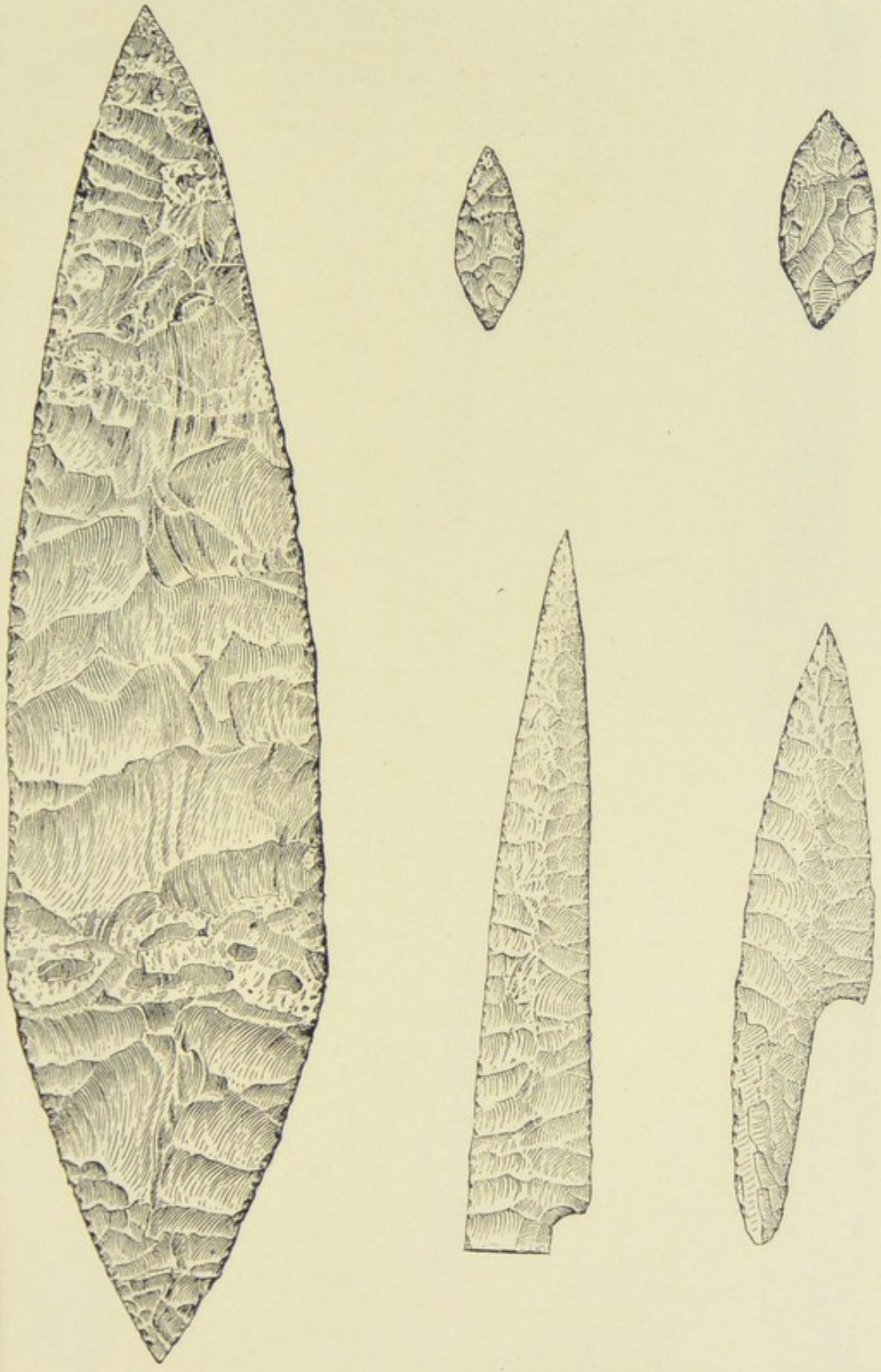
Fig. 6.
OPPOSITE SIDE FIG. 5.

EUROPEAN PREHISTORIC SKULLS OF THE PALEOLITHIC AGE.

Cast of the Neanderthal Skull. The original was found near Dusseldorf, Germany, and is now at the University of Bonn, discovered by Drs. Schaffhausen and Fuhlrott in 1857. Although the forehead is low and retreating, the skull is not small; its estimated capacity is 1,220 centimeters. Its cephalic index is 0.72. Many persons are of the opinion that it belongs to the Moustierian rather than the Chelleen Epoch. Its great antiquity has been disputed, but, nevertheless, Prehistoric anthropologists have given its name, possibly for want of a better, to the earliest known type of the human race.

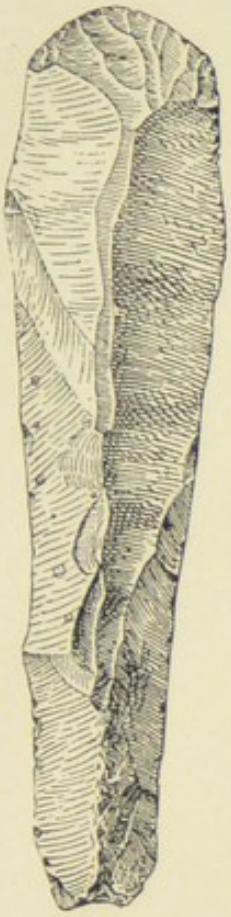
Cast of the Olmo Skull, from the celebrated paleontological deposit of the Val d'Arno, near Florence, Italy. It was found many feet beneath the surface associated with worked flints, horse teeth, and mammoth tusks, all of which, with the original skull, are in the Zoological Museum at Florence. The skull is claimed to have belonged to the Moustierian Epoch of the Paleolithic Age. It is too fragmentary to be measured.

Cast of Laugerie Basse Skull, found by M. Massenat, of Mailmont, near Brives (Correze), France, in 1872, while excavating the celebrated prehistoric caverns of Laugerie Basse on the Vérzère, Dordogne, France. The skeleton was entire and in place. It was on its side, the legs drawn up, the hands placed on the side of the head and neck. It was considered that he had been killed under a detached and fallen rock. It is in the possession of M. Massenat. The Cavern belongs to the Madelenien epoch of the Paleolithic Age.



PALEOLITHIC IMPLEMENTS.

Points of the Solutrian epoch, leaf-shaped, and shouldered on one side. Cavern period.



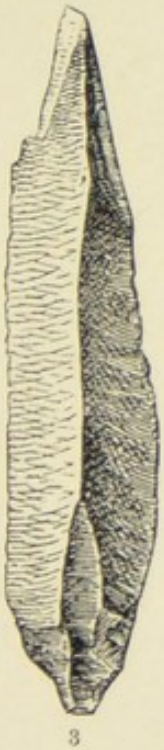
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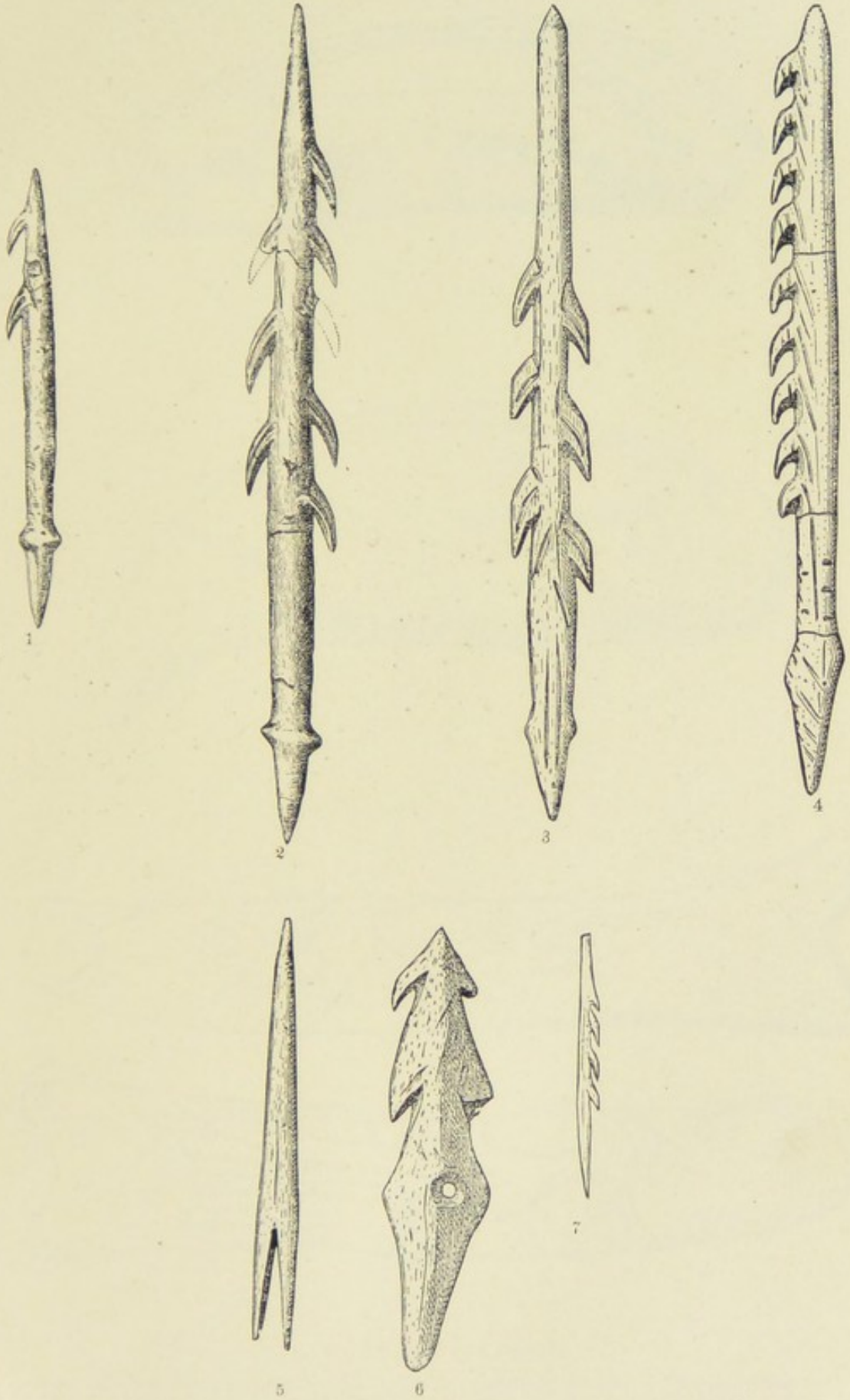
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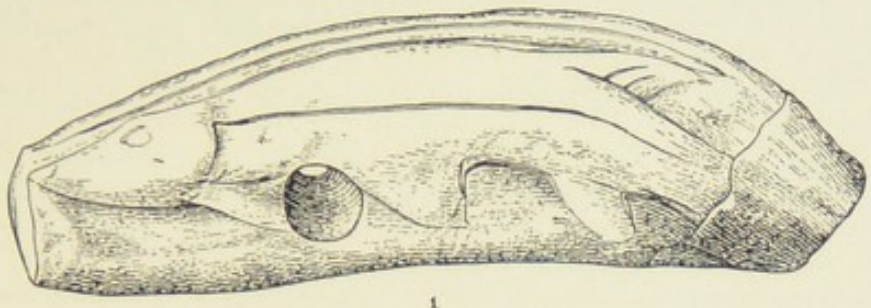
PALEOLITHIC IMPLEMENTS.

Fig. 1. Flint scraper, with rounded end. La Madeleine, Dordogne, France.
Fig. 2. Flint flake; probably a saw or knife. La Madeleine, Dordogne, France.
Figs. 3 and 4. Flint gravers. La Madeleine, Dordogne, France.
Figs. 5 and 6. Flint points or drills.



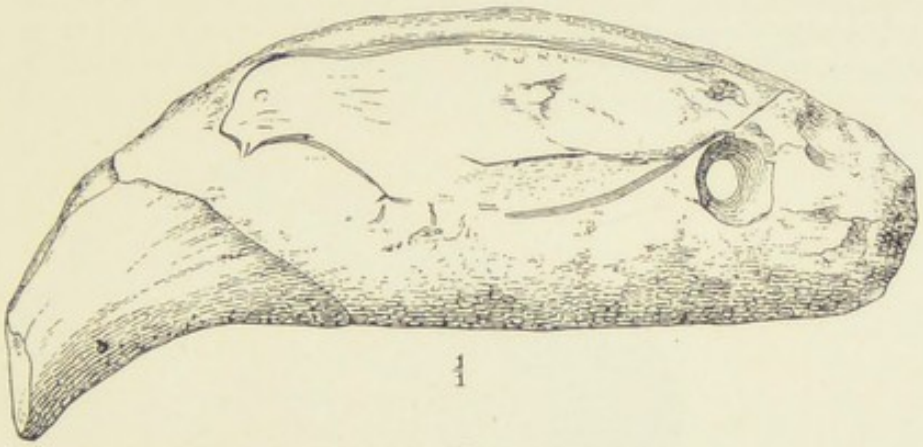

PALEOLITHIC IMPLEMENTS.

Figs. 1, 2, 3, and 4. Harpoons made of reindeer horn. La Madeleine, Dordogne, France.
Figs. 5, 6, and 7. Points and harpoons made of reindeer horn; hole and slit for attachment to shaft; southern France.



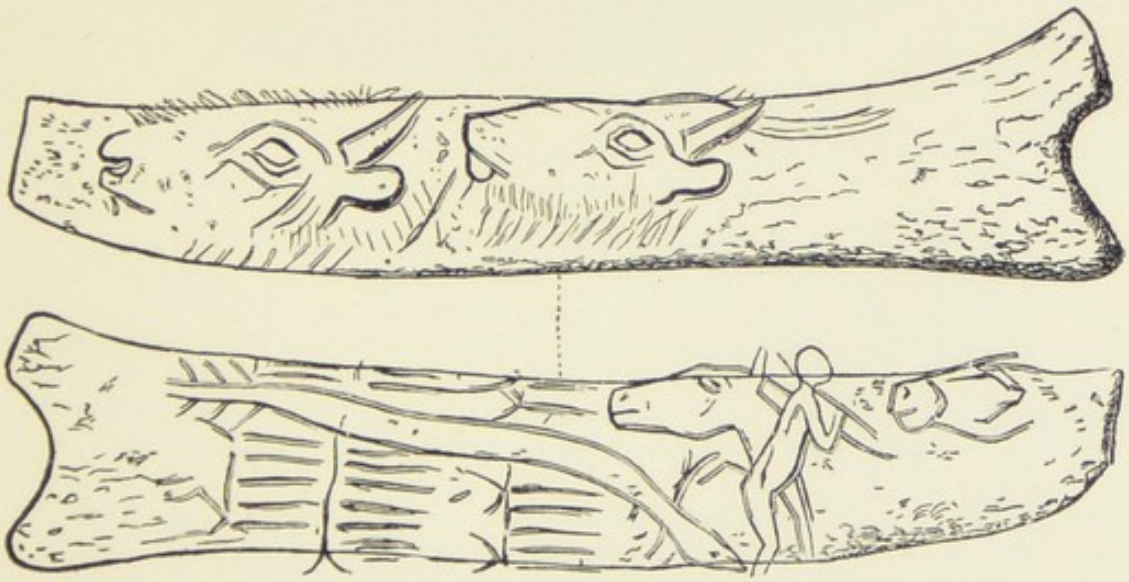
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PALEOLITHIC IMPLEMENTS.

Fig. 1. Engraving of pike on canine tooth of bear. Grotto of Duruthy, southwestern France.
Fig. 2. Engraving of seal on canine tooth of bear. Grotto of Duruthy, southwestern France.
Fig. 3. Engravings of a man, horses, aurochs, and snake or eel on reindeer horn. La Madeleine, Dordogne, France.

Cast of the Engis Skull, discovered by Dr. Schmerling in the Cavern of Engis, near Liege, Belgium, in the year 1833. It was of this skull that Professor Huxley said that it might have belonged to a savage or a philosopher.

## NEOLITHIC OR POLISHED STONE AGE.

The name Neolithic was given by Sir John Lubbock to the later stone age to distinguish it from the earlier, the Paleolithic or Chipped Stone Age. Many of the stone implements, after being chipped or pecked into shape, were smoothed or polished by grinding. Some, such as scrapers, arrow and spear heads, were always chipped and not polished. This period introduces a new civilization—that of a sedentary and agricultural people, with flocks and herds, plants, fruits, textiles, and pottery. Tribal organizations were formed, religious sentiments manifested, the dead buried, and funeral monuments erected.

Forty-four flint objects from workshops in Great Britain and Ireland, showing the mode of manufacture. Cores and flakes of black flint fitted together as in the original block, with knapping hammer, from modern gun-flint workshops at Brandon, Suffolk. (Fig. 7.) Prehistoric blades and flakes, scrapers, discs, hatchets, chisels, and poignards, polished and partly polished, from Cissbury, southern England, and from Ireland. Arrowheads of various forms.

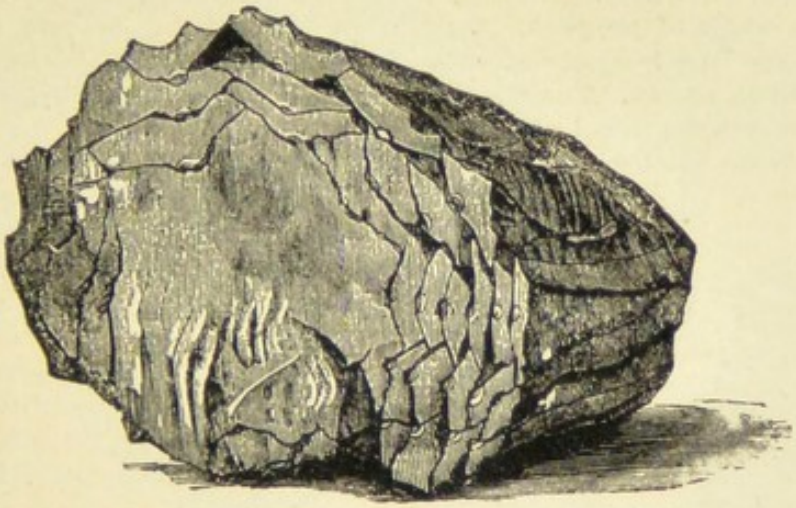


Fig. 7.

FLINT CORE, WITH ITS BLADES AS STRUCK, IN PLACE.

Brandon, England. Evans's Ancient Stone Implements of Great Britain.

Nineteen worked flint implements from the Prehistoric workshops of Grand Pressigny, near Tours, France. Large cores (*livres du beurre*), hammers, blades, flakes, daggers, and points. All of the yellow flint of Grand Pressigny.

Eighteen implements and objects from the Prehistoric flint quarries and workshops of Spiennes, Belgium. Unpolished hatchets, cores, blades, flakes, hammers, etc.

Thirty-three flint implements, many of them from Prehistoric workshops in Scandinavia. Cores, hammers, blades, flakes, scrapers, crescents, daggers, arrow and spear heads.

Sixty-two flint implements and objects from eastern and northern Italy. Small cores, flakes, scrapers, discs, points, and beautiful arrowheads.

Ten flint and obsidian cores and flakes. From Syria, 2 specimens; Island of Crete, 4 specimens; Island of Milo, 4 specimens.

Seventy-one flint flakes and points discovered by Mr. W. Flinders Petrie at Kahun in the Fayum, Lower Egypt, in 1889. Many of these show signs of use. They belong to the time of Amenentop III, of the Twelfth Dynasty, about 2650 B. C., and are probably the earliest Prehistoric specimens to which an historical date can be given.

Seventeen obsidian cores and blades from Mexico and Central America (fig. 8). The blades are thin, sharp, and beautifully made. Large worked flakes, scrapers, arrow and spear heads of flint and obsidian.

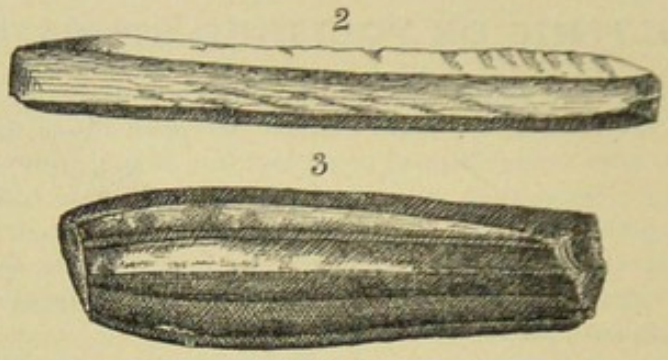



Fig. 8.

OBSIDIAN CORE AND FLAKES.

Mexico.

Twelve specimens of drilled axes from Europe. These are plentiful in the Swiss lakes and in Scandinavia. In Europe the drilled axes take the place of the American grooved axes. These specimens show different kinds of drilling, and different stages of progress. Some were drilled from one side, others from both. Some have been drilled with a hollow bit, and a number of entire cores thus made are shown. These implements belonged to the Neolithic period, but continued into the Iron Age.

Six chipped stone hatchets from Europe and Asia. These have been first chipped into shape ready for grinding, and then polished. The series shows the process of manufacture. The first (fig. 9) is rudely and the second (fig. 10) finely chipped; the third (fig. 11) is partly and the fourth (fig. 12) entirely polished; the fifth (fig. 13) is rechipped to an edge and the sixth (fig. 14) reground.

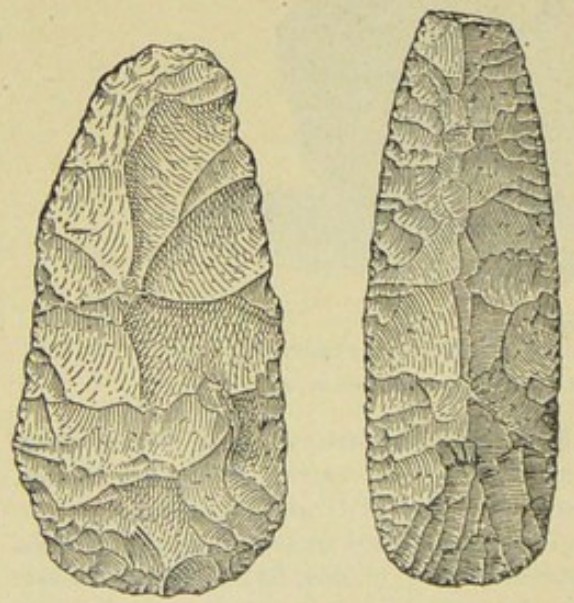


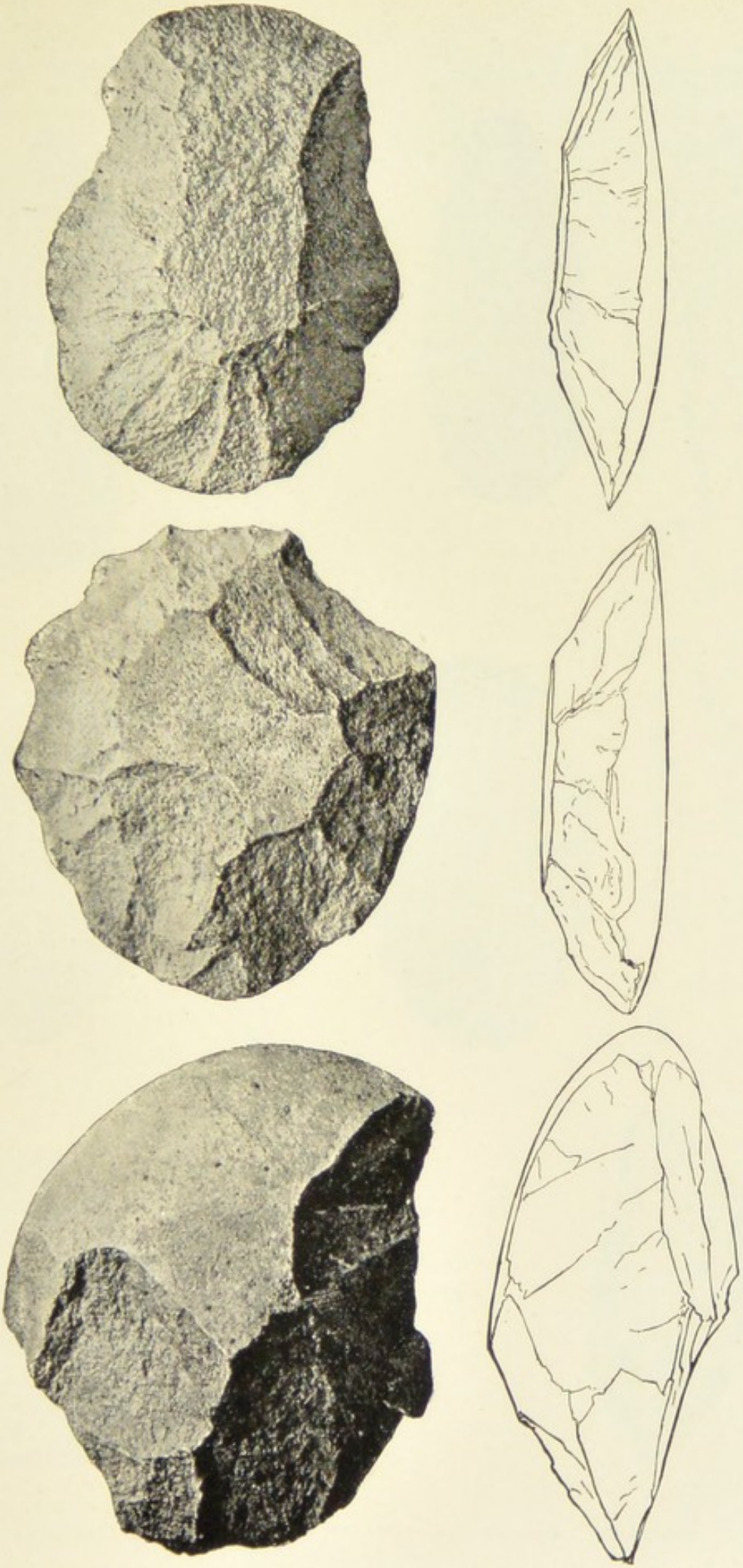
Fig. 9. Fig. 10.

POLISHED STONE HATCHETS OF FLINT.

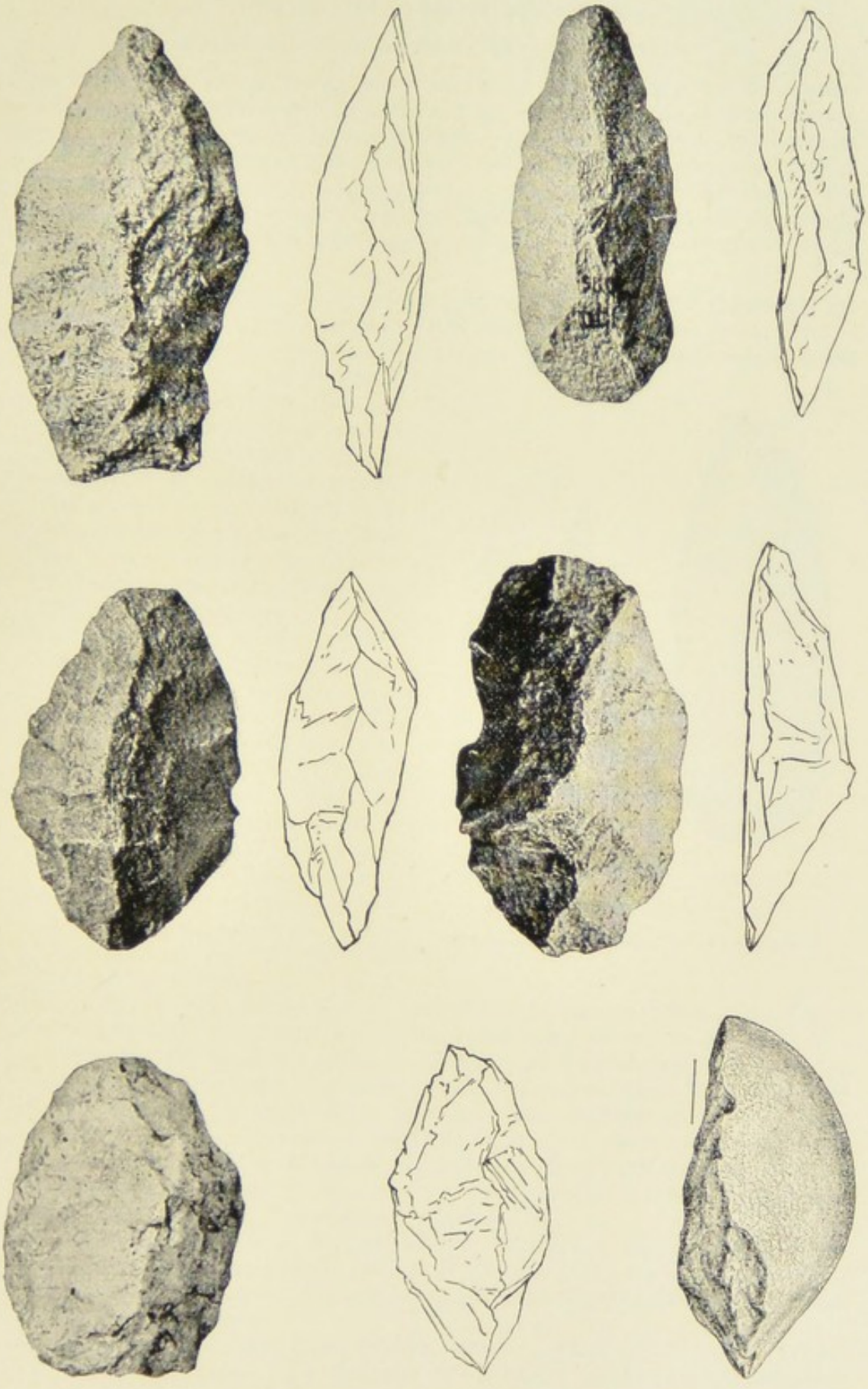
Showing process of manufacture, Europe (after Mortillet).

Stone hatchets in process of manufacture, chipped but not yet ground or polished, from the United States of America. Similar objects belonging to prehistoric times are found in nearly every country.

Polished stone hatchets are representative implements of the Neolithic period throughout the world. They vary greatly in size. They were intended for the same general purpose as the grooved ax, and the same remarks as to material and mode of manufacture apply. On the coast and among the islands similar hatchets were made of shell (fig. 16). Polished stone hatchets were inserted in wooden handles, though in the Lake Dwellings of Switzerland horn was used as an intermediary. Nearly every country is represented. Eighteen specimens from Europe; 9 specimens from Asia; 11 specimens from the United States and Canada (fig. 15); 2 specimens from Mexico; 6 specimens from Central America; 6 specimens from West Indies; 5 specimens from South America. Total, 57 specimens.



PALEOLITHIC (?) IMPLEMENTS FROM THE DISTRICT OF COLUMBIA. QUARTZITE.
Chipped on one side only.



PALEOLITHIC (?) IMPLEMENTS FROM THE DISTRICT OF COLUMBIA. QUARTZITE.
Chipped on both sides.
(Half natural size.)

## UNITED STATES OF AMERICA.

### EVIDENCES OF THE EXTREME ANTIQUITY OF MAN.

The existence of man on the American continent during a stage of culture corresponding to the Paleolithic period in Europe has been the subject of much dispute among American anthropologists and geologists. The investigations in this respect in the United States of America have not been so profound as in Europe, and anthropologists are not unanimous concerning the conclusions to be drawn therefrom. The contemporaneity of the periods in the two hemispheres has not been universally accepted, nor has the relationship of the men who made or used the implements been established.

Implements similar in form, style, and manufacture to those of the Paleolithic age from European countries have been found in the United States, which, if found in Europe, would be accepted as belonging to that age. These have been found by the hundred in every section of the United States on the surface and at varying depths in the gravels of several rivers, and in the Pleistocene deposits. Flint, argillite, and quartzite were the materials mostly used. The implements are rude and thick and always chipped. Twenty-one implements from every part of the United States are shown.

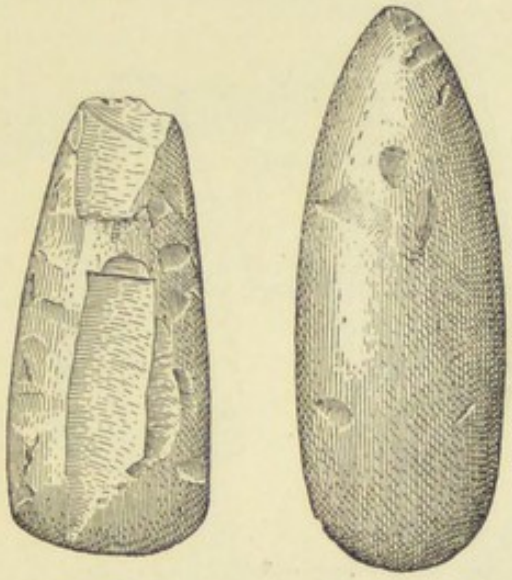


Fig. 11. Fig. 12.

POLISHED STONE HATCHETS OF FLINT.

Showing process of manufacture, Europe (after Mortillet).

Fossil human thorax. Seven vertebra with corresponding ribs and sternum, from Osprey, Sarasota Bay, Manatee County, Fla. The bones are fossilized. They were found on the seashore incased in indurated ferruginous sandstone. The two pieces of stone belong together and form one subject; they were broken in extraction. The sandstone was overlaid by surface deposits 1½ to 3 feet. Geologists assign it to the Quaternary period. Found by Judge John G. Webb.

Fossilized human skull, turned to iron. From Osprey, Manatee County, Fla. Found in 1868 at a depth of 2 or 3 feet in the undisturbed subsoil in proximity to a shell heap. The skull was accidentally broken at its discovery. The skeleton was in place. The bones were sent forward, but some of them were lost. Part of them are now in the Peabody Museum. The skull and other bones were turned to limonite (hydrous sesquioxide of iron) by process of fossilization. The measurements of the skull are: Glabella to occipital protuberance, 170 mm.; breadth above the auditory meatuses, 131 mm.; breadth of the forehead at temporal ridges, 102 mm. Found by Judge John G. Webb.

Fossilized human thigh bone, changed to iron. A piece of limonite (hydrous sesquioxide of iron) containing a portion of a human thigh bone which has itself been changed to limonite. From Sarasota Bay, Florida. Collected by Col. Joseph Wilcox, of Philadelphia.

Rock formation from Sarasota Bay, Florida, containing fossilized shell of (1) Venus, (2) Pecten, (3) Fasciolaria tulipa, and others overlying the limonite formation containing the human remains from the same locality. These shells belong to the Quaternary Geologic period as well as to the recent. Collected by Col. Joseph Wilcox, of Philadelphia.

Fossil pyrula shell, bearing a prehistoric engraving of a mastodon. This shell was found in a peat bed near Claymont, Del., by Mons. Surault. It was associated with prehistoric objects of stone and bone. It bears an engraving or etching in outline of a Mastodon, and has every appearance of antiquity. The species of shell is native to the Atlantic coast of the Southern United States.

Chert implements of human manufacture said to have been taken from the Equus beds of San Diego, Tex. The Equus beds belong to the Quaternary Geologic period and contain fossil bones of the Mylodon, Megalonyx, Equus, Elephas, and other extinct animals. Late investigations by Mr. H. C. Mercer causes the belief that these implements were on and not in the Equus deposits.

Prehistoric implements found in the auriferous gravels under Table Mountain, California. In past geologic ages, the Stanislaus River ran in a different channel, 2 or 3 miles distant from the present channel, and at nigh 2,000 feet greater altitude. This ancient channel was of coarse gravels brought down from the mountain, and they contain the gold that has given the State the name of El Dorado. The gravels reached a thickness in many places of 200 feet, and became indurated, possibly the result of an outflow of volcanic mud or cement. After this an eruption of volcanic basalt ran down the stream, filled the channel, and covered it and the adjacent country with a sheet of lava hundreds of feet in thickness. It is sometimes divided into layers. This eruption, aided possibly by subsequent glaciers, displaced the stream and drove it to its present channel. All this happened at such a distant period of time as that the new channel has since been eroded nigh 2,000 feet below the lava cap. The gravels in the ancient channels are now pierced by shafts and tunnels in search of gold. These explorations are declared to have brought to light human and animal remains and objects of human industry, which, if true, demonstrates the high antiquity of man in America.

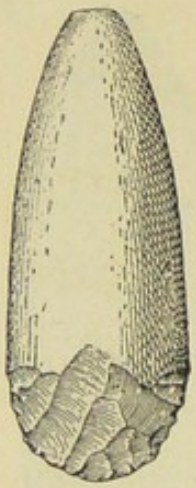


Fig. 13.

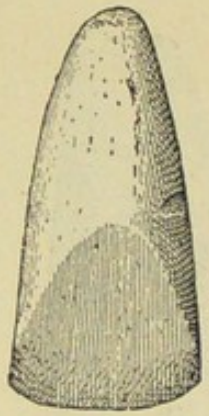


Fig. 14.

POLISHED STONE HATCHETS OF FLINT.

Showing process of manufacture, Europe (after Mortillet)

Mortars and pestles. From under the lava beds of Table Mountain, California. This mortar and pestle were, with other stone mortars and several obsidian spearheads, found by Mr. J. H. Neale in the Montezuma Tunnel, 1,500 feet distant from its mouth and 300 feet under the solid lava cap of Table Mountain. Collected by Dr. R. I. Bromley, of Sonora, Cal., and Mr. George F. Becker, Geological Survey, Washington, D. C. (Bul. Geol. Soc. Amer., Vol. II, p. 189.)

Calaveras skull. From "The auriferous gravels of the Sierra Nevada of California." (Mem. Museum Comp. Zoology, Harvard College, by J. D. Whitney.) This broken skull was found in Calaveras County, Cal., February, 1866, in the auriferous gravels 132 feet beneath the surface, in a shaft while digging for gold. There were four layers of volcanic lava over it, 40, 30, 15, and 9 feet, respectively, with intermediate layers of gravel. According to Professor Whitney it was a Pliocene deposit; others have denied this and have assigned it to a much later date, but, without discussing the age of the deposit, it is believed to be of high antiquity and belonged to a past geologic period. The authenticity of the skull has been attacked, but favorable evidence is accumulating; objects of undoubted human industry are being found in the same horizon, and disbelief in its genuineness is passing away. The original skull is in the Museum of Comparative Zoology at Harvard College, Cambridge, Mass.

Polished stone pestle. This implement came from the cemented auriferous gravel under the basalt or lava cap of Table Mountain, California. The finder was Mr. Clarence King, then director of the Geological Survey of the United States. He found it in place while searching for fossils. It is fine-grained diabase. No doubt can exist as to the authenticity of the implement, its being of human industry, or its extraction from the original place of deposit.

Stone implements from the auriferous gravels of California. These are enigmas of prehistoric science in North America. If any reliance can be placed in human testimony, we must believe that these, with mortars and similar objects to the number of several hundred, have been found under volcanic lava beds, and that they belong to a past Geologic period. If thus found, they are among the earliest known implements made by man, and yet they would seem to be of the Neolithic or Polished Stone civilization, and so would belong to prehistoric man

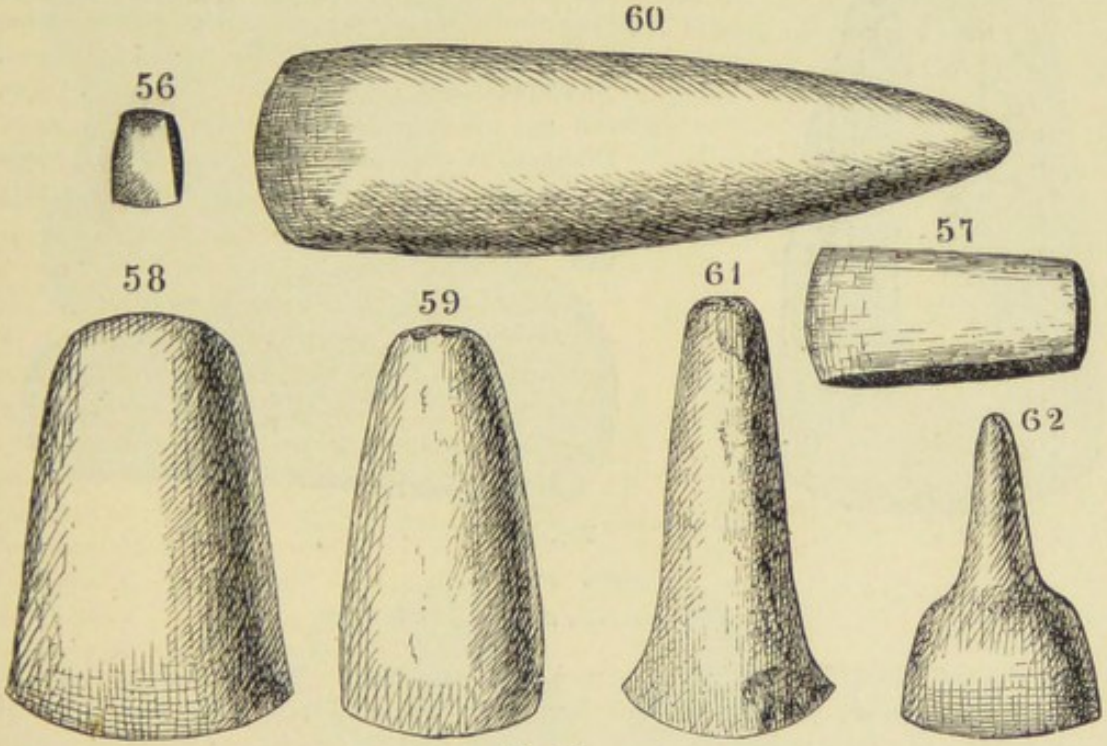



Fig. 15.

POLISHED STONE HATCHETS.

56, hematite, Ohio; 57, greenstone, Indiana; 58, syenite, Illinois; 59, greenstone, Tennessee; 60, chloritic slate, Tennessee mound; 61, yellow flint, Louisiana; 62, greenstone, North Carolina.

in the present Geologic period. The objects are mortars and pestles of hard stone, obsidian leaf-shaped implements, steatite bowls, ladles, and platters, hammers or sinkers with a pecked groove around. These contradictions must await the investigation of the geologist and paleontologist as well as the archæologist.

Obsidian spearhead from the Walker River Canyon, in the extinct Quaternary Lake Lahontan. Found by Mr. W J McGee, of the Geological Survey, in undisturbed clay deposits, 25 feet beneath the surface, and "associated in such manner with the bones of an elephant or mastodon as to leave no doubt as to their having been buried at approximately the same time." (Geological History of Lake Lahontan, Vol. XI, p. 246.) Professor Gilbert, chief of the geologic work, says (Anthrop. Journal, Washington, Vol. II, October, 1889, p. 312): "This object was indubitably made by man; was from a well-determined date (the second occupation by an ice sheet of the Laurentian basin). It was found in situ and by a trained observer, who recognized the importance of his discovery before he disturbed the matrix inclosing the implement."

The second obsidian spearhead was found in the débris of an excavation in Mono Lake, California, in marls of the same age as those of the Walker River Canyon, and which Mr. McGee says are "presumptively Quaternary."

The third obsidian spearhead was found projecting from the face of a precipice of Columbia (early Quaternary) loam at the head of Chesapeake Bay, Maryland.

These objects were all collected by Mr. McGee, who, while admitting their evident human origin, does not accept them as evidence of the contemporaneous existence of man.

Obsidian spearheads. These, with other prehistoric implements, are found in abundance in the sandy bed of an extinct lake in southeastern Oregon. It has been named Fossil Lake, from the number of fossil remains of birds and animals found therein belonging to the Quaternary Geologic period. The implements are so intimately associated with the fossils as to indicate their contemporaneous deposit. Two specimens, collected by Prof. E. D. Cope.

Section of prehistoric rock-shelter, Claymont (Naaman's Creek), Del. The structure is shown in the sectional drawing. There was a cavity

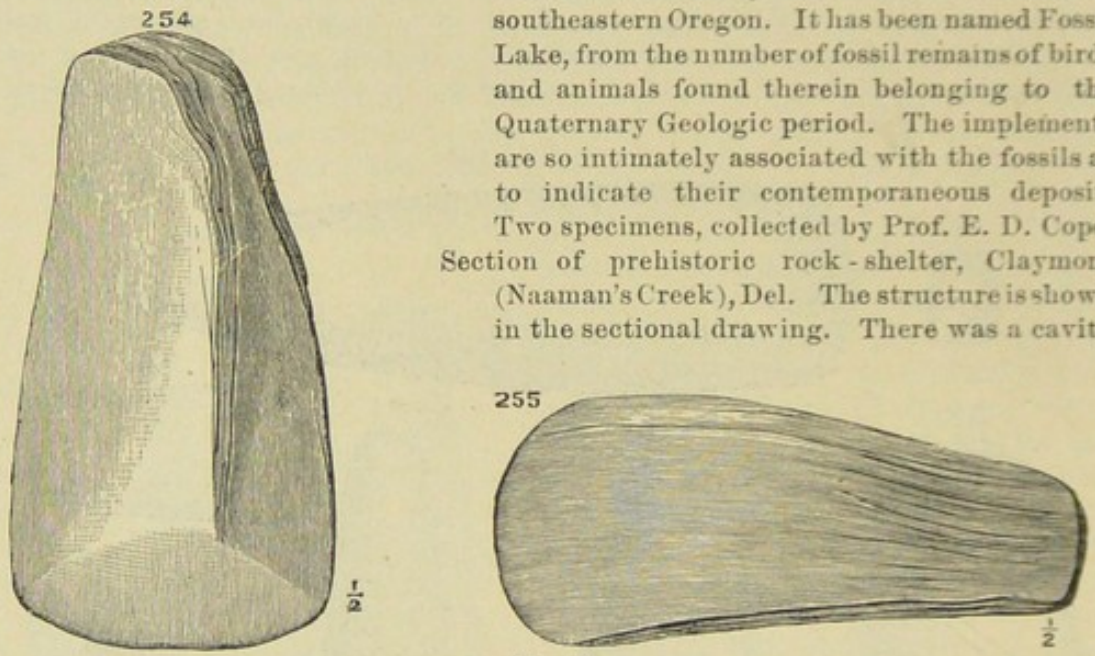



Fig. 16.

SHELL HATCHETS.

Like those of polished stone: 254, Florida; 255, Kentucky.

in the solid rock 20 or 30 feet wide and 5 or 6 feet deep. It has been occupied by prehistoric man, and the various layers, with their débris, show the different periods. Layers B, D, F, and H contained prehistoric implements, of which those in the three trays B, D, and H are samples. The upper layers contained arrowheads, pottery, and objects identical with the neolithic culture, while the lower layers contained large, rude implements resembling those of paleolithic culture. Collected by Dr. Hilborn T. Cresson, of Philadelphia.

Tray I, Layer B:
- Paleoliths, quartzite ..... 2
- Paleoliths, argillite ..... 6

Tray II, Layer D:
- Small, rudely chipped implements, arrow and spear heads, broken points, flakes, etc ..... 35

Tray III, Layer H:
- Small, rude implements of quartzite, jasper, etc., arrow and spear heads, scrapers, worked flakes, lower part of polished hatchet, and fragment of pottery ..... 38

(See Proceedings Boston Soc. Nat. Hist., Vol. XXIV, p. 141 et seq.)

Rough, chipped, unpolished stone axes or adzes, notched on both edges, many specimens showing that the notches were used by means of a withe or thong apparently for the attachment of a handle. They are mostly of porphyritic

felsite (fig. 17), quartzite (fig. 18), and hard clay slate. These are found principally on the Atlantic seaboard from Massachusetts to Georgia, though they have

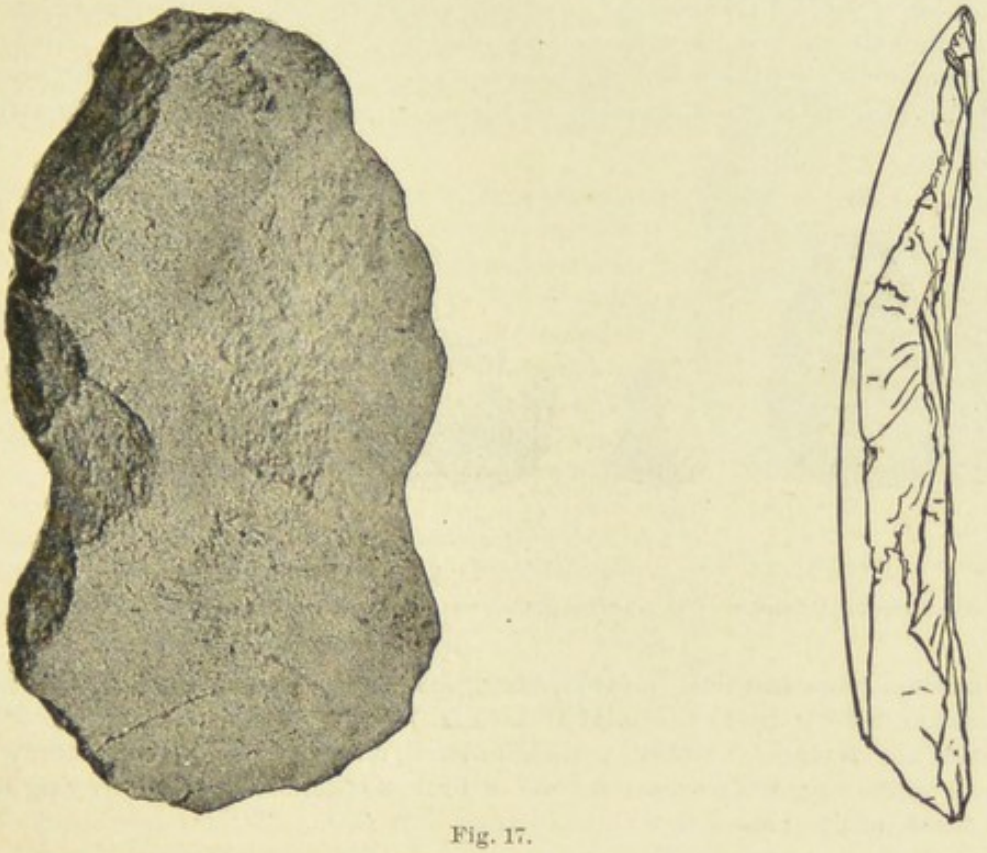


Fig. 17.

RUDE NOTCHED AX.

District of Columbia. Quartzite. Half natural size.

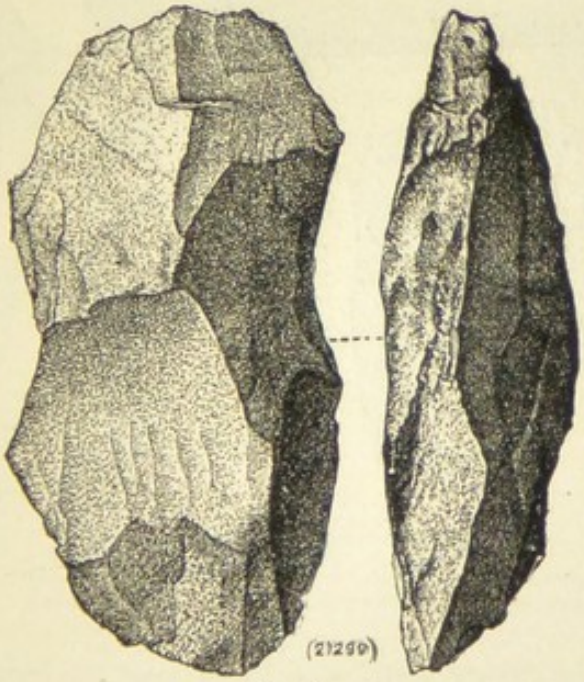


Fig. 18.

RUDE NOTCHED AX, PORPHYRITIC FELSITE.

Raleigh, N. C.

been found in the West. They may have been the precursor or ancestor of the grooved stone axe of North America.

PREHISTORIC IMPLEMENTS OF USUAL FORM.

Scrapers. These are of various forms and material (fig. 19). (*a*) Disk shaped, chipped both sides and all around. (*b*) Long round end, the scraping edge beveled from one side, the lower surface being formed by a continuous fracture. This form is common all over the world and has continued without change from prehistoric into modern times, the Eskimo of to-day using similar implements inserted in




Fig. 19.

SCRAPERS.

38, gray flint, Texas; 39, hornstone, Ohio; 40, yellow jasper, Ohio, with arrowhead stem; 41, chalcedony, Texas, chipped round.

wooden or ivory handles. (Mason, Aboriginal Skin Dressing, Rep. U. S. National Museum, 1889, p. 553, Pl. LXXII to LXXIX.) (*c*) Forms peculiar to the United States are stemmed, notched, and shouldered, and their similarity to arrow and spear heads suggests a secondary use of broken specimens. The scraping edges of these, unlike class *b*, are chipped from both sides. Twelve specimens.

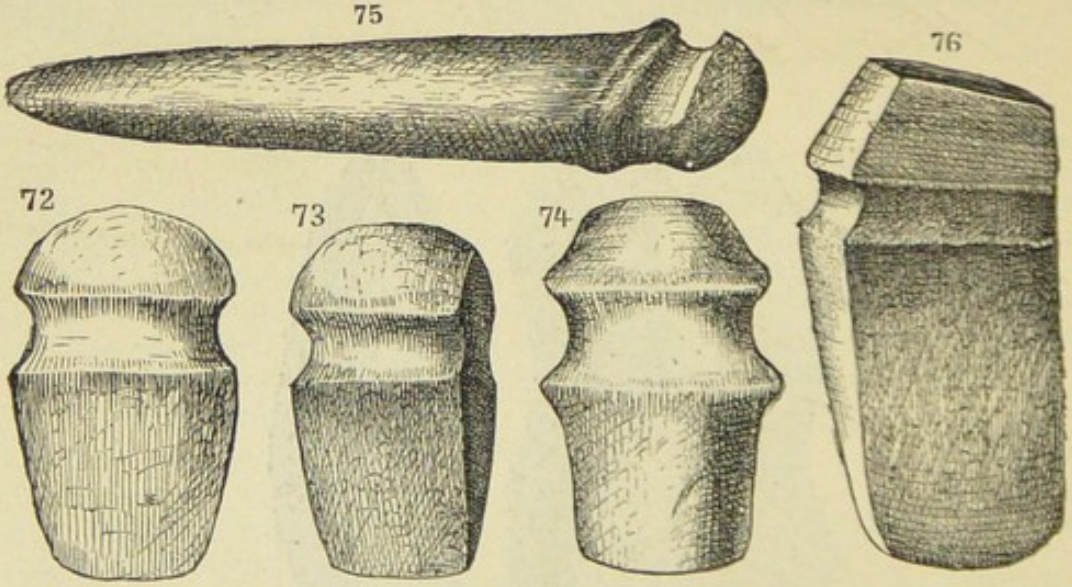



Fig. 20.

GROOVED STONE AXES.

72 greenstone, Massachusetts, groove all around; 73, greenstone, Arizona, flat back; 74, greenstone, South Carolina, groove all around, projecting ridges; 75, Wisconsin, oblique groove; 76, greenstone, Alaska, square with flat back.

Grooved stone axes (fig. 20) are distributed throughout the United States, and are not found in Europe. The groove is transverse and was for the attachment of a handle by a thong or withe. The material differs with the locality, but granite, trap, and rocks that would not flake were used. Water-worn pebbles served as well as quarried rock. They were chipped or pecked into shape according to material, and if smoothed or polished it was done by rubbing or grinding.

Grooved stone axes have been classified as follows: (1) Grooved either wholly or partially, some with projecting wings. (2) Flat back for insertion of tightening wedge. (3) Double bitted. (4) Hematite from valleys of Mississippi River and its tributaries. (5) Actinolite from the Pueblos of the Southwest. (6) Winged and horned, from the West Indies and Central America. (7) Longitudinal flutings on the bit. Eighteen specimens.

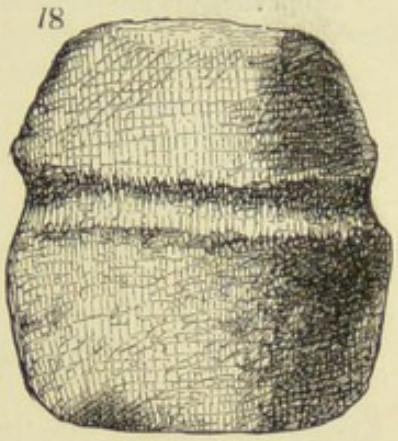



Fig. 21.

GROOVED MAUL OF GRANITE.

Colorado. Weight, 11 pounds.

Eight specimens of grooved stone axes from Central and South America and West Indies. There is a certain resemblance between the grooved axes of these countries and those of the United States, while they bear no resemblance to European implements. They are chipped or pecked into shape and then ground or polished as in the United States. The grooves are different, forming wings or horns, while the edge is practically the same.

Mauls. Large quartzite pebbles bearing a groove for attachment of handle by means of a withe (fig. 21). These were used in the mines and quarries to break open the rock. They are principally from Lake Superior and the Rocky Mountains.

Adzes. These are, apparently, only a variation in form and use from the grooved ax and polished stone hatchet and gouge. They are rare. Their distribution

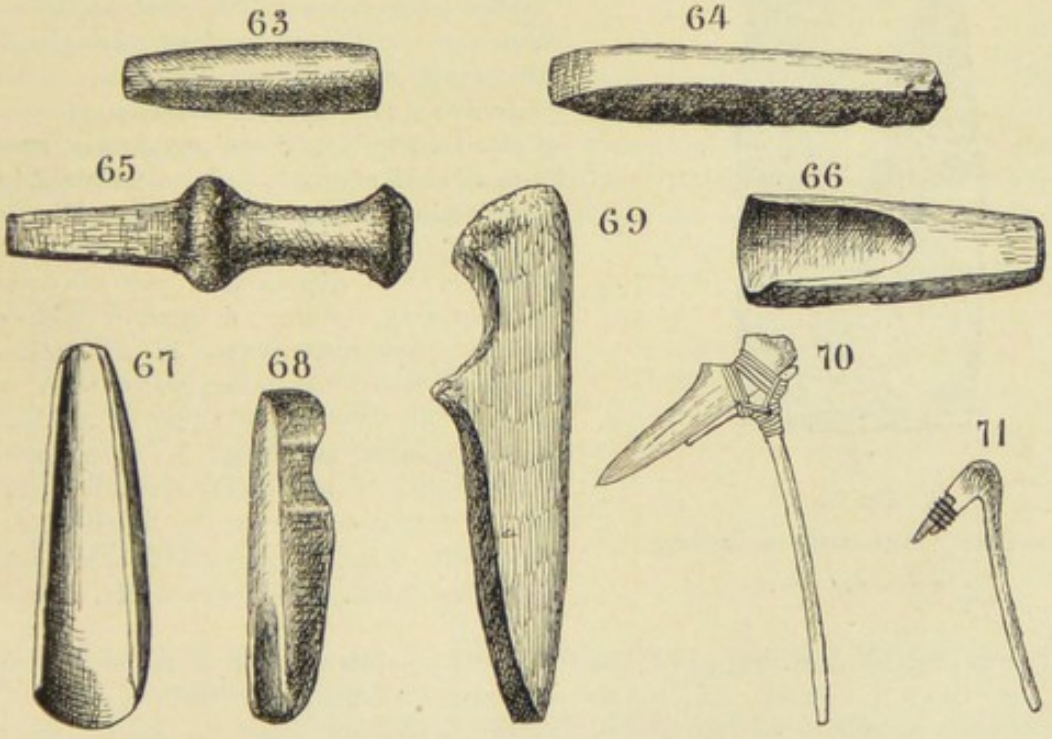



Fig. 22.

CHISELS, GOUGES, AND ADZES.

63, chisel, diorite, Ohio; 64, chisel, lydite, New York; 65, chisel, basalt, Unalaska; 66, gouge, hornstone, New York; 67, gouge, Pennsylvania; 68, gouge, greenstone, Massachusetts; 69, adz, hornstone, British Columbia; 70, adz, greenstone, Oregon; 71, adz, serpentine, Northwest Coast.

in the United States seems to be limited to the northeast Atlantic and northwest Pacific coast (fig. 22, 69–71).

Gouges. These are similar to the grooved axes and polished stone hatchets in material, mode of manufacture, and in every way except form. They were probably handled and used in the same manner. Those of the southern coast and the West Indies are of shell. They are more plentiful in the Atlantic States, and are perhaps confined to that area (fig. 22, 66–68).

Chisels. These, as will be apparent from examination of the figures, are but variations of the polished stone hatchet. Indeed, if the hatchet without a handle be taken in the hand and used in connection with the mallet, no reason is seen why, except in size, it and the chisel may not have served the same purpose. They are brought to a smaller or narrower edge than was the hatchet. The sides, whether round or square, are nearer parallel, while the head is not pointed but is large enough to receive a blow from the mallet. Nos. 63 (diorite from Ohio) and 64 (lydite from New York) are typical chisels from the interior eastern States, while 64 (of basalt and of a peculiar shape) is marked in the collection as an "ice chisel," from Unalaska Island.

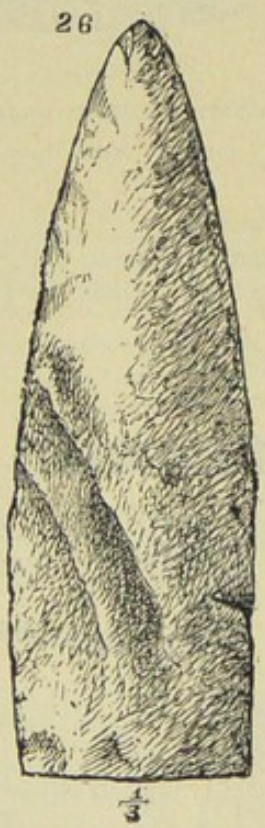



Fig. 23.

ARGILLITE LEAF-SHAPED IMPLEMENT.

Cache in Chester County, Pa.

Bunts. An arbitrary name given to this object, having no relation to any supposed use. They resemble somewhat the chipped and unpolished stone hatchet. They are of white chert of Missouri and Illinois, but are peculiar in that they are flat on one side, showing the fracture from the nucleus unwrought, all chipping being on the opposite side, after the manner of scrapers.

Caches. Chipped implements of leaf-shaped and other forms have been found en cache in various parts of the United States. Most of them are leaf-shaped in form, though some are oval and others round. Many are of flint, quite thin, and finely finished; others of quartzite, are larger and naturally ruder. Some of chalcedony have been wrought into spearheads with stem and barb. They are larger than usual and evidently completed weapons. No explanation yet given will satisfactorily account for them in their condition. They were placed in the cache in different positions, but always with regularity, on the flat, or edge, in circles or parallelograms, separate or overlapping. The number in the caches vary from 10 to 100 or 200, though that in Mound No. 2, Hopewell farm, near Chillicothe, Ohio, contained 7,232. (See fig. 9, Mr. Mercer's report.)

Sixty-one argillite leaf-shaped implements, part of a cache of 95 found at Marshallton, Chester County, Pa., by Mr. Edward T. Ingram, in 1890 (fig. 23). The cache is sought to be reproduced and the implements shown as in the original deposit. The top layer was disturbed by the plow.

A cache of leaf-shaped quartzite implements from the bank of the River Wautanga, Carter County, northwest Tennessee. It consists of 18 pieces, 7½ to 9 inches in length, 3 to 3½ in width, and five-eighths to seven-eighths in thickness. They were buried 2 feet below the surface, laid on the flat side and arranged in a circle with the points to the center, the cache being about 2 feet in diameter. The hole in which they were deposited was dug through the soil and into the hard yellow clay. Nothing was found associated with them, although there was an aboriginal cemetery in the neighborhood. Deposited by Thomas Wilson.

A cache of chalcedonic spearheads from the valley of the Little Missouri, Pike County, southwest Arkansas. The excavation in which they were buried was in yellow clay at 2 or 3 feet deep. They were laid side by side with edges overlapping. They varied in size from 5½ to 9 inches in length, 2¼ to 3½ in width, and one-half to five-eighths in thickness. Deposited by Thomas Wilson.

Chipped flint disks. These are peculiar to the Mississippi, Ohio, Tennessee, and Cumberland River valleys. Their use is unknown. They are of coarse, black flint, made from nodules, are always chipped, never polished, and the edges sometimes show signs of wear (fig. 24). They have usually been found cached in mounds and other prehistoric works. These implements have been found in Ohio in caches containing 8,000 specimens, in Illinois of 5,000, 3,500, down to 50.

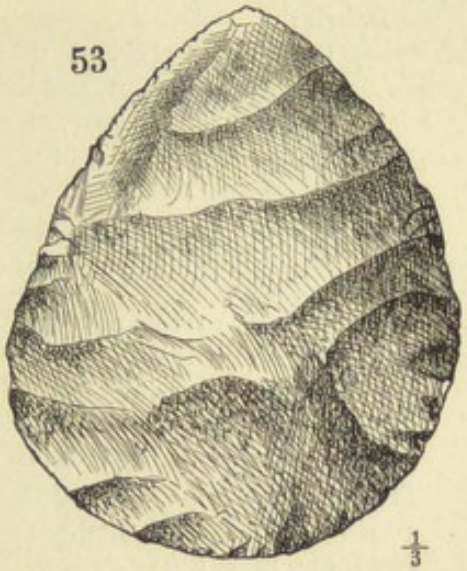



Fig. 24.
CHIPPED FLINT DISK.
Cache in Cass County, Ill.

Prehistoric quarries and workshops at Flint Ridge, in Licking County, Ohio, near the eastern boundary, equidistant from the towns of Newark and Zanesville. Flint Ridge is a stratum of flint, continuous with the ferruginous limestone of southeastern Ohio, lying on the Putnam Hill sandstone of the Ohio survey. The stratum of flint is from 4 to 8 feet in thickness and from 4 to 10 feet beneath the surface. It is about 8 miles east and west and 2 miles north and south. It is irregular in shape, having been much eroded by small streams. The prehistoric quarries were made by sinking shafts through the surface clay and then working out the flint by means of fire and water. The pieces were broken up and carried to the workshops in the immediate neighborhood and there worked into utensils and implements, making or leaving the débris of material both of which are here shown:

| | |
|---|---|
| Hammers | 8 |
| Material | 4 |
| Large chipped implements (rude) | 14 |
| Small chipped implements (rude) | 40 |
| Leaf shaped implements (thin) | 16 |
| Perforators, scrapers, arrowheads, etc | 37 |
| Cores | 16 |
| Flakes | 41 |
| | 176 |

Trays, containing flint chips, implements, arrowheads, etc., showing the distribution of material in the workshops.

Some localities of the neighborhood were strewn with ruder and heavier material, while others had a profusion of small and fine chips, flakes, and débris. The latter were mostly on the high bluffs overlooking the valleys below, and from which position one could see far over the adjoining country. On these points the flints, chips, flakes, etc., were in such profusion as to prevent the grass forming a sod. I chose one of these spots and dug it out 10 by 12 inches square, 14 inches deep to the bottom of all flint débris and then washed out the earth. The flints were 7 inches deep and the earth 7 inches — half and half. The specimens from this hole are shown in the two trays in the case. They are as follows:

| | | |
|---|---|---|
| Complete and perfect arrowheads | | 51 |
| Leaf-shaped: | | |
| Perfect | 9 | |
| Imperfect | 16 | |
| | | 25 |
| Cores: Finely wrought | | 15 |
| Rude lumps of flint | | 34 |
| Débris: | | |
| Hard-burnt clay, small | 2 | |
| Pebbles, not flint, small | 13 | |
| Bits of wood, small | 5 | |
| Chips and spawls, flint | 3,149 | |
| | | 3,169 |
| Total contents of hole | | 3,294 |

Hammer stones are smooth, flat, or oval pebbles, nodules or rude pieces of broken stone, usually of the material nearest at hand, used as hammers or pounding stones for striking flakes, chips, etc., from a core or nucleus, or for pounding or pecking (attrition), by means of which stone implements are made into the desired shape (fig. 25). They are usually taken loosely in the hand and, if a rude piece, by turning so as to present a new surface for each blow, the corners are gradually worn off, and the hammer becomes round; if a smooth pebble, the edges become roughened. Specimens which have served as hammers show a small cup marking or depression on one or both sides, which have been thought to be for reception of thumb and finger. Their distribution is general throughout all prehistoric ages and countries.

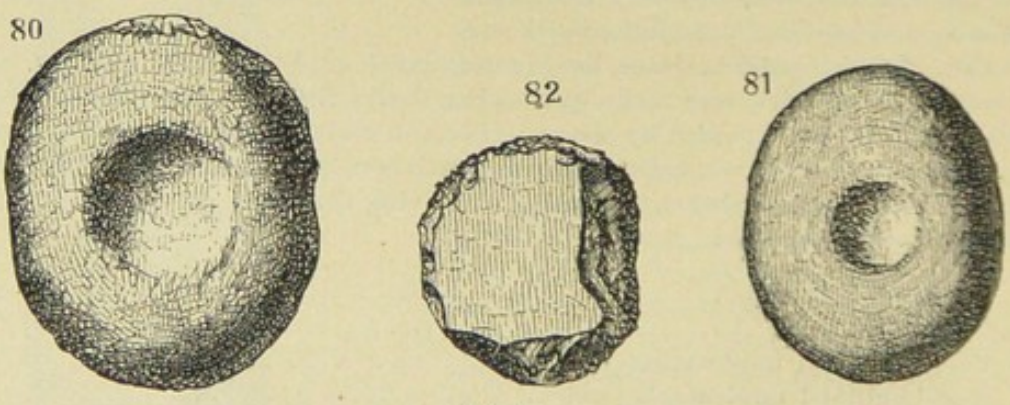



Fig. 25.

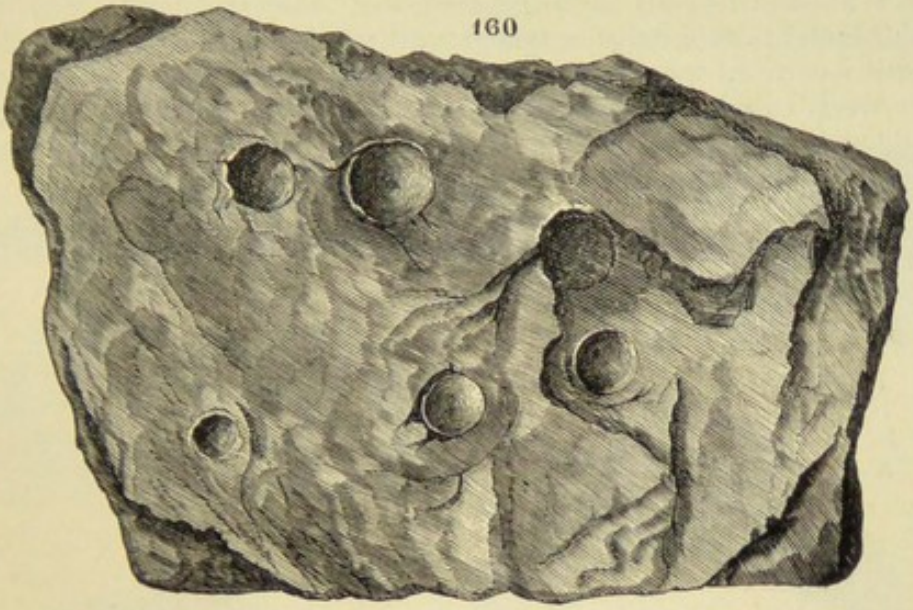
HAMMER AND PITTED STONES.

80 to 82, ⅓ size. 80, quartzite, New York; 81, quartzite, Pennsylvania; 82, flint, Flint Ridge, Ohio.

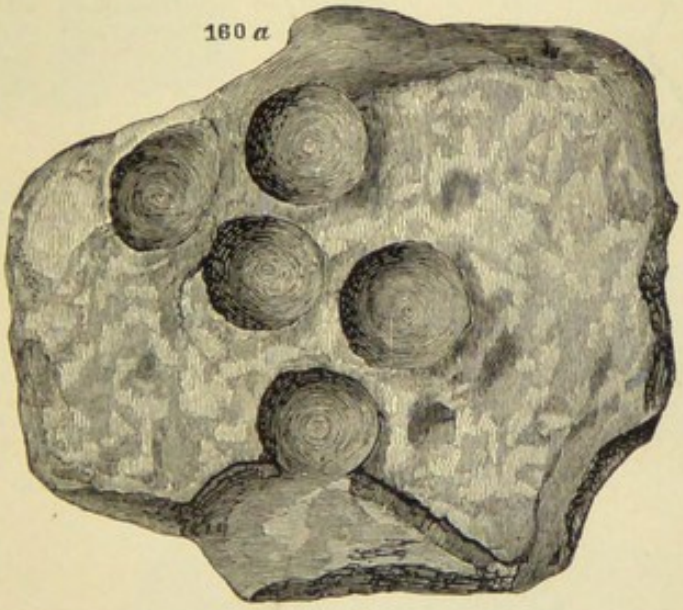
Pitted stones are mostly flat or oval pebbles, the larger proportion of which in the eastern United States are of quartzite (fig. 25). They are similar in size and appearance to some hammer stones. They receive their name from a worked depression or cup-marking in the center of one or both sides, which have been thought by some persons to be (1) for holding with thumb and finger for use as a hammer; (2) made by hammering on another stone as a punch; (3) by cracking nuts. They are probably related to cup stones proper, and like them their use not satisfactorily determined.

Cup stones. Stones large and small are found marked by a depression, smooth or rough, varying in diameter from 1 inch to 4 or 5, and in depth from a slight hollow to a hemisphere (fig. 26). Small pebbles may have but one such depression or one on each side, when they are called pitted stones, but larger pebbles, even bowlders of many tons, or solid rock, as in the Carpathian and Himalaya

mountains, have hundreds of these markings, when they are called "cup stones." The National Museum has one from Wheeling, W. Va., with fifty-three cup markings thereon. Their distribution is general throughout the prehistoric world and their use or purpose has never been satisfactorily determined.



160



160 *a*

Fig. 26.

CUP STONES.

160, sandstone, Pennsylvania; 160*a*, sandstone, Kentucky.

## CLASSIFICATION OF ARROW AND SPEARHEADS.

The primary divisions of arrow and spearheads or knives are as follows:

I. Leaf shaped, classes A, B, C.
II. Triangular.
III. Stemmed, classes A, B, C.
IV. Peculiar forms, classes A, B, C, D, E, F, G.

I. Leaf shaped. This division includes elliptical, oval, oblong, and lanceolate forms bearing any relation to the shape of a leaf, and without stem, shoulder, or barb.

Class A is pointed at both ends. They are widest from one-third to one-fourth the distance from the base. Eleven specimens.

Class B is more oval, more or less pointed, with concave, straight, or convex base. Five specimens.

Class C is long, narrow, with parallel edges, concave, straight, or convex bases, and belongs principally to the Pacific Coast. Five specimens.

II. Triangular. This division includes all specimens which, according to geometric nomenclature, are in the form of a triangle, whether the bases or edges be convex, straight, or concave. They are without stems and, consequently, without shoulders, although in some specimens the extreme concavity of the base produces barbs. Eleven specimens.

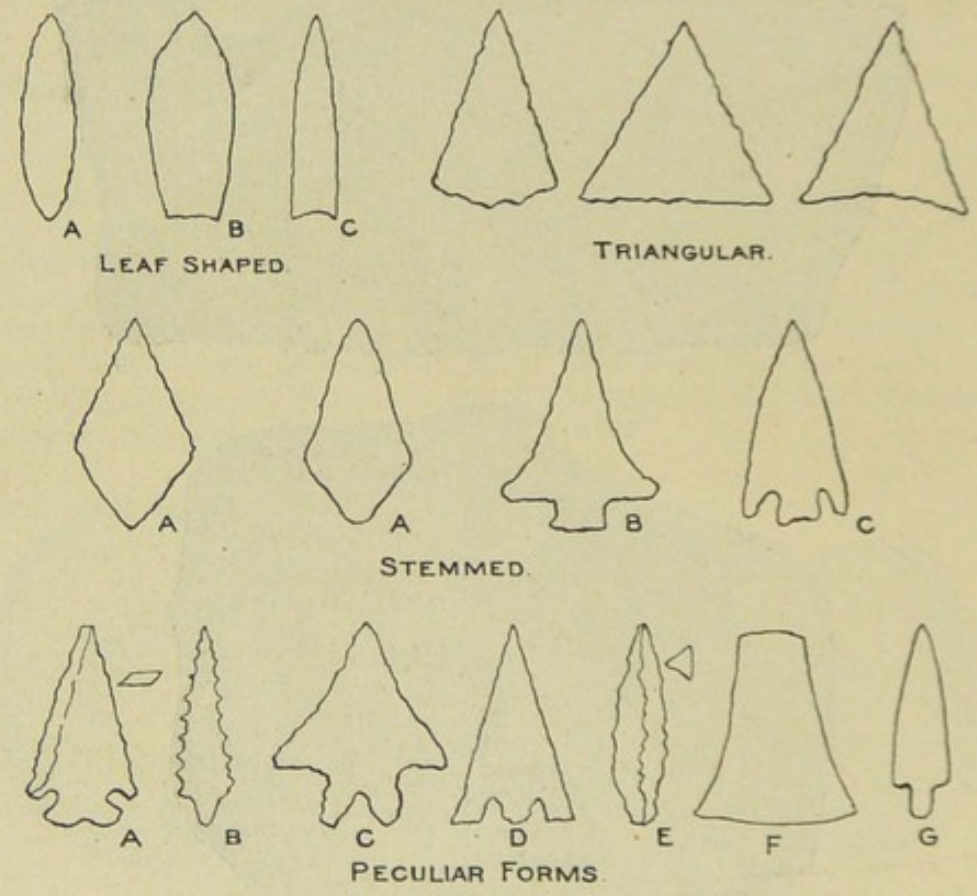



Fig. 27.

FORMS OF ARROW AND SPEARHEADS.

III. Stemmed. This division includes all varieties of stems, whether straight, pointed, or expanding, round or flat, whether the bases or edges are convex, straight, or concave.

Class A is lozenge shaped, stemmed, but not shouldered nor barbed. Eight specimens.

Class B is stemmed and shouldered, but not barbed. Sixteen specimens.

Class C is stemmed, shouldered, and barbed. Nine specimens.

IV. Peculiar forms. This division includes all forms not belonging to the three others, and provides for those having peculiarities, or which are restricted in number or locality.

Class A, beveled edges. Seven specimens.

Class B, serrated edges. Six specimens.

Class C, bifurcated stems. Seven specimens.

Class D, long barbs, square at ends, peculiar to England, Ireland, and Georgia, United States. Six specimens.

Class E, triangular in section, peculiar to the province of Chiriqui, Panama. Eight specimens.

Class F, broadest at cutting ends—tranchant transversal—peculiar to Western Europe. Nine specimens.

Class G, slate and polished, peculiar in North America to the Eskimo country, and to New England and New York. Ten specimens.

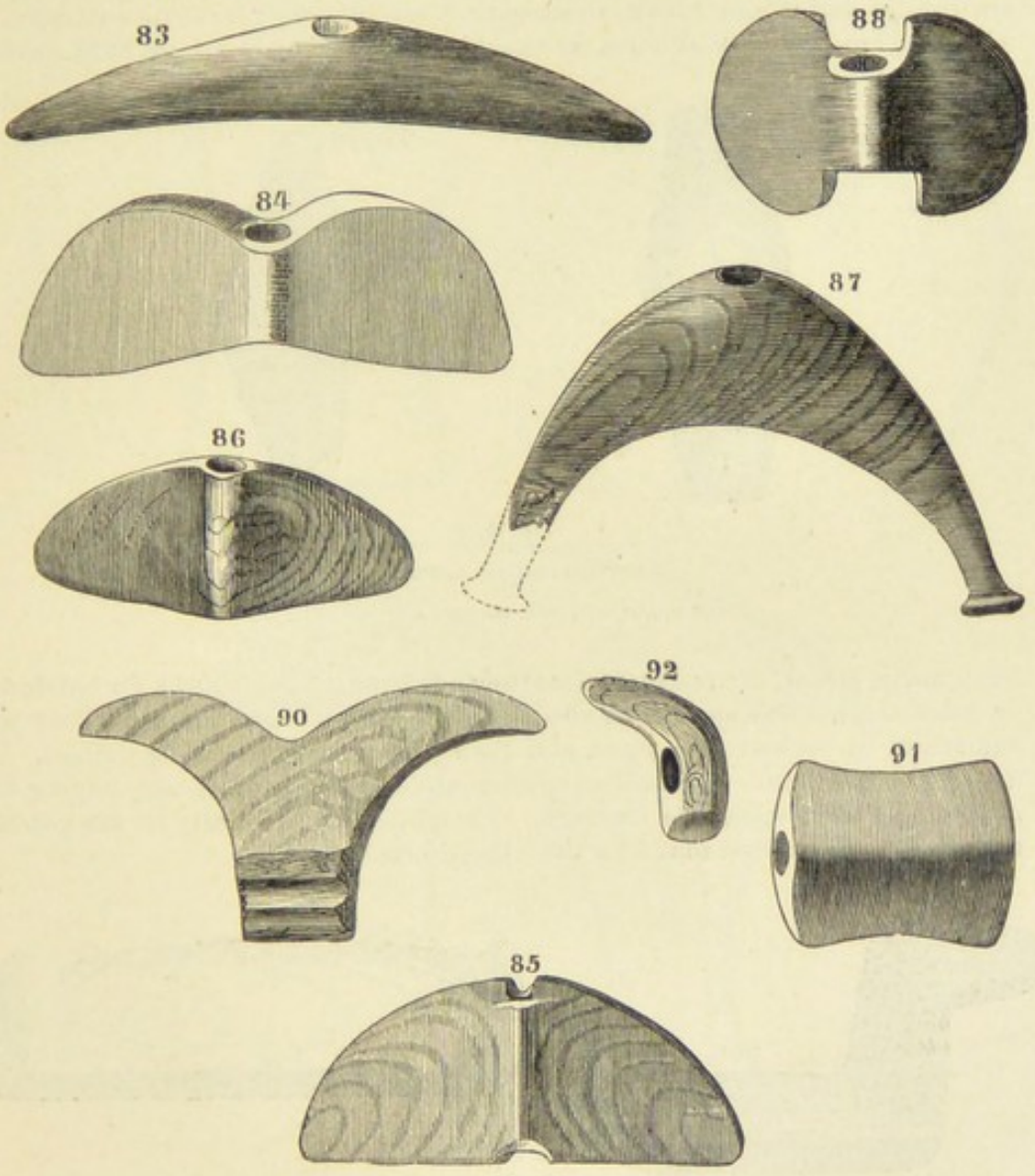



Fig. 28.

CEREMONIAL OBJECTS? OR "BANNER STONES."

83, Serpentine, Virginia; 84, serpentine, Pennsylvania; 85, striped slate, Wisconsin; 86, striped slate, Indiana; 87, striped slate, Pennsylvania; 88, brown jasper, Louisiana; 90, striped slate, Indiana; 91, ferruginous quartz, Indiana; 92, striped slate, Indiana.

## SUPPOSED CEREMONIAL OBJECTS.

Banner stones, drilled tablets, boat-shaped and bird-shaped objects, etc. The names given to these objects are no indication of their use, which is only conjectural. They are all American, and are found in mounds and aboriginal graves, some of them so associated with human skeletons as to indicate their use as personal ornaments. They may have served as charms, amulets, or, as the general name above suggests, for occasions of ceremony. Some have been drilled for suspen-

sion, the holes showing signs of wear, others apparently for a handle, although it would be too small for service as a weapon. Some are soft and fragile, while others are extremely hard. The edges show no signs of use. No early Indian traveler or historian mentioned them, and they had apparently fallen into disuse before the advent of the white man.

Banner stones (fig. 28) present a great variety of forms and an equal uncertainty of use. They are supposed to have been for ceremony or ornaments, or, with long handles, to have served as badges or insignia of rank (baton de commandement). They were not weapons, since most of them are of soft material, usually of slate, are fragile and would break under even a slight blow; have no cutting e ge, while the hole is too small for a serviceable handle. A few are of hard material

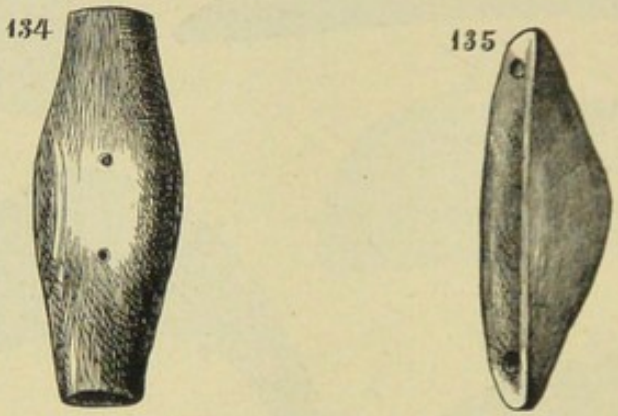



Fig. 29.

BOAT-SHAPED (?) OBJECTS.

134, striped slate, Ohio; 135, greenstone, Kentucky.

like quartz, jasper, etc., nevertheless they are impracticable alike for battle axes or casse tetes. The specimens show the process of manufacture. They were hammered or pecked into form, and then polished before being drilled. The drilling is excellent. The broken specimens show a secondary use, having been drilled and used since the fracture. They belong principally to the interior, though they have been found on the Atlantic coast line.

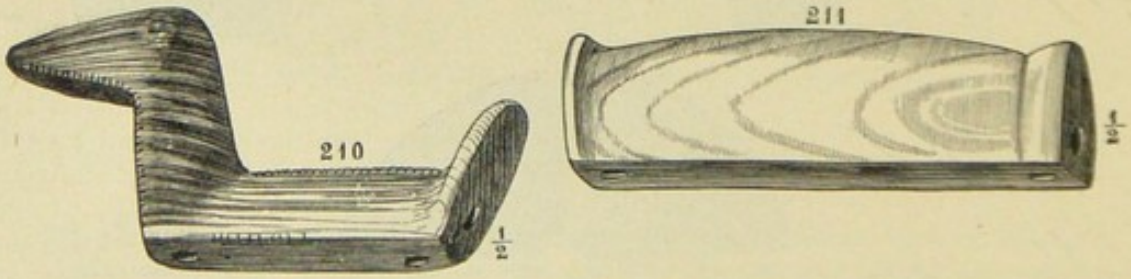



Fig. 30.

BIRD-SHAPED (?) OBJECTS.

210, striped slate, Pennsylvania; 211, striped slate, Ohio mound.

Boat-shaped objects (fig. 29). The title indicates our want of knowledge concerning their purpose. Different uses have been assumed for them, such as twine-twisters, handles for carrying parcels, or for tightening cords, but all without evidence. Some of the objects are solid, others are hollowed out like a boat, and are finely finished. Most of them have two perforations equidistant from the center. The material is syenite, chlorite, slate, and galena. They are found principally in the valleys of the Mississippi and its tributaries. Six specimens.

Bird-shaped objects (fig. 30). A class of objects, bird-like in form, but passing gradually into other conventionalized forms. They generally stand on flat bases and are pierced with a diagonal hole at either end. In some cases the eyes are not represented; in others they are marked by bead-like protuberances expanding into disks. Some specimens were not intended to represent either birds or animals, but are in the form of a bar with both ends alike. Various theories of their use have been advanced as knife handles, corn huskers, etc., but none are satisfactory. They may have served for gaming. The material is usually banded or striped slate, though hard stones were employed. Five specimens.

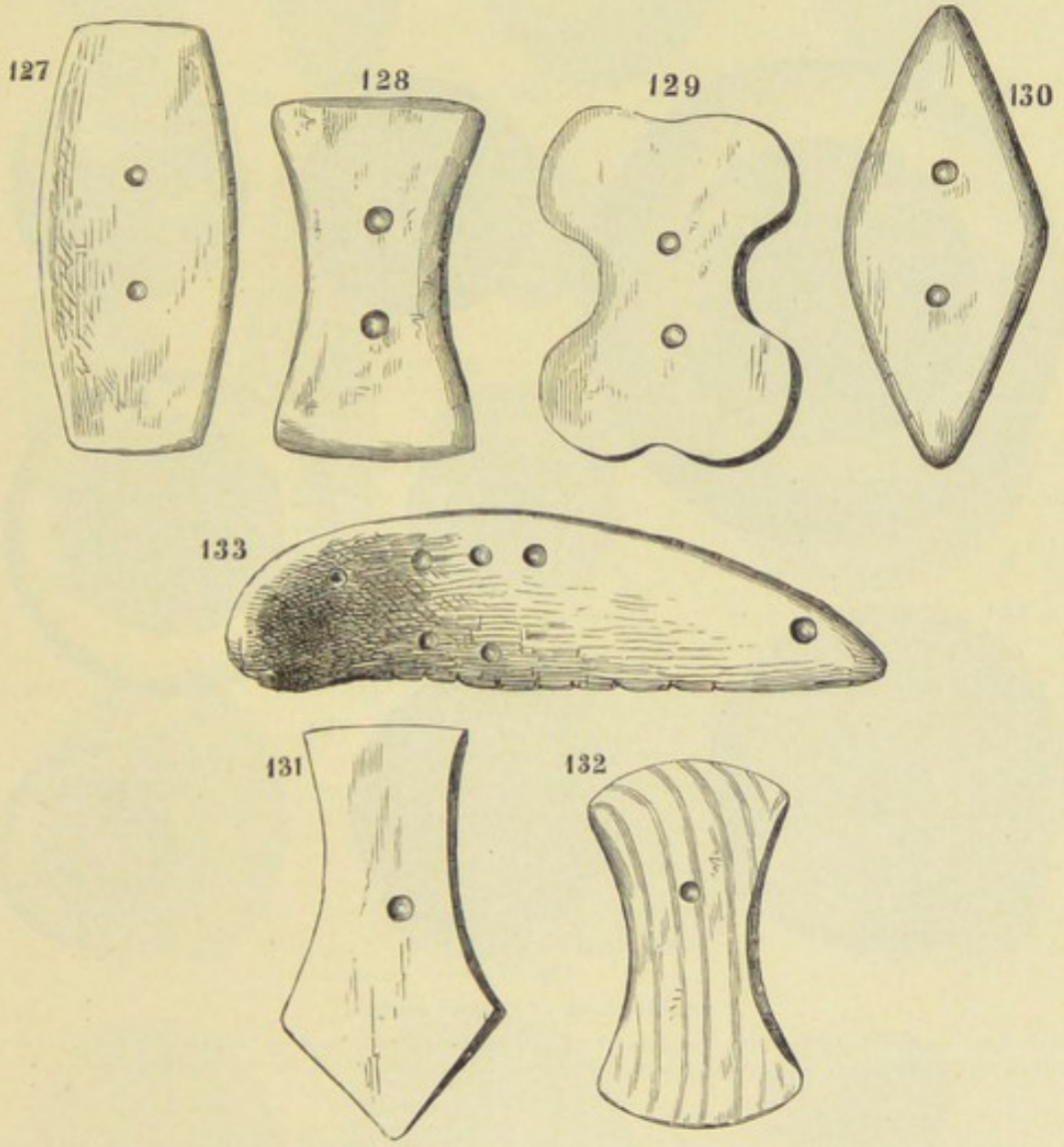



Fig. 31.

PIERCED OR DRILLED TABLETS.

127, slate, New York; 128, slate, Pennsylvania; 129, slate, Louisiana; 130, slate, Tennessee; 131, slate, Tennessee; 132, striped slate, Tennessee.

Drilled tablets (fig. 31) are flat, thin pieces made of striped, or banded slate, or chlorite. They have one or two holes drilled, some from both sides others from only one. The edges of the holes are many times worn by cord or sinew but are frequently sharp and without signs of wear. They are found in mounds or graves on the breasts and arms of skeletons. They may have served as badges, ornaments, or charms. Ten specimens.

Discoidal stones (fig. 32) are always round in outline; the sides may be convex, flat, or concave. In some specimens the concavity has been deepened until the cup became

a hole and the implement a ring. They vary in diameter from 2 to 6 inches, and are usually of hard stone, worked by pecking or grinding, or both, but with such perfection as to excite admiration. The larger ones were used by the Indians in a game called "Chungkee," described by early writers. Thirteen specimens.

Sinkers, pendants, or charms (fig. 33). These names indicate the supposed use of these objects. They are usually pear shaped, are of hematite or some hard stone, well wrought and finely polished. Many have a slight groove near the smaller end, while more have no groove. They are in greater abundance in the interior than on the borders of lakes or oceans. Others having greater appearance of sinkers are pebbles, round or oval, with a well-defined, ground or polished groove

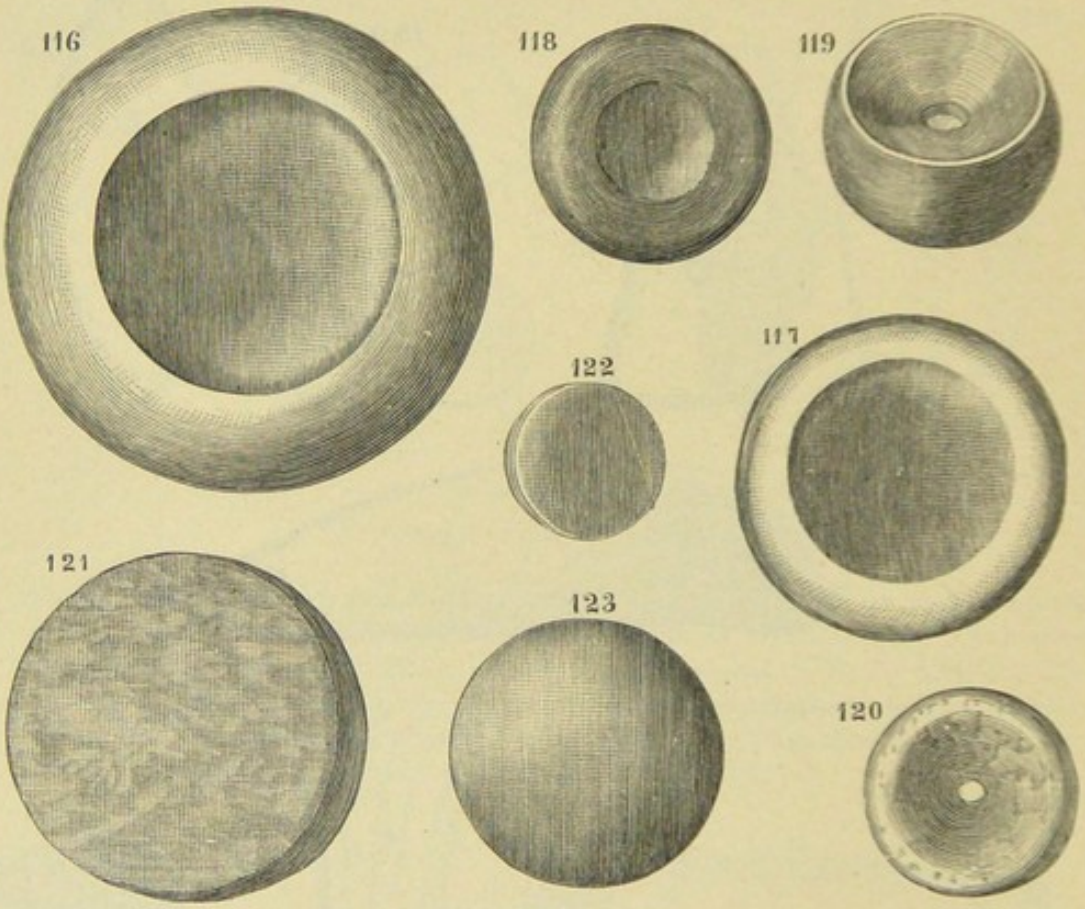



Fig. 32.

DISCOIDAL OR CHUNGKEE STONES.

116, ferruginous quartz, yellowish brown, Tennessee; 117, ferruginous quartz, brown, Tennessee; 118, greenstone, Illinois, mound; 119, Ohio; 120, quartzite, Ohio; 121, quartzose, Georgia; 122, argillaceous, Pennsylvania; 123, ferruginous quartz, Texas.

in the center, evidently for the use of a cord or thong. Still others, and more numerous, found in large numbers on the banks of rivers and lakes in the eastern United States, are naught but a flat pebble with rude notches on each edge or occasionally with a hole drilled in the center.

Perforators (fig. 34). These are peculiar to the United States. They are always of hard stone, usually flint, the point or borer is sharp, the shaft is chipped nearly round, is never polished, frequently 3 and even 4 inches long, and with slight taper. The top or handle is chipped broad and thin and fits easily in the thumb and finger, as if for use as a gimlet. Its form is such that it might have been used as arrow or spear head. The point is frequently rounded off and worn smooth, as though from use. They may have been used as an awl to bore hides or skins, as a gimlet to bore holes in wood, or attached to a shaft for drilling stone. These suggested uses have not all been accepted with unanimity. If

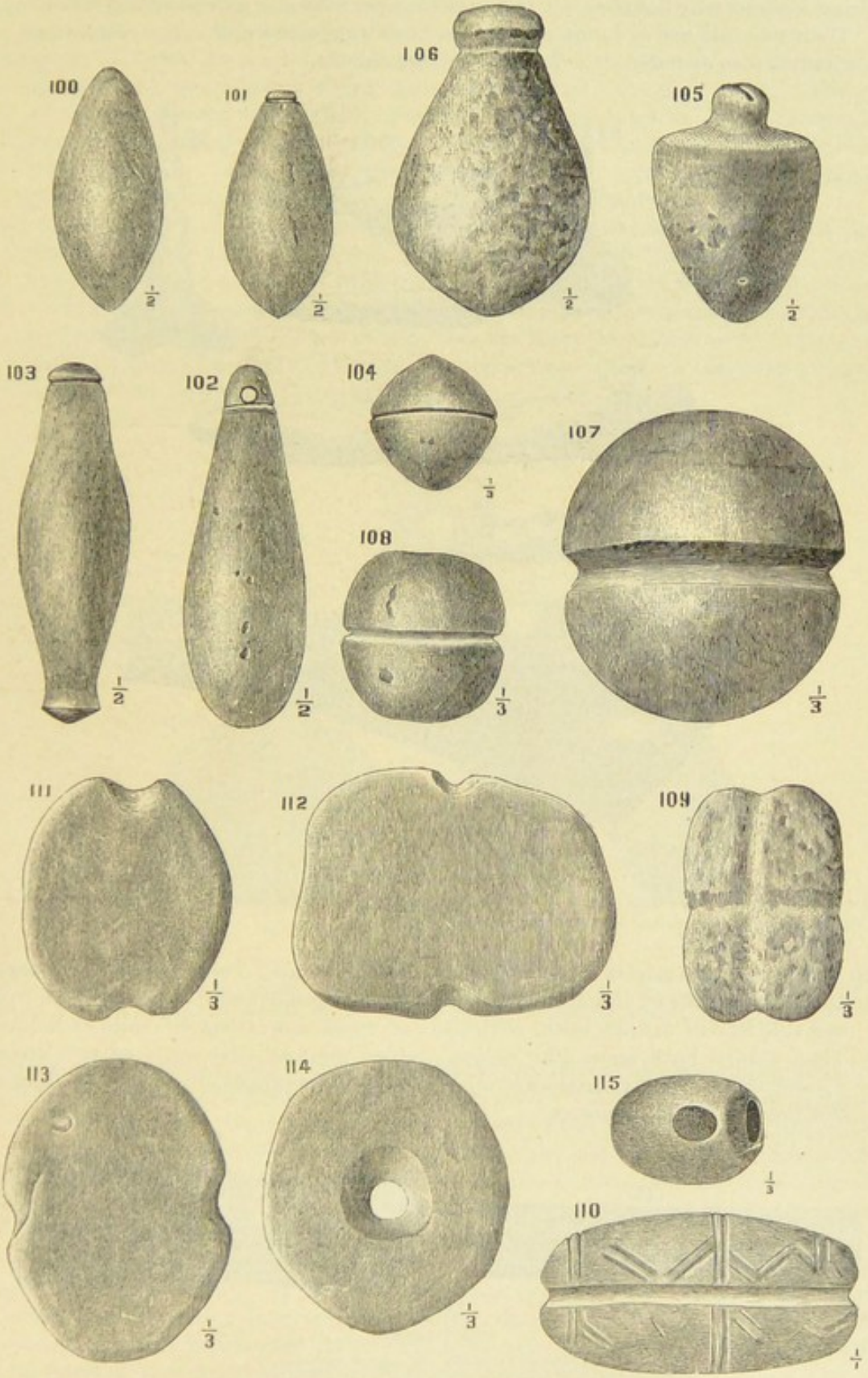



Fig. 33.

PLUMMETS, SINKERS, OR CHARMS.

100, hornblende, Ohio; 101, red hematite, Tennessee; 102, amygdaloid, Arkansas; 103, greenstone, Ohio; 104, greenstone, California; 105, quartzite, Massachusetts; 106, greenstone, Massachusetts; 107, granite, Rhode Island; 108, steatite, Georgia; 109, talcose slate, Rhode Island; 110, sandstone, Oregon; 111, quartzite, Pennsylvania; 112, graywacke, New York; 113, quartzite, Pennsylvania; 114, micaceous slate, California; 115, sandstone, Ohio.

used as perforators of hide or wood, why not employ a pointed bone; if for drilling a stone, why are they not found in Europe, where so much drilling was done? Their possible use as blunt arrows has been suggested and some claim them as charms, also as hairpins. Twenty-two specimens.

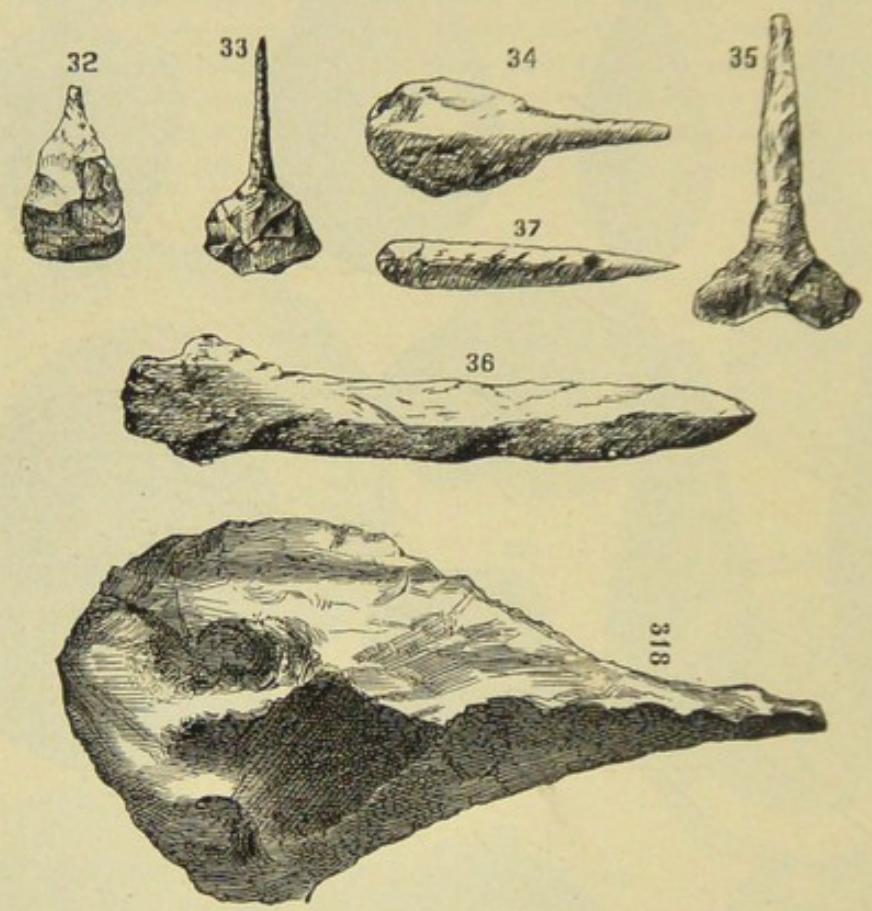



Fig. 34.

PERFORATORS OR DRILLS.

32, red jasper, Ohio; 33, brown jasper, Oregon; 34, white flint, Missouri; 35, gray flint, Ohio; 36, hornstone, Tennessee; 37, gray semi-opal, California; 318, gray flint, Santa Cruz, California.

The aborigines of America were adepts in drilling stone. They drilled holes, large and small, straight and crooked, regular and irregular, parallel and conical, from one side or end or from both, with tools of wood and of copper, solid or hollow. They drilled hard stone like quartz, jasper, etc., as effectually as soft stone. Specimens of drilling are shown in pipes, and in the supposed ceremonial objects, but not in axes or hammers.

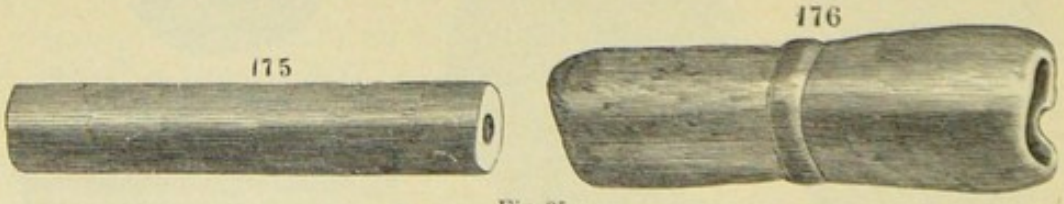



Fig. 35.

STONE TUBES.

175, steatite, Tennessee; 176, chlorite, Tennessee.

Tubes and pipes of stone, principally serpentine and steatite (fig. 35.) They were drilled and the hole enlarged at one end so as to form a pipe, and were used by the aborigines for smoking tobacco. They have been found in ancient graves on the Pacific coast with the mouthpieces of cane fastened with asphaltum.

Stone beads and ornaments (fig. 36) are found in graves of Indians and are of every kind, style, material, and mode of manufacture. Most of them have been drilled for suspension. Eleven specimens.

The pipes of North America demonstrate the ability of the aborigines to represent by modeling or sculpture living animals in clay or stone (figs. 37–41). The use of tobacco created the necessity for pipes, and their part in Indian ceremonies gave an opportunity for, as well as incitement to, art and skill in making these representations. Accordingly the pipes are of every practicable material and represent all possible, as well as some impossible, animals and objects.

Perforated stones, club heads, digging sticks, riattas, from Santa Cruz, Santa Barbara, Santa Rosa, the Catalina Islands, and the coast of Southern California (figs. 42 and 43). These were drilled through the center and some served for club heads or weights for digging sticks, while others more modern were riattas for stretching and smoothing lariats. They pass by degrees from thick and heavy to thin and flat. By enlargement of the hole they become rings. Some of the holes are much worn, others unworn. Four specimens.

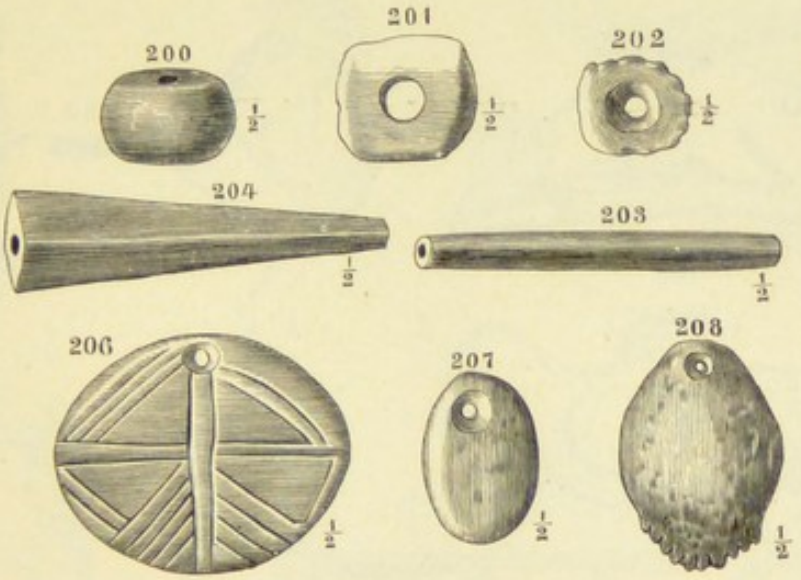



Fig. 36.

STONE BEADS AND ORNAMENTS.

200, serpentine, Santa Barbara, Cal.; 201, 202, steatite, Pennsylvania; 203, silicious material, Mississippi; 204, catlinite, Oriskany Cana', New York; 206, sandstone, Rhode Island; 207, sandstone, Pennsylvania; 208, hematite, Virginia.

Mortars and grinding stones (fig. 44). Mortars were in common use throughout the United States, apparently in all epochs of time. They are usually of stone of common hardness, though among the pioneers wood was employed. They are sometimes dressed on the outside as well as on the inside; at other times a rude round or oval bowlder was used. They are of all sizes, holding from a quart to a bushel. The larger and finer specimens are found in California. The grinding stone (metate) is peculiar to Mexico, where it has continued in use until the present time.

Pestles and hammers (figs. 45 and 46). Pestles are in great variety, long and short, rude and finished, cylindrical and conical, decorated and plain. The various forms are well distributed from ocean to ocean. Those with cross handles and projecting ears are, however, peculiar to the northwest coast.

Steatite vessels (fig. 47). Steatite quarries, opened and worked by the aborigines, have been found on the Appalachian chain of mountains. These quarries contain vessels in various stages of completion, together with the tools employed in their manufacture. The vessels were frequently blocked out in the quarry and car-

ried home to be finished. The oblong or oval form, with projecting ears for the handles, prevails in the Eastern United States, while the larger round and more perfectly finished vessels are more frequent on the Pacific Coast.

Stone picks for steatite quarrying (fig. 48). Some were grooved for a handle, as the ax, while others were held in the hand. Both were used in mining steatite and in the manufacture of vessels. The material was soft and easily worked, and the traces of the pick points are plainly to be seen on the partially completed vessels. The grooved picks were peculiar to the Atlantic Coast.

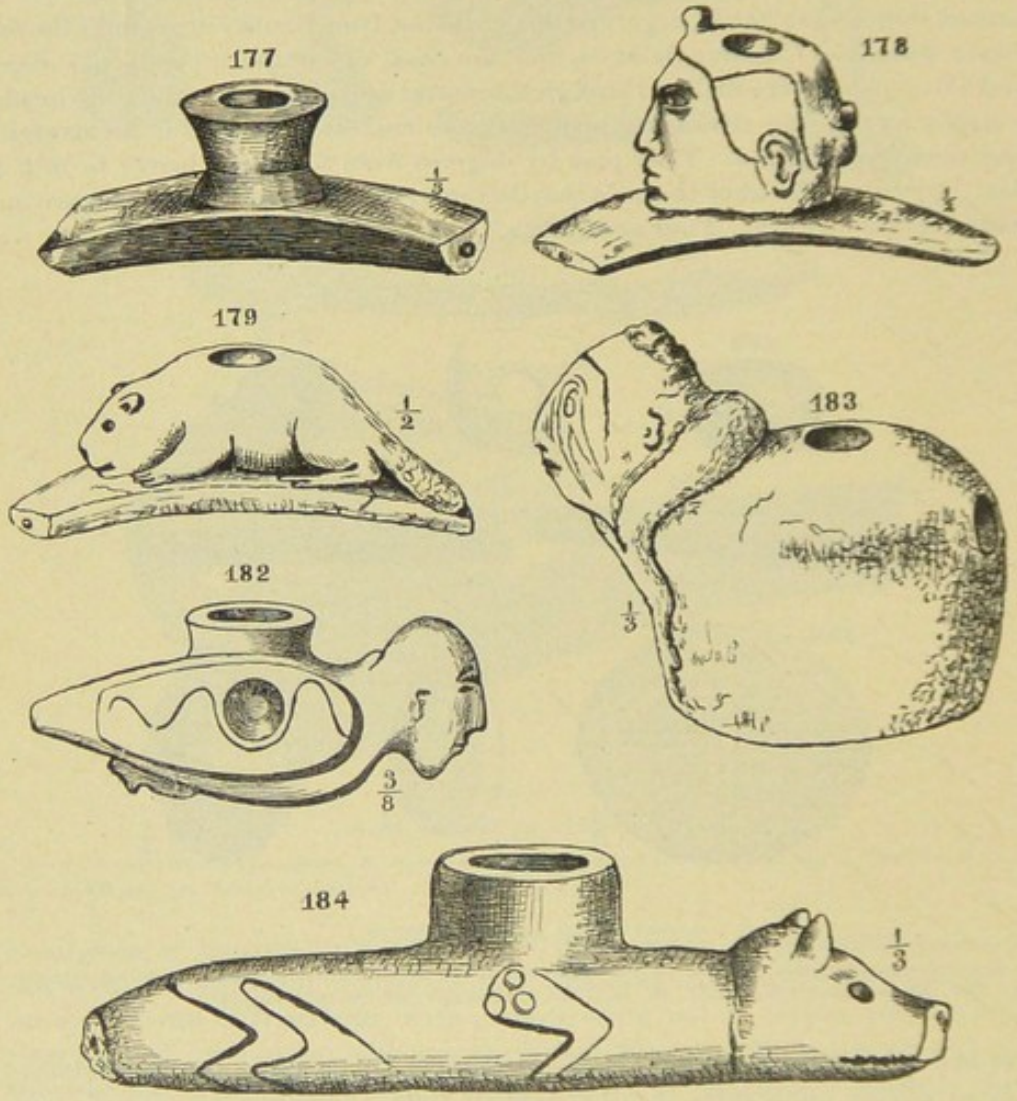



Fig. 37.

STONE PIPES.

Mounds in Ross County, Ohio: 177, platform or "monitor"; 178, Indian (?) head and head dress; 179, beaver; 182, porphyry, (bird with man's head); 183, red sandstone, (human head and body); 184, chlorite, (wolf). (?)

Collection of 69 specimens from Warren County, Ohio, consisting of finely chipped spearheads, daggers, knives, leaf-shaped implements, perforators, etc., of flint, principally from Flint Ridge; carved stone pipes, bird and boat shaped objects, perforated tablets, sinkers, pendants or charms of stone and hematite, small polished hematite hatchets, and copper spool-shaped objects. Exhibited by Mr. Warren K. Moorehead, of Xenia, Ohio. This collection is especially valuable, as it comes from one locality and represents one phase of aboriginal culture.

Hematite objects. Hematite is the anhydrous sesquioxide of iron. It was variously employed by the aborigines. They worked it as they did stone, and gave it a high polish. It served for grooved axes, polished hatchets, sinkers, pendants, or charms, and for muller and paint stones.

Mullers, paint stones, and cups (fig. 49). The harder hematite was made into mullers for grinding paint, though other stone was employed. The forms were various, but the conical prevailed. Other varieties of iron oxide, limonite, red and brown ocher, served as paint for personal decoration. It was preserved in small cups, usually of steatite.

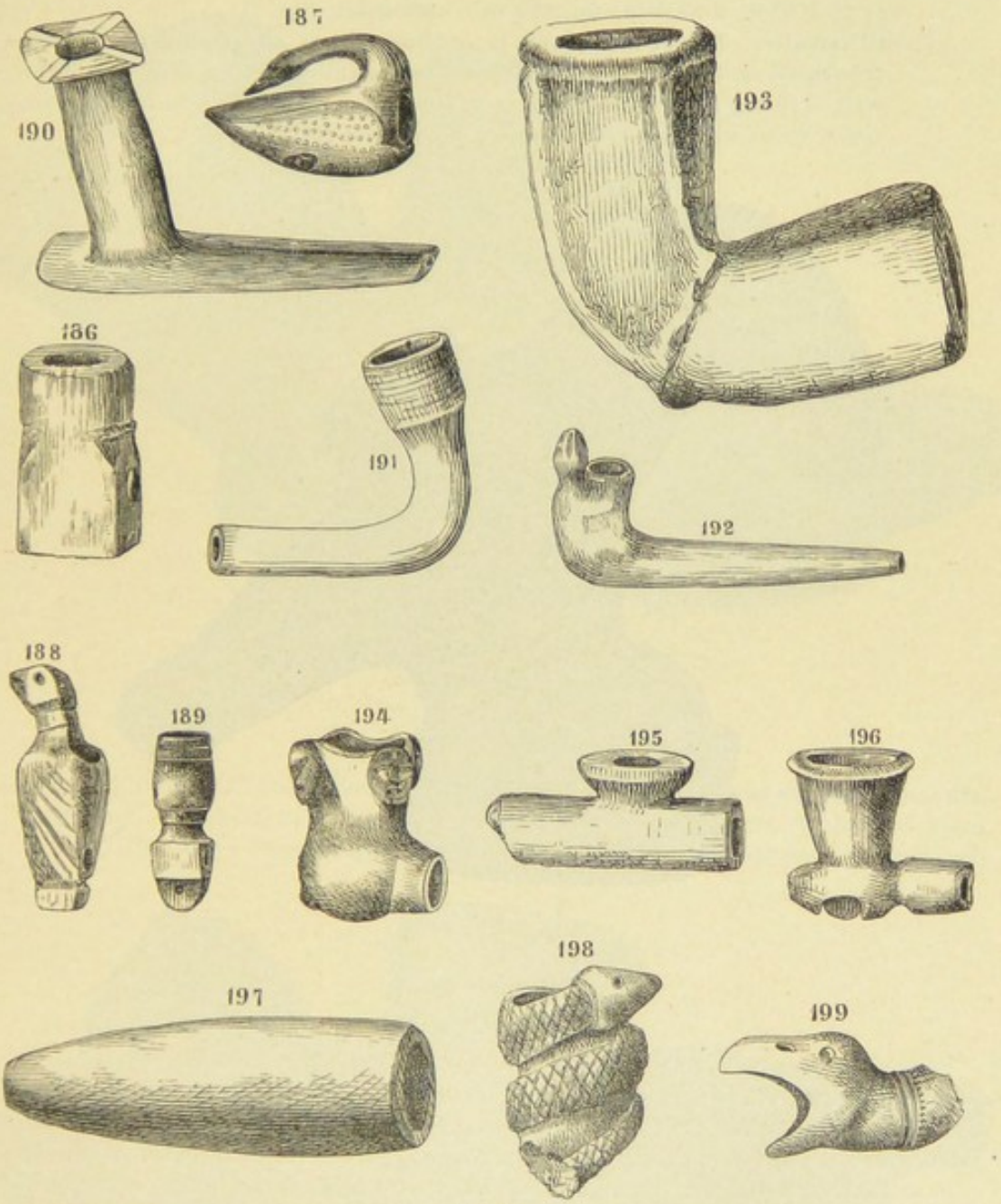



Fig. 38.

STONE AND CLAY PIPES.

186, (argillaceous), Pennsylvania; 187, serpentine (loon) (?), West Virginia; 188, argillaceous (parrot), New York; 189, argillaceous, Ohio; 190, chlorite (platform) (?), Virginia; 191, serpentine, New York; 192, steatite (lizard), Pennsylvania; 193, steatite, North Carolina; 194, serpentine (4 human faces or masks), Texas; 195, limestone, Kentucky; 196, clay, Georgia; 197, serpentine (tube), California; 198, clay (coiled snake), New York; 199, clay (raven) (?), New York.

Digging implements (figs. 50–52). These are peculiar to the United States. They are of silicious material, chiefly the novaculite of Arkansas or the white flint of Illinois and Missouri, and are made entirely by chipping. Many are worn apparently by use, but some show a polish or luster not yet explained. They are more frequent in the Mississippi, Ohio, and Tennessee valleys than elsewhere. There are three forms of these implements:

1. Large flat objects of a regular oval outline, chipped to an edge all around, but used only on the larger end, which show a polish as though from use in digging in earth or sand. Average size, from 12 to 18 inches long, 4 to 6 wide, and three-fourths to 1 inch thick (fig. 50).
2. Smaller flat objects, triangular in outline, shortest side slightly rounded and chipped to an edge, occasionally showing signs of wear; 7 to 9 inches long, 4½ to 5 wide, and three-fourths to 1 inch thick (fig. 51).
3. Still smaller, flat, nearly round in outline, sharp all around at the edge, truncated on the top or poll, and notched as though for lashing to a handle with a thong or withe, though no signs of wear appear; 5 to 7 inches long, 4 to 6 wide, and three-fourths to 1 inch thick (fig. 52).

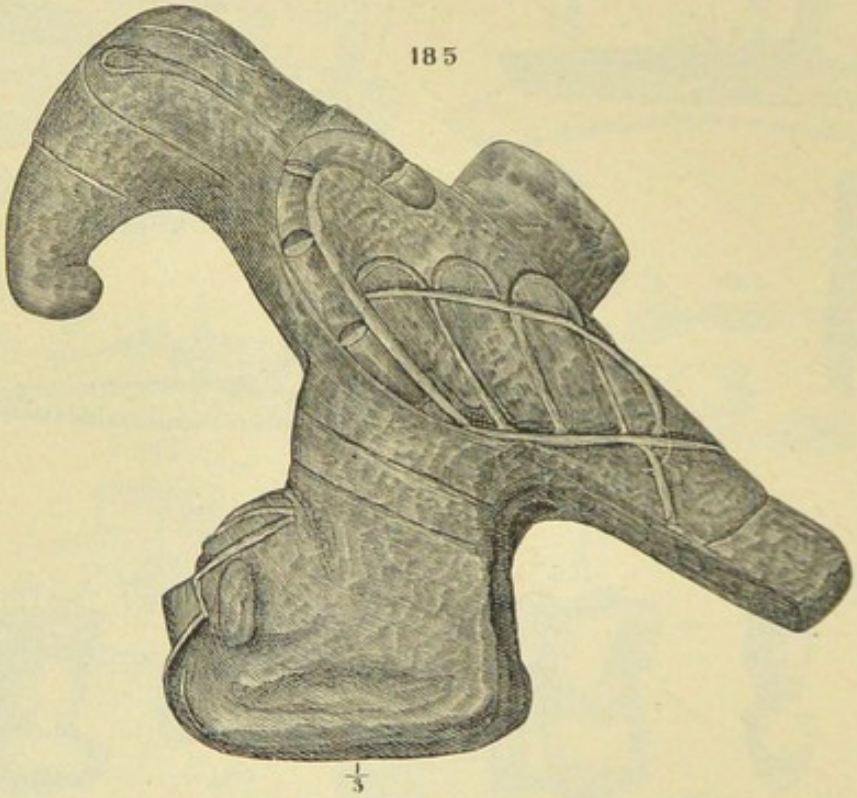



Fig. 39.

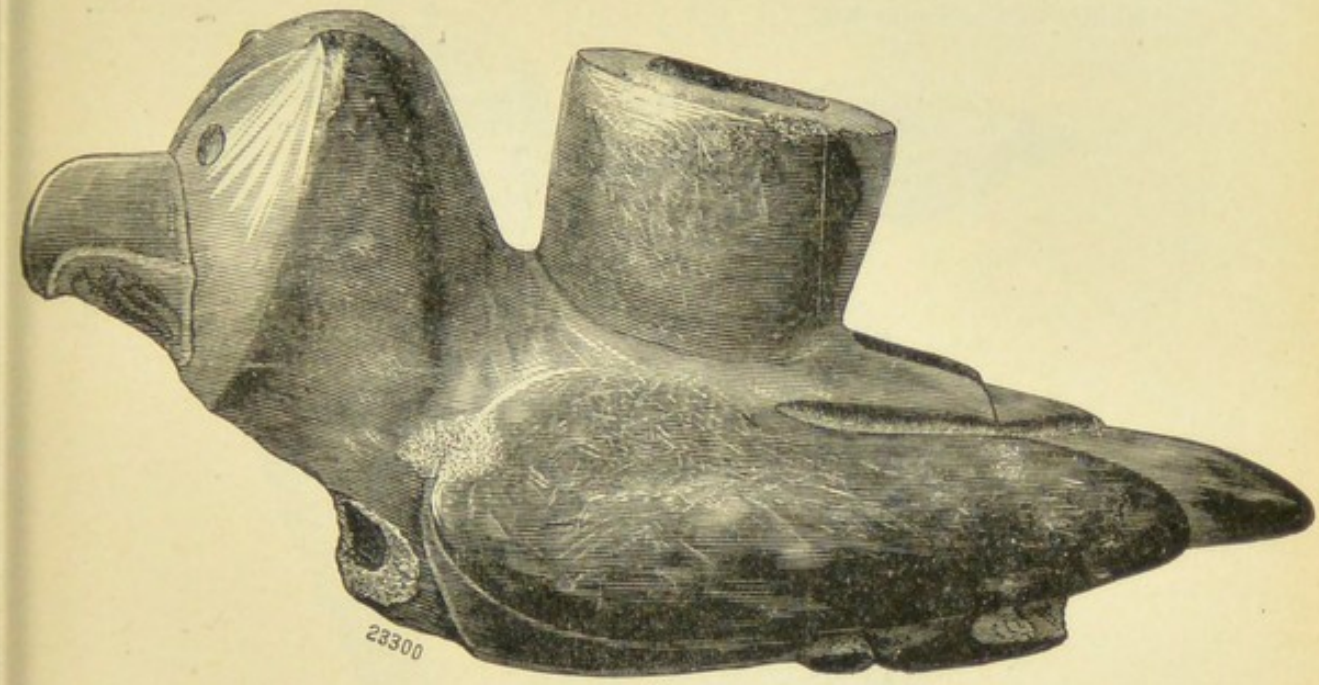
CALUMET PIPE.

Steatite, Kentucky.

Stone swords were made by the aborigines of the United States. They were chipped and never polished; they differed from the leaf-shaped implement in that they were longer and heavier; they differed from daggers in that they were not chipped so as to form a handle. Some were as long as 16 inches, and others reduced to 8. The handle was wrapped with skin, cloth, grass, or the like. The specimen here shown from the Hupa Indians, is but 5½ inches long, and the handle is wrapped with otter skin (fig. 53), which possibly has some ceremonial or medicine significance. It was collected by Capt. P. H. Ray, U. S. A.

Stone daggers (fig. 54) are different from, and not to be confounded with, the leaf-shaped implements, which may have had wooden handles, and have been used indifferently as knives or spearheads. The daggers resemble the same weapon from Scandinavia, and are, like them, always chipped, and rarely or never polished. The handles have been worked out of the solid. They are rare in the United States.

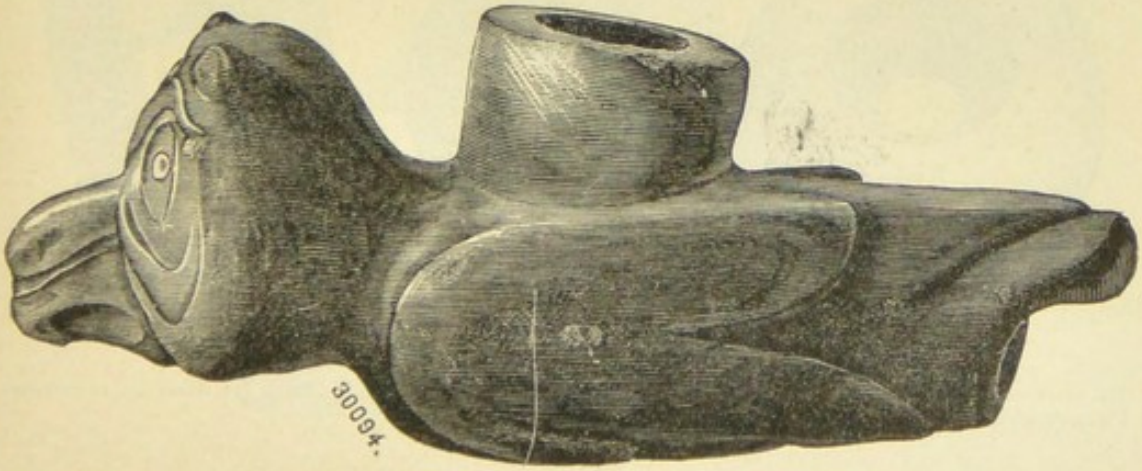
Knives and flakes. These are of silicified wood from California. In form they resemble Mousterien points. Traces of bitumen on the base show their attachment to handles, while their general form indicates their use as knives. Many specimens have been thus marked, and they assist in determining the use of leaf-shaped and similar blades, so common throughout prehistoric times.




(1/2)

Fig. 40.
CALUMET PIPE.
Chlorite (owl), Tennessee.

Leaf-shaped blades of black flint. These are beautiful specimens of aboriginal flint chipping. The largest specimen here is 240 mm. long, 125 mm. wide, and 1 mm. thick. They have been found with traces of bitumen or asphaltum for the attachment of handles. They are peculiar to the Pacific coast of southern California. In the classification of arrow—and spear—heads, these are Class C of the leaf-shaped implements.




(1/2)

Fig. 41.
CALUMET PIPE.
Chlorite (owl), Kentucky.

Stone knives with wooden handles (fig. 55). These specimens include rude flakes and finely-wrought blades. They are fastened with bitumen or gum, in short, pointed handles, evidently for use as knives. They are of great importance to the science of prehistoric anthropology as showing the methods of attachment and use of flint flakes, blades, etc., in common use in prehistoric times. These are found principally on the Pacific Coast, though some have been found in Mexico and in Tennessee.

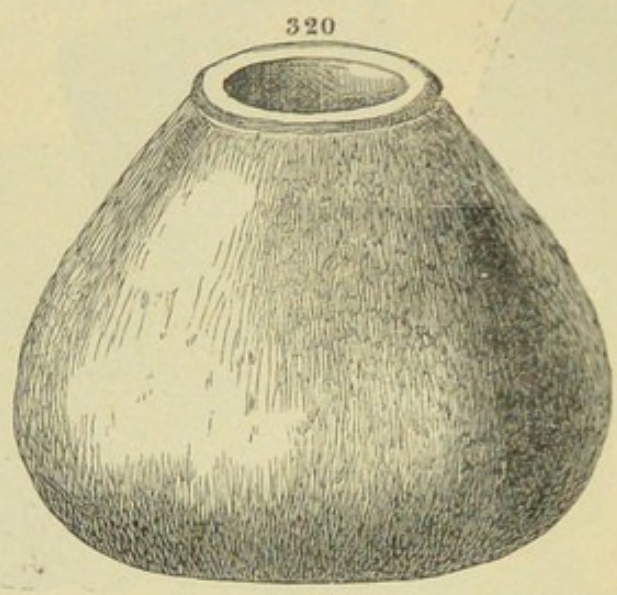



Fig. 42.

PERFORATED STONE CLUB HEAD.

320, greenstone, California.

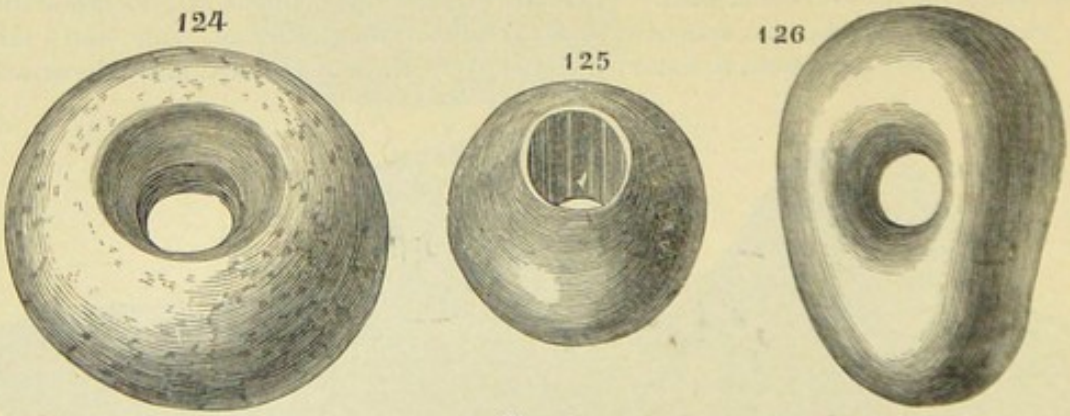



Fig. 43.

PERFORATED STONE RIATTAS.

124, hornblende, Santa Catalina Islands, California; 125, greenstone, Santa Rosa Island, California; 126, serpentine, Santa Rosa Island, California.

Slate knives are flat, thin, with a semilunar edge and with a straight back made thicker and heavier, to be grasped in the hand (fig. 56). They chiefly occur along the coast and in the Northeastern States. Similar implements, likewise made of slate with a curved edge and a lateral tang, have been found in Pennsylvania and in Indiana. Varieties of these implements have been used in historic times by the Indians of the northwest coast as fish knives.

Spade-like implements of compact green stone, with long, heavy, round handles, have been found in the southern part of the United States (fig. 57). The one here shown was found in a Tennessee grave mound and belongs to Dr. Joseph Jones, of New Orleans. The handle at the largest part is about 1½ inches in

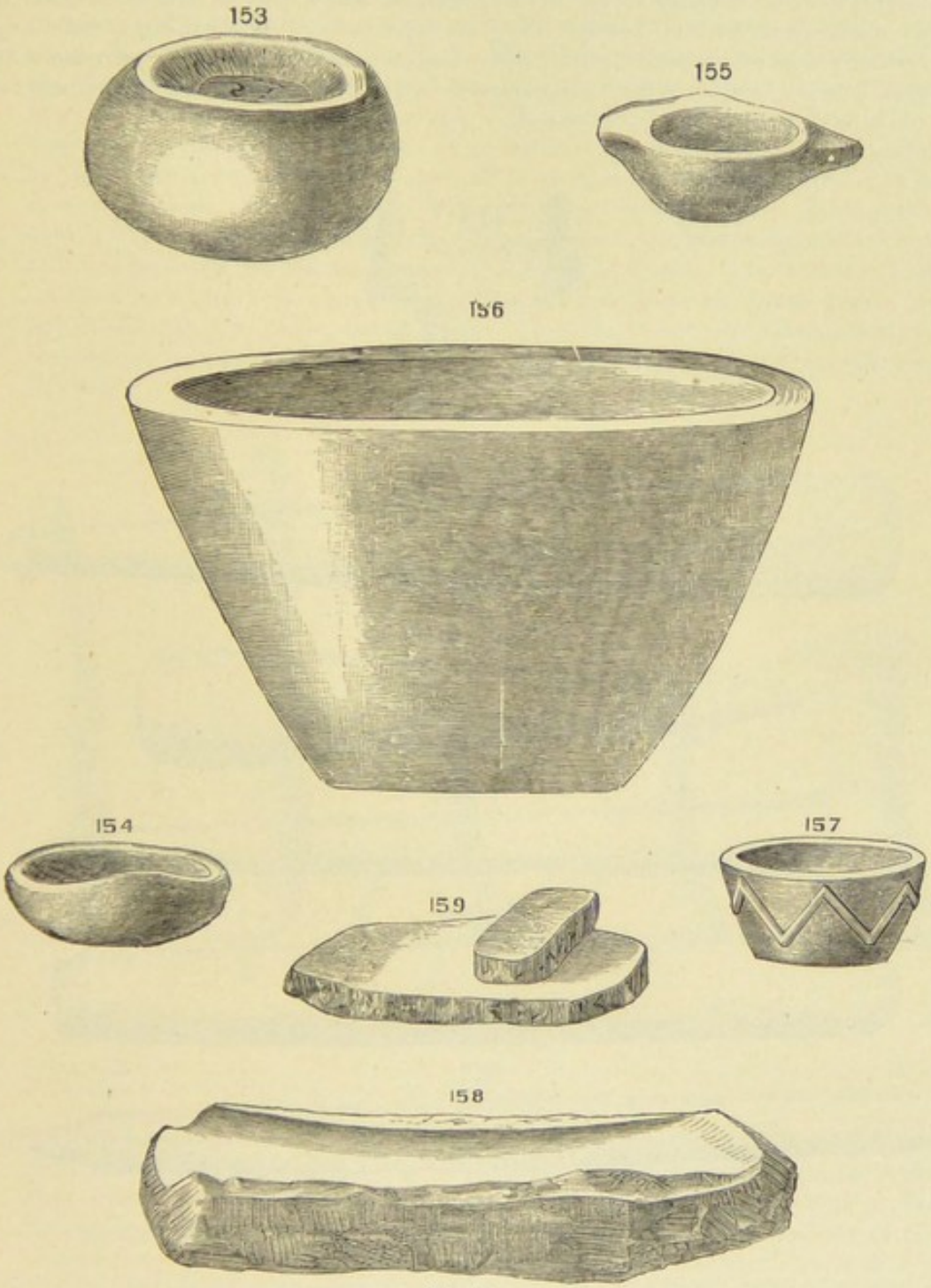



Fig. 44.

STONE MORTARS AND METATES.

153, 155, and 155, sandstone bowlder, hollowed, St. Nicholas Island, California; 156, Dos Pueblos, California; 157, Santa Cruz Island, California; 158, metate sandstone, Utah (figs. 45 and 46); 159, metate, granite, sandstone rubber, Navajo, Arizona.

diameter, nearly or quite round, but flattened at the broadened end. It is 17½ inches long. The edge is rounded off and shows no signs of wear. Its purpose is unknown. Similar implements have been found by Mr. Clarence B. Moore in Florida and southern Georgia and by Dr. Steiner in northern Georgia.

There is a class of well-finished and finely polished implements of which compact greenstone and chlorite and calcite were favorite materials, the use of which is unknown (fig. 58). They were broad, thin, and most of them flat. They were 5 or 6 inches wide, from 8 to 10 inches long, and rarely more than one-half an inch thick. The edge was rounded off so as to render cutting impracticable. They were provided with an indefinite handle, and many have a hole drilled at the commencement of the handle. They may have served for scraping or polishing, but no traces of use have been found which would indicate their purpose other than as mentioned. While these objects are rare in the United States most of them have been found in the South.

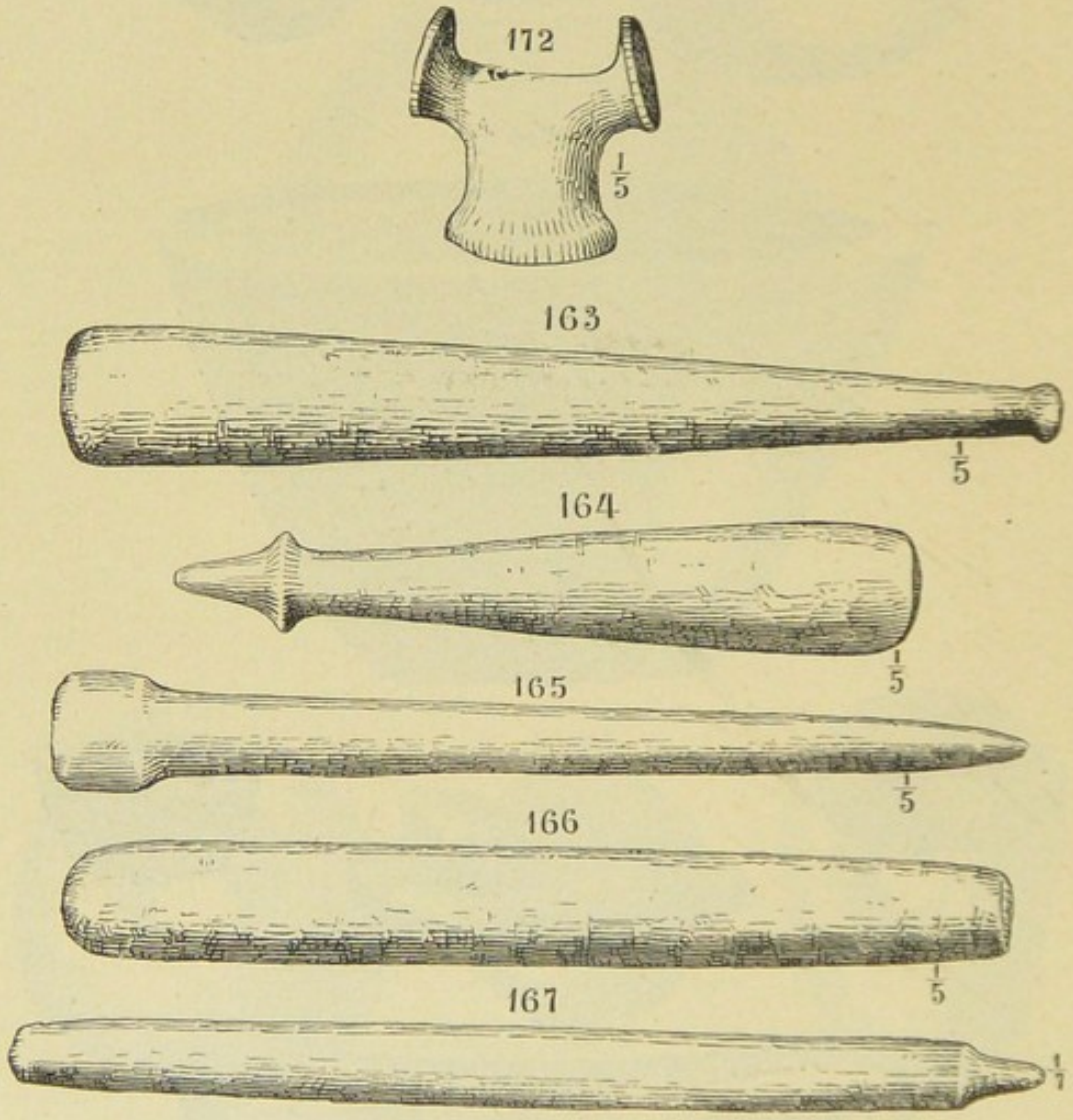



Fig. 45.

PESTLES.

163, sandstone, Dos Pueblos, California; 164, sandstone, Dos Pueblos, California; 165, amygdaloid, Crescent City, California, mound; 166, sandstone, Rhode Island; 167, greenstone, Alaska; 172, greenstone, Alaska.

Shell, horn, and bone served the prehistoric man like stone and copper as material for implements and ornaments (figs. 59, 60). They were made into axes, hatchets, swords, daggers, poignards, wedges, points, perforators, harpoons, fishhooks, beads, tubes, masks, and engraved gorgets. Many were of pearl-like whiteness and served as ornaments. Thirty-nine specimens of shell; thirty-one specimens of bone and horn.

Copper implements (fig. 61). The North American Indians, at the time of the discovery of the continent, were in the Neolithic period of civilization, and their stone implements were, for the most part, polished. It is commonly believed that they had no knowledge of bronze. Virgin copper was found in divers portions of the United States, chiefly in Lake Superior. The Indians treated it as a malleable stone and hammered it into implements and ornaments. The consensus of opinion is that the Indians could not, at the time of the discovery, smelt or cast metal, though this has been doubted. The Conquistadores saw ornaments and objects of copper in the hands of the natives, and had great disappointment that it was not gold. Mr. Frederick S. Perkins, of Wisconsin, sent to the Exposition at Madrid a collection of prehistoric copper implements and objects, collected principally within the State of Wisconsin. Some were found in mounds or burial places, but others were turned up by the plow. The distribution of copper objects is general throughout the valleys of the Mississippi River and its tributaries, with extensions toward the Atlantic Coast. The common objects are axes, hatchets, hammers, knives, drills, gravers, spear and arrow heads, bracelets, disks, gorgets, tubes, beads, plates. Some have been perforated and others elaborately ornamented with figures made, sometimes by puncture, other times *repoussé*.

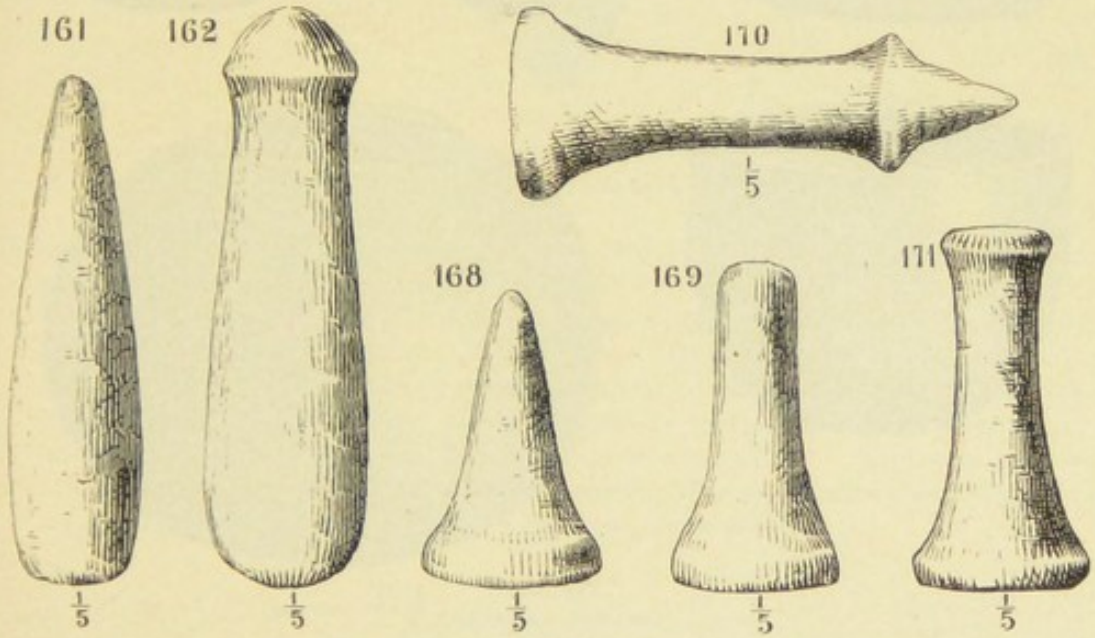



Fig. 46.

PESTLES AND HAMMERS.

161, syenite, Santa Cruz Island, California; 162, sandstone, Dos Pueblos, California; 168, greenstone, Pennsylvania; 169, syenite Ohio; 170, greenstone, British Columbia; 171, greenstone, Washington State.

North American sculptures (fig. 62). The aborigines of the United States were apparently possessed of a great penchant to represent the human face or form in stone. They were made both in hard and in soft rock. The implement which probably did the most service was the hammer, and the operation performed by attrition or pecking. The sculpture was in some specimens afterwards smoothed and polished. Whether these sculptures were used as idols, for decoration or ornament, or as totems, has never been satisfactorily determined. They are distributed throughout the United States east of the Rocky Mountains.

The stone collars of Porto Rico are puzzles to the archæologist. No suggestion as to their use has proved acceptable. They are thus named because of their resemblance to the modern object of horse furniture. Some are in a rude state, indicating a rude stage of manufacture. The finished specimens are "right and left shouldered," as though to be used in pairs. Nearly all are decorated. The National Museum possesses the largest and finest collection known. Five specimens.

Zémès. Stone objects peculiar to Porto Rico and possibly San Domingo. Found in ancient caves, graves, and in human habitations. They are entirely prehistoric, having been in possession of the natives at the advent of the white man. Their use is unknown, and though various uses have been suggested, none are more satisfactory than that of fetich or spirit. They are of hard, usually volcanic rock, pecked and smoothed in a conical or mammiform shape, with a representation, on one or both ends, of a human or other animal. Eleven specimens.

WEST INDIES.

Stone masks, clubs, hatchets. These are generally from the same localities as the stone collars and the zémès, and are believed to have the same antiquity. The hatchets are casts. One is from Tennessee, displayed here for comparison. Twelve specimens.

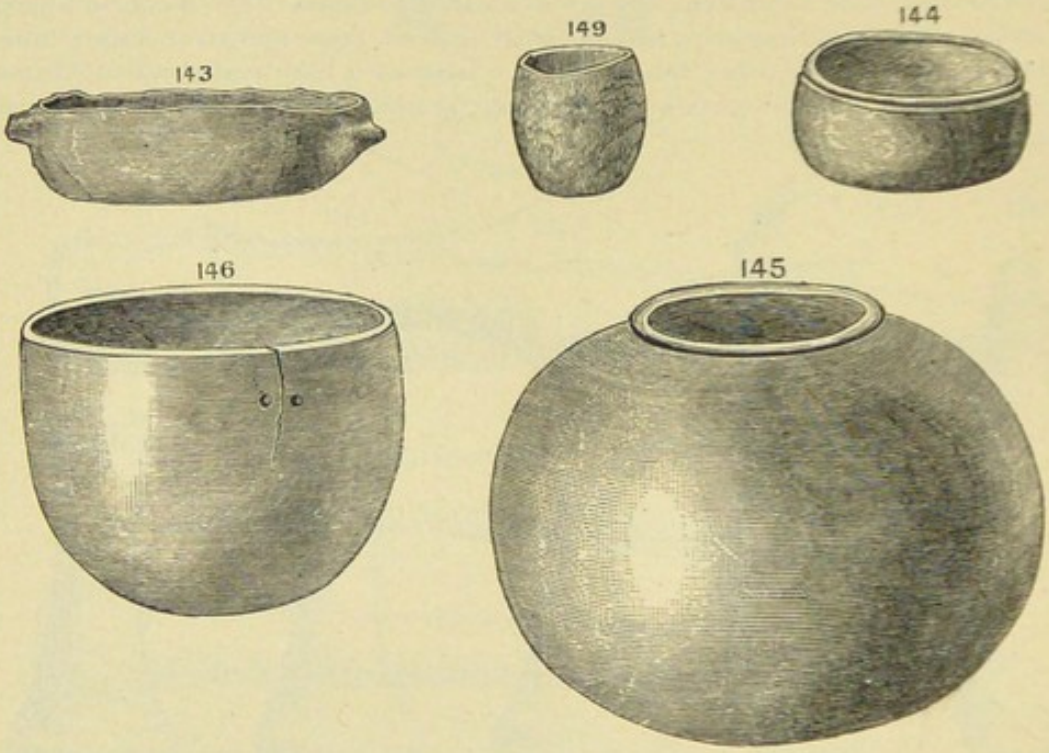



Fig. 47.
STEATITE VESSELS.
143, steatite, Massachusetts; 144, steatite, Wyoming; 145, steatite, Dos Pueblos, California; 146, Dos Pueblos, California.

ALASKA, MEXICO, AND CENTRAL AND SOUTH AMERICA.

Jade, turquoise, rock crystal. Jade was a favorite material with prehistoric man, and in some one of the following varieties was made into implements, utensils, or ornaments in nearly every part of the inhabited world. Jadeite was plentiful in Mexico and Central America, while nephrite is indigenous in Alaska. Jade is a generic term including jadeite (silica, alumina, soda), specific gravity 3.3; nephrite (silica, magnesia, lime, and iron oxide), specific gravity 2.9 to 3.1; fibrolite (alumina, silica), specific gravity 3.0 to 3.2; saussurite (silica, alumina, lime), specific gravity 3.2 to 3.3; actinolite (silica, magnesia, lime, protoxide of iron), specific gravity 3.0 to 3.2; pectolite (silica, lime, soda, and water), specific gravity 2.7 to 2.9. Fifty-six specimens.

Obsidian is volcanic glass. Its source of supply was in the Rocky Mountains, where it was in profusion. It was easily worked, took a keen edge, and was much employed by the aborigines. It was worked principally by chipping, though it could be ground and polished. It served for ornaments as well as implements.

Its chief employ was in Mexico and Central America, where have been found many wonderful specimens of sculpture, cores, flakes, and leaf-shaped blades, the latter thin, sharp, and beautifully chipped. An extensive aboriginal commerce was carried on in obsidian. A thousand specimens have lately been exhumed from the Hopewell Mound, Ohio, a thousand miles distant from the nearest known locality where obsidian had its origin.

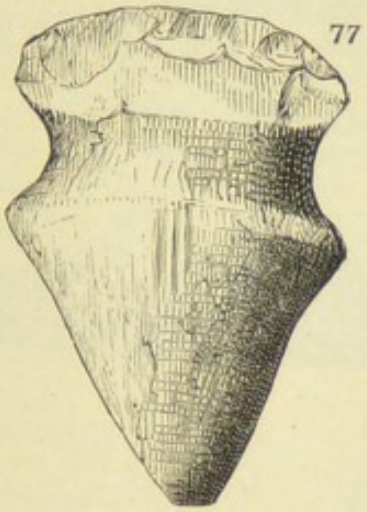



Fig. 48.

STONE PICK FOR STEATITE QUARRYING.

Graywhacke, Pennsylvania.

Chiriqui gold ornaments from Panama. The Chiriqui tribe of aborigines occupied a portion of the Isthmus of Panama between Costa Rica and Veragua. Gold ornaments were discovered in 1859 in prehistoric graves. Gold, silver (in alloy), copper, and possibly tin are represented. Gold-silver alloy is probably a natural compound. Gold-copper alloys appear to range between purity in either metal. Most of the gold objects were made by casting in molds rather than by hammering. Gilding, or at least plating, was practiced. Gold was used for ornaments and not for implements or utensils. Ten specimens from Chiriqui; 6 specimens from Central America; 1 specimen from Mexico.

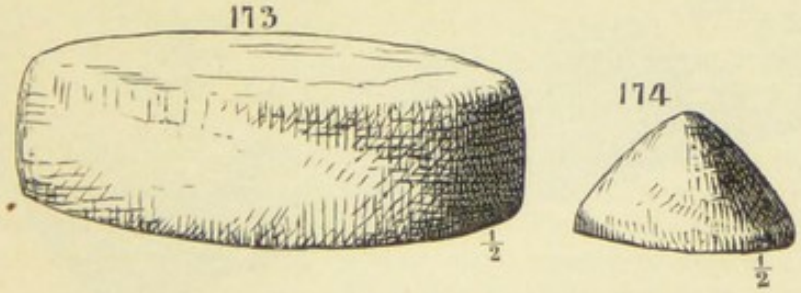



Fig. 49.

MULLERS FOR GRINDING GRAIN AND PAINT.

173, greenstone, Georgia; 174, hematite, Ohio.

Quimbaya gold ornaments from Antioquia, South America. The Quimbaya tribe of aborigines was found by the Conquistadores occupying territory 10 or 15 leagues square west of the Cordilleras and east of the river Cauca, with the rivers Tacurmbi on the north and Zegues on the south. This country was called "El Dorado." The natives were adepts in working metals. The gold was alloyed with copper from 10 up to 50 per cent, and perhaps more. It was wrought by hammering, casting, and possibly by soldering. The gold ornaments are of every

size, from 1,710 grams down to a single gram, and of gold vases 13½ inches high and 9½ wide down to the smallest. The gold objects buried with the Cacique Yamba weighed 30 kilos. Four hundred and fifty-two gold objects from Colombia were displayed by that Government at the Madrid Exposition; 41 specimens from Colombia; and 1 from Peru, exhibited by the U. S. National Museum.

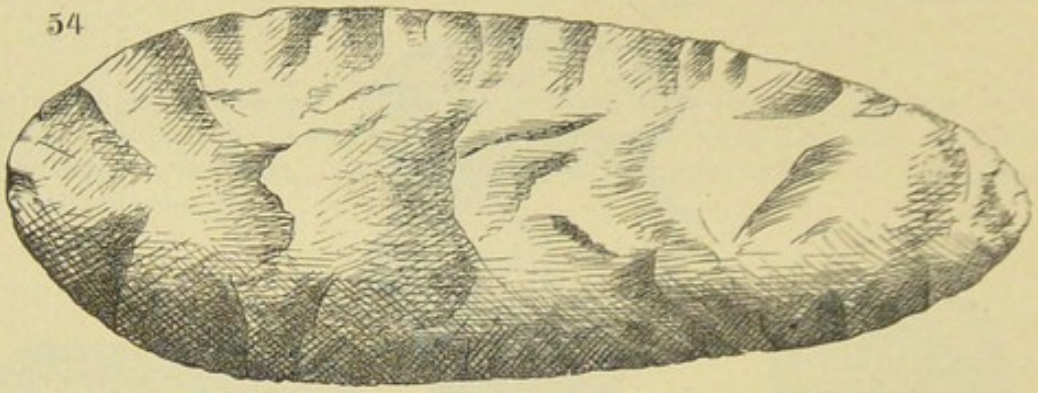



Fig. 50.

DIGGING IMPLEMENT.

Quartzite, Tennessee.

Black argillitic stones similar to that shown, covered with representations in bas-relief of human, animal, and other subjects, are found in that country and have been claimed as amulets and as calendars of the ancient time system. (Century Magazine, October, 1891, pp. 885–889.) They were sometimes certainly, and probably always, used for hammering the gold in repoussé to represent the desired object. One specimen.

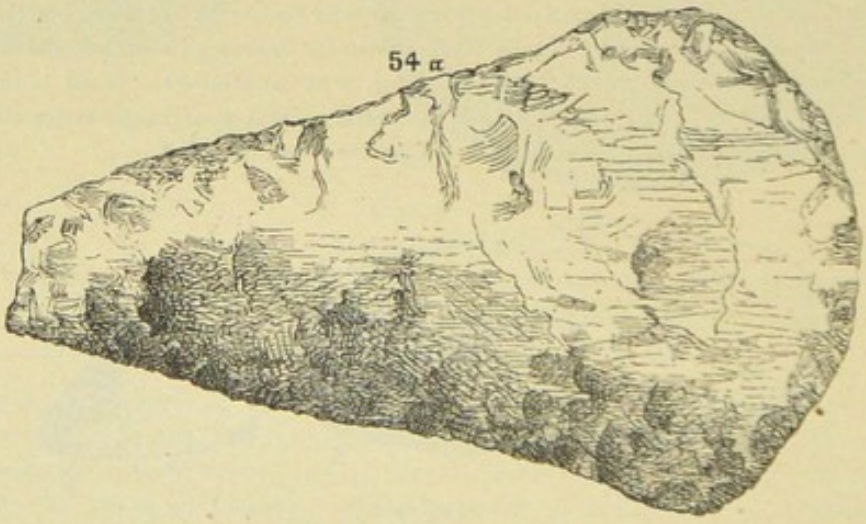



Fig. 51.

DIGGING IMPLEMENT.

Quartzite, Illinois.

MODELS OF PREHISTORIC RUINS IN THE UNITED STATES.

Great Etowah Mound, Georgia. This mound stands upon the north bank of Etowah Creek, near Cartersville. Its base covers a space of about 3 acres, and stands at a level of 23 feet above low water in the river. The body of the mound has an irregular form and is longest on the meridian, its diameter in that

direction being about 270 feet. On the top is a nearly level area of about an acre, the average height of which is about 50 feet above the base. A broad ramp or graded way winds upward from the plain, around the south face of the mound, somewhat more than halfway to the top. There are two smaller mounds close by—one on the south, another on the southeast—each about 100 feet distant, their bases nearly square, and of nearly equal dimensions. Both are truncated. Most of the material of these mounds is the rich mold of the bottom lands, with occasional lumps of red clay. Prior to the clearing of the land, large trees flourished on the top and on the slopes. Scale: 1 inch to 10 feet, 1:120. Area represented, about 3 acres.

Ancient earthworks, Illinois. This model represents one of the most extensive works of the Mound Builders in this country. It is situated in the Mississippi bottom, 15 miles from Anna, in Union County, Ill. The inclosing wall is rudely square in outline and its length exceeds 3,200 feet. It incloses an area of about 28 acres and is from 2 to 4 feet high, with a width of from 20 to 25 feet. The northeast quarter of the inclosure is bounded by the creek and has no inclosing wall. Within the inclosure are found four mounds and a great number of circular depressions, or "hut rings." The largest mound is about 12 feet high, the smaller ones about 100 feet in diameter and 5 to 9 feet high. The circular excavations are nearest the creek, and number over 100. They vary in diameter from 20 to 50 feet, and in depth from 1 to 3 feet. Outside of the bounding wall, on the southwest corner, occurs a large mound, 150 feet in diameter and over 4 feet high. Near it are three large circular depressions 120 to 150 feet in diameter and from 5 to 7 feet deep. Scale: Horizontal, 1 inch to 30 feet, 1:30; vertical, 1 inch to 6 feet, 1:72. Area represented, about 57 acres.

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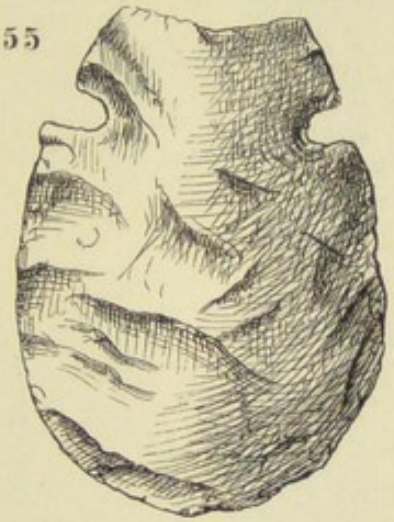


Fig. 52.

DIGGING IMPLEMENT.

Gray flint, Illinois.

Section of Little Etowah Mound, Georgia. This is one of the smaller mounds of the Etowah group, in Bartow County, Ga. It represents a section of a mound, showing the interior construction—the different layers of earth which compose it, the position of the stone burial cists which were found in it, the position of bones, etc. (See Great Etowah Mound.) Scale: 4 inches to 5 feet, 1:15. Area represented, about 1.10 acre.

Burial pit under a mound in Caldwell County, N. C. The excavation made revealed the fact that the builders of the mound had first dug a circular pit, with perpendicular margin, to the depth of 3 feet, and 38 feet in diameter, then deposited their dead in vaults or graves built of water-worn bowlders and clay merely sufficient to hold them in place. Each one of these contained a human skeleton. There were five skeletons in the pit which were uninclosed.

Pueblos of the United States. The Pueblo country, so called, in the United States of North America, lies in Colorado, Utah, New Mexico, and Arizona. It occupies the territory of and between the head waters of the Rio Grande on the east, of the San Juan and its tributaries on the north, the Colorado on the west, and the Gila on the south. This territory is desert in large acres. The pueblos depend for their water on springs as well as on streams. The models of the pueblos of Zuñi, Taos, and Wolpi have been chosen as examples, the former from the river plain, the latter from the mesa, or high table-land. Zuñi is on the Zuñi River, a tributary of the Little Colorado, in the western part of New Mexico, about 40

miles southwest of Fort Wingate, and belongs to the Indians of that name. Taos is situated on the Taos River, a tributary of the Rio Grande in New Mexico, northward about 200 miles from Santa Fe. It was occupied by Spaniards in the time of the Conquerer and was the scene of a sanguinary contest in the great rebellion of 1690. Wolpi (spelled also Hualpe) lies at the extreme west of the Pueblo country and belongs to the Tusayan Indians called Moquis, a name they do not accept, preferring that of Hopi. Some of the transparent photographs in the windows show views of pueblos and pueblo life.

The first knowledge had by the Europeans of New Mexico and Arizona was about the year 1530, when it was vaguely called the country of the "Seven Cities." In 1540 Vasquez Coronado, governor of New Galicia, organized an army of 300 Spaniards and 800 Indians, and set out for the north to conquer the "Seven Cities of Cibola." It is highly probable that these "Seven Cities" were located in the valley in which Zuñi is now found. At any rate all that country was subjugated and an expedition was sent out to the northwest to conquer other rumored "cities" in that direction. Supposed traces of this expedition in the shape of Spanish mail armor, Spanish bridles, bits, etc., have been found far north, in Kansas, and even in Minnesota. In the course of this expedition seven villages were subjugated, and priests were left with them to inculcate the religion of the conquerors. This region was called Tusayan.



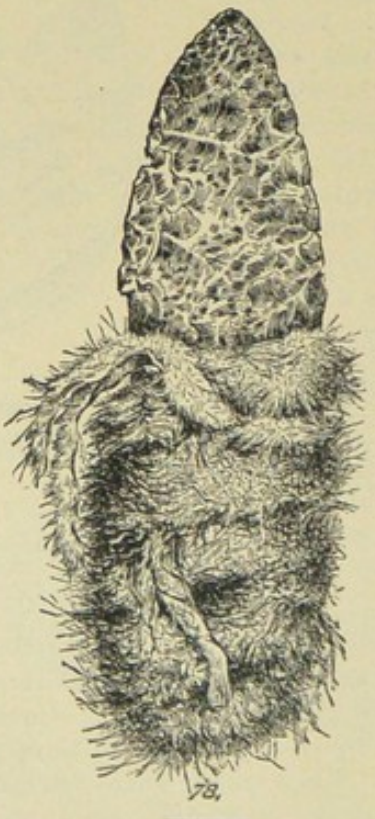




Fig. 53.
OBSIDIAN DAGGERS.
Hoopa Valley, California.

At a general insurrection of the natives, which took place in 1680, the Spaniards were expelled from Tusayan as from the other pueblos, but while all the others were reconquered within a few years and rechristianized, the power of the Spaniards never was reestablished as far west as Tusayan, and since 1680 there has not been a priest stationed among them. They practice to-day essentially the same rites and ceremonies as their forefathers before the discovery by Columbus, and are therefore of peculiar interest in prehistoric science.

Zuñi is the largest and most populous of the existing pueblos, and is supposed to have contained a population of nearly 5,000. There are, in 1880, but 1,602. The houses are built of small stone laid up as a wall with little mud mortar, the interstices chinked and the wall plastered, still with mud mortar. The Spaniards during their 150 years' occupation taught them the art of building with adobe or sun-dried bricks, of which material the old church in Zuñi is constructed

and is still standing, but the improvement was not adopted. The houses are usually well finished inside, are neatly washed with white clay, and are comfortable habitations. The floors are occasionally made of flagging, but are

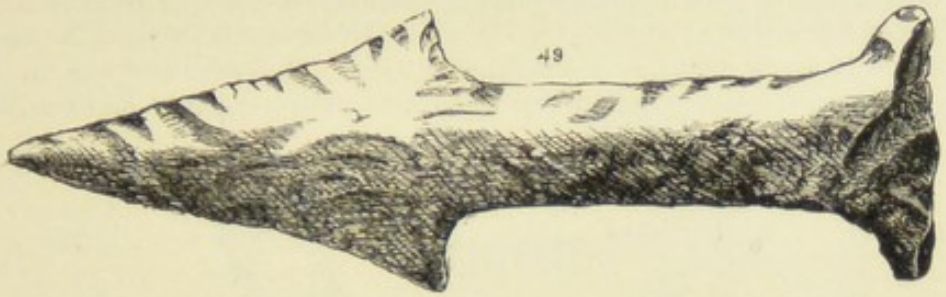


Fig. 54.

CHIPPED STONE DAGGER WITH HANDLE.

Gray flint Mound, Alabama.

usually plastered with clay adobe. It is smooth and readily kept clean. The roofs are constructed of cross rafters, filled in with willow brush. Light is admitted through windows formerly made of plates of mica, for which glass, when obtainable, is now substituted. The houses on the ground are usually

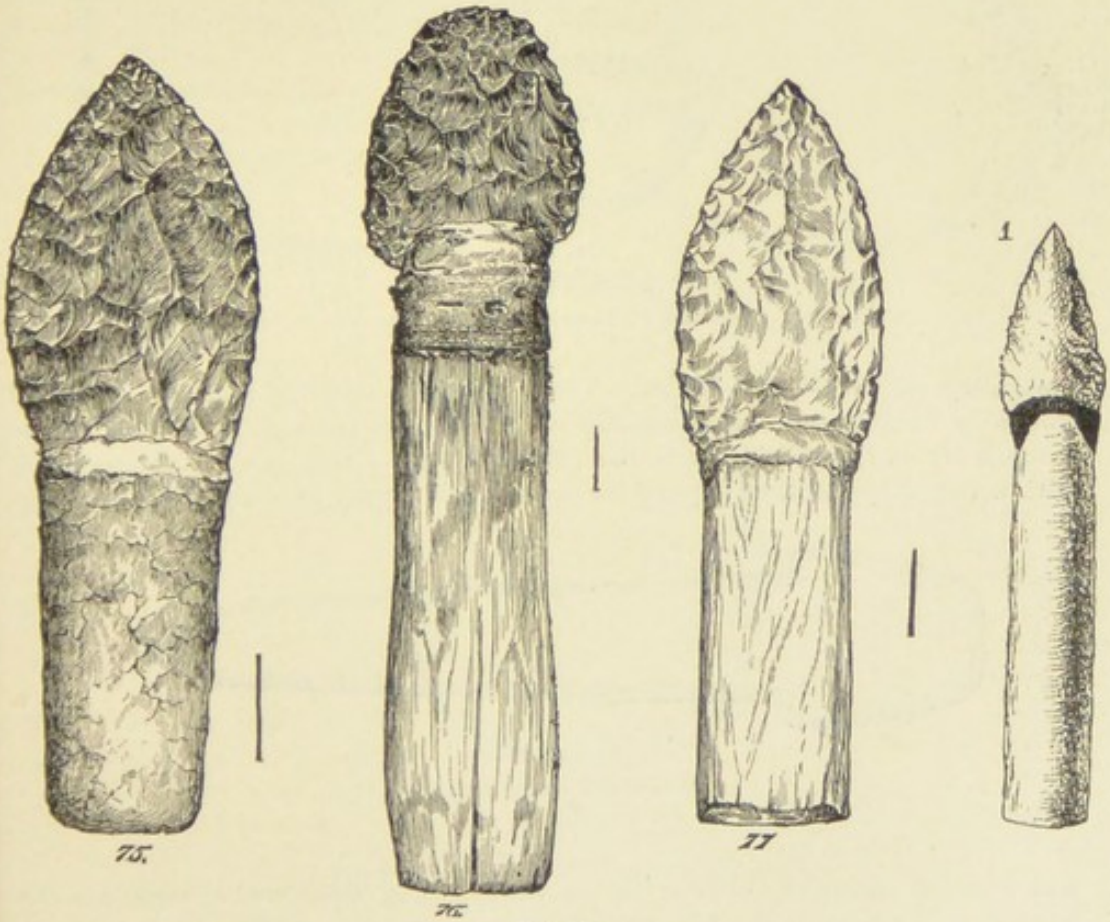


Fig. 55.

STONE KNIVES IN WOODEN HANDLES.

Hoopa Valley, California.

closed, the entrance being through the upper stories, which are reached only by means of ladders, as shown in the model. The terraces are favorite lounging places for the inhabitants. The oval, dome-shaped structures close to the houses

are adobe ovens, used for baking the sacred or feast bread. In wicker bird-coops are kept eagles, hawks, and turkeys, which are regarded as sacred birds, and from which are plucked the feathers used in the dance and ceremonials. Covered ways permit access to several parts of the town. The streets are not broad enough to permit the passage of wagons, and the transportation is by horses and donkeys.

Wolpi is one of seven contiguous Tusayan villages. These villages are located on the flat tops of tongues or points of the mesas projecting into and overlooking

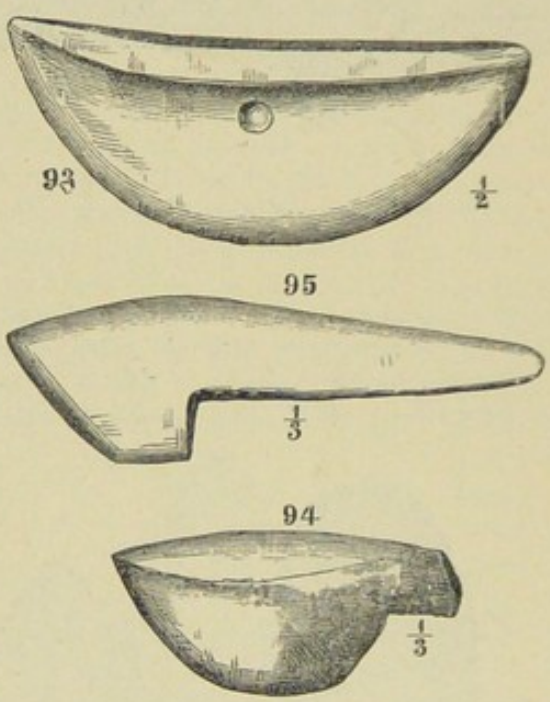



Fig. 56.

SLATE KNIVES.

93, black slate, Pennsylvania; 94, red shale, Pennsylvania; 95, red shale, Indiana.

the valley 400 or 600 feet below. The houses are built in long rows, several stories in height, each story usually set back so as to form a terrace. Their gardens are on the hillside or in the valley below. There is no running stream within 40 miles, and they depend for their scant supply of water on the springs

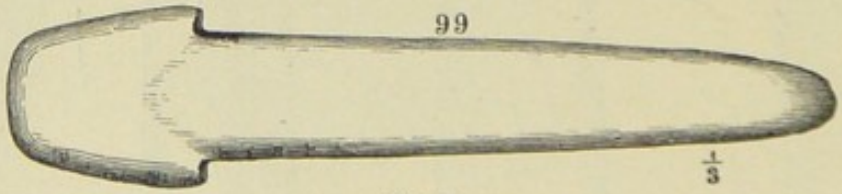



Fig. 57.

SPADE-LIKE IMPLEMENT.

South Carolina.

and wells far down the hills or in the valley. The Tusayans of these pueblos number about 2,000. They are sedentary and peaceful, and live much as do the Zuñis. They may not all have the same origin, for one of the pueblos, Tewa, speaks a different language from the others.

Cliff ruin, "Casa Blanca." This prehistoric ruin, situated in Canyon de Chelly, Arizona, is a combination of village and cliff dwelling; whether originally so is unknown. The lower part contains a large circular chamber 16 feet in diameter,

with about 22 well-defined rooms, and traces of others. Some of the walls are adobe and are very thin. The upper portion of the cliff is situated in a natural cavity in the rock, measuring about 94 feet in length and 40 feet in depth. It consists of 13 rooms and is built out even with the edge. One of the rooms is supported by a well made buttress, a feature rare among these ruins. Traces of walls which once extended three stories up from the ground, almost to the floor

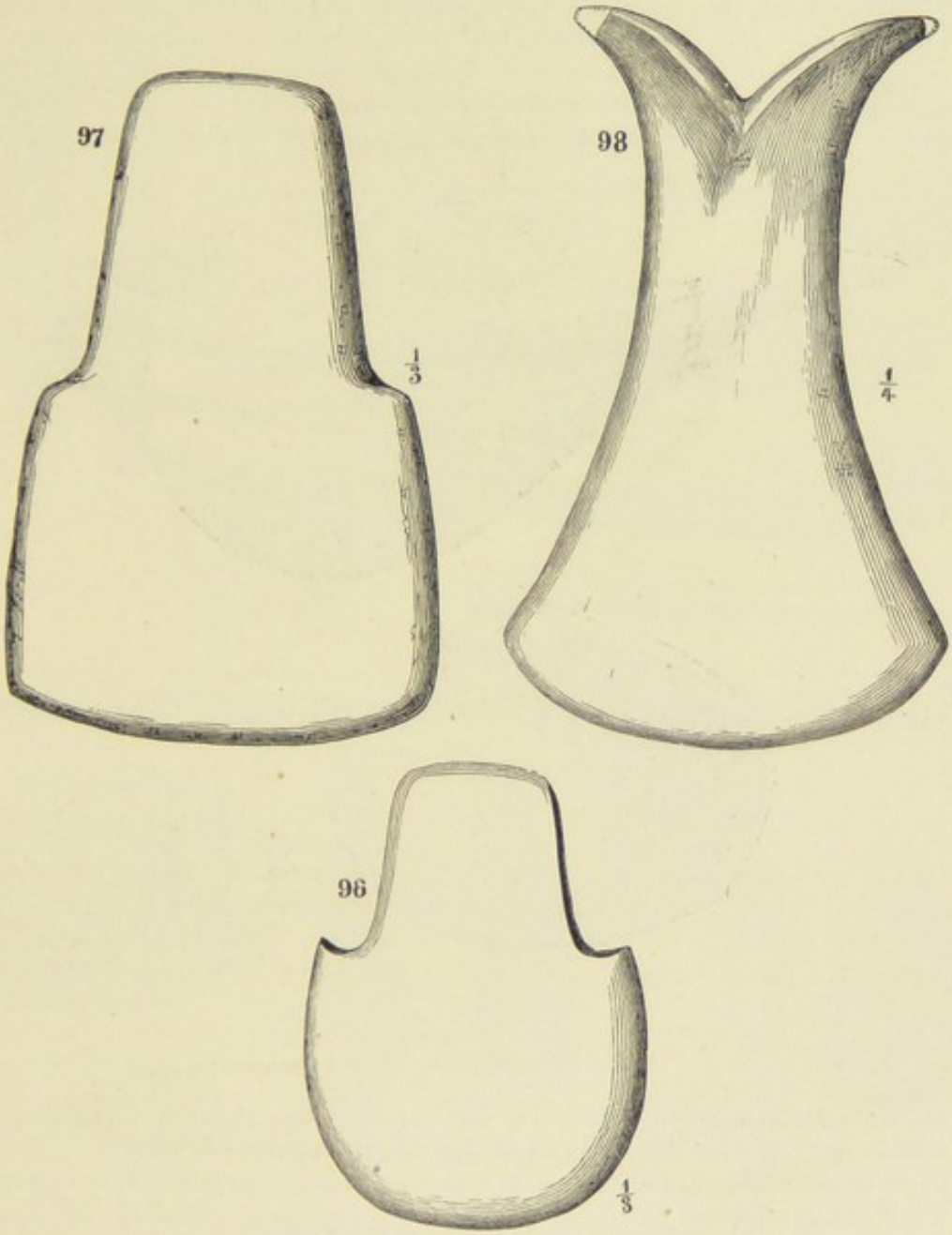



Fig. 58.

SPADE-LIKE IMPLEMENTS.

96, greenstone, Kentucky; 97, Arkansas; 98, South Carolina.

of the upper cavern, can still be seen on the cliff face, and access to the upper portion was had, doubtless, by means of terraced roofs of this part. The overhanging cliff extends upward for nearly a thousand feet above the ruin. The principal room in the upper portion is two stories high and has been coated with a wash of white clay trimmed with yellow; hence the name of Casa Blanca. Scale, 1 inch to 5 feet, 1:60. Area represented, 150 feet high, 210 wide.

Ruined Pueblo of Wejegi, Chaco Canyon. This ruin is on the north side of the Chaco Canyon, New Mexico, close under the cliff, about 9 miles above the junction of the Escavada. The interior dimensions of the ruin are about 170 by 118 feet. It forms three sides of a hollow square, and presents a front of 15 rooms on the longer or 11 rooms on the shorter side. In the north row, some of the walls are still standing to heights of from 12 to 18 feet, and this part of the structure was at least three stories high. The walls are of stone, shaped as shown, and laid up with mud or stone mortar of mud without lime. On the ground plan there are 93 rooms. The north or main row is 5 feet deep; the east and west wings are each 4 rooms deep. The rooms on the ground average about 9 feet square. There are no openings in the outer wall. There are two circular "estufas" 23 feet in diameter, in the corners formed by the intersections of the wings with

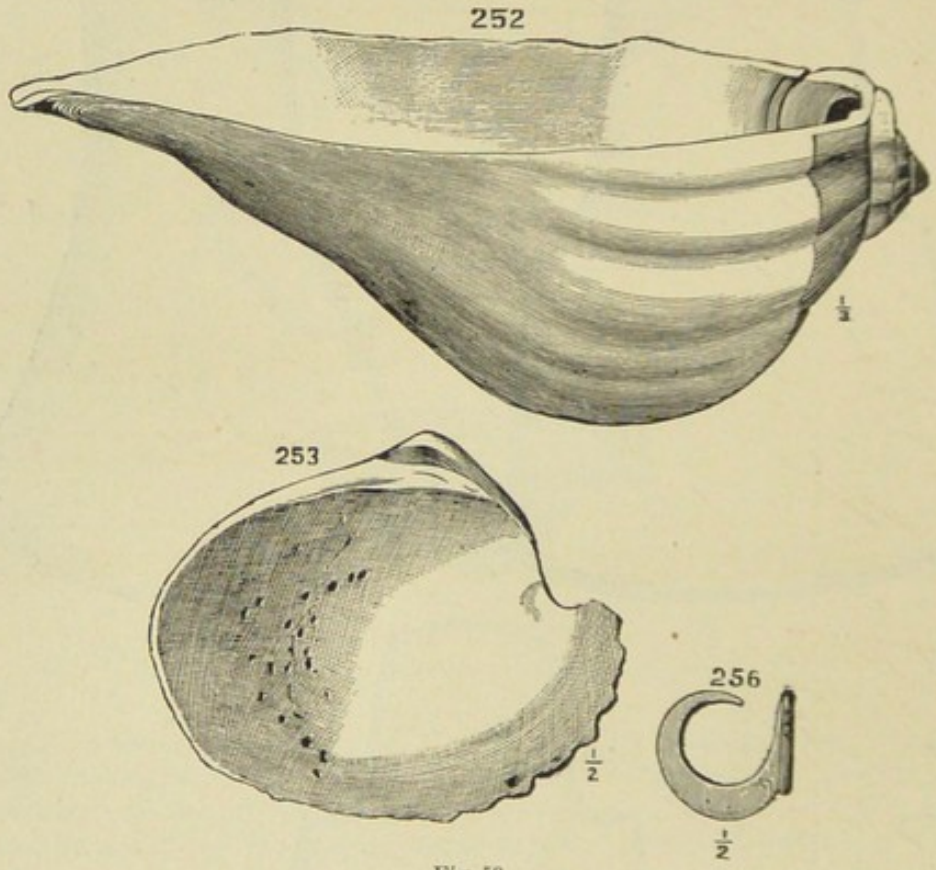



Fig. 59.

SHELL IMPLEMENTS.

252, Pyrula shell, Indiana, mound; 253, Pyrula shell, Kentucky, mound; 256, Haliotis shell, California.

the main row, completely inclosing the building, but there is no standing wall remaining. The building was once terraced from the court outward. It probably contained about 210 rooms, and on the basis of the proportion existing in the present inhabited pueblos, probably had a population of about 300 persons. Scale, 1 inch to 5 feet, 1:60. Area represented, about 1 acre.

Ruined tower, Colorado. This ruin is within a mile of McElmo Creek, a small tributary of the Rio San Juan, in southwestern Colorado. The ruin seems to have been a compact village or community dwelling, consisting of two circular buildings and a great number of rectangular apartments. The greater part of the village is in such a state of decay as to be hardly traceable among the sagebrush and rubbish. The apartments number nearly a hundred and seem generally to have been rectangular. The walls of the tower only are standing, and the only portion represented. It is constructed of roughly hewn stone, and is one of the best specimens of this ancient architecture. Scale, 1 inch to 2 feet, 1:24. Area represented, 64 by 64 feet.

Mummy Cave, Canyon del Muerto, Arizona. This ruin receives its name from a well preserved mummy discovered in a cist near it. It stands on a shelf as repre-

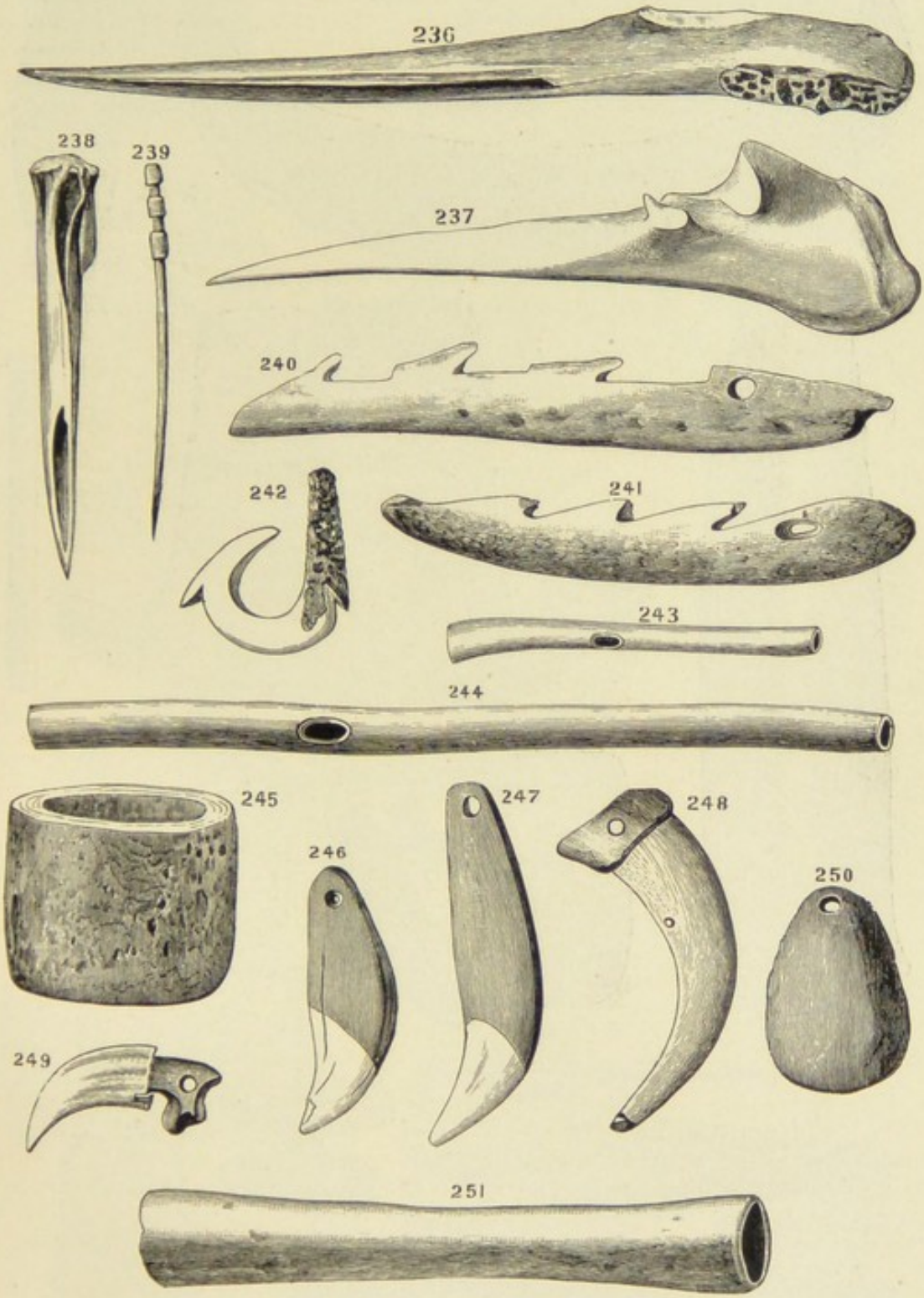



Fig. 60.

HORN AND BONE IMPLEMENTS.

sented by the model, but has been much reduced from its original width by crumbling, and is at a height of 200 feet from the bottom of the cliff. The dwelling occupied two unequal crescent-shaped caverns, and follows the configuration

of the rock. At the junction of the crescents on a narrow shelf was a rectangular tower three stories in height, the walls and floors of which were of better mate-

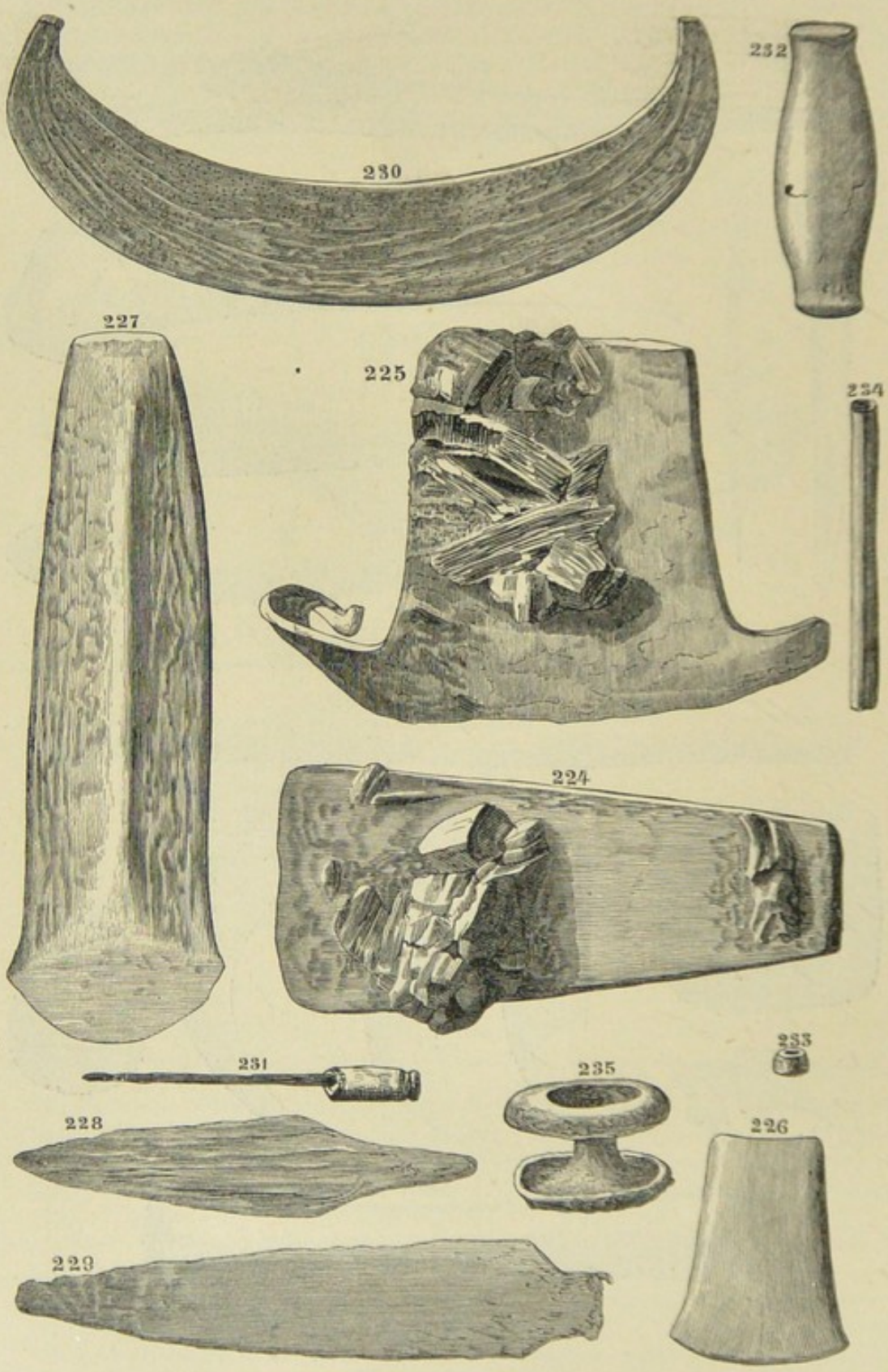



Fig. 61.
COPPER IMPLEMENTS AND ORNAMENTS.
United States.

rial and construction than those on either side. The village contained several constructions which might have been "estufas" (sweat houses or cisterns), or

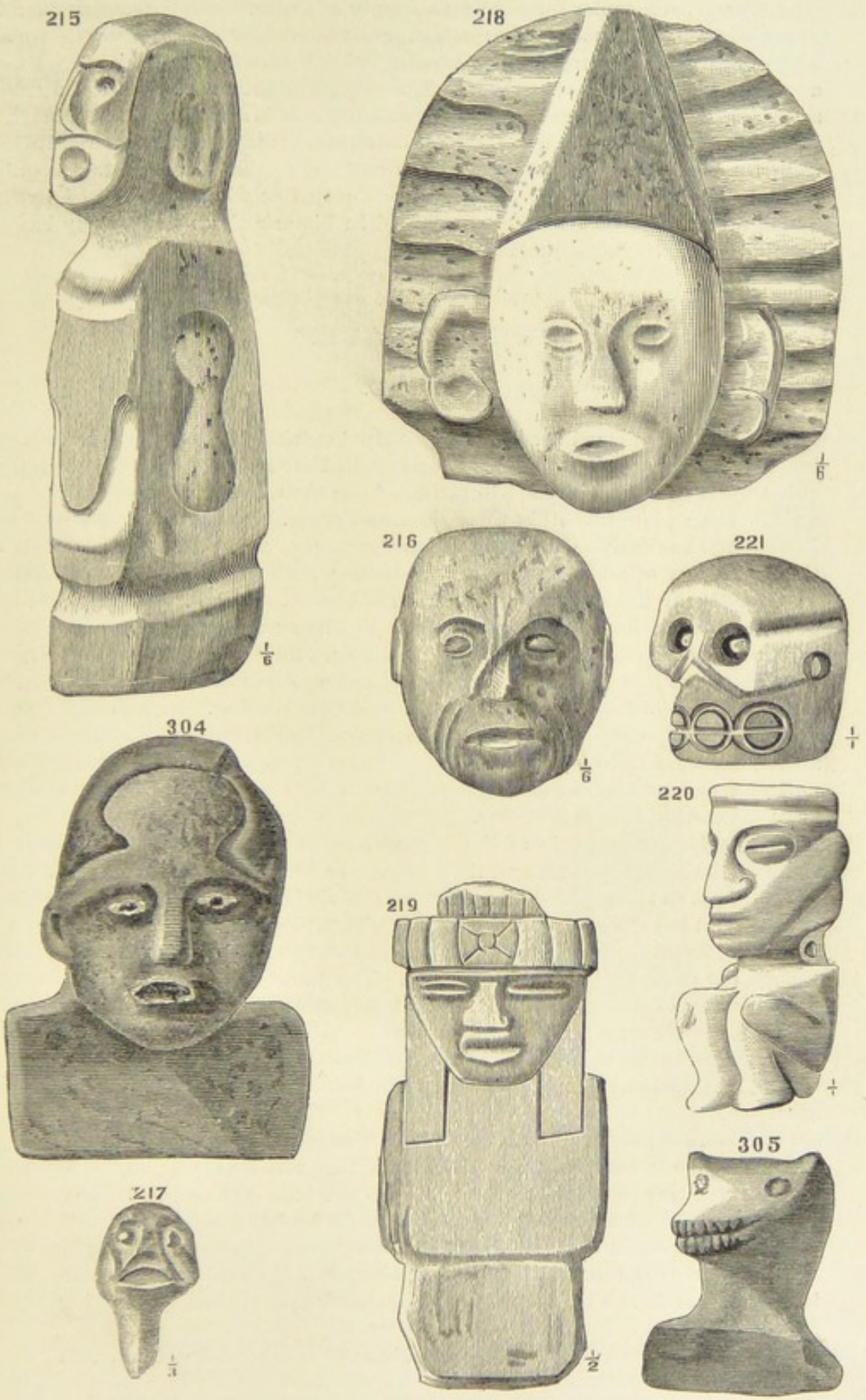



Fig. 62.

ABORIGINAL TERRA COTTA AND STONE SCULPTURES.

304, clay figure, Alabama; 305, clay figure (wolf) (?), Alabama; 215, limestone, Tennessee; 216, limestone (human head), Virginia; 217, ferruginous sandstone, Ohio; 218, volcanic rock (human face), Tuxpan, Mexico; 219, greenstone (?), Mexico; 220, alabaster, Mexico; 221, silicified wood, Yucatan.

might have been tanks for holding a supply of water. No means other than is apparent from the situation have been suggested as to how the water was obtained. The walls are of masonry. The stones of which they were made are lying about as when the walls were destroyed. The village might have contained a thousand inhabitants. The cave and cliff dwellings of this country are at all heights in the cliffs, from 30 to 800 feet from the bottom, and the same variation in height from the top of the cliff. These towers and some other monuments are quite prehistoric, and were in the present ruined condition when first visited by the Spaniards, and have never been occupied in historic times nor by any known peoples. Scale, 1 inch equals 5 feet.

## BRONZE AGE.

### EUROPE.

The Bronze Age is so named because the principal cutting implements were made of bronze. It succeeded the Neolithic or Polished Stone Age in Europe, and preceded the Iron Age; and had a duration of one thousand or two thousand years, and in some places possibly three thousand years. No written history of the Bronze Age has descended to us. Bronze is a composition of copper and tin in the proportion of about 10 to 1, and is harder than either of its components. The supply in Europe during the Bronze Age seems to have come from the Orient. Bronze implements were made by hammering and casting, and the bronze was used many times over by recasting. No less than fifty-seven bronze foundries have been discovered in France, and a proportionate number in Italy, the one at Bologna having 14,000 pieces ready for melting. Bronze casting was extended to include all manner of prehistoric implements, utensils, and ornaments, and continued into protohistoric times, Etruscan, Grecian, Roman, etc., until its use became as at present. Seventy-five specimens of bronze and 1 mold for casting knives and pins.

Bronze hatchets. The people of the Bronze Age in Europe were descendants of those of the Neolithic Age, and their bronze hatchets were at first in the same general form as the polished stone hatchets of their ancestors. Copper hatchets of this form have been found, which has given rise to a belief in a Copper Age preceding Bronze. Bronze hatchets passed through several stages of evolution, though the steps are not always certain. The first bronze or copper hatchets were hammered straight and flat, though sometimes with projecting wings and stops on the edges; second, hatchets cast in molds and with wings and stops; third, the wings were increased in size and hammered over to clamp the handle; fourth, the socket. Stops and rings appeared in some of the styles. Five specimens.

Bronze hatchet, first style. Plain, straight, the edges thickened by hammering to give strength after the fashion of a T-beam of the present day (fig. 63). Two specimens in this tray are of copper. These are rare. Many of the bronze hatchets of this epoch, and all the copper ones, were made by hammering, but casting was soon introduced and became universal. They were inserted in a long handle of wood, and doubtless served both as implements and weapons. These are called in France hatchets a bords droits. Reproductions of molds for casting are in adjacent trays.

Bronze hatchets, second style. These are always cast and always handled. They appear to have been an evolution from the first style. The handle, still of wood, was either naturally or artificially bent at the poll; was split and inserted. The stop at the bottom prevented further splitting, while the ring on the inner side afforded means of lashing to the handle (fig. 64). They are called in France a talons. Reproductions of molds for casting them are in adjacent trays.

Bronze hatchets, third style. These are likewise always cast and always handled. The handle was bent, split, and the hatchet inserted as in the preceding epoch. The wings were cast straight, and, on insertion of the handle, were closed over it on each side and hammered down, thus holding the handle firmly (fig. 65). No. 25243 shows a piece of the original wood thus inserted. Reproductions of molds for casting them are in adjacent trays.

Bronze hatchets, fourth style. Always cast and always handled. During this epoch of the Bronze Age this form was the ne plus ultra of bronze hatchets. They were the hardest, best composition, and held their edge the best. They were most effective whether as implements or as weapons. The handle was inserted in the socket, and, as usual, bent at the poll and lashed with a ring. The square forms were peculiar to Brittany, where they have been found en cache (fig. 66). (M. de Mortillet found a cache of 100 at Moussaye, and M. de Chatelier one of 92 near Pont l'Abbe.) They were occasionally deteriorated in quality and size, and were placed in the graves as votive offerings to the dead. Representations of molds for casting are in adjacent trays.

Bronze spearheads. These are all cast. Their use continued into the Iron Age, and even into historic times. The Etruscans and Romans used them as well as did their predecessors.

Bronze swords, poniards, daggers. These continued in use until a late period. They spread over Europe and are traceable by their different styles. Nos. 101584–101586 are from Sweden; 101121 from Brittany, yet this form of grip is often found in Italy. No. 101342 belongs to the Iron Age, and shows the scabbard and the netting in which it was held. The three complete specimens are casts—originals at Konigsberg, Prussia. Nos. 101584, 101585 are Swedish; 101125 is from Brittany; they are from a foundry of the Bronze Age, and have been broken into bits to be melted and recast.

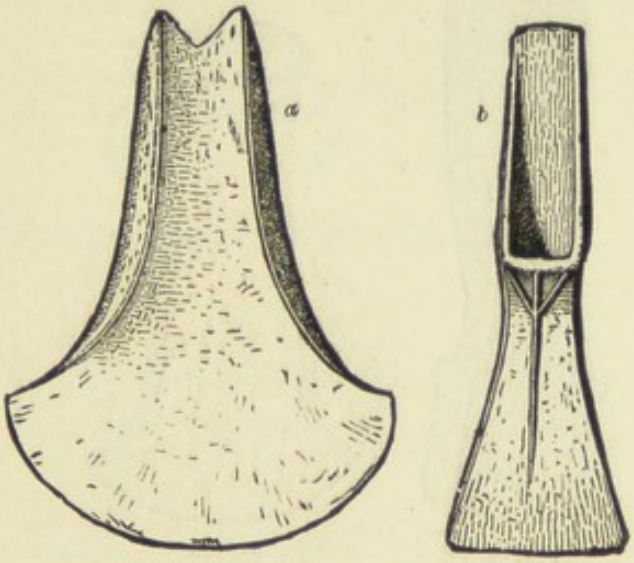



Fig. 63. Fig. 64.

BRONZE HATCHETS.

Europe

Bronze sickles. These were cast in molds of stone or bronze, possibly of sand or clay. One of these molds is in the adjoining tray. The implement was attached to a wooden handle elaborately carved to fit the hand. (See No. 139765, right-hand side of this tray, for example, found by Dr. Gross at the Station of Moeringen, Lake of Bienne, Switzerland; a cast, the original of which is in the Government Museum at Berne.) The sickles were lashed firmly to the handle, were provided sometimes with holes, sometimes with rainures, and sometimes with button-like protuberances, which, when the implement was fitted to the handle, served to fasten it firmly.

Bronze knives. These are principally from the Swiss lakes. The small labels indicate stations in Lake Neuchatel. They were usually cast and usually hardened by cold hammering. A pair of molds are in the adjoining tray. Notice the elegance of form and decoration, superior even to those of modern times.

Bronze razors. This utensil appeared in use in the Larnaudian epoch. The large crescent-shaped were continued into the later, possibly the Iron Age. They were cast and then hardened by cold hammering. Despite their appearance, they could be held in the hand with as much firmness as the modern razor.

Bronze hairpins. At the station of the Bronze Age at Wallishofen, Lake Zurich, were found, in 1884, about 2,000 such pins. Some were 16 inches in length with a head as large as a walnut. They were decorated with concentric circles and not infrequently colored stones more or less precious were inserted.

Bronze fibulæ (safety pins). These were used during the Bronze Age, continuing throughout the Grecian, Etruscan, and Roman civilizations, to be used as pins for fastening their garments. They are usually found on opening the ancient graves of the latter peoples about the shoulders and breast.

Bronze center base of shield (Roman clipeus). Remark the decoration by incised lines in concentric circles. Similar objects have been found with holes on one side near the edge, supposed to have been for suspension. The shield of the Romans (and so also believed of the Etruscans) was of immense size, made sometimes of leather or hide, and covered with buttons with protruding points for spikes. No. 101812 is one of these spikes.

Bronze strigile. This instrument was used in the bath and by athletes for scraping the skin. The hollow or spoonbill held the oil poured into it from the little flagon, and with it the skin was anointed. Notice some with closed handles for closed rings. No. 101402 bears the private mark of the maker or owner.



Fig. 65.

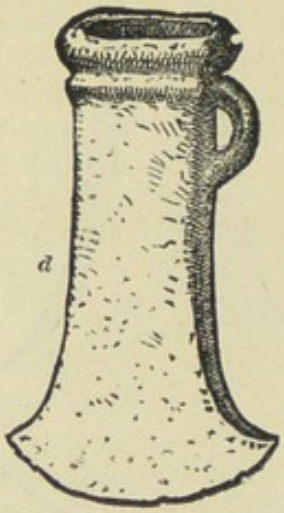



Fig. 66.

BRONZE HATCHETS.

Europe.

Bronze belt of a warrior (fragment). Found in a tomb near Vulci. Only one end or front part has been preserved; the center has decayed by contact with the earth under the back of the extended corpse. The holes near the edges secured a binding, possibly of leather or cloth. Notice the small nails for this purpose. The point is split and spread each way over the binding. Here is the original of the modern McGill patent split spike or paper fastener, specimens of which lie by its side.

Steatite molds for bronze hatchets (cast). Each side thereof has been utilized for a similar purpose. Found in Cisternes-la-Foret, Puy-de-Dôme, by M. Brouillet. Original in Musee Clermont-Ferrand.

Bronze molds for bronze hatchets. A pair of molds complete for casting winged hatchets. The wings were made straight, to be hammered over the split handle and fasten it firmly. The ring for lashing the handle, the orifice to receive the molten metal, and the vents for escape of air are plainly to be seen. Part of the treasure of Vandrevanges, near Sarrelouis, Alsace. Gathered by Victor Simon. Original at Musee Saint Germain, Paris. No. 8102.

Bronze molds for socketed bronze hatchets. Cast of a mold, in two pieces, for socketed bronze hatchets, fourth style. The ring on the side is plainly shown; the core is absent. Found at Bricquebec, Seine-Inferieure, France.

Terra-cotta mold for bronze hammers. With core complete, for socketed hammers. From the station of Moeringen, Lake Bienne, Switzerland. Gathered by Dr. Gross. Original in Government Museum, Berne, Switzerland.

Mold for a bronze knife, with a socket. Cast of a mold, with core, for bronze knives, with a socket for the insertion of the handle instead of a tang. Complete in three pieces. Found by Dr. Gross, Lake Neufchatel. Original in Government Museum, Berne, Switzerland.

ABORIGINAL MODES OF HAFTING STONE IMPLEMENTS. UNITED STATES.

Various North American tribes still use, though to a limited extent, weapons and tools of stone and bone, hafting them according to the methods in vogue among their forefathers. Such modern specimens illustrate the manner in which the stone axes, celts, adzes, and other implements of earlier date were rendered serviceable by the addition of handles, and are here shown for purposes of comparison:

FIG. 323. Grooved greenstone ax, with a hickory withe bent around the groove. The ends of the withe, which form the handle, are firmly bound with strips of raw hide below the stone head, near the middle, and at the lower part. From the Dakota Indians.

FIG. 324. Polished stone hatchets of argillite, chipped thin at the poll, to fit into the cleft end of an oaken stick, where it is secured by twisted cords of sinew. From the Indians of the Missouri Valley.

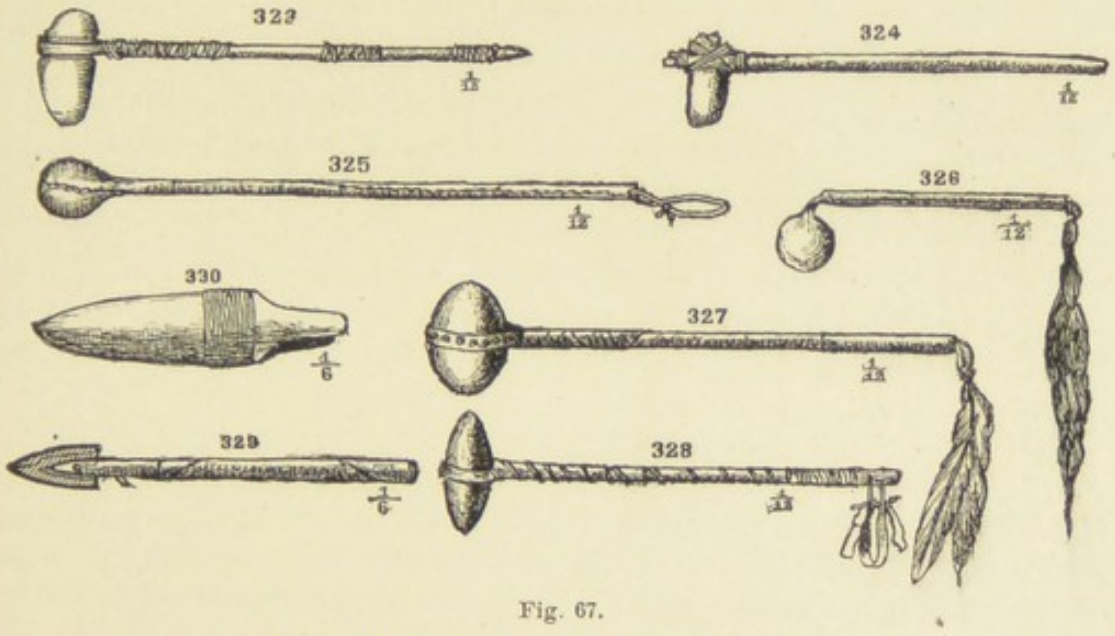



Fig. 67.

ABORIGINAL METHODS OF HAFTING STONE IMPLEMENTS.

FIG. 325. War club, consisting of a solidly round stone, attached to a long handle with rawhide sewed with sinew, and a looped thong in the end for the wrist. From the Dakota Indians.

FIG. 326. A weapon of similar character. In this instance, however, the handle is much shorter and the round stone head is not firmly attached by flexible thongs. The rawhide covering of the weapon (including the head and handle), consists of one piece taken from the caudal portion of an ox, a part of whose tail forms an ornamental appendage to the handle. From the Apaches.

FIG. 327.—A war club with a well-wrought and polished egg-shaped head of yellowish limestone, and strengthened by a casing of rawhide, which extends about 6 inches below the head. The part of the ashen handle that encircles the stone is ornamented with large-headed brass nails. The extremity of the handle, again, is enveloped by a tightly fitting covering of rawhide, taken from the caudal part of the buffalo. A tuft of the animal's tail has been retained for decoration, and a feather of the wild turkey is attached to the hair by a narrow strip of dressed skin. From the Blackfeet.

FIG. 328.—A weapon of the same description. The polished head is smaller and more elongated than in the original of fig. 327. The handle shows the usual casing of rawhide, and is looped for a wrist strap. From the Mississippi River Valley.

FIG. 329.—Dagger knife, chiefly used as a hunting weapon. It consists of a ground lancehead-shaped blade of dark slate, inserted and riveted by means of a wooden peg into a barbed ivory socket, which is attached to a short cylindrical handle of pine wood. From the natives of Nunivak Island, Alaska.

FIG. 330.—Scabbard of the dagger knife just described. Formed by two hollowed pieces of pine, which are held together by a binding of split spruce roots.

# CATALOGUE OF THE ETHNOLOGICAL COLLECTION OF THE UNITED STATES NATIONAL MUSEUM OF THE SMITHSONIAN INSTITUTION.

By WALTER HOUGH, Assistant in the Department of Ethnology.

This collection, which relates to the present condition of the Indian tribes north of Mexico, is a part of that intended for the Chicago exhibition, and is displayed here for the first time.

In accordance with the method of the National Museum, by which Dr. Goode and his colleagues propose to unite popular education with scientific education, the specimens exhibited are described and explained, so far as possible, by means of maps, diagrams, illustrated books, photographs, and labels.

Although in forming this partial collection, under the personal supervision and care of Prof. O. T. Mason, articles of the greatest importance from their artistic or unusual character have been selected from the collection, their scientific and comparative order has not been changed.

The series, consisting of more than 5,000 photographs, transparencies, lithographs, paintings, and engravings from illustrated books, represents, as a whole, the various phases of Indian life, and form a complete museum of drawings.

Independently of the large collection of works on this subject by American authors here brought together, the publications of the Smithsonian Institution and the Bureau of Ethnology form an important library for study.

The exhibit contains sufficient materials for writing and illustrating a work on the aborigines of the northern part of the two great continents discovered by Columbus.

This collection has also for its object the display of the method of study and installation of the Department of Ethnology of the United States National Museum.

All human activities and industries should be regarded as a part, or small part, of the system of nature, and should be studied in accordance with the laws and operations of natural history. Every article which is the result of a human action should be studied, first, in the mode of its manufacture (ontogeny); secondly, in its relation to other

products of human action of the same class or similar classes (phylogeny); thirdly, in its historical evolution; fourthly, in its geographical, original, and national distribution.

Visitors are requested to begin the examination of this collection at the left corner of the glass cases, and to go on examining from left to right, and from the top to the bottom, as if they were reading a book.

CASE I.

*Specimens of arrows from North America.*—This collection comprises the kinds used by the aborigines of North America.

By beginning the examination of the specimens contained in this case on the left, they may be studied in their order from Labrador (including West Greenland) on the east and Alaska on the west, across the continent, to Mexico, above the Aztec territory.

*Plate armor.*—Composed of three layers of ivory plates 1 inch wide and 6 inches long.

Every plate contains 6 holes, through which passes a thong made of deer hide, which fastens them together. These plates are arranged like scales, in order to afford better protection in war against the enemy's missiles. The lower part contains 43 plates, and the middle 38. The upper row is composed of 2 sections: One of 10 plates, protecting the breast, and the other of 8 plates, protecting the upper part of the back. The armor is kept in place by leather straps.

This armor greatly resembles that formerly used in Japan, which fact has given rise to the supposition that the primitive inhabitants or aborigines of Alaska had some relations or connection with the Japanese. Length of the armor when opened, 3 feet 8 inches. Eskimo of Cape Prince of Wales, Alaska, 1892. 153491. Collected by H. R. Thornton.

*Plate armor.*—A fragment consisting of 9 iron plates, resembling those of the Japanese suits of armor, fastened together by three thongs.

This specimen was found in a marsh on Cape Prince of Wales, near the ivory armor (No. 153491) before described. Each plate measures 4¾ inches in length by 1½ inches in width. 1892. 153492. Collected by H. R. Thornton.

*Armor.*—Composed of 32 pieces of cedar and other kinds of wood, fastened together by a fine cord of sinew and other material.

The breastplate and backpiece of the armor are separate. A section of 8 small pieces protects the throat, and another similiar set of 7 pieces protects the nape of the neck. The armor is fastened on the right side by a wide leather strap, and on the left by a strap and loop. A button placed on the front of the collar probably served to hang the quiver. Length, 21½ inches; width, 20 inches. Sitka, Alaska. 9243. Collected by Dr. A. H. Hoff, U. S. A.

*Wooden armor.*—Composed of 74 pieces of wood of equal length and half an inch in diameter.

These pieces of wood are woven together by strips of leather thongs and cotton cord, alternating. The strips, both of leather and cotton, pass in front of two of the pieces of wood and behind the next two, and repass at the side in the same way, but continuing to alternate; that is to say, the whole forms a twining from the top to the bottom and from the right to the left, which interweaving produces a very good external effect. Length of the wooden pieces, 23½ inches; width of the leather strips, 2½ inches, and of the cotton strips, 1¼ inches. Tlinkit Indians (Koluschan stock), Sitka, Alaska, 1881. 49213. Collected by J. J. McLean.

*Armor.*—Made of tanned leather, cut into fringes on both sides, and ornamented with blue and red drawings.

The armor is attached to the body by leather straps. This armor is a good protection but is extremely troublesome to the warrior. Hupa Indians (Athapascan stock). California, 1886. 126908. Collected by Lieut. P. H. Ray, U. S. A.

*War club.*—The head is an oval stone, fastened to the wooden handle by a strip of leather, which also covers the entire handle.

The leather is covered by a sheet of tin 6 inches longer than the handle, ornamented with beads and a hanging leather strap also embroidered with beads. Length, 29 inches; length of the head, 6½ inches. Yankton Indians (Siouan stock), Yankton Reservation, Dakota. 8382. Collected by Dr. A. B. Campbell, U. S. A.

*Club (slung shot).*—The head is of stone, and is of the shape of an egg; the handle is of wood. The whole club is strongly covered with leather.

The head hangs at about an inch from the handle, suspended by the same leather which covers both. The handle is ornamented with strips embroidered with beads, and a plume of horsehair hangs from it. Length, 23 inches; diameter of the head, 2 inches. Ute Indians (Shoshonean stock), Ute Reservation, Colorado, 1891. 153047. Collected by Theo. Moller.

*Scalp with long hair.*—Taken from the head of an Indian. Mounted on a wooden hoop covered with red flannel, to which it is fastened by a loop. Length of the hair, 27 inches. Sioux Indians. 153950. Collected by Mrs. M. M. Hazen.

*Scalp.*—Taken from the head of an Indian. Mounted on a wooden hoop. This skin has been cut and stretched in order to make the scalp larger.

The Indian tears the scalp from his conquered victim, seizing him by the hair with the left hand, and with a knife cutting a piece of skin as large as the palm of the hand. When the scalp is dry he sometimes ornaments it, and he preserves it as a trophy of great value. Length of the hair, 25 inches. Sioux Indians. 153952. Collected by Mrs. M. M. Hazen.

*Scalp.*—An oblong piece of skin with black hair. Length, 5¾ inches. Sioux Indians. 153954. Collected by Mrs. M. M. Hazen.

*Scalp.*—Taken from the head of an Indian. Mounted on two hoops covered with red flannel, and placed one inside of the other. A cord is tied to the larger hoop. Length of the hair, 12 inches. Sioux Indians. 153951. Collected by Mrs. M. M. Hazen.

*Horse tail.*—Mounted on a wooden hoop, imitating the shape of a human scalp, suspended by a loop of red flannel. Length, 21 inches. Sioux Indians. 153954. Collected by Mrs. M. M. Hazen.

CASE II.

*Specimens of bows from North America.*—This collection of bows contains the following specimens, comprising all those known north of the Aztec territory: The bow with a backing of sinew cord; the bow made of pieces of bone joined together; the bow covered with sinews glued to the back; the simple bow made of elastic wood.

*Bow with a backing of sinews.*—Made of spruce pine, strengthened at short intervals with fastenings of sinew. The cord of the bow is of twisted sinew. Length, 57 inches. Eskimo of the Yukon Delta, Alaska. 43679. Collected by E. W. Nelson.

*Mixed bow.*—Of bone, in three pieces fastened together by a cord of sinew, and strengthened, in addition, by small pieces of bone and a longitudinal cable of sinew. Length, 3 feet. Eskimo of King William's Land. 10280. Collected by Capt. C. F. Hall.

*Bow covered with sinew.*—Made of wood; the back is covered with a strong band of sinew, plastered with glue to imitate the bark of a tree. It has curved ends, ornamented with small pieces of skins, giving it the appearance of Cupid's bow. Length, 38 inches. McCloud River Indians. 76373. Collected by Lorin F. Green.

*Bow made of horn.*—Made of several pieces of buffalo horn joined, and covered on the back with sinews cemented with glue. Decorated with bands of red flannel, fastened with thongs of buckskin, covered at intervals with ornaments of small feathers. Length, 3 feet. Sioux Indians (Siouan stock), Missouri River. 154015. Deposited by Mrs. Mildred McLean Hazen.

*Bow covered with sinew.*—Bow of hard wood, with the back covered with sinew cemented with glue and strengthened with fastenings of sinew and with a strap of buckskin. The cord of the bow is of sinew, fastened to one end by six half turns. Length, 42 inches. Ute Indians of Utah (Shoshonean stock). 14886. Collected by J. W. Powell.

*Plain bow.*—Made of wood, not strengthened, ornamented with paintings on only one side of the bow. Sioux Indians (Siouan stock), Missouri River. 8301. Gift of the Army Medical Museum.

*Quiver, bow, and arrows.*—The cases for the bow and the arrows are separate; they are of white sealskin. The bow is of antler, and is composed of three pieces, joined together by clinched rivets of iron, and fastened together in the center by a cord of sinew. The arrows have wooden shafts with a broad iron head, wide and smooth notches, and two feathers placed in the same plane, the whole tied with sinew. Eskimo of Cumberland Gulf. Quiver, 30014; bow, 34055; arrows, 90138. Collected by L. Kumlien and Lucien Turner.

*Quiver and bow.*—Quiver of seal skin, with the hair outside. It is a plain bag, without compartments, for the bow and the arrows. The bow is of spruce, strengthened on the back with a cord of sinew. Eskimo of Point Barrow, Alaska. 89240. Collected by E. P. Herendeen.

*Quiver, bow, and arrows.*—The cases for the bow and the arrows are of fish skin. The bow is of spruce, strengthened with a cord of sinew ingeniously stretched on the back and enveloping the whole bow. The arrows have shafts of spruce, a bone head fastened in the groove at the end of the shaft by small strands of sinew; two feathers are fixed in the groove, in the same or in different planes, and are fastened to the shaft with sinew. Eskimo of Porcupine River, Alaska, 1891. 153640. Collected by J. H. Turner.

*Quiver, bow, and arrows.*—The cases for the bow and the arrows and the bandoleer are of sea-otter skin, lined with red flannel, and embroidered with beads of many colors, and have long fringes of sea-otter skin cut in strips. The bow is of horn; compound; the pieces of horn are united by sinews, and the whole is overlaid on the back by sinew and cement; the grooves are made by wrappings at the end of the bow. The cord is of fine twisted sinew. The arrows have small shafts, three feathers, and iron heads. Nez Percé Indians (Shahaptian stock), Idaho. 22287, 29886, 23842. Collected by William H. Danielson and J. B. Monteith.

*Bow and quiver.*—Quiver of sea-otter skin, lined with flannel, and ornamented with beads and with fringes of sea-otter skin. The bow is of pieces of horn, united by small deerskin thongs, and is covered on the outer side with raw hide cemented with glue. Nez Percé Indians (Shahaptian stock), Idaho. 23843, 21286. Collected by Rev. G. Ainslee and J. B. Monteith.

*Quiver, bow, and arrows.*—The cases for the bow and the arrows and the bandoleer (shoulder belt) are of mountain-lion skin, and are lined with red flannel, partly cotton, and ornamented with an embroidery of beads. The bow is of wood, plain; with a string of sinew. The arrows have plain shafts, iron heads, and three feathers. Arapahoe Indians (Algonkian stock). 129873. Collected by Lieut. H. M. Creel, U. S. A. Given to Lieutenant Creel by Powder Face, the head chief of the Southern Arapahoe.

*Quiver, bow, and arrows.*—The cases of the bow and the arrows are of oxhide. The bag is of leather; the bow is of hard wood, plain. The arrows have plain shafts and three feathers. Comanche Indians (Shoshonean stock), Indian Territory. 8818, 6964. Gift of the Army Medical Museum.

*Quiver, bow, and arrows.*—The cases for the bow and the arrows are of oxhide. The bag is of leather; the bow is of hard wood, and is plain. The arrows have painted shafts, an iron head, and three feathers. Tonkawa Indians (Caddoan stock), Texas. 8448. Collected by Dr. H. McElderry.

*War shield.*—Of leather, covered with deerskin painted yellow, ornamented with figures and drawings. Edged with buffalo hide dyed red, and ornamented with woodpecker's skins, eagle's feathers, and bands of leather covered with red flannel. Diameter, 16 inches. Cheyenne Indians (Algonkian stock), Indian Territory. 58616. Given by Tich Kamatse. Belonging to Tich Kamatse, a Cheyenne warrior, formerly in the service of the Smithsonian Institution.

*War shield.*—Made of leather covered with cotton cloth painted yellow and green and ornamented with drawings representing an owl. Border of red flannel, ornamented with eagle's feathers. Diameter, 17 inches. Arapahoe Indians (Algonkian stock), Wyoming, 1879. 127871. Collected by Lieut. H. M. Creel; obtained from Little Raven, head chief of the Northern Arapahoes.

*War shield.*—Made of hide, with two coverings of deerskin painted on the outside with concentric circles in yellow, red, green, white, and blue. Border and tassels of red flannel, ornamented with eagle's feathers and those of other birds. Width, 15 inches. Kiowa Indians (Kiowan stock), Indian Territory. 73073. Gift from the Army Medical Museum.

*War shield.*—Made of hide, of a convex form; as device, it bears a buffalo head and rays painted in blue and black. It has around it a festoon of red flannel, to which several eagle's feathers are sewed. Diameter, 17 inches. White Mountain Apaches (Athapascan stock), New Mexico, 1836. 11319. Collected by Governor W. F. M. Arny.

CASE III.

*Pipestem.*—Made from an oak sapling; the upper half is wrapped in a beautiful braid of quills dyed in various colors. Length, 38 inches. Width, $2\frac{3}{8}$ inches. Sioux Indians. 154006. Collected by Mrs. M. M. Hazen.

*Pipe.*—The stem is of oak, flattened; the upper half is ornamented with a covering of braid made of quills, and a horsehair plume. The bowl is made of a small, black stone, lined at the stem end with lead. Length of the stem, $37\frac{1}{4}$ inches; width, $1\frac{1}{4}$ inches; length of the bowl, $2\frac{3}{4}$ inches. Sioux Indians. 154004, 154005. Collected by Mrs. M. M. Hazen.

*Pipe.*—Stem of oak, flattened, ornamented with small tin bangles, tassels of ribbon, and dyed horsehair, and wrapped in a braid of red and white quills and woodpeckers' skins. The bowl is lined at the stem end with lead. Length of the stem, 29 inches; width, $1\frac{1}{8}$ inches; length of the bowl, 5 inches. Sioux Indians. 154001. Collected by Mrs. M. M. Hazen.

*Pipe.*—Stem of oak, flattened; the upper half is ornamented with tassels of dyed horsehair and with ribbons, and is covered with woodpeckers' skins and a braid of red and yellow quills. Length of the stem, 30 inches; width, $1\frac{3}{8}$ inches; length of the bowl, 5 inches. Sioux Indians. 154000. Collected by Mrs. M. M. Hazen.

*Pipe.*—Oak stem, flattened; the upper part is ornamented with a covering of woodpeckers' skins and a braid of red and yellow quills, and tassels of ribbons and dyed horsehair. The bowl is of catlinite, and has a small hole in it. It has a carved border at the point of union with the stem. Length of the stem, 28 inches; width, $1\frac{1}{2}$ inches; length of the bowl, 5 inches. Sioux Indians. 154002. Collected by Mrs. M. M. Hazen.

*Pipeholders* (4).—Long bags of buckskin and flannel, embroidered with beads and feathers. Sioux Indians. Collected by Mrs. M. M. Hazen.

*Pipes.*—Made in imitation of a mouthpiece. These imperfect pipes are made of the tibia of a deer. The part near the ends is wrapped in hide with the hair on. Length, $6\frac{1}{4}$ and $7\frac{1}{2}$ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152940. Collected by James Mooney.

*Pipe of stone.*—Obtained by the Kiowas from some northern tribe; it is about half a century old. Length, 13 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152941. Collected by James Mooney.

*Pipe.*—Bowl of catlinite; the stem is a wooden cylinder. Obtained from the Kiowa traders. Length, 25½ inches. Kiowa Indians (Kiowan stock), Kiowa Agency, Indian Territory, 1891. 152942. Collected by James Mooney.

*Tomahawk pipe.*—Stem of hard wood; head of iron; blade triangular; the bowl is of the shape of a spindle, with raised edges. Length of the head, 8 inches; of the stem, 17½ inches. Ponca Indians (Siouan stock), Ponca Agency, Indian Territory, 1891. 152805. Collected by James Mooney.

This "tomahawk" pipe was obtained by R. R. H. Voth from an old Ponca Indian named Hairy Bear, who claims for himself the glory of having killed two whites with this pipe. This weapon is very old; it was used by Hairy Bear's grandfather.

*Tomahawk pipe.*—Stem of hard wood, head the shape of a spear, with ornaments around the stem. This tomahawk is of Mexican origin. The Kiowas claim that this spear-shaped specimen is the true Kiowa type. Length of the stem, 20 inches; of the head, 6¾ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 153013. Collected by James Mooney.

*Tomahawk pipe.*—Without a stem; iron head; the blade is triangular; the hole is elliptical; the bowl has somewhat of the shape of a spindle, with a raised border, and a carving around the center. Length of the head, 7½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152894. Collected by James Mooney.

This iron tomahawk was purchased. These weapons in the shape of a hatchet are of English origin; those in the shape of a spear are Mexican. This specimen is half a century old, and many men have been killed with it.

*Pipe.*—The bowl is of stone, and is joined to the stem by straps of rawhide. The receptacle for the tobacco is very small. The thick stem is made of two sections forming a tube united by rawhide. Length of the stem, 7½ inches; height of the bowl, 1½ inches. Eskimo of Point Barrow, Alaska. 59290. Collected by Lieut. P. H. Ray, U. S. A.

*Pipe.*—The bowl is of horn, and is joined to the stem by rawhide straps. The receptacle for the tobacco is very small, and is lined with tin. The stem is curved, and is formed of two sections hollowed out and united by rawhide strips. Length of the stem, 13 inches; height of the bowl, 1¼ inches. Eskimo of Cape Lisburne, Alaska. 46021. Collected by Dr. T. H. Bean.

*Pipe.*—The bowl is of bone, joined to the stem by rawhide straps. The receptacle for the tobacco is very small, and is lined with tin. The stem is slightly curved, and is made of two sections of wood united by hide. Length of the stem, 13¼ inches; height of the bowl, 1⅛ inches. Eskimo of Point Barrow, Alaska. 89287. Collected by Lieut. P. H. Ray, U. S. A.

*Pipe.*—The bowl is of whalebone, and is driven far into the stem; it is small, and is lined with tin. The stem is curved, and is made of two sections of wood united by rawhide straps. The mouthpiece is of ivory, joined to the stem by a tin band. A small iron wire, which is fastened to the pipe, serves to clean it. Length of the stem, 13 inches. Eskimo of Point Hope, Alaska. 63785. Collected by E. W. Nelson.

*Pipe.*—The bowl is of iron; it was once joined to the stem by hide, but this was broken and was replaced by a white ribbon. The receptacle of the bowl is very small. The stem is curved, and is made of two grooved pieces of wood united with rawhide. The mouthpiece is of ivory. Length of the stem, 11¼ inches; height of the bowl, 1¼ inches. Eskimo of Cape Lisburne, Alaska. 46020. Collected by Dr. T. H. Bean.

*Spoon.*—Made of whalebone; it is long and flat, and is cut in the shape of a spatula. Ornamented with totemic carvings. Length, 14⅞ inches; width, 2 inches. Sitka Indians (Koluschan stock), Sitka, Alaska. 8944. Collected by Dr. A. H. Hoff, U. S. A.

*Spoon.*—Made of wood. The lower part of the handle is cut to represent the head of some animal, holding the bowl of the spoon in its teeth. Length, 11 inches; width, 2¾ inches. Sitka Indians (Koluschan stock), Sitka, Alaska. 75438. Collected by J. J. McLean.

*Spoon for berries.*—Made of wood; the outside is ornamented with totemic engravings. It has nearly the shape of a spatula. Length, 14⅛ inches; width, 1⅝ inches. Kake Indians (Koluschan stock), Kuin Island, Alaska. 20823. Collected by James G. Swan.

*Spoon for berries.*—Made of wood; it is long and flat, and is nearly of the shape of a spatula; it is ornamented with totemic drawings. Length, 15½ inches; width, 1⅝ inches. Tsimshian Indians (Tsimshian stock), British Columbia. 16256. Collected by Dr. W. H. Dall.

Most of the household utensils of the Indians of the northwest coast are ornamented with engraved or carved designs.

*Goat's horn.*—Horn for making spoons. The bowl of the spoon is made of the wide part of the horn, to which, after it has been split for some inches on one side, the desired shape is given by means of steam, with a wooden mold. The handle is made of the long part of the horn, usually ornamented with totemic or mythological carvings. The bowl and the handle are often made in two pieces. Length, 7¼ inches; width, 1⅝ inches. Alaska. 16809. Collected by Dr. W. H. Dall.

*Spoon.*—Made of goat's horn. The bowl and the handle are united by copper rivets. There are totemic carvings on the handle. Length, 8⅝ inches; width, 2½ inches. Alaska Indians. 23400. Collected by James G. Swan.

*Spoon.*—Made of goat's horn. The handle is ornamented with totemic carvings. The bowl and the handle are united with rivets. Length, 12 inches; width, 2⅝ inches. Massett Indians (Skittagetan stock), British Columbia. 88706. Collected by James G. Swan.

*Spoon.*—Made of goat's horn. There are totemic carvings on the handle. The handle and the bowl are united. Length, 9½ inches; width, 2⅝ inches. Tsimshian Indians (Tsimshian stock), Porcher Island, British Columbia. 20616. Collected by James G. Swan.

*Spoon.*—Bowl of sheep's horn; handle of goat's horn, ornamented with engraved totemic figures.

The bowl is made in a wooden mold, by means of steam. The handle is joined to the bowl with copper rivets. Length, 12½ inches; width, 3⅛ inches. Skidegate Indians (Skittagetan stock), British Columbia. 89173. Collected by James G. Swan.

This class of spoons are preserved in families as heirlooms, and are consequently held in high esteem.

*Spoon.*—Made of goat's horn. The handle is ornamented with totemic carving. The bowl and the handle are united with copper rivets. Length, 9½ inches; width, 2¼ inches. Sitka Indians (Koluschan stock), Sitka, Alaska. 75430. Collected by J. J. McLean.

*Spoon.*—Bowl of sheep's horn. The handle is of goat's horn, ornamented with carved totemic figures. The bowl is made in a wooden mold, by means of steam. The handle and the bowl are united by copper rivets. Length, 11 inches; width, 2⅝ inches. Alaska Indians. 23408. Collected by James G. Swan.

*Spoon.*—Made of goat's horn. Handle ornamented with carved totemic figures. The bowl and the handle of many of this class of spoons are of a single piece. Length, 7⅝ inches; width, 2¼ inches. Alaska Indians. 9278. Collected by Dr. A. H. Hoff, U. S. A.

*Alaskan spoons.*—Made of a mixture of wild sheep's horn and goat's horn, retaining their own shape, and magnificently ornamented with carved mythological devices of the tribes of the Koluschan stock. Sitka, Alaska. 20843, 20749, 20748, 20747, 23432, 23431, 23431, 16257. Collected by James G. Swan.

*Spoon.*—Made of white ox horn. Large circular bowl, with a handle about an inch long. It has a buckskin loop ornamented with work in quills of different colors; the handle is strengthened with small rings of tin plate. Diameter of the bowl, 5¼ inches. Sioux Indians. 131337 (a). Collected by Mrs. A. C. Jackson.

This class of spoons is made for trade, as the Sioux do not use them in their homes.

*Spoon.*—Made of white ox horn. The bowl is of a semi-oval form. The handle is covered with strings of beads. Length, 11 inches; width of the bowl, 3¾ inches. Sioux Indians. 131337 (b). Collected by Mrs. A. C. Jackson.

*Spoon.*—Made of white ox horn. The bowl is of a semi-oval form; the handle is very slender, and is surrounded by dyed braids of quill and with little rings of tin plate, with yellow feathers. It has a carved bird's head at the end of the handle. Length, 11 inches; width of the bowl, 3½ inches. Sioux Indians. 131337 (c). Collected by Mrs. A. C. Jackson.

*Bowl.*—Made of black ox horn. Large, circular bowl; the handle is very slender, and is surrounded by dyed braids of quill. It has a bird's head carved on the end of the handle. Length, 9¼ inches; width of the bowl, 4¼ inches. Sioux Indians. 131337 (d). Collected by Mrs. A. C. Jackson.

This kind of spoon is made by boiling the horn to make it flexible; in this state the desired shape is given to it, and it is held in position until it is entirely cold.

*Spoon.*—Made of white ox horn. The bowl is shallow and the handle is slender, with bead ornaments and rings of tin plate covered with braids of dyed strips of quill. It has the head of a bird carved on the end of the handle. Length, 9½ inches; width of the bowl, 3½ inches. Sioux Indians. 131337 (e). Collected by Mrs. A. C. Jackson.

This kind of spoon is made for trade; the Sioux do not use them in their homes.

*Spoon.*—Made of white ox horn. The bowl is deep and the handle is slender, surrounded by dyed braids of quill. The head of an elk is carved on the end of the handle. Length, 9¼ inches; width of the bowl, 3 inches. Sioux Indians. 131337 (f). Collected by Mrs. A. C. Jackson.

*Buckets* (3).—Made of decorated hide. Used for holding berries, sugar, pounded meat, etc. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152996. Collected by James Mooney.

*Pestles* (3).—Made of walrus tusk. Used for pounding berries with dried meat, in order to season it. Length, 14, 15, 16 inches; width, 2, 2¼, and 2½ inches. Eskimo of Bristol Bay, Alaska. 55919. Collected by Charles L. McKay.

*Pestle.*—Made of walrus tusk. Used for pounding berries with meat, in order to season it. Length, 11¼ inches; diameter, 2 inches. Eskimo of Kassianamute, Alaska. 127422. Collected by I. Applegate.

*Ladle.*—Made of buffalo bone painted red. The bowl is very deep. Length, 9 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152994. Collected by James Mooney.

*Ladle.*—Made of wood. The bowl is of the shape of an egg. Length, 15 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152993. Collected by James Mooney.

*Bowls.*—Made of a tree knot. The Kiowas do not manufacture pottery or baskets. Diameter 5 to 7 inches. Kiowa Indians (Kiowan stock) Kiowa Reservation, Indian Territory, 1891. 152995. Collected by James Mooney.

*Bucket.*—Cylindrical birch bark. Sewed with the root of the spruce pine. Length, 13 inches; diameter, 4¼ inches. Athapascan Indians, Hudson Bay, British America. 10924. Collected by J. Lockhart.

*Pail.*—Made of birch bark, sewed with fine root of spruce pine. It is used for holding berries, etc. Length, 6 inches; width, 4 inches. Indians of Ungava, Labrador. 90086. Collected by Lucian M. Turner.

*Pail.*—Made of birch bark, sewed at the border with pine root, under which are attached small pieces of black cloth, at intervals of about 2 inches. It has engraved designs on the inside. Length, 7 inches; width, 5½ inches; height, 3 inches. Tinné Indians (Athapascan stock), Upper Yukon River, Alaska, 1891. 153390. Collected by I. C. Russell.

*Pail.*—Made of birch bark, folded at each end, and strengthened by boards. Very rough work. Length, 7 inches; width, 5 inches; height, 2½ inches. Tinné Indians (Athapascan stock), Charleys Town, Upper Yukon River, Alaska, 1891. 153391. Collected by I. C. Russell.

*Pail.*—Made of birch bark, with the edge sewn with spruce-pine root, and died pieces of quill. It is used for holding berries, etc. Length, 11¼ inches; width, 9¼ inches. Tsimshian Indians (Tsimshian stock), Fort Simpson, British Columbia. 2546. Collected by W. L. Hardesty.

*Saddlebag.*—Made of buckskin, lined with red flannel, embroidered with beads, and with a fringe of buckskin. Length, 46 inches; width 11 inches. Sioux Indians, 1868. 129875. Collected by Lieut. H. M. Creel, U. S. A.

This specimen was the property of Sitting Bull.

*Tobacco pouch.*—Made of buckskin, ornamented with red flannel, embroidered with beads. Length, 15 inches; width, 7 inches. Bannock Indians (Shoshonean stock), Fort Hall Reservation, Idaho. 22282. Collected by William H. Danilson.

*Tobacco holder.*—Made of buckskin, ornamented with bead work, rings of tin plate, and a buckskin fringe. Length, 16 inches; width 5½ inches. Ute Indians (Shoshonean stock), Colorado. 8353. Collected by Dr. A. B. Campbell, U. S. A.

*Pipe case.*—It is of an oblong shape, made of hide. It has a cotton ribbon sewed on the edge. Length, 10¾ inches; width, 2½ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131157 (d). Collected by Jeremiah Curtin.

*Pipe.*—In the shape of a cigar holder. The bowl is of soft stone, and the stem is of wood. Length, 5¼ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131157 (b). Collected by Jeremiah Curtin.

*Pipe.*—Bowl long, tubular, of carved soapstone. The stem is of wood, and is short in proportion to the mouthpiece. Length, 8¼ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131157 (c). Collected by Jeremiah Curtin.

*Pipe.*—Made of soapstone, resembling a pipe bowl; it may be used without a stem. Length, 1½ inches; diameter, 1½ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131157 (a). Collected by Jeremiah Curtin.

*Purses and coins.*—The purse is of elk horn, and is ornamented with zigzag design engraved on the outside. It has a buckskin band around it to prevent the coins from falling out. The coins are of dentalium or tooth shell, bordered with dyed skin. These coins vary in value according to the length of the shell, and are worth from 1 shilling to $5 apiece. Length of the purse, 5½ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131159. Collected by Jeremiah Curtin.

*Spoon.*—A long shell, darkened, polished, and worn by long use. Only women use this sort of spoon. Length, 6 inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131163. Collected by Jeremiah Curtin.

*Spoon.*—Made of horn. Carved handle. Only men use this kind of spoon. Length, 6¾ inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131145. Collected by Jeremiah Curtin.

*Parflesche case (Havresac).*—Long oblong case of hide, used as a valise. Ornamented with drawings painted in bright colors. "Parflesche" is the name given to these valises by the French, because they saw that the Indians kept meat in them. Length when folded, 30 inches; width when folded, 16 inches; Ute Indians (Shoshonean stock), Utah. 17196. Collected by Maj. J. W. Powell.

*Louse crusher.*—It consists of a piece of wood in the shape of a spatula and another section of a round bone. The spatula is forcibly introduced into the hair, and the bone keeps near the point, so that, between the two, the vermin are crushed. Length of wooden piece, 9 inches; of the bone, 3 inches. Hupa Indians (Athapascan stock), Hupa Valley, California. 131153. Collected by Jeremiah Curtin.

CASE IV.

*Weaving.*—Four looms (of the kind now in use) of the Zuñi and Pima Indians, of the southwest of the United States, and of the Talamanca Indians, of Costa Rica, displaying the materials, apparatus, utensils, mode of work, and productions of the Indian weavers. In addition, photographs, water-colors, drawings, and diagrams. Collected by James Stevenson, Edward Palmer, and Dr. W. H. Gabb.

CASE V.

*Ice brush.*—Made of whalebone; lashed to a wooden handle, terminating at the opposite with a point of deer's horn. It is used for clearing away the snow and ice from the breathing holes of the seal. Length, 29 inches; width, 1¼ inches. Eskimo of King's Island, Alaska. 63606. Collected by E. W. Nelson.

*Ice creepers.*—Cut out of bone. Fastened to the feet by hide straps. Length, 3¼ inches; width, 1¼ inches. Chukchis of Plover Bay, Siberia. 46261. Collected by W. M. Noyes.

*Ice scoop.*—A whalebone hoop, a whalebone net and a cord of sinew, interlaced; wooden handle; fastenings of whalebone and hide. It is used for removing the ice from the holes to which the seals come to breathe. Eskimo of St. Lawrence Island, Alaska. Collected by E. W. Nelson.

*Ice pick.*—Made of ivory of walrus tusk, and used with the barbed harpoon. It is used to break the ice in order to enlarge the hole to which the seal which has been once wounded comes to breathe, in order that the hunter may pull the animal out with ease. Length, 13 inches; thickness, 1 inch. Eskimo of Cape Nome, Alaska. 44404. Collected by E. W. Nelson.

*Snow staff.*—Ring of antler, with hide netting; ivory point through the center. This ring, on the principle of the snow shoe, is fixed on the end of a long staff, and serves, like those used in the Alps, to enable the traveler to steady himself when walking on the ice or snow. Diameter, 3½ inches. Eskimo of Port Clarence, Alaska. 46297. Collected by W. H. Dall.

*Seal probe.*—Made of walrus tusk. It is used to find out whether the seal is in the breathing hole. Length, 20 inches. Eskimo of King William's Land. 10388. Collected by Capt. C. F. Hall.

*Harpoon (model).*—Wooden shaft; an ivory barb, strengthened with wooden pegs; an ivory ice pick lashed to the lower end with fastenings of thin hide. Length, 11 inches. Eskimo of Port Clarence, Alaska. 46326. Collected by T. H. Bean.

*Knife.*—Handle of ivory of walrus tusk. Short blade of iron, set into the handle. Length, 11½ inches; width, 1½ inches. Eskimo of Point Barrow, Alaska. 89282. Collected by Lieut. P. H. Ray, U. S. A.

*Knife.*—Wooden handle. Long iron blade inserted into the handle, and secured by fastenings of hide. This knife is very much like those used by blacksmiths. A strap hangs from the end of the handle. Length, 10 inches; width of the blade, ½ inch. Eskimo of Ungava Bay, Labrador. 90211. Collected by Lucien M. Turner.

*Knife.*—Handle of deer's horn, with three cavities for the fingers. A short iron blade inserted in the handle. Length, ¾ inch; width, ¾ inch. Eskimo of Anderson River, Canada. 2278. Collected by R. McFarlane.

*Knife.*—Deer-horn handle. Short blade of iron, inserted into the handle. Length, 2 inches; width, ¾ inch. Eskimo of Anderson River, Canada. Collected by R. McFarlane.

*Knife.*—Handle of carved deer horn. Short iron blade, secured to the handle. Length, 5 inches; width, ¾ inch. Eskimo of Point Barrow, Alaska. 56554. Collected by Lieut. P. H. Ray, U. S. A.

*Knife.*—Deer-horn handle. The whole blade is of iron, and is inserted into the handle, and secured with lashing of seal hide. Length, 5½ inches; width, 1 inch. Eskimo of Ikogmut, Alaska. 37440. Collected by E. W. Nelson.

*Knife and sheath.*—Long and curved; handle of ivory of walrus tusk. Iron blade fastened by rivets to the handle. Sheath of tanned hide. Length, 17½ inches; width, 1¾ inches. Indians of Prince of Wales Island, B. C. 20831. Collected by James G. Swan.

*Knife.*—Handle of ivory of walrus tusk, with fastenings of spruce-pine root at the end, which is secured to the blade, which is of iron, and is short. Length, 7½ inches; width, 1 inch. Eskimo of Anderson River, Canada. 1309. Collected by C. P. Gaudet.

*Knife.*—Handle of ivory of walrus tusk, strengthened with fastenings of spruce-pine root. Very short iron blade set into the handle. Length, 5 inches; width, ¾ inch. Eskimo of Anderson River, Canada. 2281. Collected by R. McFarlane.

*Knife.*—Deer-horn handle. Short iron blade set into the handle. Length, 7½ inches; width, ¼ inch. Eskimo of Point Barrow, Alaska. 89276. Collected by Lieut. P. H. Ray, U. S. A.

*Knife.*—Handle of two pieces of ivory of walrus tusk. Short iron blade inserted into the handle, and secured by hide fastenings. Length, 4½ inches; width, ¾ inch. Eskimo of Cape Darby, Alaska. 48087. Collected by E. W. Nelson.

*Knife.*—Handle of curved wood, with a curved iron blade inserted into it. A small piece of wood hangs from the blade, fastened by a strip of tanned hide. Length, 6¼ inches. Indians of Ungava Bay, Labrador. 89966. Collected by Lucien M. Turner.

*Utensils and implements of arrow makers.*—Consisting of rough shafts for arrows, straightener, saw, polisher, brush, pumice stone, pieces of flint, chisel for knapping flint, flint flaker, cord of sinew, prepared sinew, rosin, glue stick, feathers for arrows, ground paints, salmon skin, and arrowhead, showing the mode of attaching it to the reed, and the arrow complete. Indians of McCloud River, California. Collected by Lieut. P. H. Ray, U. S. A., and Loren A. Green.

*Polisher.*—Two pieces of stone, with grooves through which the shafts of the arrows are drawn to polish them. Length, 4½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152983. Collected by James Mooney.

*Saw knife.*—Table knife, notched like a saw. It is used for making the notches in the shafts of the arrows and for all kinds of cutting. Length, 9¾ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152985. Collected by James Mooney.

*Sharpener.*—Smooth stone, used for sharpening knives. Length, 4 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152986. Collected by James Mooney.

*Groover.*—Point of a butcher's knife, notched, for making grooves along the shafts of the arrows. The object of these grooves is not known. Length, 2½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152984. Collected by James Mooney.

*Straightener* (6).—A piece of rib bone, with a hole through it. It is used for straightening the shafts of the arrows. Length, 7¾ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152981. Collected by James Mooney.

*Rasps.*—Made of tin plate, folded and punched like lemon graters. They are used for removing the bark and roughening the shafts of the arrows. Length, 4½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152982. Collected by James Mooney.

*Primitive shuttle.*—White yarn wound on a long stick. It is used for weaving blankets. Length of the stick, 20 inches. Moki Indians (Shoshonean stock), Arizona, 1885. 128475 (b). Collected by Mrs. M. E. Stevenson.

*Woolen yarn, red.*—Wound on a long stick. It is used as a shuttle in weaving blankets. Length of the stick, 21½ inches. Moki Indians (Shoshonean stock), Arizona, 1885. 128475 (a). Collected by Mrs. M. E. Stevenson.

*Model of a loom.*—With a specimen of a blanket, striped red and green, in process of manufacture. Length, 22¼ inches; width, 14½ inches. Navajo Indians (Athapascan stock), New Mexico. 10359. Collected by Governor W. F. M. Arny.

*Model of a loom.*—In operation, to show the system or mode of weaving. Clear and brilliant colors. Navajo Indians (Athapascan stock), Arizona. 16494. Collected by Governor W. F. M. Arny.

*Weaving yoke* (*O pis ta oce tum*).—Curved wooden yoke, with a groove at either end. The weaver carries it across his back, and it forms a part of the appendages used for changing the threads of the warp. Length, 17 inches; width, 1¾ inches. Zuñi Indians (Zuñian stock), New Mexico, 1884. 127681 (d). Collected by Col. James Stevenson.

*Weft sword.*—Made of oak. It is used for beating down the weft in making blankets. Length, 15 inches. Navajo Indians (Athapascan stock), Navajo Reservation, Arizona. 150449. Collected by Dr. Washington Matthews.

*Beater* (*Sooqua*).—A slender wooden rod, which serves to beat the weft in weaving blankets, etc. Length, 23½inches; width, ⅞ inch. Moki Indians (Shoshonean stock), Pueblos, Arizona. 41692. Collected by F. H. Cushing.

*Yoke.*—Wooden yoke used by the weaver. It forms part of the implements used to keep the threads tight in the delicate weaving, etc. Length, 10½ inches; width, ⅝ inch. Zuñi Indians (Zuñian stock), New Mexico. 129068 (a). Collected by Mrs. M. E. Stevenson.

*Spindles, with wool.*—A polished wooden rod, sharp at both ends, and inserted into a disk, usually of wood, but sometimes of stone or horn, to give a violent rotary motion to the spindle. Length, 21 inches. Moki Indians (Shoshonean stock), Arizona. Collected by Mrs. M. E. Stevenson.

*Roller* (*Ka o po ni no*).—A piece of wood cut in the shape of a cylinder, on which the belts are rolled during the manufacture of the cloth. Length, 7¾ inches; diameter, 2½ inches. Zuñi Indians (Zuñian stock), New Mexico. 127681 (c). Collected by Col. James Stevenson.

*Comb* (*Sa weech*).—An oblong piece of wood, with teeth cut at the ends. It is used for keeping the weft tight in weaving belts. Length, 9 inches; width, 1¾ inches. Zuñi Indians (Zuñian stock), New Mexico. 127681 (b). Collected by Col. James Stevenson.

*Twister.*—A piece of hard wood, in one of the ends of which there is a hole through which is passed a small rod, which serves as a handle. It is used for making very thick cord. One end of the thread which is to be twisted is fixed in a post or hook and the other in the twister, just below the handle. The operator then turns the twister by means of the handle, and the thread is twisted strongly and rapidly. Length, 10 inches; width, 2 inches. Zuñi Indians (Zuñian stock), New Mexico. 69308. Collected by Col. James Stevenson.

*Reed.*—Composed of many little reeds, or small pieces of cut reed, tied at one end, in an upright position, side by side, between parallel rods midway; each reed has a hole burned through it. It is used in weaving to open the warp alternately and to permit the passage of the shuttle. Zuñi Indians (Zuñian stock), New Mexico. 127688, 69657, 69696. Collected by Col. James Stevenson.

*Belt.*—Placed in the loom to show the mode of work. Texture of white, red, and green wool, forming geometrical figures. The Zuñi and Moki Indians are celebrated for their skill in making and weaving belts. Zuñi Indians (Zuñian stock), New Mexico. 129209. Collected by Mrs. M. E. Stevenson.

*Fat scraper.*—Made of ivory of walrus tusk. It has a cavity very ingeniously cut in it and a hole in which to insert and hold the thumb. It is sharpened on only one side. This implement is used only with the right hand; the operator scrapes the green hide with it to remove the fat. Length, 8 inches; width of the blade, 1½ inches. Eskimo of Togiak River, Alaska. 127508. Collected by I. Applegate.

*Fat scraper.*—Ingeniously made of a thin strip of the outside of a stag's antler, wide in the center and narrow at the ends. This strip is curved in the form of a truncated cone, cut at one end in the form of a bow which locks at the other end into a triangular opening like a barrel hoop. This implement is made when the horn is soft. This pattern is used only at Bristol Bay. Diameter, 3 inches. Eskimo of Bristol Bay, Alaska. 55911. Collected by C. L. McKay.

*Hide scraper.*—Made of ivory of walrus tusk. The cavities for the forefingers and thumb are shallow and extend nearly to the flint blade. The cut at the bottom is very deep. Length, 4¾ inches. Eskimo of Point Hope, Alaska. Collected by E. W. Nelson.

*Hide scraper.*—The handle is of hard wood. The cavity for the thumb is deep and long, and in it there is a projection of the shape of an ear. A cavity gives it the appearance of a skull, and ends an inch behind the stone blade. The tail-piece is cut in the shape of a bell. The shape of this implement is entirely original, and gives reason to think that it was made to suit the hand of the operator. Length, 5½ inches. Eskimo of Point Hope, Alaska. 63849. Collected by E. W. Nelson.

*Hide scraper.*—The handle is of wood, and has a shallow mortise cut in one of its ends. The blade is a narrow hatchet of schist lashed to the handle by a fastening of spruce-pine root. Length, 16 inches; width of the blade, 1½ inches. Eskimo of Nunivak Island, Alaska. 43886. Collected by E. W. Nelson.

*Hide scraper.*—The handle is of wood. The blade is a smooth hatchet of slate, carefully inserted in the lower part of the handle. It has a cavity for the thumb. The cavity for the forefinger is on top, and those for the other three fingers underneath. The palm of the hand rests on the end. Length, 11¾ inches; width of the blade, 2¾ inches. Eskimo of Norton Bay, Alaska. 43927. Collected by E. W. Nelson.

*Graining tool.*—The handle is the shoulder blade of an ox. A toothed iron blade is attached to the handle by a hide strap. Length, 12 inches; width of the blade, 1⅝ inches. Indians of Ungava Bay, Labrador. 89924. Collected by Lucien M. Turner.

*Fat scraper.*—Made of a thin strip of buck horn, bent in the shape of a hoop, with the ends interlaced, but not fastened. The ends are tied with three turns of a hide strap around the outside. This is the only specimen in existence. Diameter, 3¾ inches. Eskimo of Nakneek, Alaska. 127792. Collected by William J. Fisher.

*Fat scraper.*—Made of walrus-tusk ivory. The lower part is cut in the shape of a preserving ladle. The handle consists of two prongs, the extremities of which are carved to represent two bear's heads. Length, 4 inches; width, 2¾ inches. Eskimo of Putnam River, Alaska. 127896. Collected by Lieut. George M. Stoney, U. S. N.

*Fat scraper.*—Made of a narrow and thin strip of buck horn twisted in the shape of a horseshoe, and kept in that shape by a hide strap passing and repassing through two holes made in the ends, and covered by a pretty coil. The loop is countersunk at the ends. The inside edge of the strip of buck horn is beveled in order to present the outer hard part for work. Diameter, 3¾ inches. Eskimo of Sledge Island, Alaska. 44771. Collected by E. W. Nelson.

*Hide scraper.*—The handle is of walrus-tusk ivory, and is slightly bowed in the middle, with a tailpiece roughly cut on the end. It has two cavities for the fingers made above the flint blade. The lower cavity is very deep. Length, 4 inches. Eskimo of Putnam River, Alaska. 127886 (a). Collected by Lieut. G. M. Stoney, U. S. N.

*Hide scraper.*—Made of walrus-tusk ivory. Above the deep cavity for the thumb it has a protuberance carved in the shape of an ear. The cavities for the fingers are very deep, and extend nearly to the flint blade. It has a groove deeply cut on each side. Length, 3¾ inches. Eskimo of Point Hope, Alaska. 63851. Collected by E. W. Nelson.

*Graining tool.*—The handle is the shoulder blade of an ox. On the upper part of the bone the edge is toothed. It is used for softening deerskin in tanning it. Length, 13 inches. Indians of Ungava, Labrador. 90246. Collected by Lucien M. Turner.

*Beaming tool.*—Made of the tibia of a reindeer. The bone has been split in order to obtain the wide part of the rear portion to serve as a support and the middle part of the front as a scraping edge. The natural shape of the bone is admirably adapted to this operation. This implement is used for scraping the deerskin in tanning it. Length, 13 inches. Indians of Ungava, Labrador. 89928. Collected by Lucien M. Turner.

*Woman's knife.*—Iron blade and bone handle. Its shape is like that of a saddler's knife. Length, 5 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152976 (a). Collected by James Mooney.

*Woman's knife.*—Made of copper, with the upper edge doubled to serve as a handle. Its shape resembles that of a saddler's knife. Length, 7 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152976 (b). Collected by James Mooney.

*Grainer for tanning skins.*—Made of a thin sheet of iron. The upper part is inserted in a carved handle. The blade is toothed. Length, 4¼ inches and 7¼ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152976 (c). Collected by James Mooney.

*Grainer for tanning skins.*—Made of an iron rod. The handle is covered with cloth. The lower edge is toothed. Length, 14¼ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152874 (d). Collected by James Mooney.

*Grainer for tanning skins.*—Made of a piece of an old gun barrel. The lower end is flattened and toothed. Length, 13½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152974 (c). Collected by James Mooney.

*Hide scraper.*—The blade is a strip of steel; the handle is of hard wood, and is cut in the shape of a hoe, with a handle at the end, covered with tin tacks. The blade is fastened with hide. Length, 12 inches. Wichita Indians (Caddoan stock), Wichita Reservation, Indian Territory, 1891. 152971. Collected by James Mooney.

*Hide scraper.*—The handle is of hard wood, cut in the shape of a hoe. The blade is of steel, and is attached to the handle by buckskin straps. Length, 12½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152970 (b). Collected by James Mooney.

*Hide scrapers* (3).—Made of flat circular stones, not polished. One is of sandstone, and the others are of dark chert. Length, 4½, 5¼, and 6 inches. Kiowa Indians (Kiowan stock) Kiowa Reservation, Indian Territory, 1891. 152969. Collected by James Mooney.

*Grainer, with sharpener.*—The grainer is made of an entire bone of the leg of a cow, and has a toothed edge. The sharpener is a piece of rib bone. Length, 15 inches Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152972. Collected by James Mooney.

*Grainer for tanning skins.*—Made of a concave strip of iron. The handle is covered with canvas. The lower edge is toothed. Length, 15 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152974 (b). Collected by James Mooney.

*Hide scrapers* (3).—The handle is of deer's antler, and is of the shape of a hoe, to which a steel blade is fastened by buckskin straps. Length, 11½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152970 (a). Collected by James Mooney.

*Hide scraper.*—Bone of the rib of a cow, which the tanner uses for stripping the hair from the hides, after moistening them slightly. Length, 15½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152975. Collected by James Mooney.

*Grainer for tanning skins.*—Made of bone from a cow' sleg, split and toothed on the lower edge. A piece of wood is inserted in the concave part, and the whole is covered with hide. A thin strap is fixed on the end of this covering to fasten the implement to the operator's wrist, in order to enable him to work steadily. Length, 10 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152973. Collected by James Mooney.

*Rope for tanning skins.*—Made of a rawhide strap, cut in two and twisted. Length, 3 feet. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152979. Collected by James Mooney.

*Braided rope.*—Made of buffalo sinew. Four-ply braid. It is used for tanning skins. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152980. Collected by James Mooney.

*Pick for breaking ice.*—Made of whale-rib bone, attached to a wooden handle by a strip of hide which is wrapped around the handle. Its shape is very much like that of a mattock. Length of the handle, 18½ inches; length of the pick, 14½ inches. Eskimo of Mackenzie River district, British America. 1852. Collected by B. R. Ross.

*Pick for breaking ice.*—Pick made of whale-rib bone, fastened to the end of a wooden handle by a hide thong. The pick forms with the handle an arc of about 60°. A strong strap is attached to the center of the bone, extending to the handle, and serves as a band to keep the pick in the position described. Length of the handle, 31½ inches; length of the pick, 18 inches. Chukchis, eastern Siberia, 1864. 2511. Collected by Commodore Rodgers, U. S. N.

*Pick for breaking ice.*—Made of bone, fastened to a wooden handle by a hide strap, which extends around the pick and passes through a hole made in the handle. Length of the handle, 18½ inches; length of the pick, 9¾ inches. Eskimo of Cape Espenberg, Alaska, 1880. 63599. Collected by E. W. Nelson.

*Adze.*—An iron pick attached to a wooden handle by a hide strap, which extends above the upper part of the pick and passes through a hole made in the handle. Length of the handle, 11 inches; width of the pick, 5¾ inches. Eskimo of Mackenzie River, Canada, 1869. 5126. Collected by R. McFarlane.

*Adze.*—Handle of stag's horn, bowed at the lower end. A stone pick, inserted at right angles in the handle. Length of the handle, 13 inches; length of the pick, 4 inches. Eskimo of St. Michaels Island, Alaska, 1878. 33084. Collected by E. W. Nelson.

*Adze.*—A stone head inserted in a ring of stag's horn, which is attached to a wooden handle by a hide strap passing through the holes in the head and handle. The handle is painted red and blue. Length of the handle, 14 inches; length of the head, 1¼ inches. Eskimo of Norton Sound, Alaska, 1877. 33082. Collected by E. W. Nelson.

*Adze.*—An iron head inserted in a bone ring, which is fastened to a wooden handle by a hide strap passing through holes in the head and handle. Length of the handle, 10 inches; width of the head, ½ inch. Eskimo of Point Barrow, Alaska, 1883. 89871. Collected by Lieut. P. H. Ray, U. S. N.

*Adze.*—Head of nephritic stone, inserted in a small ring of stag's horn, which is fastened to the curved end of a wooden handle. Length of the handle, 13 inches; length of the head, 2¾ inches. Eskimo of Norton Sound, Alaska, 1878. 33083. Collected by E. W. Nelson.

*Bark strippers* (3).—Made of deer-rib bone, having one of the ends cut in the shape of a pickax. This implement is used for removing the bark from the cedars. Length, 9¾, 10½, and 12 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88922. Collected by James G. Swan.

*Bark stripper.*—Made of deer-rib bone, with one end cut in the shape of a pickax. The other end serves as a handle and is wrapped in spruce-pine root. This implement is used for removing the bark from the cedars. Length, 9½ inches. Haida Indians (Skittagetan stock), British Columbia. 88897. Collected by James G. Swan.

*Bark stripper.*—Made of elk horn. It has both ends sharpened. Length, 17½ inches; width, 1⅝ inches. Lummi Indians (Salishan stock), Lummi Reservation, Washington, 1875. 130978. Collected by E. C. Chirouse.

*Bark beater.*—Made of an oblong piece of wood, one of the ends of which is cut in the shape of a beak and the other is rounded to serve as a handle, having a long, narrow hole in it, enabling the workman to grasp it more firmly while at work. It is used for pounding the bark of the cedars and all kinds of textile materials. Length, 14¼ inches; width, 3¼ inches. Lummi Indians (Salishan stock); Lummi Reservation, Washington, 1875. 130979. Collected by E. C. Chirouse.

*Prepared cedar bark.*—Inside bark of the yellow cedar. It is used for making clothes, blankets, thread, etc. Sheets of the same bark used for covering the roofs and sides of houses. Indians of Vancouver Island, British Columbia, 1888. 129986. Collected by James G. Swan.

*Wedge.*—Made of elk bone. It is used for splitting wood. With this kind of wedge the Indians of the northwest coast can easily split boards of all sizes from any sort of tree. Length, 11½ inches; width, 3 inches. Clallam Indians (Salishan stock), Washington. 20899. Collected by James G. Swan.

*Wedge.*—Made of wood. Used in the primitive method of splitting, to make thwarts in building boats. Length, 11 inches; width, 3 inches. Otoe Indians (Algonkian stock), Nebraska. 22415. Collected by J. W. Griest.

*Wedge.*—Mode of fir or yew. The upper part is covered with network of thick cord made of cedar root. It is used for splintering. Length, 25 inches; width, 2¼ inches. Maka Indians (Wakashan stock), Neah Bay, Washington, 1884. 74780. Collected by James G. Swan.

CASE VI.

*Dance figures.*—Representing dancers in dancing dress. These images are prepared before the dance, and are afterwards given to the children as playthings. Zuñi Indians, New Mexico. 9567, 22935, 22936, 61198, 68069. Collected by James Stevenson.

*Dance figures.*—Zuñi Indians, New Mexico. 22930. Collected by James Stevenson.

*Dance figures.*—Zuñi Indians, New Mexico. 54206, 69084, 69096, 22931, 84208. Collected by James Stevenson.

*Dance figures.*—Zuñi Indians, New Mexico. 99176-7; 189-190; 69185-6-7-8; 84190 Collected by James Stevenson.

*Musical instruments.*—Consisting of a notched stick and the shoulder blade of a deer. The sound is produced by rubbing the notches with the sharp point of the bone. A much louder sound is produced by placing the notched stick over the mouth of an empty gourd. Moki and Zuñi Indians, Arizona and New Mexico. 68851-2-3-5; 84228-9-30; 84227-8-9. Collected by James Stevenson.

*Rattles.*—Made of gourds fixed on the ends of wooden handles; they have symbolical figures painted on them in very bright colors. They are used in ceremonies. Moki and Zuñi Indians, Arizona and New Mexico. 68731-40-44-53-54; 164-148. Collected by James Stevenson.

*Paraphernalia of the dance.*—Apron, belt, wand, and wooden figure. Moki Indians, Arizona. 22843-66-905-59; 68865. Collected by James Stevenson.

*Belts* (2).—They form part of the dance dress. Made of native cotton. Moki Indians, Arizona. 22947-53. Collected by Maj. J. W. Powell.

*Dance headdresses and figures.*—The headdresses are those now in use in the dance, and the figures represent a dancer in dance dress. Zuñi Indians, New Mexico. 69114, 41956, 35404, 41958, 23141. Collected by James Stevenson.

*Dance wands* (9).—Small wooden boards ornamented with painted symbolical figures and with feathers. They are carried in the ceremonies called "dances." Zuñi Indians, New Mexico. 69171-2-5-8-9; 22923-4; 41931; 16169. Collected by Frank Hamilton Cushing.

*Dance wands* (12).—They are carried in the ceremonies called "dances." Small wooden boards ornamented with painted symbolical figures and with feathers. Zuñi Indians, New Mexico. 69110; 41951-57; 19617; 22929. Collected by James Stevenson.

### Cases VII and VIII.

*Model of "totem post."*—A slate column with carved ornamental figures. Height, 20 inches; diameter, 3 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88981. Collected by James G. Swan.

*Model of "totem post."*—A slate column ornamented with carved designs. Height, 16 inches; diameter, 3¾ inches. Haida Indians (Skittagetan stock), Prince of Wales Island, Alaska. 23341. Collected by James G. Swan.

*Sculptured bone.*—Representing a human figure. Length, 3 inches; width, 1⅝ inches. Tsimshian Indians (Tsimshian stock), Fort Simpson, British Columbia. 9813 (a). Collected by Lieut. F. W. Ring, U. S. A.

*Sculptured bone.*—Representing two human faces, one above the other. Length, 6 inches; width, 2 inches. Sitka Indians (Koluschan stock), Sitka, Alaska. 45995. Collected by J. J. McLean.

*Shaman rod.*—Made of bone, ornamented with engraved mythological carvings. Length, 8¼ inches; width, 1 inch. Tsimshian Indians (Tsimshian stock), Fort Simpson, British Columbia. 89021. Collected by James G. Swan.

*Sculptured ivory.*—Incrusted with shell. Length, 5½ inches; width, 2⅜ inches. Tsimshian Indians (Tsimshian stock), Fort Simpson, British Columbia. 9813 (b). Collected by Lieut. F. W. Ring, U. S. A.

*Pestle.*—Made of bone, ornamented with figures in relief. A braided cord is attached to one end. Length, 6⅝ inches; diameter, ¾ inch. Sitka Indians (Koluschan stock), Sitka, Alaska, 1884. 75420. Collected by J. J. McLean.

The Indians of the Northwest Coast are remarkable for the profusion of their carvings; almost all their articles of personal use or belonging to their houses are ornamented.

*Sculptured bone.*—Length, 4¾ inches; width, 1½ inches. Hoonya Indians (Koluschan stock), Chichagoff Island, Alaska. 73801. Collected by Lieut. T. Dix Bolles, U. S. N.

*Sculptured bone.*—Length, 6¼ inches; diameter, 1¼ inches. Sitka Indians (Koluschan stock), Sitka, Alaska, 1884. 75459. Collected by J. J. McLean.

*Sculptured ivory.*—Representing a fish. Length, 5⅝ inches; width, 2½ inches. Tongass Indians (Koluschan stock), Fort Tongass, Alaska. Collected by Lieut. F. W. Ring, U. S. A.

*Set of amulets of the Shaman.*—Carved in ivory or bone; fastened to a delicate ivory handle ornamented with carvings. Average length, 2½ inches. Tsimshian Indians (Tsimshian stock), Fort Simpson, British Columbia. 89021. Collected by James G. Swan.

*Needlecase.*—Made of the bone of a swan's wing; without ornaments. The ends of the bone are plugged with wooden stoppers, one representing the head of a fish and the other the tail, so that the whole has the appearance of a fish. Length, 6 inches; diameter, ⅝ inch. Eskimo, Askinuk, Alaska. 36719. Collected by E. W. Nelson.

*Needlecase.*—Made of carved ivory, representing a nude human figure. The tube for holding the needles is of the same length as the case. Length, 3¾ inches. Eskimo of Nubviakkhchugaluk, Alaska. 43945. Collected by E. W. Nelson.

*Needlecase.*—Made of the bone of a swan's wing. Ornamented with four rings in a diagonal line, and a large number of straight lines around the bone. The ends are plugged with wooden stoppers, one representing the head of a fish and the other the tail, the whole having the appearance of a long fish. Length, 6¼ inches; diameter, ⅝ inch. Eskimo of Askinuk, Alaska. 36723. Collected by E. W. Nelson.

*Needlecase.*—Made of the bone of the wing of a swan. Ornamented with two sets of diagonal lines and three borders of straight lines around the bone. The ends are plugged with wooden stoppers. Length, 5¼ inches; diameter, 1/16 inch. Kaialigumut Eskimo, Alaska. 37159. Collected by E. W. Nelson.

*Needlecase.*—Made of the bone of the wing of a swan. Ornamented with straight lines carved around the bone. The ends are plugged with wooden stoppers, one representing the head of a fish and the other the tail, the whole having the appearance of a long and slender fish. Length, 6¼ inches; diameter, ⅝ inch. Eskimo of Askinuk, Alaska. 36727. Collected by E. W. Nelson.

*Needlecase.*—Carved in ivory. It has nearly the shape of a spindle. Hollow at the top and at the bottom. On each side it has a wing supported by a small piece which projects from the surface. Length, 5⅝ inches. Eskimo of Norton Sound, Alaska. 33697. Collected by E. W. Nelson.

*Needlecase.*—Carved in ivory, ornamented with four nude figures seated, two facing the other two. Length, 4½ inches. Eskimo of King's Island, Alaska. 44137. Collected by E. W. Nelson.

*Needlecase.*—Carved in ivory, representing a walrus carrying something in its mouth. Ornamented with dots, rings, and lines, forming a beautiful design. This needlecase is not like those usually carried by the Eskimos, as it only opens at one end. Length, 4½ inches. Eskimo of Togiak River, Alaska. 127443. Collected by I. Applegate.

*Needlecase.*—Carved in ivory, representing a whale. Ornamented with dots, rings, and lines. It opens only at one end, and has a hole in the center, plugged with a stopper of soft wood. Length 5 inches. Eskimo of Bristol Bay, Alaska. 7913. Collected by Dr. T. T. Minor.

*Needlecase.*—Carved in ivory. One end is ornamented with a seal's head, and the other with a walrus head. The opening of the case runs from the top down, and has one end plugged with wood. Length, 5¼ inches. Eskimo of the Lower Yukon, Alaska. 38443. Collected by E. W. Nelson.

*Needlecase.*—Made of the bone of the wing of a swan. Ornamented with small dots and rings. Both ends are plugged with wooden stoppers. It is a fine specimen. Length, 5 inches; diameter, ⅝ inch. Eskimo of Lower Kuskokwim River, Alaska. 36762. Collected by E. W. Nelson.

*Needlecase.*—Made of the bone of the wing of a swan. The center is ornamented with transverse lines forming a right angle; the ends with diagonal lines. Both ends are plugged with wooden stoppers, one representing the head of a fish and the other the tail, giving the whole the appearance of a long fish. Length, 6 inches; diameter, $\frac{5}{8}$ inch. Eskimo of Askinuk, Alaska. 36764. Collected by E. W. Nelson.

*Drill bow.*—Made of walrus ivory, ornamented with three parallel lines. At the sides, at intervals of about 1 inch, it has nine clefts, joined by curved lines. At the bottom it has ornaments of rings and dots. Length, 18 inches; width, 1 inch. Eskimo of Point Barrow, Alaska. 89423. Collected by E. W. Nelson.

*Bag handle.*—Made of ivory, slightly convex, and ornamented with carvings. Those on the back represent houses, trees, and animals; those of the sides a scene from the whale fishery. Length, $12\frac{1}{2}$ inches; $\frac{1}{2}$ inch square. Chilcat Indians, Alaska. 67904. Collected by J. J. McLean.

*Pail handle.*—Made of ivory. The shape is semicircular. It has nine seal heads carved in relief on the outer face. The edges have carved ornaments. Three trees are carved on the inner face. Length, 9 inches; width, $1\frac{1}{4}$ inches. Eskimo of the Lower Yukon, Alaska. 136375. Collected by E. W. Nelson.

*Pail handle.*—Made of ivory, slightly curved in the center. It has a bear carved on either end. Length, $8\frac{3}{4}$ inches; width, $1\frac{3}{4}$ inches. Eskimo of Diomede Island, Alaska. 63884. Collected by E. W. Nelson.

*Box handle.*—Made of ivory, slightly convex, and ornamented with etchings representing apparently skins of animals. The sides are incrusted with blue beads. Length, $15\frac{3}{4}$ inches; width, 1 inch. Eskimo of Kotzebue Sound, Alaska. 48529. Collected by E. W. Nelson.

*Pail handle.*—Made of ivory. It has two fishes carved on the center. At each end of the handle are three fishes, two curved in relief, and one forming a pendant. Length, $10\frac{1}{2}$ inch; diameter, $\frac{3}{4}$ inches. Eskimo of Sledge Island, Alaska. 44690. Collected by E. W. Nelson.

*Box handle.*—Made of ivory, ornamented with various carved drawings. Beginning at the left, a hunter is seen in the act of firing at the game; then come ten reindeer; and lastly, on the right is represented a whale with its captor. Length, 15 inches; width, 1 inch. Eskimo of Kotzebue Sound, Alaska. 48831. Collected by E. W.Nelson.

*Pail handle.*—Made of ivory. It has six sections of a design carved on it, giving it the appearance of seven fish tails joined in a single line. Length, $6\frac{1}{2}$ inches; width, $1\frac{1}{4}$ inches. Eskimo of Cape Darby, Alaska. 48137. Collected by E. W. Nelson.

*Accessories of an aboriginal game.*—Made of short sticks of spruce, and engraved with totemic devices. Any number of persons may take part in this game. The dealer sits on the ground, having before him a pile of frayed cedar bark, in which the sticks are shuffled, and with great solemnity draws out the pieces one by one without looking at them, and passes them to each of the players seated in front of him. Each stick has a different value, and the highest, or the lowest, or the defined, or the specified number gains the stake. T'lingit Indians, Sitka, Alaska. 6556. Collected by Dr. J. J. Minor, U. S. A.

*Small sticks for a game*—Made of wood, 29 in number, placed in a deerskin bag. Most of the sticks have a dinstinctive mark. Length, 5 inches; width, $\frac{5}{8}$ inch. T'lingit Indians (Koluschan stcok), Sitka, Alaska. 9939. Collected by Captain Henriques.

*Explanation of the game.*—Each player, in his turn, selects a number of sticks from the bag, and places them under a pile or piles of frayed bark. His adversary must guess whether the number of hidden sticks is even or odd, or whether they are in one or the other pile. If the player guesses right, or not, he wins, or

loses, one or more sticks. The game continues until one of the players has lost all his sticks, and he then loses the whole amount staked on the game. The T'lingits are inveterate gamblers.

*Whipping-top and whip.*—The top is of wood, and the point is of bone. Length, 2½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152905.

*Dart (Yuato-gyabo).*—Made of a rib bone. One is pointed, and there are two feathers on the other. Length, 16 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152906. Collected by James Mooney.

This dart is used in athletic exercises. It is thrown with great force over the ice, and the player whose dart goes farthest wins the stake. This is the favorite game of the young men.

*Sling.*—Made of deer hide painted with red clay. Used by the children. Length, 30 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152922. Collected by James Mooney.

*Gaming arrows* (6).—The arrow is of a single piece of wood. The head is carved and painted. It is thrown with the hand, like a javelin; the player who throws it farthest wins. It is a man's game. Length, 29 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152913. Collected by James Mooney.

*Game (Tangokya).*—It is composed of 8 small sticks, marked differently. They are thrown like dice. The sticks are called horses or mares. The count of the game is kept with markers. This game is played only by men. It is the favorite game of the horse racers. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152909. Collected by James Mooney.

*Shinny stick and ball.*—The staff is curved at one end. The ball is of hide stuffed with hair. This is a woman's game. Length, 3 feet. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152903 (a). Collected by James Mooney.

*Shinny.*—Ornamented with drawings of animals. It is a game for women only. Length, 3 feet. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152903 (c). Collected by James Mooney.

*Football.*—Made of oxhide stuffed with hair. Diameter, 3½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152904. Collected by James Mooney.

The game of football is played by the women and girls. They do not drive the ball with the foot like the whites. The game consists in supporting the ball as long as possible on the toes of one foot while they dance around on the other.

*Shinny and ball.*—The shinny is curved at one end. The ball is of hide and is stuffed with hair. This game is for women. Length, 3 feet. Kiowa Indians (Kiowa stock), Kiowa Reservation, Indian Territory, 1891. 152903 (b). Collected by James Mooney.

*"Mescal" purse, of buckskin, embroidered with beads.*—Made in imitation of the narcotic root wafer of a cactus, which is eaten in the "mescal ceremony." Those who eat the "mescal" carry the purse hanging from a necklace, and it contains a small quantity of consecrated "mescal." Diameter, 1½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152883. Collected by James Mooney.

Mescal is the root of the *Cereus*, of the cactus family. When chewed it has the properties of a narcotic.

*Amulet.*—A closed bag, made of hide embroidered with beads. Length, 2 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152932. Collected by James Mooney.

*Enchanted bow.*—Made of rib bone. It is used when it is desired to shoot an arrow at the malignant spirit who, from the clouds, has been the cause of the failure of the buffalo hunt. Length, 15 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152989. Collected by James Mooney.

*Enchanted bag of the sun dance (model).*—Made of hide. It is of the shape of a saddle, and contains the "Great Talisman" of the Kiowas. No white has succeeded in seeing the talisman, but it is known to be composed of the 300 (more or less) scalp trophies of the tribe. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152927. Collected by James Mooney.

*Enchanted tortoise shell.*—Shell of a land tortoise, polished by use. This shell is used in the act of parturition, as an amulet, and the family receives it with great ceremony. Length, 4¾ inches. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152811. Collected by James Mooney.

*Medicinal root.*—Used in decoction, in the case of stomach ache. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 153001. Collected by James Mooney.

*Amulet (life charm).*—A small diamond-shaped bag, embroidered with beads, and having a fringe of deer hide; it is worn by young girls, and it contains the umbilical cord of the person who wears it. Length, 2½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory. 152882 (a.) Collected by James Mooney.

*Enchanted bag.*—Made of the skin of the legs of a tortoise. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152810. Collected by James Mooney.

Obtained by Rev. H. R. Voth from an old Cheyenne doctress. It is used as an amulet at births.

*Amulet stone.*—Oval stone, incrusted in a piece of hide embroidered with beads, with two straps, ornamented with beads, to support it. Diameter, 1¾ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152884. Collected by James Mooney.

This amulet comes from Chihuahua (Mexico), which presented it from motives of gratitude. The Kiowas believe that this stone possesses life and the power of motion.

*Shield and saddle.*—Made of dark deer hide, embroidered with beads. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152928. Collected by James Mooney.

*Doll dressed in deer hide.*—Bead ornaments. The belt is ornamented with buttons of German silver. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152920. Collected by James Mooney.

*Doll dressed in buckskin.*—It has a buckler on its arm. A child's plaything. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152918. Collected by James Mooney.

*Small spoons.*—Wooden toy. The children carry these spoons in their belts as a plaything. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory. 1891. 152923. Collected by James Mooney.

*Quiver.*—Toy made of squirrel skin. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152924. Collected by James Mooney.

*Rag doll.*—It carries a quiver and shield, and is seated on a saddle. Kiowa Indians (Kiowan stock), Kiowa Reservation, 1891. 152921. Collected by James Mooney.

*Doll dressed in red flannel.*—It represents a woman seated on a saddle, carrying a child on her back. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152916. Collected by James Mooney.

*Toilette bags.*—Playthings made of hide. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152930. Collected by James Mooney.

*Saddles.*—Toys, made of buckskin. Length, 8 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152929. Collected by James Mooney.

*Little moccasins.*—Plaything, made of buckskin, embroidered with beads. Length, 3 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152926. Collected by James Mooney.

*Bow.*—Toy, ornamented with bead embroidery. Length, 13 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152914. Collected by James Mooney.

*Gun and case, toy.*—Wooden gun, deerskin case, embroidered with beads. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152981. Collected by James Mooney.

*Ivory doll.*—Representing a woman dressed in deerskin, ornamented with various skins. Length, 4 inches. Eskimo of St. Michaels Island, Alaska. 129237. Collected by L. M. Turner.

*Ivory doll.*—A short string of beads hangs from its nose, which is pierced by a feather. From its ear hangs another string of beads, which passes underneath its chin. The sack is of duck skin, and the pantaloons of deerskin. Length, 13¾ inches. Eskimo of Tuniakput, Alaska. 127292. Collected by I. Applegate.

*Doll.*—It wears a blouse of deerskin, festooned with another skin, a hood embroidered with beads, and earrings of bells. Around its face it has a ribbon of skin, which serves to tie it. Length, 3¾ inches. Eskimo, Alaska. 37889. Collected by E. W. Nelson.

*Doll.*—Dressed in a blouse of different skins, with hide shoes. A wide fringe of skin hangs from the hood, to protect the face. Length, 7 inches. Eskimo, Norton Sound, Alaska. 37634. Collected by E. W. Nelson.

*Ivory doll.*—Representing an Eskimo mother dressed in a long blouse; she is carrying her child in a large case. It has eight marks painted on its chin. Length, 3¾ inches. Eskimo, Kotzebue Sound, Alaska. 48584. Collected by E. W. Nelson.

*Ivory doll.*—Dressed in skins. The blanket on which it is stretched is of duck skin trimmed with skins. Length, 3 inches. Eskimo, Togiak River, Alaska. 127312. Collected by I. Applegate.

*Wooden doll.*—With ivory eyes, mouth, and ears. The rings which it wears in its nose and ears are of beads. The dress is of various kinds of skins. Length, 12½ inches. Eskimo, Togiak River, Alaska. 127297. Collected by I. Applegate.

*Diadem front.*—Made of wood, carved and painted, imitating the head of a bird, surrounded by little human heads. It is used in the dances in ceremonies. Length, 7 inches; width, 6 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia, 1883. 89159. Collected by James G. Swan.

*Diadem front.*—Rectangular piece of wood, from which a bear's head rises in relief. The outlines are black and red. It is used in ceremonial dances. Length, 7 inches; width, 5⅝ inches. Sitka Indians (Koluschan stock). Sitka, Alaska, 1882. 56486. Collected by James G. Swan.

*Diadem front.*—Rectangular piece of wood, from which a bear projects in relief. The body of the bear is painted red; the outlines of the bear's head are black and red. The whole is edged with red flannel cut in scallops. It is used in ceremonial dances. Length, 6⅝ inches; width, 6 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia, 1883. 89051. Collected by James G. Swan.

The different tribes of the northwest coast believe that they are descended from a bird or other animal, and carve the image of their supposed progenitor on many of the articles of their personal property. The owner of the diadem described believed that he came from the bear family.

*Diadem front.*—Flat piece of wood, carved and painted, representing a human figure. It is used in the ceremonial dances. Length, 6¼ inches; width, 5¼ inches. Indians of the northwest coast of North America. 688. Collected by George Gibbs.

*Diadem front.*—Rectangular piece of wood, from which the heads of a bear and a bird rise in relief. Painted blue, and the outlines black and red. Length, 5¼ inches; width, 3⅝ inches. Sitka Indians (Koluschan stock), Sitka, Alaska. 20755. Collected by James G. Swan.

*Ceremonial mask.*—It is of the shape of a narrow face, and is of wood, painted white, with black and red outlines. A pointed projection rises from the forehead and descends to the eyes. It has two pairs of eyes; the upper pair is slightly open, and contains holes; the lower eyes have large lids, which descend to the line of the nostrils. The mask has a piece of curved wood on one side and a black feather on the other. Length, 11½ inches; width, 5¼ inches. Eskimo of Askinuk, Alaska. 48700. Collected by E. W. Nelson.

*Dancing mask.*—Of soft wood; it has a human face in the center, and above it a deep concavity painted red, and ornamented on each side with wooden pegs. On the upper part of the face there is a thin rectangular piece of wood. It has large hands sculptured at the top and bottom. The lower hand has a walrus painted on it. The rest of the face is painted white, and the borders black. There is a little hood on the upper part of the forehead. Length, 26 inches; width, 10 inches. Eskimo of Norton Sound, Alaska. 33113. Collected by E. W. Nelson.

It is used in dances to the sound of the drum and of songs relating to a hunting or fishing party, or, more usually, to a mystic legend.

*Ceremonial mask.*—Of wood, of an oval shape. A kind of ridge extends the whole length of the mask, and on either side displays a concavity, painted red and ornamented with wooden pegs. Near the lower edge and extending from right to left it has a cleft of a semicircular shape. There are two holes on either side of the mask. The bottom is painted white, and the edges black and blue. A black feather rises from each side and from the top. Length, 11 inches; width, 7½ inches. Eskimo, Askinuk, Alaska. 48701. Collected by E. W. Nelson.

It is used at funerals.

*Finger mask.*—A thin, circular piece of wood, and represents a deformed face. Under the face are two holes to put the fingers in. The mask is festooned with long hair from the reindeer's tail. It is used by placing it before the face in the ceremonial dances. Diameter, exclusive of the fringe, 3¼ inches. Eskimo of the Lower Kuskoquim River, Alaska. 37896. Collected by E. W. Nelson.

*Dancing mask.*—Of wood, and has the form of the face of a white man, with black lines on the upper part of the eyes and above the nose. The ears are of separate pieces of wood painted red, and a hide strap hangs from each. A wooden plug is mortised to each side of the chin. The eyes, the nostrils, and the spaces between the teeth are entirely perforated. A feather issues from the forehead and from the side of the left eye. A cord of spruce pine root serves to fasten the mask on the head of the person who wears it. Length, 12 inches; width, 10 inches. Eskimo of Norton Sound, Alaska. 33133. Collected by E. W. Nelson.

It is used in dances to the sound of the drum and songs relating to a hunting or fishing party, or, more usually, to mystic legends.

*Finger mask.*—A thin, circular piece of wood, and represents a deformed face. Under the face are two holes for the fingers. The mask is festooned with long hair from a reindeer's tail. It is used by placing it in front of the face in the ceremonial dances. Diameter, exclusive of the fringe, 3 inches. Eskimo of the Lower Kuskoquim, Alaska. 37653. Collected by E. W. Nelson.

*Ceremonial mask.*—Of wood, painted blue, with black lines on the edges; the eyes slightly opened, the nose and lips very large. Length, 9½ inches; width, 7½ inches. Bellacoola Indians (Salishan stock), British Columbia. 20580. Collected by James G. Swan.

*Ceremonial mask.*—Of wood, painted blue, with red and black lines on the edges. There are painted designs on the cheeks, and a worked garniture on the lower lip. Length, 8 inches; width, 5½ inches. Alaska Indians. 67953. Collected by J. J. McLean.

*Ceremonial mask.*—It is of wood, and has lines painted red and black, and blue drawings on the forehead and cheeks. It is used in dances. Length, 9 inches; width 8½ inches. Alaska Indians. 67952. Collected by J. J. McLean.

*Ceremonial mask.*—It is of wood, and has the eyes and eyebrows painted black. A metal ring hangs from the nose. It is used in dances. Length, 6¾ inches; width, 6¼ inches. Sitka Indians (Koluschan stock), Alaska. 9937. Collected by Captain Henriques.

CASE IX.

*Feathers for the head* (1).—Various garnished feathers, fastened to the end of a stick by ties of ribbons. Length, 12½ inches. T'lingit Indians (Koluschan stock), Alaska. 46497. Collected by James G. Swan.

*Feathers for the head* (2).—Various woodpeckers' feathers fastened to the ends of two short sticks. Length, 18¾ inches and 12¾ inches. Indians of the northwest coast of North America. 2491–2. Collected by Lieut. Charles Wilkes, U. S. N.

*Ornament for the head.*—Crown of woodpeckers' feathers and deer hide. Diameter, 9 inches. Hupa Indians (Athapascan stock), Hupa Valley Reservation, California. 21331. Collected by Stephen Powers.

*Ornament for the head.*—Crown of sea-otter skin ornamented with beads, feathers, and small pieces of red cloth. It has a string to fasten it to the head. Used in the dances. Diameter, 8½ inches. Uka Indians (Yukian stock), Reudon Valley Reservation, California. 21410. Collected by Stephen Powers.

*Dance whistle.*—Carved in the shape of a fish. It consists of two pieces of wood carved on the outside and united by spruce-pine root. Length, 14 inches; width, 3⅛ inches. Skedan Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89139. Collected by James G. Swan.

*Dance whistle.*—Composed of two pieces of wood, carved, and joined together by a packthread cord. Length, 4½ inches; width, 3 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89068. Collected by James G. Swan.

*Dance whistle.*—It consists of two pieces of wood, carved on the outside, and united by three ligatures, one of hide, one of spruce-pine root, and the third of packthread. The mouthpiece is cemented with rosin. Length, 19⅝ inches; diameter, 3 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89071. Collected by James G. Swan.

*Dance whistle.*—It consists of two pieces of wood, carved on the outside, dovetailed, and cemented with rosin. There are engravings on it, representing a face and arms. Length, 7½ inches; width, 5 inches. Skittagetan Indians, Queen Charlotte Islands, British Columbia. 89158. Collected by James G. Swan.

*Dance whistle.*—Two whistles united by spruce-pine root, forming a double whistle. Each consists of two pieces of wood, carved on the outside, joined together with spruce-pine root, and cemented with rosin. Length, 9 inches; width, 3 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89070. Collected by James G. Swan.

*Ceremonial rattle.*—Made of wood, ornamented with various painted engravings and drawings, both mythological. The handle is covered with ribbon. This pattern of rattle is very common among the Indians of the northwest coast. Length, 12½ inches; width, 3½ inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 98086. Collected by James G. Swan.

*Ceremonial rattle.*—Made of wood, ornamented with a painted drawing representing a human face. Length, 9 inches. Massett Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88717. Collected by James G. Swan.

*Dance rattle.*—Made of wood, ornamented on each side with a drawing of a human face and other painted and engraved drawings. Length, 10½ inches; width, 4½ inches. Alaska. 74335. Collected by J. J. McLean.

*Dance rattle.*—Made of wood, engraved, and with a painted drawing representing a woodpecker. Length, 10 inches; width, 3 inches. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88797. Collected by James G. Swan.

*Rattle.*—Gourd, with drawings painted white and black and the bottom painted green, with a wooden handle passing through it. It is used in dances. Diameter, 6 inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 84145. Collected by Victor Mindeleff.

*Rattle.*—Made of a gourd, with painted designs, and pierced by a handle with a loop at the end. It is used in the dances. Diameter, 5 inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona, 1886. 128740. Collected by Mrs. M. E. Stevenson.

*Rattle.*—Made of wood, carved and painted, representing a two-headed eagle, an imitation of that on the Russian flag. Length, 10 inches; width, 4 inches. T'lingit Indians (Koluschan stock), Sitka, Alaska. 20763. Collected by James G. Swan.

*Leggin rattles.*—Made of blue flannel, ornamented with three strips of red flannel, and with strings of white beads sewed around them. Along the whole length of the leggins are sewed three rows of bird beaks, which, by knocking against each other, produce various sounds, in accordance with the movement of the leg. The chiefs alone use this rattle in the dances of great ceremony. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89088. Collected by James G. Swan.

*Rattle.*—Composed of many bird beaks fastened around two wooden hoops covered with spruce-pine root. A stick tied to each of the two sides serves as a handle. Diameter, 6⅝ inches. Hadia Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 89088. Collected by James G. Swan.

*Rattle.*—Gourd painted bright green, yellow, and black, with a wooden handle running through it, with two feathers tied to one end. It is used in the dances. Diameter, 4 inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 68742. Collected by Col. James Stevenson.

*Rattle.*—Rough gourd, painted green. It has for a handle a stick which passes through it, but without coming out at the opposite side. Length, 7 inches; width, 3½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 84149. Collected by Victor Mindeleff.

*Head of a crook.*—Gourd painted black, with red lines; a short stick passes through it. This handle serves as the head of a long staff which is used in the ceremonial dances. Length, 19 inches; diameter of the gourd, 4½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 22964. Collected by O. D. Wheeler.

*Rattle.*—Gourd ornamented with designs painted black on a background of bright green. A stick which passes through and through it serves as a handle. It is used in the dances. Diameter, 3¼ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 68746. Collected by Mrs. M. E. Stevenson.

*Dance whistle.*—Made of the bone of an eagle's wing, with buckskin strips and feather pendants. Length, 6⅝ inches. Arapahoe Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Oklahoma, 1890. 153057. Collected by Emilio Granier.

*Medicine man's enchanted rod.*—Wooden staff covered with red cloth and feathers; head of catlinite, with a tassel made of horsehair dyed green. Length, 25 inches. Arapahoe Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Oklahoma, 1890. 153064. Collected by Emilio Granier.

*Medicine man's enchanted rod.*—Wooden staff painted red and ornamented with beaded fringes; head of catlinite, ornamented with an incrusted German-silver cross. Plumes of feathers on the ends. Length, 27 inches. Arapahoe Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Oklahoma, 1890. 153063. Collected by Emilio Granier.

*Whistle and necklace for dancing.*—The whistle is made of the bone of an eagle's wing, wrapped in pieces of quill and pearls. Necklace of buckskin painted dark and ornamented with quill work. Length of the whistle, 7¾ inches. Arapahoe Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Oklahoma, 1890. 153056. Collected by Emilio Granier.

*Flute.*—Made of two pieces of cedar, joined by fastenings of buckskin cord. The key is stuck on with balsamic pine rosin. The six holes for the fingers are made by burning. It is called "the love flute," because it is used in serenades. Length, 21 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152899. Collected by James Mooney.

*Whistles.*—Made of the bone of eagles' wings. They have pendants of feathers. The largest of the whistles is about one hundred years old. It is used in the sun dance and in giving orders for the movements of the warriors in battles. Length, 7½ and 10 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152938. Collected by James Mooney.

*Deer call.*—It is made of a kind of tin tube fixed between two pieces of perforated wood. It is sounded by blowing. It imitates pretty well the bleating of the deer. Length, 7 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152939. Collected by James Mooney.

*Enchanted rattle.*—It has the handle covered with hawk skin, ornamented with ten tin bells. The head is made of the scrotum of a young buffalo, and has birds and cabalistic signs painted on it. Length, 2 feet. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152807. Obtained from Rev. H. R. Voth by James Mooney.

*Ornament for the head.*—Bunch of feathers, with a large eagle's feather in the center. Used by the medicine men, on which account the name of "Dr. Buffalo" is given to it. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152861. Collected by James Mooney.

*Rattle.*—Wooden handle wrapped in buckskin, ornamented with a horsehair plume and a tin bell. The head is made of the scrotum of a buffalo, with figures in relief. It is used in the dance called that of the "Warrior Dog." Length, 8½ inches. Cheyenne and Arapahoe Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152808.

*Tablets of birch bark, or descriptive writing.*—This instructive series of writings on birch bark was obtained from the Ojibway Indians and collected by Dr. W. J. Hoffman, whose account will be found in the seventh annual report of the Bureau of Ethnology.

In the upper part of the glass case, on the left, are the ballads or mnemonic songs used by the Shamans in the cermonies of the Great Medicine Society. The glass case on the left contains a tablet of birch bark relating to the traditions of the tribe. The next case contains tablets of battles and hunts. The last case contains tablets of songs for cures and for hunts, which are carefully marked, in order that they may serve as a guide to the singer.

*Fastener for workbag.*—Made of walrus-tusk ivory, ornamented with four rows of engraved parallel lines. A small hole made in the ivory serves for the passage of the lace or cord with which the bag is closed. Length, 6¼ inches; width, ¼ inch. Eskimo of Norton Sound, Alaska. 48778. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a strip of walrus-tusk ivory, ornamented with five rows of engraved parallel lines. A small projection is carved in the center, in which is a hole serving to pass the cord with which the bag is closed. Length, 7½ inches; diameter, ⅜ inch. Eskimo of Nulokhtologumut, Alaska. 38218. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a cylindrical piece of walrus-tusk ivory, ornamented with twelve rows of engraved parallel lines. It has in the center a small projection, in which is a hole serving as a passage for the cord with which the bag is closed. Length, 7½ inches; diameter, ⅝ inch. Eskimo of Big Lake, Alaska. 36637. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a cylindrical piece of walrus-tusk ivory. Slightly curved and ornamented with eight rows of engraved parallel lines mingled with points and crosses. There is a hole in the ivory, serving as a passage for the cord with which the bag is closed. Length, 6½ inches; diameter, ½ inch. Eskimo of Sabotnisky, Alaska. 48966. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a cylindrical piece of walrus-tusk ivory, ornamented with eleven rows of engraved parallel lines mingled with dots and circles. Length, 6½ inches; width, ⅝ inch. Eskimo of Paimut, Alaska. 38011. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a triangular piece of walrus-tusk ivory, ornamented with figures representing diamonds and a set of wooden plugs incrusted in the ivory and surrounded by circles. It has a cleft serving as a passage for the cord with which the bag is closed. Length, 5½ inches; width, ½ inch. Eskimo of Paimut, Alaska. 37188. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of walrus-tusk ivory, ornamented with engraved transverse lines, forming various figures. An eagle's head is carved on one of the ends. A small hole made in the ivory serves as a passage for the cord with which the bag is closed. Length, 5¼ inches; width, ½ inch. Eskimo of Anogogumut, Alaska. 37431. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of a flat and thin piece of walrus-tusk ivory, ornamented in the center with an engraved drawing representing a human face, and on each side an engraved seal. A series of lines crossing each other are engraved on the upper edge. A small hole made in the ivory serves as a passage for the cord with which the bag is closed. Length, ⅞ inch; width, 1 inch. Eskimo of Chalitmut, Alaska. 37319. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of walrus-tusk ivory. Carved to represent a salmon. A small hole made in the button hook serves as a passage for the cord with which the bag is closed. Length, 4⅞ inches; width, 1 inch. Eskimo of Nunivak Island, Alaska. 43694. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of walrus-tusk ivory and carved in the shape of a beaver. Ornamented with engraved circles, lines, and points. Five small pieces of lead are cemented to the ivory at intervals of about an inch. A small hole made in the lower part of the fastener serves as a passage for the cord with which the bag is closed. Length, 7 inches; width, ⅞ inch. Eskimo of Sabotnisky, Alaska. 48861. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of walrus-tusk ivory, carved in the form of a seal. Ornamented with borders, engraved around the neck and tail. Various drawings adorn the body. A small hole made in the ivory serves as a passage for the cord with which the bag is closed. Length, 4½ inches; diameter ⅝ inch. Eskimo of Nulukhtologomut, Alaska. 38241. Collected by E. W. Nelson.

*Fastener for workbag.*—Carved in walrus-tusk ivory, in the form of a seal. Ornamented with engraved circles, points, and lines. A small hole made in the ivory serves as a passage for the cord with which the bag is closed. Length, 6 inches; width, ¾ inch. Eskimo of Sabotnisky, Alaska. 48860. Collected by E. W. Nelson.

*Fastener for workbag.*—Made of walrus-tusk ivory, carved in the shape of a lamprey A small hole made in the ivory serves as a passage for the cord with which the bag is closed. Length, 6¾ inches; width, ¾ inch. Eskimo of Norton Sound, Alaska. 24502. Collected by Lucien M. Turner.

*Denticulated rattle* (2).—It consists of two pieces; one long, toothed stick and, another small, smooth stick. It is used in the ceremonial dances. One end of the denticulated rod is held in the left hand; a gourd, or any other sounding object, is fixed on the other end. The long rod is rubbed from the top to the bottom, and from the bottom to the top, with the other rod held in the right hand. Length of the denticulated rod, 26 inches; length of the short rod, 12 inches. Shoshone Indians (Shoshonean stock), Wind River Reservation, Wyoming, 1876. 22026–7. Collected by Maj. J. W. Powell.

*Flute.*—It consists of two strips of wood, guttered and joined together by a buckskin cord, and cemented with rosin. It has six holes for the fingers, made by burning. The key is of reed. Length, 21 inches; diameter, 1⅛ inches. Shoshone (Shoshonean stock), Wind River Reservation. 153065. Collected by Emilio Granier.

*Whistle.*—Made of the bone of an eagle's wing. Ornamented with a wrapping of dyed quills. Length, 8 inches. Sioux Indians. 153923. Collected by Mrs. M. M. Hazen.

*Whistle.*—Made of the bone of an eagle's wing, with a strap of sea-otter skin tied to the neck of the whistle. Length, 10 inches.. Sioux Indians. 153926. Collected by Mrs. M. M. Hazen.

*Whistle.*—Made of the bone of an eagle's wing. Ornamented with a wrapping of dyed quills. A buckskin strap, with white quills. Length, 7¾ inches. Sioux Indians. 153924. Collected by Mrs. M. M. Hazen.

*Rattle.*—Made of two pieces of hide, cemented together, forming a ball. The handle is strengthened by a wooden tube. A feather is cemented to the upper part of the whistle. Length, 8 inches; diameter, 3¾ inches. Sioux Indians. 153920. Collected by Mrs. M. M. Hazen.

*Rattle.*—A rod covered with buckskin, from which hang many deer hoofs, forming the timbrel. It has a feather on one side and a wide buckskin loop on the other. Length, 19 inches. Sioux Indians. 153927. Collected by Mrs. M. M. Hazen.

*Whistle* (*broken*).—Made of the bone of an eagle's wing. A buckskin strap, ornamented with white and blue quills. Length, 6¾ inches. Sioux Indians. 153925.. Collected by Mrs. M. M. Hazen.

*Flageolet.*—Made of reed, covered with quills, painted. It has four holes for the fingers. A tongue placed in an oblong case produces the sound. Length, 11¾ inches; diameter, ¾ inch. Sioux Indians. 153922. Collected by Mrs. M. M. Hazen.

*Small drum.*—Made of deerskin drawn over an irregular hoop and fastened with wooden pegs which project from the whole hoop at intervals of about an inch. Diameter, 7 inches. Sioux Indians. 153921. Collected by Mrs. M. M. Hazen.

*Drumstick.*—Made of a straight stick of wood. The knob is of buckskin, stuffed with hair. The stick and knob are painted red. The little children use it. Length of the stick, 14¾ inches; diameter of the knob, about 1½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 22553. Collected by Maj. J. W. Powell.

*Drumstick.*—The knob is of hair, covered with cloth. The men use it. Length, 22 inches; diameter of the knob, 4½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 22553. Collected by Maj. J. W. Powell.

*Drumstick* (*Tatchi*).—The two painted with dark colors. The knob is of buckskin, stuffed with hair. Used by the children. Length of the stick, 13 inches; diameter of the knob, about 2½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 128630. Collected by Mrs. M. E. Stevenson.

*Drumstick.*—Painted with dark colors. A cloth knob, stuffed with hair, is fastened to one end of the stick. Length, 15 inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 68919. Collected by Col. James Stevenson.

*Drumstick.*—Painted red. A buckskin knob, stuffed with hair and painted red and black, is tied to one end of the stick. Length, 14½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 68923. Collected by Col. James Stevenson.

*Drumstick.*—Ornamented and painted. A knob, made of buckskin stuffed with hair, is tied to the end of the stick. Length, 12½ inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona. 68922. Collected by Col. James Stevenson.

*Drumstick.*—A knob covered with buckskin is tied to the end of the stick. Length, 18 inches. Moki Indians (Shoshonean stock), Moki Reservation, Arizona, 1883. 68918. Collected by Col. James Stevenson.

CASE X.

*Hat.*—Made of spruce-pine root, finely woven, and ornamented with shells, beads, and painted drawings. Diameter, 15½ inches. Aleuts, Aleutian Islands, Alaska. 11378. Collected by Vincent Colyer.

The resemblance of these hats to those of the Chinese is remarkable.

*Hunter's hat.*—Made of spruce-pine roots, finely woven with cord. Painted blue, with red and blue drawings on the crown. Ornamented with shells, beads, and two plumes of walrus hair. Diameter, 16 inches. Eskimo of Kadiak Island, Alaska. 74720. Collected by William J. Fischer.

*Head ornament for men.*—Fine, dark network, ornamented with small pieces of haliotis shell. Indians of Pitt River (Palaihnihan stock), Round Valley department, California. 21378. Collected by Stephen Powers.

*Head ornament.*—Made of many small pieces of quill, painted red, and placed perpendicularly. At equal intervals there are pieces of quill with a portion of the feather on. The straps to fasten it to the head are of buckskin. Length of the quill, 2½ inches. Indians of McCloud River (Copehan stock), California, 1875. 19276. Collected by Livingston Stone.

*Head ornament for men.*—Fine, dark network, ornamented on one side with feathers of very bright colors. Hupa Indians (Athapascan stock), Hupa Valley Reservation, California, 1874. 21333. Collected by Stephen Powers.

*Curl.*—Made of hairs from the tail of a horse. Ornament for men. Length, 2½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152872. Collected by James Mooney.

*Shirt ornaments.*—Small perfumed bag of yellow cloth, with pendants of lynx and deer tails sewed to an embroidery of beads. It is worn on the shoulders, breasts, or backs of men's and children's shirts. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152874. Collected by James Mooney.

*Pin for arranging the hair.*—Of wood, with a head in imitation of the "mescal" cactus, which the Kiowas eat, and is used to make the part in the hair. Length, 8 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152937. Collected by James Mooney.

*Magic ornament for the head.*—Made of strings of beads attached to a button of German silver. When worn on the head it serves as an amulet, and is probably used in the celebration of some secret ceremony. Length, 10 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152910. Collected by James Mooney.

*Head ornament.*—Made of an eagle's feather. The quill of the feather is covered with buckskin embroidered with beads, to which is attached an ornament of hide embroidered with beads, cut in a circular shape. The men wear this ornament. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152871. Collected by James Mooney.

*Feather for the head.*—The quill is covered with buckskin embroidered with beads, to which is attached a silver button and a string of blue beads. The men wear this ornament. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152870. Collected by James Mooney.

*Garter.*—Made of a ribbon, embroidered with beads, half an inch wide, with little pendants of ribbon. The men wear it just below the knee. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152866. Collected by James Mooney.

*Earrings.*—Beads of real "wampum," with silver ornaments and brass chains. The men wear them. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152875. Collected by James Mooney.

*Warrior's helmet.*—Made of a long band of elk hide, ornamented with figures painted red and black, two eagle's feathers placed on the front. The straps for securing the helmet on the head are of elk-skin cord. Width of the sash, 6⅛ inches. Klamath Indians, (Lutuamian stock), Klamath Reservation, Oregon, 1876. 24095. Collected by L. S. Dyer.

*Head ornament.*—Made of buckskin, ornamented with woodpeckers' feathers and white hair cut from above the feet of the deer. The straps for securing the ornament on the head are of buckskin. The men use this ornament in the dances. Length, 24 inches; width, 16 inches. Natano Indians (Athapascan stock), Hupa Valley Reservation, California, 1885. 77192. Collected by Lieut. P. H. Ray, U. S. A.

*Head ornament.*—Made of a wide elk-skin sash, painted red and blue, with many feathers placed on the front. The strings which serve to fasten the ornament to the head are of cotton. The young men wear this ornament in the dances. Width of the sash, 7½ inches. Kenuck Indians (Athapascan stock) Hupa Valley Reservation, California, 1885. 77191. Collected by Lieut. P. H. Ray, U. S. A.

*Brush for the head.*—Made of porcupine skin. Length, 5½ inches. Piute Indians (Shoshonean stock), Nevada. 19052. Collected by Stephen Powers.

*Brush for the head.*—Made of fiber. The handle is of buckskin. Length, 6 inches; width, 3½ inches. Hupa Indians (Athapascan stock), California, 1885. 77195. Collected by Lieut. P. H. Ray, U. S. A.

*Brush for the head.*—Made of a pine cone. Length, 5 inches. Tarahumara Indians, Chihuahua, Mexico, 1885. 126652. Collected by Dr. Edward Palmer.

*Louse killer.*—Made of four spatulate wooden strips joined together at the end. Length, 5 inches; width, ⅛ inch. Zuñi Indians, New Mexico. 41900. Collected by James Stevenson.

*Brush for the head.*—Made of soapwort roots. The fibers are secured with packthread and wax. Length, 5¾ inches. Ute Indians (Shoshonean stock), Owen River, California. 19718. Collected by Stephen Powers.

*Brush for the head.*—Made of vegetable fibers. Length, 15 inches. Ute Indians (Shoshonean stock), Utah. 12019. Collected by Maj. J. W. Powell.

*Belt.*—Made of hide, ornamented with deer teeth. The lower edge contains the incisors of some 230 deer, placed above each other in two rows strongly sewed to the hide. The belt is fastened to the waist by cords of very strong hide. Length, 34 inches; width, 2¾ inches. Eskimo of Fort Alexander, Alaska. 76703. Collected by J. W. Johnson.

*Necklace.*—Made of hide, ornamented with deer teeth. The lower border contains the incisors of 44 deer, placed above each other, and they are strongly sewed to the hide. Ten walrus teeth hang at the ends of the same number of strings of white and blue beads. At one end of the necklace there is a hide cord with a large blue bead, which serves to insert it in a loop at the other end, in order to secure it and fasten it to the neck. Length, 17½ inches; width, 1¼ inches. Eskimo of Fort Alexander, Alaska, 1886. 127647. Collected by J. W. Johnson.

*Belt.*—Made of hide, ornamented with transverse fringes of white and blue beads. Length, 31 inches; width, 1⅝ inches. Eskimo of Fort Alexander, Alaska, 1886. 127646. Collected by J. W. Johnson.

*Woman's belt.*—Made of hide, ornamented with deer teeth. The lower part contains the incisors of 51 deer, placed above each other, and strongly sewed to the hide. Length, 26 inches; width, 1¼ inches. Eskimo of St. Michaels Island, Alaska. 48690. Collected by E. W. Nelson.

*Bow for the hair.*—Made of a rod curved in the shape of a bow. Used by the Moki maidens. Length, 7¾ inches; width, 7¾ inches. Moki Indians (Shoshonean stock), Arizona, 1876. 22539. Collected by O. D. Wheeler.

The Moki maidens use this characteristic ornament in dressing their hair, inserted in the hair, and placed in such a way that it presents the appearance of two large ears or wings on both sides of the head.

*Ornament for the head.*—Made of a strip of wood bent in the shape of a bow. Used by the Moki maidens. Length, 11½ inches; width, 11 inches. Moki Indians (Shoshonean stock), Arizona, 1876. 41916. Collected by O. D. Wheeler.

*Ornament for the head.*—Made of a strip of wood bent in the shape of a bow. Used by the Moki maidens. Length, 9 inches; width, 12¾ inches, Moki Indians (Shoshonean stock), Arizona, 1876. 22541. Collected by O. D. Wheeler.

*Curler.*—Rod bent in the shape of a yoke. Used by the Moki women. Length, 5½ inches; width, 3¾ inches. Moki Indians (Shoshonean stock), New Mexico. 9546. Collected by Dr. Edward Palmer.

*Ornament for the head.*—Two flat rectangles of wood, with the borders painted black. Used by the women to bind the hair above the ears. Length, 4½ inches; width, 2¾ inches. Zuñi Indians (Zuñian stock), New Mexico. 69406. Collected by Maj. J. W. Powell.

*Toilet bag.*—Made of hide, embroidered with beads, with a fringe of twisted buckskin cords. Length, 9 inches; width, 4 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152889 (a). Collected by James Mooney.

These bags serve to hold paint, mirrors, combs, "mescal," feathers, jewels, savings, etc.

*Fire bag.*—Made of hide, with bead embroidery. On the side it has a hand embroidered in red beads on a background of blue beads. Length, 4⅞ inches; width, 4¼ inches. Kiowa Indians (Kiowa stock), Kiowa Reservation, Indian Territory, 1891. 152890. Collected by James Mooney.

The "fire bags" are worn suspended from the waist. They contain the flint, steel, and tinder for striking fire.

*Woman's belt.*—Wide hide band ornamented with stamped figures, beads, and buttons of German silver, on a background of red ribbon. Brass buckle. Length, 40¾ inches; width, 2½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152867. Collected by James Mooney.

*Maiden's belt.*—Made of tanned hide, ornamented with large buttons of German silver. The cases for the knife and awl and the bag for perfumes, etc., are attached to the belt. Length, 29 inches; width, 2 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152869. Collected by James Mooney.

*Brooch.*—It consists of two buckskin loops embroidered with beads, united by a cord, having buttons of German silver in the center. It is used for fastening the blanket to the body. Diameter, 2 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152881 (b). Collected by James Mooney.

*Perfumery bag for maiden.*—Made of beaded hide, ornamented with metal hoops. Used for holding aromatic plants. It is worn suspended from the belt. Length, 5½ inches; width, 3½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152886. Collected by James Mooney.

*Maiden's necklace.*—Buckskin thong, with beads. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152864. Collected by James Mooney.

*Necklace.*—Made of white glass beads (imitation of the old "wampum"), with beads and pieces of hide at intervals. A ribbon embroidered with beads hangs from either end. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152863. Collected by James Mooney.

*Head ornament for men.*—It consists of a circular piece of hide, with a button of German silver in the center, surrounded by an embroidery of beads, and pendants of ribbons of bright colors. Diameter, 1¾ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152873 (c). Collected by James Mooney.

*Head ornament for men.*—It consists of four strings of beads, fastened by a silver button to a small piece of sea-otter skin. These ornaments are sometimes consecrated, and a religious meaning is given to them. Length, 13 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152873 (b). Collected by James Mooney.

*Head ornament for men.*—Ring of white beads, from which hang a small piece of sea-otter skin, a silver button, and many ribbons and blue beads. Length, 13 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152873 (a). Collected by James Mooney.

*Necklace and war whistle.*—Necklace of beads, from which hang three united feathers and a war whistle made of the bone of an eagle's wing. The whistles made of eagles' bones are the war trumpets of the Kiowas. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152862. Collected by James Mooney.

*Man's necklace.*—It consists of a hide cord with beads, small pieces of lead, brass, and iron, to which are attached an iron ring and a cloth bag with perfumes. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152865. Collected by James Mooney.

*Ornament for blankets.*—It consists of four circular pieces of hide embroidered with beads, joined together by four little strips of the same material, ornamented in the same manner. Length, 61 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152835. Collected by James Mooney.

These ornaments are used for decorating the front borders of the blankets. The beadwork displays great skill.

*Ornament for blankets.*—Made of four circular pieces of buckskin, embroidered with beads, joined together by four little strips of the same material, ornamented in the same manner. It is sewed to the border all around the blanket. Length, 28 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152888. Collected by James Mooney.

*Strips for garters.*—Of buckskin, with embroidery of beads. Length, 26 inches; width 3¼ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152834 (c). Collected by James Mooney.

These strips are sewed, as an ornament, to the men's garters. This is a remarkable specimen of beadwork.

*Ornament for blankets.*—Made of four circular pieces of buckskin, joined together by strips of the same material. The whole ornament is decorated with beads, bells, and ribbons. Length, 33 inches. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152813. Collected by James Mooney.

*Bracelets* (3).—Very primitive specimen. Made of two twisted copper wires. T'lingit Indians (Koluschan stock), Alaska, 1891. 153197-8-9. Collected by Lieut. George T. Emmons, U. S. N.

*Bracelets* (3).—Native manufacture. Made of twisted brass wire. T'lingit Indians (Koluschan stock), Alaska, 1891. 153200 (a). Collected by Lieut. George T. Emmons, U. S. N.

*Bracelet.*—Made of a flat, plain strip of brass. Native manufacture. T'lingit Indians (Koluschan stock), Alaska, 1891. 153200 (b). Collected by Lieut. George T. Emmons, U. S. N.

*Bracelet.*—Native manufacture. Made of strips of brass, with chiseled ornaments. T'lingit Indians (Koluschan stock), Alaska, 1891. 153200 (c). Collected by Lieut. George T. Emmons, U. S. N.

*Bracelet.*—Native manufacture. Made of thick copper wire, without ornaments. T'lingit Indians (Koluschan stock), Alaska, 1891. 153196. Collected by Lieut. George T. Emmons, U. S. N.

*Bracelets (2).*—Native manufacture. Made of a strong strip of copper. T'lingit Indians (Koluschan stock), Alaska, 1891. Collected by Lieut. George T. Emmons, U. S. N.

*Bracelet.*—Made of a silver coin, forged with the hammer. Ornamented with engraved totemic drawings. Without clasp. Width, 1¼ inch. Haida Indians (Skittagetan stock), British Columbia. 20251. Collected by James G. Swan.

The Haida Indians are the most practiced silversmiths of the northwest coast.

*Bracelet.*—Made of a silver coin, forged with a hammer. Without ornaments and without clasp. Width, $\frac{7}{16}$ inch. T'lingit Indians (Koluschan stock), Alaska. 19545. Collected by James G. Swan.

*Bracelet.*—Made of a silver coin, and ornamented with the totemic drawing of the bear. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 20251. Collected by James G. Swan.

The Haida Indians are the best sculptors and the most expert silversmiths of the coast.

*Napkin ring.*—Made of silver, with the head and wings of the American eagle engraved on it. Diameter, 1½ inches; width, 1⅝ inches. Haida Indians (Skittagetan stock), British Columbia. 20257. Collected by James G. Swan.

*Bracelet.*—Made of a silver coin, forged with the hammer. Ornamented with engraved totemic drawings. Fastened around the wrist with a clasp. Width, 1⅝ inches. T'lingit Indians (Koluschan stock), Alaska. 19532. Collected by James G. Swan.

The silver bracelets have replaced those of iron, copper, bone, and shell, which the Indians of the northwest coast formerly used.

*Bracelet.*—Made of a silver coin; ornamented with the totemic drawings of the bear. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 20251. Collected by James G. Swan.

*Bracelet.*—Made of copper with incrusted shells. Width, ⅝ inch. T'lingit Indians (Koluschan stock), Fort Wrangel, Alaska. 19529. Collected by James G. Swan.

*Bracelet.*—Made of a silver coin, forged with the hammer. Ornamented with totemic engravings. Secured around the wrist by a clasp. Width, ⅝ inch. T'lingit Indians (Koluschan stock), Alaska. 19541. Collected by James G. Swan.

*Bracelet.*—Made of a silver coin, forged with the hammer. Ornamented with totemic engravings. Secured around the wrist by a clasp. 21603. Collected by Dr. J. B. White, U. S. A.

*Smoking set.*—It is composed of four pieces: Pipe with a long wooden stem, engraved and painted, and a catlinite bowl; a buckskin tobacco bag, magnificently ornamented with embroidery of beads and with buckskin fringes dyed yellow; a buckskin bag, containing the flint and a piece of tinder, and a pricker (for cleaning the pipe), which is placed in a case embroidered with beads, and which, together with the tinder bag, is tied to a belt. Sioux Indians, Dakota. 8481, 131327-8. Collected by J. P. Kimball and Mrs. A. C. Jackson.

*Gloves.*—Made of buckskin, stuffed and lined with cloth, and ornamented with embroidery of beads. Length, 10¾ inches; width, 5 inches. Sioux Indians, Devils Lake Reservation, Dakota. 23741. Collected by Paul Beckwith.

*Tobacco bag.*—Made of buckskin and ornamented with bead embroidery. Length, 7⅝ inches; width, 3⅞ inches. Yankton Indians (Siouan stock), Yankton Reservation, Dakota. 8393. Collected by F. W. McGuire.

*Bag.*—Made of buckskin, ornamented with bead embroidery and buckskin fringes. Length, 16 inches; width, 6½ inches. Sioux Indians, Devils Lake Reservation, Dakota. 23747. Collected by Paul Beckwith.

*Purse.*—Made of buckskin, ornamented with bead embroidery and tin rings. Length, 3½ inches; width, 3¼ inches. Sioux Indians. 113348. Collected by Mrs. A. C. Jackson.

*Ornament for the ankle.*—Made of the skin of the American skunk, tanned, and ornamented on the inside with sacred red painting. Used by the medicine men. Length, 40 inches; width, 4 inches. Ojibwa Indians (Algonkian stock), White Earth Reservation, Minnesota, 1891. 153026. Collected by Dr. W. J. Hoffman.

*Magic purse for maidens.*—A weasel skin. Ojibwa Indians (Algonkian stock), White Earth Reservation, Minnesota, 1891. 153047. Collected by Dr. W. J. Hoffman.

*Armlet.*—Made of hide. It is worn just above the elbow. Used only by the medicine men. Length, 36 inches; width, 2½ inches. Ojibwa Indians (Algonkian stock), White Earth Reservation, Minnesota, 1891. 153027 (b). Collected by Dr. W. J. Hoffman.

*Armlet.*—A strip of red flannel; it is worn just above the elbow. Used only by the medicine men. Length, 54 inches; width, 2½ inches. Ojibwa Indians (Algonkian stock), White Earth Reservation, Minnesota, 1891. 153027 (a). Collected by Dr. W. J. Hoffman.

*Purse.*—Embroidered with brass; made of red flannel. The front and back of the purse are ornamented with bead embroidery, forming beautiful figures. The sides are trimmed with bright blue and green ribbons. On the edges are sewed bands of beads, from which hang small tassels of twisted yarn. Length, 16 inches; width, 11½ inches. Chippewa Indians (Algonkian stock), White River Reservation, Minnesota. 129889. Collected by Lieut. H. M. Creel, U. S. A.

This purse belonged to Wild Goose, a Chippewa chief. The Chippewas are celebrated for their skill in bead embroidery.

## Case XI.

*Fishing line.*—Made of the stem of the Alga marina gigantea. The stem is about ⅛ inch thick, and greatly resembles a grapevine stem. It is very tender, and breaks easily when dry, but when soaked in water it increases greatly in volume and becomes extremely tough. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia, 1883. 88869. Collected by James G. Swan.

The Alga marina gigantea grows in the water at the depth of 3 to 30 fathoms. (A fathom is equal to 6 feet.) Near the root it is about ¼ inch in diameter, and is very strong. As it grows it expands and grows hollow from about half of its height. At the end it has a large, hollow bulb, from which issue long, narrow leaves. The Indians cut this plant with a knife made in the shape of a V, at the end in which the cutting edge is fixed. This implement is placed over the plant, and is allowed to slide to the bottom. By drawing hard on the cord which holds it the plant is cut near the root. The hard part of the stem is the only part that is used for fishing lines. Bottles for holding oil are made of the bulb.

*Lasso.*—Made of light and chestnut buffalo hair. Thickness, about ¼ inch. Comanche Indians (Shoshonean stock), Fort Cobb, Indian Territory. 6922 (b). Collected by Dr. Edward Palmer.

*Lasso.*—Made of braided buffalo hair. Thickness, about ¼ inch. Comanche Indians (Shoshonean stock), Fort Cobb, Indian Territory. 6922 (a). Collected by Dr. Edward Palmer.

*Lasso.*—Four strips of hide plaited in a round form. Articles for trading transactions. Indians of Round Valley Reservation, California, 1889. 131150. Collected by A. J. Purcell.

*Awl.*—Made of walrus-tusk ivory. Ornamented with several bands of parallel lines engraved around it. It has a ball carved on the end of the handle. Length, 9¼ inches; width, ⅝ inch. Eskimo of Paimut, Alaska. 38378. Collected by E. W. Nelson.

*Awl.*—Made of walrus-tusk ivory. The handle is ornamented with two sets of engraved circles, between which there is a figure resembling an X. On the end of the handle there are two balls, one above the other. Length, 6½ inches; diameter, ⅝ inch. Eskimo of Cape Vancouver, Alaska. 37751. Collected by E. W. Nelson.

*Awl.*—Made of walrus-tusk ivory. The handle is ornamented with engraved figures of a shape resembling a diamond, and with many circles and crosses. The head of a fish is carved on the end of the handle. Length, 7 inches; diameter, ⅝ inch. Eskimo of St. Michaels Island, Alaska. 24451. Collected by Lucien M. Turner.

*Awl.*—Made of walrus-tusk ivory. Ornamented with lines engraved from the top to the bottom, extending to within 3 inches of the point. Length, 9 inches; width, ⅝ inch. Eskimo of Norton Sound, Alaska. 33257. Collected by E. W. Nelson.

*Awl.*—Made of walrus-tusk ivory. The end of the handle represents a fish, near which it has a set of parallel lines, engraved around it, and many short vertical lines, and among them many signs or figures of the form of an X. Length, 8½ inches; width, ½ inch. Eskimo of Paimut, Alaska. 37988. Collected by E. W. Nelson.

*Awl.*—Made of walrus-tusk ivory. The handle is ornamented with four sets of parallel lines engraved around it and diagonals over them and other short perpendicular lines at the point. The end of the handle has the shape of the tail of a fish. Length, 8 inches; diameter, ½ inch. Eskimo of St. Michaels Island, Alaska. 24449. Collected by Lucien M. Turner.

*Awl.*—Made of walrus-tusk ivory. The handle is ornamented with a series of parallel lines engraved around it. An ivory chain hangs from the end of the handle. A part of the last link of the chain is carved in the form of the tail of a fish. Length, 9 inches; diameter, ⅝ inch. Eskimo of Lower Kuskoquwim, Alaska. 36631. Collected by E. W. Nelson.

*Awl.*—The point is of iron, the handle is of walrus-tusk ivory, carved in the form of a fish. Tufts of hair are fixed in some holes bored in the back of the fish. Length of the handle, 2¾ inches; length of the blade, 3¼ inches. Eskimo of Cape Vancouver, Alaska. 37304. Collected by E. W. Nelson.

*Awl.*—The point is of iron. The handle is of walrus-tusk ivory, ornamented with three sets of engraved borders. On the end of the handle are two ornaments, placed one above the other; the first is of the shape of the spindle, and the second of that of a ball, ornamented with a great number of dots. Length of the handle, 3½ inches; length of the blade, 3¾ inches. Eskimo of Chalitmut, Alaska. 37621. Collected by E. W. Nelson.

*Awl.*—The blade is of iron. The handle is of walrus-tusk ivory, ornamented with engraved lines, borders, and dots. A chain curved out of ivory hangs from the end of the handle of the awl. Length of the handle, 2½ inches; length of the point, 1½ inches. Eskimo of Chalitmut, Alaska. 37752. Collected by E. W. Nelson.

*Awl.*—The point is of iron. The handle is of walrus-tusk ivory, carved to represent a fish, ornamented with engraved borders, dots, and lines. Length of the handle, 3¾ inches; length of the point, 3½ inches. Eskimo of Nulokhtologomute, Alaska. 38385. Collected by E. W. Nelson.

*Stone hammer.*—The head is round; the handle a sapling, covered with hide. The head has a hole bored in it, in which the handle is inserted. It is used for pounding meat, breaking bones, driving tent pins, etc. Length, 13 to 15½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152996. Collected by James Mooney.

*Pestle.*—Used for pounding meat which has been dried in the sun until it is in a condition to be pulverized. This pestle is placed in a hide case. Length, 5¼ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 153004. Collected by James Mooney.

*Hammer.*—The head is of wood; the handle is of hide. It is used for breaking bones, pounding wild cherries, etc. Length of the head, 5 inches; length of the handle, 5¾ inches. Cheyenne Indians (Algonkian stock), Cheyenne and Arapahoe Reservation, Indian Territory, 1891. 152812. Collected by James Mooney.

*Barbed harpoon and sheath.*—The shaft is of wood, and is joined to the foreshaft, which is of bone, by a fastening of cord of sinew. The dart is inserted in the bone, and has two barbs cut at the point. The sheath is composed of two excavated pieces of wood, fastened together by a cord of sinew. Length of the harpoon, 13 inches; length of the sheath, 4½ inches. Eskimo of Ugashik, Alaska, 1885. 127763. Collected by William J. Fisher.

*Spear points (4) and sheath.*—The shafts are of wood. The blades are of iron, inserted in the handle, and secured by whalebone fastenings. The sheath is of hide. Length, from 15 to 18 inches. Eskimo of Port Clarence, Alaska. 46078. Collected by Dr. W. H. Dall.

It is used for killing whales, walrus, etc., after they have been wounded and caught, and also as a dagger.

*Dagger and sheath.*—The handle is of wood, with a hilt made of a piece of stag horn, which is fastened to the handle with a ligature of hide and sinew. The blade is of copper, and is inserted in the hilt and secured by a rivet. The sheath is composed of two hollow pieces of wood, fastened strongly together by a sewing of seal skin. Length of the dagger, 10½ inches; length of the sheath, 7⅞ inches. Eskimo of Nunivak Island, Alaska. 16356. Collected by Dr. W. H. Dall.

*Dagger and sheath.*—The upper part of the handle is of wood, the lower is of stag horn. The blade is of iron and is secured by a rivet. The sheath is composed of two pieces of excavated wood, strongly fastened together by a hide sewing. Length of the handle, 9⅝ inches; length of the blade, 2⅝ inches. Eskimo of Nunivak Island, Alaska. 16360. Collected by Dr. W. H. Dall.

*Spectacles.*—Made of spruce pine painted red, and the ends rubbed with graphite. The eyepieces are separate and are oval and concave, and have horizontal slits to look through. Ornamented with white and red beads. Length, 7¼ inches; width, 2 inches. Eskimo of St. Michaels Island, Alaska. 24339. Collected by L. M. Turner.

The natives use these "goggles" to guard against the blindness produced by the snow and against the ophthalmia caused by the reflection of the sun on the mist which rises from the snow during thaws.

*Spectacles.*—Made of light wood. They are of a very convex shape, and have no visor. The holes for the eyes are very large, and are probably arranged for placing in them dark-colored lenses. Length, 5½ inches; width, 2 inches. Eskimo of St. Lawrence Island, Alaska. 63269. Collected by E. W. Nelson.

*Spectacles.*—Made of light wood, without a visor. They have a cavity for the nose toward the top and toward the bottom, in order that the apparatus may be used indiscriminately on either side. A simple horizontal cut serves for both eyes; they have no fastening. Length, 5¼ inches; width, 1½ inches. Eskimo of Norton Bay, Alaska. 44329. Collected by E. W. Nelson.

*Spectacles.*—A broad visor characterizes this apparatus. The orifices for sight were at first separate, but the wood having split, the two halves are joined together by little pegs. The spectacles are of a graceful shape, which permits their being well adjusted to the nose and the cheeks. Length, 6 inches; width, 2¼ inches. Eskimo of Sledge Island, Alaska. 45075. Collected by E. W. Nelson.

*Spectacles.*—Made of damaged wood, covered with a double strip of canvas, to which are glued little pieces of glass placed in such a way that they come in front of the eyeholes in the wood. Length, 8 inches; width, 3 inches. Eskimo of Diomede Island, Alaska. 63626. Collected by E. W. Nelson.

*Spectacles.*—Made of wood; a sphere, without a visor. The eyeholes are cut in the exact shape of the eye. A rough, nose-shaped bridge is glued to the outside, and there is a slight cavity on the inside for the nose. Length, 6¼ inches; width, 2 inches. Eskimo of Sabotnisky, Alaska. 48996. Collected by E. W. Nelson.

*Spectacles.*—Made of spruce pine. This apparatus is characterized by a narrow visor, an elliptical hole for the two eyes, and a cavity for the nose. Secured by hide strips. Crude specimen. Length, 6¼ inches; width, 1½ inches. Eskimo of the Lower Yukon, Alaska. 38704. Collected by E. W. Nelson.

*Sheathes for knives* (2).—One is of tanned leather; the other of rawhide. The men use them. Length, 19½ inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152977. Collected by James Mooney.

*Cases for knives.*—Made of tanned leather ornamented with brass-headed tacks. The men use them. Length, 10, 13, and 16 inches. Kiowa Indians (Kiowan stock), Kiowa Reservation, Indian Territory, 1891. 152891. Collected by James Mooney.

*Needlecase.*—Made of walrus-tusk ivory. A small chain made of the same material hangs from the end. Length, 9 inches. Eskimo of Cape Darby, Alaska. 44173. Collected by E. W. Nelson.

*Needlecase.*—It consists of a copper tube, through which passes a strip of hide in which the needles are stuck. A small chain made of ivory hangs from the end. Length, 16 inches. Eskimo of St. Michaels Island, Norton Sound, Alaska. 24467. Collected by L. M. Turner.

*Needlecase.*—It consists of a tube of walrus-tusk ivory, through which passes a strip of hide in which the needles are stuck. Two ivory pendants hang from each end of the strip of hide. Length, 16 inches. Eskimo of St. Michaels Island, Norton Sound, Alaska. 24493. Collected by L. M. Turner.

*Thimble and needles.*—The thimble is of walrus skin, and is used on the thumb. The needles are of ivory, and have eyes made in the same way as the needles among civilized nations. Eskimo of Point Barrow, Alaska. 89395. Collected by Lieut. P. H. Ray, U. S. A.

*Needlecases* (2).—Made of tubes of walrus-tusk ivory, through which pass folded strips of hide in which the needles are stuck. The tubes have ornaments of blue beads. Length, 8 inches; diameter, ¾ inch. Eskimo of Mackenzie River, British America. 2088. Collected by R. McFarlane.

*Needlecase.*—Made of a tube of carved ivory, through which passes a strip of hide in which the needles are stock. From each end of the strip of hide hang two knife-shaped pieces of ivory, which are used for creasing the soles of the boots. Length, 12 inches. Eskimo of St. Michaels Island, Norton Sound, Alaska. 24494. Collected by L. M. Turner.

*Trinket box.*—A small oval box, carved out of wood. The hinges and the fastening are of rawhide. Length, 4 inches; width, 1¼ inches. Eskimo of Cape Nome, Alaska. 45348. Collected by E. W. Nelson.

*Trinket box.*—Carved out of wood and ornamented with inlays of ivory. Length, 4½ inches; width, 2 inches. Eskimo of Nunivak Island, Alaska. 43878. Collected by E. W. Nelson.

*Trinket box.*—Made of wood. The box and the lid are carved in the shape of a walrus. There are ornaments of incrusted blue beads on the lid. Length, 7 inches; width, 2½ inches. Eskimo of St. Lawrence Island, Alaska. 63267. Collected by E. W. Nelson.

*Trinket box.*—Carved in wood in the shape of a human head. Ornamented with white glass and ivory beads. The upper part is painted red and the lower black. Diameter, 3 inches. Eskimo of Kushunuk, Alaska. 36280. Collected by E. W. Nelson.

*Trinket box.*—The top and bottom are carved out of wood. The sides are of birch bark. Length, 3 inches; width, 1½ inches. Eskimo of Chalimut, Alaska. 36279. Collected by E. W. Nelson.

*Box for keeping spear and harpoon points.*—The entire box is made of a single piece of wood, carved in the shape of a boat. Length, 9¾ inches; width, 2½ inches. Eskimo of Nunivak Island, Alaska. 58253. Collected by E. W. Nelson.

*Box.*—Made of a single piece of wood, carved in the shape of a walrus. It is used for keeping harpoon points. Length, 9½ inches; width, 2½ inches. Eskimo of Cape Nome, Alaska. 44458. Collected by E. W. Nelson.

*Case for fancywork.*—Made of a single piece of wood, painted red, and ornamented with engravings. Grooved lid. Length, 7¼ inches; width, 1⅝ inches. Eskimo of Cape Nome, Alaska. 45514. Collected by E. W. Nelson.

*Rabbit clubs.*—They consist of a curved branch or a flat strip of wood, worked from a branch, resembling the boomerang, and are used for killing rabbits and other game. The rough sort consists in a branch naturally curved, and there are all grades from this to the flat painted club with a worked hand grip. Moki and Zuñi Indians of Arizona and New Mexico. 69202–446–508–525, 41980, and 84258. Collected by James Stevenson and Victor Mindeleff.

*Slings* (5).—They consist of a piece of tanned hide folded equally, and having for cords strips of leather. They are used for killing small game. Indians of California and New Mexico.

*Slings* (4).—Of the same kind as the preceding. Eskimo of St. Lawrence Island, Alaska. 63256–515 and 46016–17. Collected by E. W. Nelson and Dr. W. H. Dall.

*Bird bolas.*—Composed of 4 oval pieces of wood, attached to short strips of hide joined together at the ends. They are used for hunting waterfowl. The balls are thrown at the flock of birds when they fly up, and some of them are struck and knocked down by the implement. Eskimo of St. Lawrence Island, Alaska. 63259. Collected by E. W. Nelson.

*Bird bolas.*—They consist of eight pieces of ivory carved in the shape of the heads of various animals. The balls are attached to each other by long strips of hide. This implement is used for hunting waterfowl, throwing them at the flock of birds when they fly up, so that some of them are struck and knocked down. Eskimo of Point Hope. 63815. Collected by E. W. Nelson.

*Bird bolas.*—They consist of four pieces of wood carved in the shape of an egg, attached to a bunch of quills by long cords of sinew. They are used for hunting waterfowl. The balls are thrown at the flock of birds as they take flight, and some of them are entangled and brought to the ground. Eskimo of St. Lawrence Island, Alaska. 63258. Collected by E. W. Nelson.

*Bird bolas.*—They consist of four pieces of bone of about the size of a hen's egg, attached to four braids of cord made of sinew. They are used for hunting waterfowl. The apparatus is thrown at the flock of birds as they take flight, and some of them are entangled and brought to the ground. Eskimo of St. Lawrence Island, Alaska. 63262. Collected by E. W. Nelson.

*Bird bolas.*—They consist of four walrus teeth, attached to each other by long cords. They are used for hunting water hens. The projectile is hurled at the flock of birds as they take flight, and some of them fall to the ground entangled by the apparatus. Eskimo of Shaktolik, Alaska. 38404. Collected by E. W. Nelson.

*Club for killing sea otters.*—Carved in the form of the animal itself. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88828. Collected by James G. Swan.

*Club for killing seals.*—Carved in the shape of a walrus. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88824. Collected by James G. Swan.

*Club for killing seals.*—Carved in the shape of a walrus. Haida Indians (Skittagetan stock), Queen Charlotte Islands, British Columbia. 88980. Collected by James G. Swan.

*Block.*—Made of walrus-tusk ivory. It is used for handling the cords of the sails of the boats. Length, 1½ inches; width, ⅝ inch. Eskimo of Sledge Island, Alaska. 44753. Collected by E. W. Nelson.

*Block.*—Made of very bright walrus-tusk ivory. It is used for handling the cords of the sails of the boats. Length, 1¾ inches; width, ⅝ inch. Eskimo of St. Lawrence Island, Alaska. 63370. Collected by E. W. Nelson.

*Detacher, or disentangler.*—Made of walrus-tusk ivory. It is used for facilitating the handling of cords of the harpoon. Length, 1¾ inches; width, ⅝ inch. Eskimo of Kushunuk, Alaska. 37053. Collected by E. W. Nelson.

*Disentangler.*—Made of walrus-tusk ivory. It is used for facilitating the handling of the cords of the harpoon. Length, 1¾ inches; width, ¾ inch. Eskimo of Sabotnisky, Alaska. 49009. Collected by E. W. Nelson.

*Disentangler.*—Made of walrus-tusk ivory. One end is carved in the shape of the head of a bear. It is used for facilitating the management of the cords of the harpoon. Length, 1¾ inches; width, ¾ inch. Eskimo of Askinuk, Alaska. 37056. Collected by E. W. Nelson.

*Disentangler.*—Made of walrus-tusk ivory. It is used for facilitating the management of the cords of the harpoon when they become tangled or twisted, or when it is desired to change the harpoon-head. Length, 2 inches; width, ⅝ inch. Eskimo of Chalitmut, Alaska. 38006. Collected by E. W. Nelson.

*Guide.*—Made of walrus-tusk ivory, ornamented with engraved circles. It is used for preventing the two cords of the line from becoming entangled. Length, 1⅛ inches; width, ½ inch. Eskimo of Kushunuk, Alaska. 37087. Collected by E. W. Nelson.

*Guide.*—Made of walrus-tusk ivory, carved in the form of a bear. It is used for preventing the two cords of the line from becoming entangled. Length, 1⅛ inches; width, ½ inch. Eskimo of Paimut, Alaska. 37218. Collected by E. W. Nelson.

*Seal drag.*—Composed of a hide strap, attached to a handle of walrus-tusk ivory, on which two seals' heads are carved. It is used for towing the dead seals. Length, 8 inches. Eskimo of St. Lawrence Island, Alaska. 33663. Collected by E. W. Nelson.

*Seal drag.*—Composed of hide cord, attached to a handle of walrus-tusk ivory. Just at the end the handle has a hole to pass the strap through. It is used for towing the dead seals. Length, 14½ inches. Eskimo of Point Barrow, Alaska. 89469. Collected by Lieut. P. H. Ray, U. S. A.

*Seal drag.*—Composed of a hide strap, attached to a handle of walrus-tusk ivory, carved in the shape of a seal's head. It is used for towing the dead seals. Length, 14 inches. Eskimo of Cape Darby, Alaska. 44153. Collected by E. W. Nelson.

*Seal drag.*—Composed of a hide strap, attached to a handle of ivory carved in the form of a seal. It is used for towing the dead seals. Length, 11 inches. Eskimo of Cape Nome, Alaska. 44579–80. Collected by E. W. Nelson.

*Hook for workbag.*—A small piece of walrus-tusk ivory, with ornaments, at intervals of about an inch, of five small pieces of wood set into the ivory with engraved circles around them. A small hole in the ivory serves to give passage to the cord with which the bag is closed. Length, 5½ inches; width, ¾ inch. Eskimo of Chalitmut, Alaska. 37616. Collected by E. W. Nelson.

*Baskets.*—Made of strips of spruce-pine root, dyed vine and fern stalks. These baskets are a magnificent demonstration of the dexterity in weaving and of the artistic skill of the Indians of the northwest coast of North America. Makah Indians (Wakashan stock), Washington. Collected by Lieut. F. W. Ring, U. S. A.

*Braided baskets.*—Not finished; showing the process of braiding; the twigs dyed by the Indians and used in the manufacture of basket work. Moki Indians, Arizona. 128711. Collected by Mrs. M. E. Stevenson.

*Woven, twisted, and braided basket work.*—Baskets in a state of elaboration, displaying the method of making the three principal kinds of coiled basketry.

*Materials for the manufacture of baskets.*—Exhibit of the elaboration of the basket, from the raw material to its complete form; the implements used by the basket makers; baskets in various stages of elaboration, and coiled baskets. Moki Indians (Shoshonean stock), Arizona. Collected by James Stevenson.

*Basket of birch bark.*—Fancy embroidery, with dyed quills. Micmac Indians (Algonkian stock), Nova Scotia. Collected by R. B. Hough.

*Basket work.*—Twined sieves and winnowing trays of the southwest of the United States Ute Indians (Shoshonean stock), Utah and Nevada. Collected by Maj. J W. Powell.

*Double wallets.*—Made of grass, neatly trimmed and festooned with thick braid; ornamented with colored wools. Aleut Indians (Eskimauan stock), Aleutian Islands, Alaska. Collected by Dr. W. H. Dall.

*Belt-weaver's equipment.*—The cotton is stretched on a bed of sand, and is vigorously beaten with a flexible rod to card it; it is spun very fine with a spindle, and is used for the manufacture of belts, blankets, etc., of superior quality. Moki Indians (Shoshonean stock), Arizona. Collected by James Stevenson.

*Apparatus for comminuting cedar bark.*—Consisting of a breaking frame, an implement for comminuting the bark, and a woman's skirt.

The giant cedar (Thuja gigantea) grows along the whole Pacific Coast of North America, and in southeast Alaska, British Columbia, Washington, and Oregon. The development of all the industries among the natives of the countries mentioned is due to the wood and bark of this tree.

The bark is torn from the tree in pieces, as is done by our tan-bark gatherers, with the rib bone of a deer, to which implement is given the name of "bark stripper." One side of this implement is used for marking and splitting the sections and the other for severing the piece from the trunk.

The comminuted bark is used for manufacturing stuffs for petticoats and other articles. It is prepared by putting a strip of inside bark in the wooden frame, No. 127868, and it is broken to pieces with a wooden or bone implement. The bark is then softened by rubbing it between the hands. Usually, packages or bundles are made of it, and it is sold by weight. It is used for clothes, mattresses, etc.

*Ornaments for petticoats.*—Made of long strips of frayed cedar bark, united by a cord, and with a cotton fringe at the bottom. Length, 17 inches. Quinaielt Indians (Salishan stock), Quinaielt Agency, Washington Territory, 1887. 127867. Collected by Charles Willoughby.

*Equipment of weaver of rush mats.*—Consisting of rushes, needles, bark fiber, and creasers for flattening the seams. Quinaielt Indians (Salishan stock), Chehalis County, Washington Territory, 1887. 127842-52-73. Collected by Charles Willoughby.

*Models and photographs.*—Showing the processes employed by the Navajo Indians of Arizona for tanning skins. 129436. Collected by Dr. R. W. Shufeldt, U. S. N.

*Tanned buckskin.*—Showing the result of the processes employed for tanning skins in the southwest of the United States. Navajo Indians (Athapascan stock), New Mexico. 9548. Collected by Dr. Edward Palmer.

*Navajo shoemaker's utensils.*—Consisting of needles, awls, specimens of sewing and of finished shoes, and the published description. (Proceedings of the United States National Museum, 1888, p. 131.) Navajo Indians (Athapascan stock), Arizona. 128112-16. Collected by A. M. Stephen.

*Gatherers of cactus fruit.*—Nippers, hooks, holders, and cutters for gathering the fruit of the cactus (chumbo fig). Indians of Arizona, New Mexico, and Mexico. 9971, 22535, and 126577. Collected by James Stevenson and Edward Palmer.

*Hoes of mussel shells.*—These primitive agricultural implements were found in the hands of a band of Yacqui Indians, at the mouth of the Yacqui River, in Sonora, Mexico. 129845. Collected by Edward Palmer.

EXHIBIT OUTSIDE OF THE CASES.

*Kiowa Indian woman (figure of a woman).*—Algonkian stock. Oklahoma, Indian Territory. Modeled by Theodore A. Mills. The dress was collected by James Mooney.

*Kiowa Indian warrior (figure of a man).*—Algonkian stock. Oklahoma, Indian Territory. Modeled by Theodore A. Mills. The dress was collected by James Mooney.

*Sioux Indian woman (female figure).*—Siouan stock. Missouri River. Modeled by U. S. G. Dunbar.

*Sioux Indian warrior (male figure).*—Siouan stock. Missouri River. Modeled by Theodore A. Mills. The dress belonged to Red Cloud, a celebrated chief, and was collected by Lieut. G. A. Warren, U. S. N.

*Zuñi Indian (male figure).*—Zuñian stock. New Mexico. The head was modeled from life by Clark Mills. The dress was collected by James Stevenson.

*Eskimo man.*—Reindeer coat and pants, trimmed with white skins. Seal skin boots and bearskin gloves. Eskimo (Eskimauan stock), Prince William's Land. Collected by Capt. C. F. Hall.

*Photographs of Indians.*—Representing 85 different tribes of the majority of the stocks still in existence. This magnificent series of 1,300 photographs is the result of the work of many years of collection by the United States Geological Survey and Bureau of Ethnology, and supplements, with the aid of the photography, the famous galleries of Indian portraits, painted by George Catlin and Stanley. A portion of this collection forms a section in the Northeast Saloon. Exhibited by the Bureau of Ethnology of the Smithsonian Institution.

*Lithographs of celebrated Indians.*—This series of 130 lithographs is taken from MacKenney and Hall's Indian Tribes. These pictures form a section in the large saloon. Exhibited by the National Museum.

*Reed wigwam.*—These wigwams are constructed by erecting a number of uprights in a circle, and inclining them until they meet at the extremities, which are fastened together by strong ligatures of bark fiber. Above the uprights are placed many horizontal layers of small saplings, which are covered with rushes attached to other layers of saplings smaller than the first, and which are tied together by cords on the inside. The horizontal layers leave an opening between two uprights, which serves as an entrance, and which is closed by a door of elk hide. The chimney is constructed in such a way that the wind can not drive back the smoke. The fireplace is in the center and the beds are around the sides of the wigwam upon an earthen bank. Piute Indians, Nevada. 19027. Collected by Stephen Powers.

*Eskimo seal hunter in his skin boat.*—The boat (kyak) is built with great care. The frame is of wood, over which is stretched a seal skin saturated with oil. There is a hollow space in the deck, with a raised border, and in this the hunter seats himself, dressed in an inner coat of skins and an outer one made of the intestines of the walrus, thoroughly waterproof, and carrying a short paddle. As a projectile, he has a harpoon, with the shafts used in hurling it, cord, and buoy, which he keeps fastened to the boat until the moment arrives when he has to make use of them. This "kyak" is an extremely unsteady and light boat, but the Eskimo is capable of undertaking any navigation whatever when embarked in it. Eskimo of St. Michaels, Norton Sound, Alaska. Collected by E. W. Nelson.

*Canoe of birch bark.*—Manned by two Algonkian Indians, occupied in fishing with the harpoon. They wear dresses of buckskin, with painted figures imitating embroidery. In fishing with the harpoon it is necessary that a fisherman should guide the canoe in accordance with the orders of the one who handles the harpoon. The canoe is made of a large piece of birch bark, attached to a wooden frame; the seams and holes are calked with spruce-pine rosin. These canoes are very light and of a graceful form. Two men can carry one of them on their shoulders for a stretch of many miles, which they do at rapids.

The canoe exhibited was constructed by the Algonkian Indians of Canada.

*Cradle.*—A wooden frame bent in an oval form, having the ends tied with diagonal ligatures of bark fiber. A mattress and blanket of pounded bark fiber are attached to the frame by a fringe of woven wool. The hood for the protection of the head of the infant is a willow texture. Mojave Indians (Yuman stock), Colorado. 152489. Collected by Geo. A. Allen.

*Cradle.*—Frame made of walnut staves, in the shape of a crutch, having the ends ornamented with brass-headed nails. The cover is of buckskin, ornamented with a great profusion of white and colored beads and with ribbons. Arapahoe Indians (Algonkian stock). Collected by Capt. R. H. Pratt.

*Cradle.*—Made of willow switches, in the form of a shoe. A light half basket of willow switches serves as a parasol to it. Hupa Indians (Athapascan stock), California. Collected by Stephen Powers.

*Cradle.*—The frame is a piece of wood bent in an oval shape, supported by transverse bars. The bottom of the cradle is composed of twenty-one wooden rods fastened to the frame between the thick bars by thread made of sinew. The hood is of hide covered with calico. The bed articles consist of two mattresses of cotton, placed on a thin sheet of tin. The infant is supported by bolsters made of woven belts. The cradle has two arches to protect the infant's head and a transverse piece of wood to support the feet. Length, 3 feet. Wichita Indians (Caddoan stock). 152944. Collected by James Mooney.

*Cradle.*—Made in the form of a boat, out of a hollowed cedar trunk. It has a handle at one end. The bed is composed of pounded cedar fiber; the counterpane is of woven cedar bark. Inside of the cradle there is a wooden model of an infant, showing the process for flattening the head with a special apparatus, which is also seen in the cradle. Indians of Oregon. 2574. Collected by George Catlin.

*Helmet.*—Crowned with a sculptured beaver. The figures painted on both sides represent sheets of copper, emblems of fortune and power. Skedan Indians, British Columbia. 89035. Collected by James G. Swan.

*Helmet.*—Carved in wood in the form of a bear and painted. The teeth and tongue are imitated with sheets of copper. It is worn on the head in the dances. Haida Indians (Skittagetan stock), British Columbia. 89144. Collected by James G. Swan.

*Helmet.*—Carved in wood in the form of a fish and painted. The lips are of copper. This helmet is used in the dances. Haida Indians (Skittagetan stock), British Columbia. 89054. Collected by James G. Swan.

*Mask.*—Imitating a fabulous marine monster. Made of pieces of wood cut with an adze and painted. Used by the actors in the ceremonies called "dances." Maka Indians (Wakashan stock), British Columbia. 23949. Collected by James G. Swan.

*Wooden figure.*—Of cedar, painted. Indians of the northwest coast. Collected by James G. Swan.

*Totem post (model).*—Carved out of a cedar trunk. The sculptured figures are painted in bright colors. Model of the "totem post" which is erected in front of the houses of all the chief men of the tribe. Indians of Bella-Bella, British Colombia. 74743. Collected by James G. Swan.

*Sculptured totem post (model).*—Of cedar, painted. The sculpture of this trunk may have been made in commemoration of some entirely mythological event, or, as is commonly said in heraldry, to show the genealogy of the family before whose dwelling the pillar was erected. Some of these pillars are of great dimensions, and are beautifully carved, by dint of great labor. Indians of Bella-Bella, British Columbia. 74744. Collected by James G. Swan.

*Council house.*—The wood which is used for these structures is the giant cedar; they are built with great care, by the combined efforts of many laborers; usually the whole village lends its cooperation. The erection of the first upright is always an occasion for holding great festivities. The front is ornamented with paintings representing some legendary date and that of the inauguration. Indians of British Columbia. Collected by James G. Swan.

*Snowshoes.*—Bent sole, raised at the point; three transverse bars; netting of fine thread of twisted sinew; middle portion of thick seal-skin straps, interwoven. Length, 59 inches. Eskimo of the Yukon River, Alaska. 49099. Collected by E. W. Nelson.

*Snowshoes.*—Oval and curved wooden sole, with two wooden braces which cross the shoe and are rabbeted into the sides, dividing the shoe into three equal parts. The network is of fine rawhide. A small strap serves to tie it on. Length, 32½ inches; width, 28 inches. Eskimo of Ungava Bay, Labrador. 90149. Collected by Lucien Turner.

*Snowshoes.*—Oval and curved wooden sole, strengthened by a toe piece and two transverse braces. The network is a texture of fine rawhide. The straps are of hide, embroidered with painted quills. This kind of snowshoe is used by the experienced Canadians. Quebec, Canada. 24788. Collected by G. R. Renfrew.

*Snowshoes.*—Curved sole, raised at the point; three transverse braces. Strap of fine thread of twisted sinew. Network of thick seal-skin straps, interwoven. Length, 59 inches. Eskimo of the Yukon River, Alaska. 49099. Collected by E. W. Nelson.

*Provision basket (djelo).*—Warp of pine roots and the weft of split twigs, and joined together by twined weaving. The twine work is covered with fine straws of bright colors, forming figures. The upper edge of the basket is strengthened by a wooden hoop. Height, 3 feet; diameter, 28 inches. Hupa Indians, California, 1889. 111433. Collected by Jeremiah Curtin.

After these baskets are made they are filled with hot, wet sand, in order to give them a good shape. They are placed against a wall, on a bank of earth, in the semi-subterranean houses of the Hupa Indians, and are filled with acorns for the winter's provisions. As many as twelve baskets may be seen in one house.

*Coiled basket.*—Made of bunches of small twigs joined by coiled sewing. The bottom is of a single spiral, and the body of the basket is a double coil formed by carrying two coils around simultaneously. It is ornamented with small strips of black Martynia pod. All the colors of this basket are natural. Made by an Apache Indian, of the San Carlos Reservation, Arizona. This is the largest specimen of basket work that this tribe has made and probably the largest in the world. Height, 3 feet 6½ inches; depth, 30 inches. San Carlos, Arizona. Collected by Mrs. Charles Dodge.

*Mexican feather shield (copy in water colors and gilt).*—The original is in the castle of Ambras, in the Tyrol, where it was discovered, in the year 1891, by Mrs. Zelia Nuttall, of Dresden, Germany.

Mrs. Nuttall made this copy for the Smithsonian Institution, and described it in a writing which she presented to the American Association at Washington, in August, 1891. Catalogue number, 153192. United States National Museum.

*Pictograph.*—Representing a battle between the Sioux and Arickara Indians; painted on cloth by a Sioux Indian. Collected by Mrs. General Hazen.

# EXHIBITS OF THE UNITED STATES GOVERNMENT.

## EXHIBIT OF THE BUREAU OF ETHNOLOGY.

### MAP OF THE ABORIGINAL LANGUAGES OF NORTH AMERICA.

This map shows the distribution, according to languages of the North American Indians exclusive of Mexico at the time of Christopher Columbus. This map has been in preparation by the Bureau of Ethnology for a number of years. The following is a list of the principal tribes, classified by families according to language as displayed on the map:

Adaizan family (Texas): Adai.

Algonquian family (in the east of the United States and Canada): Abnaki, Algonquin, Arapaho, Blackfoot, Cheyenne, Chippewa, Cree, Delaware, Kickapoo, Menominee, Miami, Micmac, Missisaga, Montagnais, Mohegan, Narraganset, Ojibwa, Ottawa, Pequot, Pottowotomi, Powhatan, Sac and Fox, Shawnee. (23.)

Athapascan family (northwestern Canada): Kutchin, Slave, Taculli, Hupâ, and the various tribes of the Apache, Chippewyan, Dog Ribs, Hares, Nahanies, Navajo. (10.)

Attacapan family (Texas): Attacapa.

Beothukan family (Newfoundland): Beothuk.

Caddoan family (Louisiana): Pawnee, Arikara, Wichita, Keechi, Caddo. (5.)

Chimakuan family (coast of the State of Washington): Chimakum, Quile Ute. (2.)

Chimarikan family (coast of California): Chimariko, Chimalakwe. (2.)

Chimmesyan family (coast of British Columbia): Chimsian, Nass. (2.)

Chinookan family (coast of the State of Washington): Cathlamet, Chinuk, Clatsop, Wasco. (4.)

Chitimachan family (Gulf of Mexico, Louisiana): Chitimacha.

Chumashan family (coast of California): Indians of San Buenaventura, Santa Barbara, and San Luis Obispo, Cal. (3.)

Coahuiltecan family (Texas): Comecrudo, Cotoname, Pacaós or Pintos. (3.)

Copehan family (coast of California): The Patwin and Wintu tribes of California. (2.)

Costanoan family (coast of California): Costano.

Eskimo family (on the northeast coast of the ocean): Aluik, Ivimiut, Narsuk, Taterat, of Greenland; Itivimiut, etc., of Labrador; Aggomiut, Negumiut, etc., of the central Arctic region; Chiglit, Ikogmiut, Kuagmiut, Oglemiut, Unaligmiut, etc., of Alaska, and the Atka and Unalaska, of the Aleutian Islands. (14.)

Esselenian family (coast of California): Esselen.

Iroquois family (Atlantic Coast): Cherokee, Cayuga, Mohawk, Oneida, Onondaga, Seneca, Tuscarora, Wyandot, Iroquois. (9.)

Kalapooian family (coast of Oregon): Atfálati, Calopooya, Lákmiut, Yoncalla. (4.)

Karankawan family (Texas): Karankawa.

Keresan family (New Mexico): Acoma, Tochití, Laguna, San Felipe, Santa Ana, Santo Domingo, Sia. (7.)

Kiowan family (Wyoming and Nebraska): Kiowa.

Kitunahan family (Idaho and British Columbia): Cootenai, Akoklako, Klanoh-Klatklam and Tobacco Plains Cootenai. (4.)

Koluschan family (coast of British Columbia): Auk, Chilcat, Hunah, Kek, Sitka, Taku, Yakutat, Tungas. (8.)

Kulanapan family (coast of California): Balló Kaì Pomo, Chawisheh, Erío, Erússi, Kaimé, Kaì Pomo, Komácho, Kulanapo, Sokóa, Yokáya Pomo, Yusál. (11.)

Kusan family (coast of Oregon): Coos Bay tribes, Mulluk, and Nacu? (3.)

Lutuamian family (coast of California): Klamath, Modoc. (2.)

Mariposan family (coast of California): Chukaímina, Chunut, Kassovo, Kiawétni, Tachi, Tinlinneh, Wichikik, Wiksachi, Yukol. (9.)

Mosquelumnan family (coast of California): Miwok, Olamentke. (2.)

Muskhogean family (Georgia, Alabama, Mississippi): Chata (Choctaw), Chicasa, Creek or Maskoki proper, Seminole, Yamassi. (5.)

Natchesan family (Louisiana): Nah'tchi (Natchez) and Taensa. (2.)

Palaihnihan family (coast of California): Chumâwa, Hantéwa, Ilmâwi, etc., of Pit River, California. (3.)

Piman family (southern Arizona and Mexico): Opata, Pima, Pápago. (3.)

Pujunân family (coast of California): Konkau, Kwatóa, Otaki, Pusúna, Wima, Yuba. (6.)

Quoratean family (coast of California): Ehnek, Karok, and Pehtsik. (3.)

Salinan family (coast of California): Indians of San Antonio and San Miguel Missions, California.

Salishan family (Idaho, Oregon, British Columbia): Atnah, Bellacoola, Chehalis, Clallam, Cowlitz, Nisqualli, Pent d'Oreilles, Puyallup, Salish, Shooswap, Skagit, Skokomish, Snohomish, Spokan, Tillamook, Twana. (16.)

Sastean family (California): Saste.

Shahaptian family (Columbia River, Oregon and Washington): Clickatat, Chopunnish Umatilla, Walla-Walla. (4.)

Shoshonean family (Oregon, Idaho, Nevada, California, Utah, Wyoming, Colorado, New Mexico, and Texas): Bannock, Chemehuevi, Comanche, Pai Ute, Shoshoni, Uta, Tusayán (Moqui). (7.)

Siouan family (Canada, Montana, Dakota (North and South), Wyoming, Minnesota, Nebraska, Iowa, Kansas, Missouri, Indian Territory, Arkansas): Santees, Sissetons, Wahpetons, Yanktons, Tetons, Brules, Blackfeet, Ogalallas, Assinaboines, Omahas, Poncas, Kaw or Kansas, Osages, Quapaws, Iowas, Otoes, Missouris, Winnebagoes, Mandans, Gros Ventres, Crows, Tuteloes, Biloxi, Catawba, Woccon, Sioux, Croro, Hidatsa. (28.)

Skittagetan family (British Columbia): Tribes of Queen Charlottes Islands, etc. (2.)

Takilman family (Oregon): Takelma.

Tañoan family (New Mexico): Hano, Isleta, Jemez, Nambé, Picuris, Pojoaque, Sandia, San Ildefonso, San Juan, Santa Clara, Senecú, Taos, Tesuque. (13.)

Timuquanan family (Florida): Timucua, Moscoso, etc. (extinct) (2.)

Tonikan family (Mississippi): Tonika.

Tonkawan family (Texas): Tonikawa.

Uchean family (South Carolina): Yuchi.

Waiilatpuan family (State of Washington): Káyus, Molale. (2.)

Wakashan family (coast of British Columbia): Ahowsaht, Muclaht, and Haeltzuk. (3.)

Washoan family (California): Washo.

Weitspekan family (coast of California): Mita, Weitspek, Chillula. (3.)

Wishoskan family (coast of California): Wishosk, Weeyot, Patawat. (3.)

Yanan family (coast of California): Yana or Nozi.

Yakonan family (coast of Oregon): Alsea, Yakwina, Kuitc, Siuslaw. (4.)

Yuma proper, Mojave, Havesupai, Hualapai, Seri. (7).

Yukian family (coast of California): Chumaya, Napa, Yuki. (3.)

Yuman family (southwestern Arizona and Lower California): Cochimi, Cocopa, Cuchan or Yuma proper, Diegueño, Havasupai, Maricopa, Mohave, Seri, Waicuru, Walapai. (10.)

Zuñian family (New Mexico): Zuñi. (1.) Total, 58 families.

## PRECOLUMBIAN MINING AND STONE WORKING IN THE UNITED STATES OF AMERICA.

Collections made by Mr. W. H. Holmes, from seven large mines and quarries, exhibited by the Bureau of Ethnology of the Smithsonian Institution. J. W. Powell, director.

This collection was presented after the close of this exhibition to the Spanish Museo Arqueologico by the Bureau of Ethnology.

Primitive quartzite quarries (suburbs of Washington, District of Columbia): The aborigines worked this very extensive quarry to procure the rounded quartzite pebbles, of which, when chipped into thin, oval pieces, they made various implements. The excavations extend over many acres, and the residue from the work is considerable. Little was done in the quarry itself, only the formation of the rough blanks, which were carried elsewhere to be worked into implements. There is therefore not much to be found at the site of the quarry except the waste or "rejects," from the work of which remains have been found in all stages of completion, so that we have a complete line of forms, from the natural pebble with one chip removed to the leaf almost finished, which line is represented by many broken blades which were left in the quarry. These are exhibited in the lower line. All the leaf-blades which turned out well were carried away. The photographs are correctly labeled and may be studied in detail.

Remains of chipped pebbles, abandoned at the beginning of the work.

Remains of blades well advanced in working. Two specimens. There is little difference between them.

Blades which turned out well, removed from the quarry, but yet similar. Found on the sites of villages near the quarries.

Various implements made of the quarry blades and found on the sites of villages and widely scattered over the country.

Remains of knives of leaf form abandoned in various stages of completion.

Blades of quartzite, abandoned on the eve of completion.

Blades of quartzite, broken on the eve of completion. Section of an ancient quarry, with débris, $C^2C^2$. Stratum of stones, B, B.

Primitive flint quarries (Ohio): The ancient flint works of Licking County, Ohio, are the most noted of the primitive quarries. A very good quality of flint for chipping into blades could be obtained from a thick stratum covered by a high ridge close to Licking River. The ancient pits and ditches are large and numerous, and cover a little more than a square mile of territory. The work was in nearly the same state as that of other quarries where similar material was found. Little was shaped on the spot, except the rough outline of the blades, the residuum from which is found in inexhaustible quantities. The series of specimens illustrates the whole range of the abandoned forms, and by means of the photographs may be learned the nature of the blades which turned out well, and the various forms which were made from them.

Rejects of blades abandoned at the start, and when half finished.

Rejects of blades abandoned in an advanced stage of completion.

Well-finished blades found on sites of villages in the vicinity of the quarries.

Implements differing from the quarry blades, found on sites of villages dispersed widely in the State of Ohio and the neighboring States.

Primitive novaculite quarries (Arkansas): These, so far as is known, are the most extensive of all the flint quarries of America. The stone is found in massive strata which form the crests of the mountain chains, and these quarries have been worked by the quarriers for many miles. Many of the pits and trenches are very large, measuring more than 100 feet in length or diameter, and about 25 feet in depth. The quantity of broken, loose, and wasted stone abandoned is enormous, and thousands of stone hammers and blocks which were used in working the quarries are found on these sites. The work of shaping did not

extend beyond roughly outlining knives in the form of leaf-blades, pictures of which are in the collection of photographs. The blades which had turned out well were carried away to be utilized in various ways.

Photograph No. 1 represents a series of blades, and No. 2 the particular implements which were found on the sites of villages and in the neighboring fields.

Quarry refuse which was abandoned in various stages of manufacture into blades.

Stone hammers which were used in breaking and extracting the novaculite.

Blades made in the quarry, and dressed in the neighboring villages, but not different.

Various quarry implements made of blades found on sites of villages, and of which there is a considerable distribution over the country.

Primitive chert quarries (Indian Territory): These quarries are especially interesting from the nature of their stone. It is a whitish, massive chert, found in strata of many feet in depth, and so homogeneous that very large implements can be made from it. The deposits of quarry refuse on the spot indicate that here, as elsewhere, the principal articles made were blades, the largest of which were 15 or more inches in length. A series of rejects of manufacture is exhibited in the collection, and the photographs display very fine specimens belonging to the Bureau of Ethnology. The explanations may be read on the labels of the photographs. Stone hammers and articles in the form of a pebble are placed in the lower row.

Rejected articles of medium size, abandoned at the beginning of their manufacture into knives of leaf shape.

Rejected articles, large and small, abandoned at the beginning of their manufacture into knives of leaf shape.

Refuse of the leaf-shaped knives, half finished.

Refuse of the leaf-shaped knives in an advanced stage of manufacture.

Refuse of leaf-shaped knives, almost finished.

Stone hammers which were used in breaking and flaking the chert.

Quarry residuum, abandoned in various stages of manufacture into blades.

Refuse of pebbles.

Stone hammers which were used in flaking the chert.

Primitive steatite quarry (suburbs of Washington, District of Columbia): There are many steatite quarries from one end to the other of the eastern slopes of the Appalachian range of mountains. The pits are not large, seldom more than 25 feet in diameter, and 6 feet in depth. The rock is soft, but very compact, and when it hardens can not be worked without great difficulty. Nos. 1 to 12, fragments of bowls, partly finished, from the quarry and the adjacent villages. The finishing was not done in the quarries. Nos. 13 to 20, implements of quartzite, diorite, etc., used for removing and cutting the steatite. The largest specimens had handles, and the small chisels were probably fixed on bone handles.

Quarry and workshop refuse of bowls or pots left unfinished.

Tools, picks and gouges, which probably had handles when they were used in extracting and cutting the steatite.

Primitive copper mines (Royal Island, Lake Superior, Michigan): Implements Nos. 1 to 11, mauls made of large stones rounded by the water, from the shore of Lake Superior. Some are grooved for applying handles, and almost all had probably, when they were in use, some variety of handle. The largest weighs 20 pounds. They are found in great numbers in and near the ancient pits, thousands of them being seen at a glance. They were used for breaking the rock in which the copper was concealed, and for extracting the masses of native copper. Specimen No. 12, native copper and portions of the rock containing it. There is no evidence that the copper implements were made at or near the quarries.

Stone mauls which were used for breaking the rock and extracting the lumps of copper.

Pieces of copper, and rock containing copper.
Section showing ancient pits and the distribution of lumps of copper.
Stone hammers and mauls found in a ditch 3 feet wide, crossed by an ancient pit 20 feet in diameter and 10 feet deep.
Section of an ancient pit containing heads of mauls.
Exhibit of rubbish from an ancient pit containing heads of stone mauls.
Quarry of sacred stone for pipes (Minnesota): The quarry of red stone for pipes is situated in the southwest of Minnesota. In the ancient pits are found many stone hammers and mauls, which are an evidence that this work was performed in prehistoric times. The quarry has been worked uninterruptedly up to the present time, and the Yankton Sioux make a journey of 200 miles every year to work in it. The Indians manufacture and sell pipes, and make a considerable revenue by selling the rough material to the whites, who manufacture many articles of it. The stone slab for pipes is about 12 inches thick, and the work on it requires much time and labor. The collection contains a quantity of pieces of the red stone for pipes, and specimens of the hammers which were used in the prehistoric quarry.
Fragments found on sites of workshops and dwellings.
Hammers and mauls which were used in extracting and breaking the pipestone.
Red quartzite which was used for making hammers, picks, and sharpeners.
Pipes made of red stone, now in the United States National Museum. All the above materials for the study of the ancient quarries were collected by W. H. Holmes.

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## TURKISH HISTORY OF THE DISCOVERY OF AMERICA.

The manuscript is illustrated with colored maps and drawings.

A third of this manuscript treats of the discovery of America and gives a succinct sketch of the life and voyages of Christopher Columbus from a Moslem point of view. Certain political events give rise to the supposition that this manuscript was written in A. H. 977; that is to say, in 1569–70 A. D. The work was printed in Constantinople in 1730. A copy of it exists in the library of the School of Oriental Living Languages at Paris and another in the Hodgson collection of the United States National Museum, Washington, D. C. Collected at Constantinople in 1891, and exhibited by Dr. Cyrus Adler, United States National Museum.

### DRAWINGS.

I. (F. 17.) The tree "wak wak," with women instead of fruit. Discovered in an island of the Bay of Bengal.
II. (F. 45.) Manatí, or sea cow, found in the West Indies.
III. Manatís, or sea cows, of Darien (F. 55); probably tapirs.
IV. The "man fish," found in Tobago. (F. 57.)
V. Birds of the Moluccas, whose flesh is supposed to possess medicinal virtues when prepared with spice and cinnamon.
VI. Duck, black swan, and monster pelican (F. 65 op.), which "swallows three babies at one gulp."
VII. The cochineal cactus.
VIII. Wild bull and stag of America. (F. 86 op.)
IX. The city of Potosi and its mountains of silver.
X. Jaguar, ant-bear, and a rare animal which has a natural seat on its body.
XI. A sloth, resting on the trunk of a tree, and a maritacaca, with its young.
XII. The cacao (F. 104). "Cures almost all diseases."
XIII. Various trees of the New World.

MAPS AND DIAGRAMS.

F. 6. Diagram of the equator and the poles.
F. 11. Diagram of the zones.
F. 34. Map of the Old World.
F. 35. Map of the New World.
The maps of the two worlds form a single one.

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## EXHIBIT OF THE UNITED STATES INDIAN INDUSTRIAL SCHOOL FOR THE EDUCATION OF ADULT INDIANS, CARLISLE, PA., UNITED STATES OF AMERICA. ESTABLISHED IN 1879.

Number of pupils, 812; male, 492; female, 320. Number of tribes represented, 43. Total of pupils admitted to date, 2,187. Duration of instruction, five years, or more in necessary cases. Voluntary assistance of half a day in the school, and the other half in the workshop. Official expenses, $100,000 a year. Occupations and trades taught in the Industrial School: Cooking, sewing, washing, nursing, teaching, baking, blacksmithing, carpentry, belt making, shoemaking, wagon making, tinning, tailoring, cabinet making, dairy work, gardening, agriculture, printing. Education in all branches of industry, exclusively in the English language. Superintendent, R. H. Pratt, captain in the Tenth Regiment of Cavalry of the United States Army.

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## EXHIBIT OF THE NAVY DEPARTMENT.

### MODEL OF THE UNITED STATES SHIP-OF-WAR COLUMBIA, EXHIBITED BY THE NAVY DEPARTMENT.

So named in honor of Christopher Columbus, and built in 1892, to commemorate the fourth centenary of the discovery of America.

The ship is presented in broadside, with its exact proportions and with all its most minute details.

This model was constructed expressly to be exhibited at this exhibition.

UNITED STATES THREE-SCREW CRUISER COLUMBIA.

| | |
|---|---|
| Length over all | 416 ft. 3 in. |
| Greatest beam | 58 ft. 2¼ in. |
| Average draft | 23 ft. |
| Lanzamiento on the main deck | 17 ft. |
| Displacement | 7,550 tons. |
| Indicated horse power | 23,000. |
| Maximum velocity | 22 knots. |

ARMAMENT.

*Principal battery.*—One 8-inch breech-loading rifle, two 6-inch rapid-fire guns, eight 4-inch rapid-fire guns.

*Secondary battery.*—Twelve 6-pounder rapid-fire guns, four 1-pounder rapid-fire guns, four gatling guns, five torpedo tubes.

ARMOR.

| | | |
|---|---|---|
| Protected deck: | | |
| Waist | inches.. | 4 |
| Forward and aft | do.... | 2½ |

REDOUBTS.

Four 4-inch rapid-fire guns, two 6-pounder rapid-fire guns.

## EXHIBIT OF THE UNITED STATES ARMY MEDICAL MUSEUM.

Skull of a Nisqually Indian chief, Puget Sound, Washington. The flattening is extraordinary.

Skull of a Peel River Indian, Fort McPherson, Arctic America (Jukkuthkutchin). From Mr. R. Kennicott's collection.

Skull of a Pawnee Indian, near Fort Harker, Kansas. Presented by Dr. B. E. Pryer, surgeon, U. S. A.

Skull of an Arapahoe Indian warrior, from Fort Larned, Kansas. Presented by Dr. W. H. Forwood, assistant surgeon, U. S. A.

Skull of a Ponka Indian, from Fort Randall, Dakota. Presented by Dr. A. J. Comfort, assistant surgeon, U. S. A.

Skull of a Piegan Indian, of the Blackfeet Nation. Killed near Fort Shan, Montana. Presented by Dr. F. L. Jown, surgeon, U. S. A.

Skull of a California Indian, from Santa Rosa Island, California. From Rev. Stephen Bowers's collection.

Skull of a Brulé Sioux Indian, from Beaver Creek, Nebraska, 4 miles north of Camp Sheridan, Nebraska. Presented by Dr. W. H. Corbusier, assistant surgeon, U. S. A.

Skull of a Wahpeton Sioux Indian, from near Fort Sisseton, Dakota. Presented by Mr. A. Gecks, hospital steward, U. S. A.

Skull of a Nez Percé Indian, from Bear Paw Mountain, Montana. Presented by Dr. David S. Snively, assistant surgeon, U. S. A.

Skull of an Eskimo of Alaska, from the northwestern extremity of St. Lawrence Island, Bering Sea. From Mr. E. W. Nelson's collection.

Skull of an Alaskan Eskimo, from the northwestern extremity of St. Lawrence Island, Bering Sea. From Mr. E. W. Nelson's collection.

In the same case are seen "composite" craneographic photographs, with the apparatus for making them, and a collection of craneographic outlines, taken with the craneoscope.

# ARCHÆOLOGICAL OBJECTS EXHIBITED BY THE DEPARTMENT OF ARCHÆOLOGY AND PALÆONTOLOGY, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

STEWART CULIN, Director of the Museums of Archæology and Palæontology of the University of Pennsylvania.

## VALLEY OF THE DELAWARE RIVER.

### Case I.

The valley of the Delaware River embraces part of the States of Pennsylvania, New Jersey, New York, and Delaware; it is rich in remains of its primitive inhabitants. The Cases I to III contain different classes of objects found in this region, and Case IV contains a special collection from a limited area. The greater part of these objects, except those specially indicated, were found on the surface of the earth, and many of them were brought to light by the plowshare.

Some circumstances excepted, there are no indications of their precise antiquity, as they might come from the times of the first contact with European civilization, before the abandonment of stone implements, or from a more remote epoch.

1. Historical map of Pennsylvania, with the Indian names of the streams, towns, roads, sites of forts, battlefields, etc., made by P. W. Sheafer. Private publication of the Pennsylvania Historical Society. Philadelphia, 1875.
2. Grooved axe; weight, 13 pounds: Scrabbletown, New Jersey.
3. Grooved axe: Burlington County, New Jersey.
4. Grooved axe: Burlington County, New Jersey.
5. Grooved axe: Trenton, New Jersey.
6. Grooved axe: Burlington, New Jersey.
7. Grooved axe: Burlington, New Jersey.
8. Grooved axe: Wilmington, Delaware.
9. Grooved axe: Burlington County, New Jersey.
10. Grooved axe: Delaware Valley.
11. Celt: Burlington County, New Jersey.
12. Celt: Burlington County, New Jersey.
13. Celt: Burlington County, New Jersey.
14. Celt: Burlington County, New Jersey.
15. Celt: Gloucester, New Jersey.
16. Celt: Delaware, Pennsylvania.
17. Celt: Delaware, Pennsylvania.
18. Celt: Chalfont, Bucks County, Pennsylvania.
19. Gouge: Burlington County, New Jersey.
20. Gouge: Burlington County, New Jersey.
21. Gouge: Burlington County, New Jersey.
22. Gouge: Burlington County, New Jersey.
23. Gouge: Burlington County, New Jersey.
24. Gouge: Burlington County, New Jersey.
25. Spade (?): Doylestown, Bucks County, Pennsylvania.
26. Spade (?): Doylestown, Bucks County, Pennsylvania.

27. Implement (?): Bristol, Bucks County, Pennsylvania.
28. Wooden mortar; Indian manufacture: Burlington County, New Jersey.
29. Wooden mortar: Burlington County, New Jersey.
30. Mortar: Burlington County, New Jersey.
31. Pestle: Burlington County, New Jersey.
32. Pestle: Pennsylvania.
33. Pestle: Salem County, New Jersey.
34. Pestle: Lumberton, New Jersey.
35. Pestle: Durham, Bucks County, Pennsylvania.
36. Grinding stone: Western Pennsylvania.
37. Cup-shaped stone.

CASE II.

1. Three discoidal stones: Burlington County, New Jersey.
2. Stone disk: Germantown, Pennsylvania.
3. Three perforated stones: Gloucester County, New Jersey.
4. Worked stone: Burlington, New Jersey.
5. Sinker: Camden, New Jersey.
6. Sinker: Gloucester, New Jersey.
7. Sinker: Burlington County, New Jersey.
8. Sinker: Burlington County, New Jersey.
9. Sinker: Burlington County, New Jersey.
10. Drilled stone: Trenton, New Jersey.
11. Worked stone (?): New Jersey.
12. Worked stone: Doylestown, Bucks County, Pennsylvania.
13. Worked stone: Burlington County, New Jersey.
14. Worked stone: Burlington County, New Jersey.
15. Ground and polished stone: New Jersey.
16. Semilunar slate knife: Wilmington, Delaware.
17. Semilunar slate knife: Burlington County, New Jersey,
18. Gorget: Burlington County, New Jersey.
19. Gorget: Burlington County, New Jersey.
20. Gorget: Ocean County, New Jersey.
21. Gorget: Trenton, New Jersey.
22. Pendants: Burlington Island, New Jersey.
23. Gorget: Burlington County, New Jersey.
24. Gorget: Northumberland, Pennsylvania.
25. Gorget: Pennsylvania.
26. Gorget: Pennsylvania.
27. Gorget: Burlington County, New Jersey.
28. Fragment of engraved gorget: Marshall Island, Bucks County, Pennsylvania.
29. Gorget: Pennsylvania.
30. Ceremonial object: Burlington County, New Jersey.
31. Ceremonial object: Burlington County, New Jersey.
32. Ceremonial object: Burlington County, New Jersey.
33. Ceremonial object: Burlington County, New Jersey.
34. Ceremonial object: Burlington County, New Jersey.
35. Ceremonial object: Burlington County, New Jersey.
36. Ceremonial object: Burlington County, New Jersey.
37. Ceremonial object: Bridgeport, New Jersey.
38. Ceremonial object: Bridgeport, New Jersey.
39. Ceremonial object (fragment showing method of drilling): Trenton, New Jersey.
40. Pipe: Pennsylvania.
41. Pipe: Burlington County, New Jersey.
42. Pipe, catlinite.
43. Pipe, catlinite.
44. Pipe: Burlington County, New Jersey.
45. Pipe, with double face: Burlington County, New Jersey.
46. Pipe, resembling the preceding, found in Allegheny County, Pennsylvania.
47. Four clay pipestems: Burlington County, New Jersey.

48. Iron tomahawk: Bucks County, Pennsylvania.
49. Three conical beads of iron and copper: Burlington County, New Jersey.
50. Thirteen fragments of pottery: Burlington County, New Jersey.
51. Two hundred and two notched pebbles: Point Pleasant, Bucks County, Pennsylvania.

This series of notched pebbles, or "net sinkers," was found buried at Point Pleasant, Bucks County, Pennsylvania. It has been claimed that these simple implements had also other uses than that indicated by the name of "net sinkers," which is very probable, as they are frequently found in ash pits and in other places a great distance from the water.

CASE III.

1. Ten argillite stones, roughly flaked: Trenton, New Jersey.
2. Argillite stone, roughly flaked: Morrisville, Bucks County, Pennsylvania.
3. Eight argillite stones, roughly flaked: Point Pleasant, Bucks County, Pennsylvania.

These are the objects which have been designated as palæolithic implements.

4. Argillite stone, roughly flaked: Trenton, New Jersey.
5. Five argillite stones, roughly flaked.
6. Eighteen stones, roughly flaked: Point Pleasant, Bucks County, Pennsylvania.
7. Argillite blade: Point Pleasant, Bucks County, Pennsylvania.
8. One hundred and sixteen argillite blades: Point Pleasant, Bucks County, Pennsylvania.

These objects were discovered in a cache in an island in the Delaware River, Bucks County, Pennsylvania, by Mr. Henry C. Mercer, of Doylestown, Pennsylvania.

Deposits of objects of the same kind, apparently intended to serve as materials for the manufacture of implements, have been discovered in various localities east of the Mississippi River. The continuation of The History of Travaile in Virginia, by William Strachey, treats of this subject.

Their maize and, no doubt, their copper, hatchets, horses, wampum, beads, and many other of their articles were of great value, owing to the estimation which they attached to them. The Indians hid them from each other in the earth or the woods, where they kept them whole years, until they needed them.

9. Flat stone, with worked edges: Found in the cache above mentioned.
10. Four spearheads: Lumberton, Burlington County, New Jersey.
11. Eight spearheads: Lumberton, Burlington County, New Jersey.
12. Thirteen spearheads: Trenton, New Jersey.
13. Four arrow or spear heads: Trenton, New Jersey.
14. Nine flaked blades, usually described as knives, but probably "blanks," which were made to be wrought into arrowheads, etc.: From a cache containing some 200. Lumberton, New Jersey.
15. Flaked stone, probably a "blank:" From a cache which contained some 150 similar specimens, found in a meadow about 3 miles south of Trenton, New Jersey.

NOTE.—According to the observations of Mr. William H. Holmes, it was customary to dress the stones in the quarry in the manner resembling Nos. 14 and 15, in order to facilitate their transportation. The form that was wanted was afterwards given to these "blanks."

16. Three flaked stones, resembling the preceding: Mercer County, New Jersey.
17. Two flaked stones, resembling the preceding: Burlington County, New Jersey.
18. Flaked implement: Burlington County, New Jersey.
19. Two spearheads: Burlington County, New Jersey.

20. Spear: Burlington County, New Jersey.
21. Two spearheads: Gloucester County, New Jersey
22. Spearhead: Chester County, Pennsylvania.
23. Spearhead: Burlington County, New Jersey.
24. Spearhead: Burlington County, New Jersey.
25. Spearhead: Sussex, New Jersey.
26. Sword (?): Cape May County, New Jersey.
27. Five arrowheads: Burlington County, New Jersey.
28. Three arrowheads: Trenton, New Jersey.
29. Arrowhead: Trenton, New Jersey.
30. Two arrowheads: Burlington County, New Jersey.
31. Five arrowheads: Burlington County, New Jersey.
32. Four arrowheads: Burlington County, New Jersey.
33. Six spearheads: Burlington County, New Jersey.
34. Four arrowheads: Burlington County, New Jersey.
35. Four arrowheads: Trenton, New Jersey.
36. Fifteen arrowheads, Burlington County, New Jersey.
37. Eleven arrowheads: Trenton, New Jersey.
38. Five awls: Burlington County, New Jersey.
39. Five awls: Trenton, New Jersey.
40. Six scrapers: Trenton, New Jersey.
41. Scraper: Burlington County, New Jersey.
42. Scraper: Lumberton, New Jersey.
43. Three knives (?): Trenton, New Jersey.
44. Three blades of argillite: Trenton, New Jersey.

### Case IV.

*Riegelsville, Bucks County, Pennsylvania.*

The objects exhibited in this case were found on the site of the old village inhabited by Shawnee Indians, near Riegelsville, Bucks County, Pennsylvania, which is thought to have been given to them by the Delawares (Lenni Lenâpé) in 1680, and which was abandoned in 1727–1728.

The village was called "Pechot-Woalhenk," which means "great hollow in the ground," doubtless with reference to the large cave which was within its limits, and of which a part still exists.

1. Grooved axe.
2. Grooved axe.
3. Grooved axe.
4. Grooved axe.
5. Celt.
6. Celt.
7. Celt.
8. Grooved hammer.
9. Grooved hammer.
10. Ten stone balls.
11. Thirteen pestles.
12. Stone cup.
13. Mortar.
14. Pestle.
15. Pestle.
16. Pestle.
17. Pestle.
18. Ceremonial object.
19. Ceremonial object.
20. Ceremonial object.
21. Ceremonial object.
22. Ceremonial object.
23. Ceremonial object.
24. Iron tomahawk.
25. Drilled stone.
26. Glass bead.
27. Drilled pendant.
28. Engraved pestle.
29. Ten pestles.
30. Two discoidal pieces of argillite.
31. Two discoidal stones, engraved.
32. Four fragments of argillite, probably rejected in working.
33. Five flaked stones, similar to the preceding ones.

34. Stone blade.
35. Six argillite spearheads.
36. Thirteen argillite spearheads.
37. Eight argillite spearheads.
38. Twenty-four argillite spearheads.
39. Eighty-four argillite arrowheads.

The distinction between the spears, the arrows, and the perforating objects frequently can not be made.

40. Three scrapers.
41. Two awls.
42. Fourteen fragments of pottery.

## STATE OF OHIO.

### Case V.

The objects from Ohio are usually of better workmanship than those of the eastern coast of the United States. Many of those found in mounds are worked to great perfection. The greater part of the specimens exhibited in this case are from the collection of Dr. Daniel G. Brinton, of Philadelphia, by whom they were presented to the museum of the university.

1. Grooved axe.
2. Grooved axe.
3. Grooved axe.
4. Grooved axe.
5. Grooved axe.
6. Grooved axe.
7. Grooved axe.
8. Celt.
9. Celt.
10. Celt.
11. Celt.
12. Celt.
13. Celt.
14. Celt.
15. Celt.
16. Celt.
17. Celt of hematite.
18. Copper celt.
19. Celt.
20. Chisel.
21. Grooved hammer.
22. Pestle.
23. Pestle.
24. Pestle.
25. Pestle.
26. Pestle.
27. Pestle.
28. Mortar and pestle.
29. Discoidal stone.
30. Discoidal stone.
31. Discoidal stone.
32. Worked stone.
33. Worked stone.
34. Worked stone.
35. Hematite paint stone.
36. Paint stone of hematite.
37. Ring.
38. Perforated stone disk.
39. Perforated stone disk.
40. Perforated stone disk: Ross County.
41. Ball with imperfect hole.
42. Gorget: Ross County.
43. Gorget.
44. Gorget.
45. Gorget.
46. Gorget.
47. Gorget.
48. Gorget.
49. Gorget.
50. Gorget.
51. Gorget.
52. Gorget.
53. Of shell Ceremonial, object: Anglaize County.
54. Ceremonial object: Warren County.
55. Ceremonial object.
56. Ceremonial object: Anglaize County.
57. Ceremonial object.
58. Cross.
59. Bird-shaped stone.
60. Bird-shaped stone.
61. Bird-shaped stone.
62. Boat-shaped stone.
63. Boat-shaped stone.
64. Ornament (?).
65. Ceremonial object.
66. Ceremonial object: Ross County.
67. Worked stone.
68. Worked stone.
69. Ceremonial ornament.
70. Ceremonial object.
71. Pipe.
72. Pipe.
73. Catlinite pipe.
74. Five rudely flaked blades.
75. Rudely flaked blade: Allen County.
76. Flaked stone: Clermont County.
77. Flaked stone: Warren County.

78. Flaked stone.
79. Flaked implements: Warren County.
80. Three implements.
81. Seven flaked implements.
82. Three spearheads.
83. Spearhead: Hardin County.
84. Spearhead: Flint Ridge.
85. Thirteen spearheads.
86. Spearhead: Warren County.
87. Spearhead.
88. Spearhead: Allen County.
89. Six spearheads.
90. Two spearheads: Chillicothe.
91. Seven spearheads.
92. Sixteen arrowheads.
93. Six arrowheads: Blennerhasset Island.
94. Twelve arrowheads.
95. Awl: Pike County.
96. Two awls: Warren County.
97. Three awls.
98. Semilunar knife.
99. Thirteen scrapers.
100. Scraper: Brown County.
101. Three scrapers.

## FLINT RIDGE, LICKING COUNTY, OHIO.

### Case VI.

From the chert quarries of Flint Ridge, Licking County, Ohio, the Indians of the adjacent country obtained the materials for their chipped implements. The deposit lies between the cities of Newark and Zanesville, and forms a ridge of rock 10 miles in length. The ridge displays on all sides the trenches and pits made by the ancient quarriers.

The quality of the stone varies, and is principally of three kinds: Chert, jasper, and chalcedony. Specimens of these various stones, in worked condition, have been found in the States of Indiana, Kentucky, at the source of the Kanawha River, and in the Allegheny River, near the boundary of the State of New York. Many objects of this stone have also been found in mounds widely distributed.

It is thought that the Indians first removed the upper covering of earth, which is, in many places, 9 or 10 feet deep, and on reaching the flint made a large fire on the rock, in order that the heat might crack it, and they then probably threw water on it to expedite the work.

Large quantities of flakes, broken arrowheads, knives, etc., found in the vicinity of Flint Ridge, give reason for the belief that the greater part of the materials were worked in the quarry itself; but fragments found at great distances, sometimes a hundred miles or more from the quarries, indicate that, after diminishing the weight of the blocks by chipping them hastily, they carried them away to give them suitable form.

The quarrier, to shape his block, knocked off flakes with a stone hammer, hundreds of which of different sizes are found scattered over the country.

1. Fourteen stone hammers of various sizes.
2. Two large masses of flint.
3. Twenty-one masses of flint, partly flaked.
4. Twenty-three flaked flints worked in the quarry, more or less imperfectly, and commonly designated as "blanks" or leaf-shaped blades.
5. Nine spearheads.
6. Twenty-four spearheads or knives.
7. Five knives.
8. One hundred and one arrowheads.
9. Forty-two scrapers.
10. Eleven awls.
11. One hundred and thirty-six small flakes.
12. Flint cores from which knives have been flaked.
13. Twelve large flakes.

## IREDELL COUNTY, NORTH CAROLINA.

### Case VII.

1. Grooved stone axe.
2. Grooved stone axe.
3. Grooved stone axe.
4. Grooved stone axe.
5. Grooved stone axe.
6. Grooved stone axe.
7. Grooved stone axe.
8. Stone pestle.
9. Discoidal stone.
10. Discoidal stone.
11. Stone ball.
12. Stone ball.
13. Stone ball.
14. Stone ball.
15. Stone ball.
16. Fragment of steatite pipe.
17. Steatite pipe.
18. Steatite pipe.
19. Seven fragments of pottery.
20. Nine chipped blades.
21. Six dressed knives or spearheads.
22. Three spearheads.
23. Nine spearheads.
24. Forty-one spear or arrowheads.
25. Six roughly flaked stones.
26. Four knives (?).
27. Arrowheads.
28. Five awls.

## FLORIDA.

### Case VIII.

1. Twenty roughly worked stones, probably rejected in the quarry: Marco Pass, southwest coast.
2. Three worked stones, like the preceding: St. Johns Island, Hernando County.
3. Polishing stone: Punta Rassa.
4. Polishing stone: Punta Rassa.
5. Celt.
6. Celt.
7. Celt: Levy County.
8. Perforated shell (strombus sp.): Marco Pass, southwest coast.
9. Perforated shell (strombus sp.): Marco Pass, southwest coast.
10. Perforated shell (strombus sp.): Marco Pass, southwest coast.
11. Perforated shell (strombus sp.): Marco Pass, southwest coast.
12. Perforated shell (strombus sp.): Marco Pass, southwest coast.
13. Perforated shell (strombus sp.): Marco Pass, southwest coast.
14. Perforated shell (strombus sp.): Marco Pass, southwest coast.
15. Perforated shell (strombus sp.): Marco Pass, southwest coast.
16. Perforated shell (strombus sp.): Marco Pass, southwest coast.
17. Perforated shell (strombus sp.): Marco Pass, southwest coast.
18. Perforated shell (strombus sp.): Marco Pass, southwest coast.
19. Perforated shell (strombus sp.): Marco Pass, southwest coast.
20. Perforated shell (strombus sp.): Marco Pass, southwest coast.
21. Dish, worked shell: Punta Rassa.
22. Five sinkers, shell: Marco Pass, southwest coast.
23. Eighteen sinkers, shell: Punta Rassa.
24. Five disks, shell: Marco Pass, southwest coast.
25. Two disks, shell: Goodland Point, near Cape Roman.
26. Disk, shell: Punta Rassa.
27. Spoon, shell: Punta Rassa.
28. Two spoons, shell: Alafia River.
29. Worked shell: Punta Rassa.
30. Worked shell: Marco Pass, southwest coast.
31. Two fragments of shell rings: Marco Pass, southwest coast.
32. Two fragments of pottery: Marco Pass, southwest coast.
33. Six fragments of pottery: South Florida.
34. Three fragments of pottery: West Florida.
35. Fragment of pottery: Mound, Tampa Bay.
36. Seven fragments of pottery, Gulf Park, Hernando County.
37. Fragment of pottery.

The articles which follow, from No. 38 to No. 102, inclusive, were found in the shell heaps at Punta Rassa, dating from the time of the Spaniards.

The stone objects are of Indian manufacture; those of metal are chiefly of European origin.

The rough beads of gold are made of native gold dust, probably brought from Georgia or North Carolina.

The large beads are of glass.

38. Fragment of a human skull.
39. Human lower jaw.
40. Two fragments of pelvis.
41. Three human bones, femur.
42. Six silver disks.
43. Silver ornament in the form of a bird's head.
44. Silver cross.
45. Silver cross.
46. String of silver beads.
47. Silver beads.
48. String of shell and glass beads.
49. String of shell and glass beads.
50. String of shell and glass beads.
51. Bead.
52. Grooved bead.
53. String of glass beads.
54. String of glass beads.
55. String of glass beads.
56. String of glass beads.
57. Three strings of small glass beads.
58. Two strings of small shell and glass beads.
59. String of glass beads.
60. String of glass and amber beads.
61. Two shell beads.
62. Coral bead.
63. Brass buttons.
64. Gilt bead and two metal buttons.
65. Earrings of blue glass.
66. Imitation precious stone, blue.
67. Two fragments of cut glass.
68. Carved ornament of bone in the form of a bird.
69. Implement of carved bone.
70. Bone awl.
71. Two carved bone beads.
72. Fragment of the end of a bone.
73. Bone arrowhead.
74. Three bullets.
75. Lead plummet.
76. Small shell plummet.
77. Ornament of metal, gilded.
78. Ornament, copper.
79. Ornament, brass.
80. Two fragments of copper ornaments.
81. Three fragments of metal ornaments.
82. Two metal disks.
83. Head of a pair of brass compasses.
84. Fragment of a Spanish sword hilt, with the arms of Leon andCastile.
85 Fragment of a sword blade.
86. Fragment of iron.
87. Iron key.
88. Iron axe.
89. Four fossil shark teeth.
90. Two fragments of glazed pottery.
91. Fragment of pottery.
92. Fragment of glass.
93. Two large gold beads.
94. Two oval gold beads.
95. Small oval gold bead.
96. Oval gold bead.
97. Oval gold bead.
98. Oval gold bead.
99. Long gold bead.
100. Gold disk.
101. Two gold beads.
102. Small gold bead.
103. Finger ring.
104. Pipe carved in the form of a bird: Southwest coast.
105. Copper pendant.
106. Carved bone in form of a bird.
107. Die.
108. Silver disk found in a pile of shells: Estero Bay.
109. Fragment of hammered gold.
110. Two gold beads.
111. Fragment of pottery: Gulf Park, Hernando County.

## PUBLICATIONS OF THE DEPARTMENT OF ARCHÆOLOGY AND PALÆONTOLOGY OF THE UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

1. Annual Report of the Curator of the Museum of American Archæology, Philadelphia, 1891.
2. Catalogue of the Loan Exhibition. Objects used in the religious ceremonies, and charms and implements for divination, 1892.
3. Addresses Delivered at the Opening Ceremonies of the Exhibition of Objects Used in Worship (Philadelphia, 1892).

# COLLECTION OF ABORIGINAL INDIAN SKULLS EXHIBITED BY THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

STEWART CULIN, Active Member of the Academy.

The forty-four skulls forming this collection represent thirty-five Indian tribes of the United States, found in graves and mounds. Many of these tribes are extinct.

This collection possesses great historic interest. It forms part of the celebrated collection of human skulls made by Mr. Samuel George Morton, of Philadelphia, and referred to by him in his great work Crania Americana. A copy of this work is also exhibited. Some of these specimens are engraved in this work.

The interior capacity of the skulls is given in cubic inches.

NOTE.—The skulls are classified according to the language of the stock to which they belong, following the system of linguistic classification of the Bureau of Ethnology.

### ALGONQUIAN STOCK.

Skull of a Lenape or Delaware Indian: Woman 40 years old. Facial angle, 76°; cubic inches, 82. (Crania Americana, pl. 82, p. 159.)

Skull of Menominee Indian: Woman 40 years old. Facial angle, 76°; cubic inches, 87.

Skull of Miami Indian: Woman 40 years old. Facial angle, 79°; cubic inches, 81.

Skull of Narragansett Indian: Woman 80 years old. Cubic inches, 84.

Skull of Ottigamie or Fox Indian of Wisconsin: Man 50 years old. Facial angle, 82°; cubic inches, 92. (Crania Americana.)

Skull of Nantick Indian of Nantucket.

Skull of Nantick Indian of Nantucket.

Skull of an Ottawa warrior: 75 years old. Cubic inches, 89.

Skull of Indian of the Penobscot tribe of Maine: Man 50 years old. Facial angle, 76°; cubic inches, 80.

Skull of the young Pottawatomie: A warrior 20 years old, who killed Majîmik, the chief of the Miamis, at the Wabash River, in 1841, and who, in his turn, died at the hands of the Miamis.

Skull of Sac Indian: Woman 40 years old. Cubic inches, 98.

Shawnee (?) Indian of Ohio: Cubic inches, 87.

### ATHAPASKAN STOCK.

Skull of Chippewa Indian: Man 30 years old. Facial angle, 73°; cubic inches, 85.

### CHITIMACHAN STOCK.

Skull of Chitimacha Indian of Louisiana: Man 50 years old. Facial angle, 71°; cubic inches, 75. (Crania Americana, pl. 19, p. 163.)

CADDOAN STOCK.

Skull of Arickara Indian of the Missouri River: Woman 50 years old. Cubic inches, 80.

Skull of Pawnee Indian of Platte River: Woman 30 years old. Facial angle, 75°; cubic inches, 75. (Crania Americana, pl. 38.)

CHINOOKAN STOCK.

Skull of Chinook Indian of Oregon: Woman 60 years old. Facial angle, 73°; cubic inches, 82. Natural form.

CHUMASKAN STOCK.

Skull of Indian of Santa Barbara, Cal.

IROQUOIAN STOCK.

Skull of Cherokee Indian: Woman 20 years old. Facial angle, 74°; cubic inches, 84.

Skull of Huron Indian: Woman 40 years old. Cubic inches, 83. Found in a mound near Michigan Strait in 1844.

Skull of Iroquois Indian (?): Exhumed, with many others, near Lake Erie, about 20 miles east of the Niagara, in 1824. Facial angle, 74°; cubic inches, 103.

Skull of Mohawk Indian: Woman 16 years old. Exhumed near Manheim, N. Y. Cubic inches, 81.

KITUNAHAN STOCK.

Skull of the Chief Cootonay (Blackfoot), called the "Bloody Hand": 50 years old Facial angle, 75°; cubic inches, 88. Missouri River, 1845.

MUSKHOGEAN STOCK.

Skull of Athla-Ficksa, Maskoki, or Creek chief: 50 years old. Facial angle, 72°; cubic inches, 97. (Crania Americana, pl. 26, p. 170.)

Skull of a Seminole warrior of Florida: 50 years old. Facial angle, 72°; cubic inches, 96. (Crania Americana, pl. 22, p. 166.)

Skull of Yamasi (?) Indian of Florida: Man 50 years old.

SALISHAN STOCK.

Skull of Indian of the Klatsoni tribe of Oregon: Man 50 years old. Facial angle, 70°; cubic inches, 75. Artificially compressed. (Crania Americana, pl. 44, p. 210).

Skull of Nass Indian of Fort Simpson, Washington Territory.

SHOSHONEAN STOCK.

Skull of Shoshone Indian; Woman 40 years old. Cubic inches, 72.

SIOUAN STOCK.

Skull of Assinaboine Indian of Missouri: Woman 20 years old. Cubic inches, 85.

Skull of Aubsaroke or Crow Indian: Woman 40 years old. Cubic inches, 95 (1845).

Skull of Dacota or Sioux Indian of Wisconsin: Man 20 years old.

Skull of Mandan Indian of the Upper Missouri: Man 40 years old. Cubic inches, 91.

Skull of Minnetare or Gros-Ventre Indian of the Missouri: Man 40 years old. Cubic inches, 94.

Skull of an Otoe warrior of the Upper Missouri: 50 years old. Cubic inches, 83.

Skull of a Winnebago warrior: Facial angle, 79°; cubic inches, 92.

UNIDENTIFIED.

Skull of Indian, found in a tomb at Steubenville, Ohio.

Skull of Indian, found in a tomb at Steubenville, Ohio: Man 60 years old. Facial angle, 77°.

Skull of Indian, found in a tomb at Steubenville, Ohio: Facial angle, 79°.

Skull of Indian, found in a tomb at Steubenville, Ohio.

Skull of Indian, found in a mound about 3 miles from the mouth of Huron River, Ohio: Woman 60 years old.

Skull of Indian, found in a mound at Chillicothe, Ohio: Man 60 years old. 1846.

Skull of Indian, found in a mound in Butler County, Ohio.

Skull of Indian, found in an ancient mound in Illinois: Man 70 years old. Cubic inches, 80.

Crania Americana, or a Comparative View of the Skulls of Various Aboriginal Nations of the North and South of America, by Samuel George Morton, M. D.; 296 pages, 4to. 72 plates. Philadelphia, 1839.

Catalogue of the Collection of Human Skulls in the Academy of Natural Sciences of Philadelphia, by J. Aitken Meigs, M. D. 112 pages. Philadelphia, 1875.

# AMERICAN MEDALS, PAPER MONEY, AND WORKS ON AMERICAN COINS AND PAPER CURRENCY, EXHIBITED BY THE NUMISMATIC AND ANTIQUARIAN SOCIETY OF PHILADELPHIA.

STEWART CULIN, Recording Secretary of the Society.

Fifty medals of Gen. George Washington.

Fifty medals of eminent Americans.

Fourteen medals of the War of the Revolution and the Independence of America.

Forty American medals, religious, political, and miscellaneous.

Collection of paper money, 220 specimens (1800 to 1863).

This paper money was issued by the State and private banks and commercial houses, from 1800 to 1863, before the creation of the national banks and the currency of the national paper.

Collection of the fractional currency of the United States. Fifty specimens (1862 to 1876).

By act of Congress, in 1862, the issue of paper money of less value than $1 was authorized, of which a total amount of $368,720,079.51 was issued from 1862 to 1876, in five series. Of this amount $6,903,462.62 remained in circulation on the 30th of June, 1892.

## PUBLICATIONS OF THE NUMISMATIC AND ANTIQUARIAN SOCIETY OF PHILADELPHIA.

1. Constitution and By-Laws, 1870.
2. The Falsification of Antique Coins. By H. K. Harzfeld, 1879.
3. Presentation of a Silver Medal to Hon. Eli K. Price, president, 1879.
4. The Remains of an Aboriginal Encampment at Rehoboth, Delaware. By Francis Jordan, jr., 1880.
5. Some Modern Monetary Questions, Viewed by the Light of Antiquity. By Robert Noxon Toppan, 1881.
6. The Books of Chilan Balan. By Daniel G. Brinton.
7. Act and Bull.
8. William Penn's Landing in Pennsylvania, 1881.
9. Old and New Style Fixed Date Calendars. By John R. Baker, 1881.
10. Proceedings in Celebration of the Twenty-Fifth Anniversary of its Foundation, 1883.
11. Constitution and By-Laws, 1883.
12. Report of the proceedings of the society for 1865.
13. Report of the proceedings of the society for 1878, 1879.
14. Report of the proceedings of the society for 1880.
15. Report of the proceedings of the society for 1881.
16. Report of the proceedings of the society for 1882.
17. Report of the proceedings of the society for 1883.
18. Report of the proceedings of the society for 1884.

19. Report of the proceedings of the society for 1885.
20. Report of the proceedings of the society for 1886.
21. Report of the proceedings of the society for 1887–88–89.
22. Report of the proceedings of the society for 1890–91.
23. A collection of books and pamphlets relating to American coins and paper money.

## WORKS OF STEWART CULIN ON THE CHINESE IN THE UNITED STATES OF AMERICA.

I. The Religious Ceremonies of the Chinese in the Eastern Cities of the United States. Philadelphia, 1887.
II. China in America. Study on the social life of the Chinese in the United States. Philadelphia, 1887.
III. The Practice of Medicine by the Chinese in America. Philadelphia, 1887.
IV. Chinese Drug Stores in America. 1887.
V. Chinese Games with Dice. Philadelphia, 1889.
VI. The "I Hing," or Patriotic Rising. Philadelphia, 1890.
VII. Chinese Secret Societies in the United States. 1890.
VIII. Customs of the Chinese in America. 1890.
IX. The Gambling Games of the Chinese in America. Philadelphia, 1891.

# AMERICAN MEDALS, PAPER MONEY, AND BOOKS CONCERNING THE CURRENCY AND MANUFACTURE OF AMERICAN MONEY, EXHIBITED BY THE NUMISMATIC AND ANTIQUARIAN SOCIETY OF PHILADELPHIA.

By STEWART CULIN, Recording Secretary of the Society.

Fifty medals of Gen. George Washington.

Fifty medals of eminent Americans.

Fourteen medals of the War of the Revolution and of the Independence of America.

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## PUBLICATIONS OF THE NUMISMATIC AND ANTIQUARIAN SOCIETY OF PHILADELPHIA.

1. Constitution, 1870.
2. The Counterfeiting of the Ancient Dice. By H. K. Harzfeld, 1879.
3. Presentation of a Silver Medal to Hon. Eli K. Price, president, 1879.
4. The Ruins of a Primitive Encampment of Rehoboth, Delaware. By Francis J. Jordan, 1880.
5. The Modern Monetary Questions, Viewed in the Light of Antiquity. By Robert Noxon Toppan, 1881.
6. The Books of Chilan Balan. By Daniel G. Brinton.
7. Proceedings.
8. William Penn's Sand-Glass in Pennsylvania, 1881.
9. Ancient and Modern Calendars. By John R. Baker, 1881.
10. Memorial of the Twenty-Fifth Anniversary of its Foundation, 1883.
11. Legal Constitution, 1883.
12. Account of the labors of the society in the year 1865.
13. Account of the labors of the society in 1878, 1879.
14. Account of the labors of the society in 1880.
15. Account of the labors of the society in 1881.
16. Account of the labors of the society in 1882.
17. Account of the labors of the society in 1883.
18. Account of the labors of the society in 1884.

19. Account of the labors of the society in 1885.
20. Account of the labors of the society in 1886.
21. Account of the labors of the society in 1887–88–89.
22. Account of the labors of the society in 1890–91.
23. A collection of books and pamphlets relative to the currency of American paper money and of the coined money.

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III. The Practice of Medicine by the Chinese in America. Philadelphia, 1887.
IV. Chinese Drug Stores in America. 1887.
V. Chinese Games of Dice. Philadelphia, 1889.
VI. The "I Hing," or Patriotic Rising. Philadelphia, 1890.
VII. Secret Chinese Sanctuaries in the United States. 1890.
VIII. Dresses of the Chinese in America. 1890.
IX. The Gambling Games of the Chinese in America. Philadelphia, 1891.

# EXHIBIT OF THE UNITED STATES MINT.

One hundred and twenty-one medals, coined by the mint in honor of the Presidents of the United States, including the originals of the medals presented to the Indian chiefs by the Presidents; together with the originals of the medals voted by resolutions of Congress to officers of the Army and Navy for distinguished conduct, and to citizens for eminent services, and the medals coined in commemoration of national events, and the medals of the directors and superintendents of the mint.

The following coins of the American colonies, medals of the United States, and paper money of the colonies and of the continental era, are from the United States National Museum:

Sixty-eight coins of the British colonies of Asia and of the time of the Revolution of the United States.

Ninety-seven medals of Gen. George Washington.

Seventeen medals of eminent Americans.

Sixty-seven medals of the war of the revolution and of the independence of America.

(*a*) *Paper money of the British colonies of America and of the American States.*

Paper money of Massachusetts: Four notes (1780).

Paper money of New Jersey: Nineteen notes (1756–1776).

Paper money of New York: Eight notes (1771–1775–1776).

Paper money of Delaware: Eight notes (1776).

Paper money of Pennsylvania: Twenty-five notes (1775–1776).

Paper money of Pennsylvania: Fifteen notes (1777).

Paper money of Pennsylvania: Nineteen notes (1760–1773).

Paper money of Maryland: Twenty-two notes (1775–1776).

Paper money of Rhode Island: Nineteen notes (1780–1786).

Paper money of Maryland: Twelve notes (1767–1770–1774).

Paper money of North Carolina: Twenty-three notes (1776–1779).

Paper money of North Carolina: Eight notes (1780).

Paper money of South Carolina: Twelve notes (1775–1779).

Paper money issued by resolution of the Continental Congress: Twenty-four notes (1775–1776).

Paper money of Georgia: Eight notes (1776–1777).

Paper money of Virginia: Nine notes (1775–1781).

Paper money of Georgia: Twenty-three notes (1776–1777).

Paper money issued by resolution of the Continental Congress: Twenty-four notes (1778–1779).

## EXHIBIT OF THE UNITED STATES BUREAU OF ENGRAVING AND PRINTING.

EXAMPLES OF BONDS AND NOTES ISSUED BY THE UNITED STATES.

(*a*) *Legal value of the notes.*

One dollar.
Two dollars.
Five dollars.
Ten dollars.
Twenty dollars.
Fifty dollars.
One hundred dollars.
Five hundred dollars.
One thousand dollars.
Five thousand dollars.
Ten thousand dollars.

In 1862 the United States Government began the issue of paper money with provisional notes, and declared them a legal tender in payment of all public and private debts except customs duties and interest on the national debt.

(*b*) *Treasury notes of 1890.*

One dollar.
Two dollars.
Five dollars.
Ten dollars.
Twenty dollars.

The issue of this paper money began in 1890, and it is redeemed in gold or silver coin, at the discretion of the Treasurer of the United States.

(*c*) *National-bank notes.*

Five dollars.
Ten dollars.
Twenty dollars.
Fifty dollars
One hundred dollars.

(*d*) *National-bank notes.*

Five dollars.
Ten dollars.
Twenty dollars.
Fifty dollars.
One hundred dollars.

The national banks were authorized to issue paper money by act of Congress in 1863. The national banks, before issuing paper money, must deposit in the coffers of the United States Treasury a sum equal to the issue.

(*e*) *Silver certificates, issue of 1878.*

One dollar.
Two dollars.
Five dollars.
Ten dollars.
Twenty dollars.

The issue of silver certificates began in 1878. This paper money is guaranteed by the silver coin deposited in the United States Treasury.

(*f*) *Silver certificates, series of 1881.*

One dollar.
Two dollars.
Five dollars.
Ten dollars.
Twenty dollars.
Fifty dollars.
One hundred dollars.
One thousand dollars.

*(g) Gold certificates.*

Twenty dollars.
Fifty dollars.
One hundred dollars.
Five hundred dollars.
One thousand dollars.
Five thousand dollars.
Ten thousand dollars.

The issue of gold certificates began in 1863. This paper money is guaranteed by the coined gold deposited in the United States Treasury.

*(h) 4 per cent bonds of 1907.*

Fifty dollars.
One hundred dollars.
Five hundred dollars.
One thousand dollars.
Five thousand dollars.
Ten thousand dollars.
Twenty thousand dollars.
Fifty thousand dollars.

The bonds bearing interest at 4 per cent per annum, redeemable July 1, 1907, were issued by act of Congress of July 14, 1870.

*(i) 3 per cent bonds of 1882.*

Fifty dollars.
One hundred dollars.
Five hundred dollars.
One thousand dollars.
Ten thousand dollars.

The bonds bearing interest at 5 per cent, issued from 1865 to 1868, were, by act of Congress of July 12, 1882, converted into 3 per cent bonds, which were redeemed prior to 1888.

*(j) 4½ per cent bonds of 1891.*

Fifty dollars.
One hundred dollars.
Five hundred dollars.
One thousand dollars.
Five thousand dollars.
Ten thousand dollars.
Twenty thousand dollars.
Fifty thousand dollars.

The coupon bonds bearing interest at 4½ per cent per annum were issued by act of Congress of July 14, 1870. When these bonds fell due, in September, 1891, they were converted into 2 per cent bonds or paid, at the option of the holder.

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## EXHIBIT OF THE UNITED STATES POST-OFFICE DEPARTMENT.

UNITED STATES POSTAGE STAMPS.

Stamps: 1847–1890.
Stamped-letter envelopes.
Envelope for certified and stamped packages.
Wrappers for periodicals.
Centennial envelope, 1876.
Stamps for periodicals and magazines.
Ordinary stamp.
Special-delivery stamps.
Postal cards.
Official stamps.
Stamped official envelopes.
Envelope for official documents.
Stamped envelopes.

# REPORT OF WM. E. CURTIS, ASSISTANT TO COMMISSIONER GENERAL, IN CHARGE OF THE HISTORICAL SECTION, EXHIBIT OF THE UNITED STATES AT THE COLUMBIAN HISTORICAL EXPOSITION, MADRID, SPAIN, 1892.

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WASHINGTON, D. C., *April 5, 1893.*

SIR: I have the honor to hand you herewith my report as your assistant in charge of the historical section of the exhibit of the United States at the Columbian Historical Exposition at Madrid, Spain, 1892–93.

The delay of Congress in authorizing the participation of the United States in the Spanish celebration of the Columbian anniversary, and in making an appropriation to defray the necessary expense, left no time to prepare a historical exhibit suitable to the importance of the Exposition and the event it was intended to commemorate. This is much to be regretted for many reasons.

There is in existence much historical material concerning the early voyages to and the exploration and settlement of the United States by Spanish soldiers, sailors, colonists, and missionaries that has never been assembled or described, and which will undoubtedly disappear unless some steps are taken to collect and preserve it. Some of it is for sale; more could be obtained as permanent loans or gifts if the owners were properly approached and adequate assurances could be given of its protection and preservation. There is no association in existence, so far as I have been able to ascertain, whose motive is the collection and preservation of Spanish remains in North America, although there is no more interesting or attractive field for the student and collector. The Southern and Southwestern States and Territories, which were once a portion of the Spanish domain—particularly New Mexico, Arizona, and California—still shelter many interesting relics of Spanish occupation, and could have contributed a large number of valuable objects to a historical collection at Madrid had there been time and means to secure them for the United States exhibit. Such collections are brought together much more easily by public authority, and upon some similar occasion, when the attention of those interested can be concentrated, than by the slow and patient search of the curators of our museums; and so favorable an opportunity for gathering the relics of the Spanish epoch in the history of the United States may never again occur.

Fortunately, however, as chief of the Latin-American department of the Chicago Columbian Exposition, I had for two years been engaged in collecting material for a historic exhibit there, with the inspiring sympathy and cooperation of the late James G. Blaine, then Secretary of State. The subject had for him more than ordinary interest, and he gave me much valuable advice and assistance.

The funds to meet the expense were furnished from the allotment of the Department of State of the appropriation made by Congress for the board of management and control of the United States Government exhibit at Chicago, and the work was done under the direction and subject to the approval of that body. Additional funds were furnished by the board of directors of the World's Columbian Exposition. They provided the means for Mr. Frederick A. Ober, one of my assistants, to follow the course of Columbus among the Bahama and the West India Islands and visit all the scenes with which the great discoverer was identified in America, and also for the survey and investigation by the same gentleman of the ruins of the first three towns established in the New World, where many relics of value and interest were obtained.

This collection, so far as it was completed or could be made available, was hastily packed and shipped to Madrid, where it added something to the importance of the United States exhibit and received considerable attention, particularly from historical students and those engaged in scientific study.

It is a singular fact that, although the Exposition at Madrid was intended to be exclusively historical, and to commemorate the discovery of America by Christopher Columbus by a nation whose greatest glory is in his achievments, both the man and the event were practically ignored by Spain, and all the other nations participating, with the exception of the United States. The building was crowded with a magnificent and remarkable display of articles illustrating the art, the industry, the piety, the martial conquests, and the luxury of the reign of Ferdinand and Isabella, the golden age of Spain. The archives of the Government, the museums and libraries, the cathedrals, churches, and monasteries, the public and private palaces of the Peninsula were stripped of their treasures to form an exhibition that was never surpassed in the extent and value of its historical features; but the only articles contributed by Spain that related directly or indirectly to Christopher Columbus were the following:

(1) An autograph letter from Juan Colona, the notarial secretary of Ferdinand and Isabella, to Friar Boil, the priest who accompanied Columbus upon his second voyage. Exhibited by the Royal Academy of History.

(2) A certified copy, made in 1545, of the will of Diego Colon, the son of the discoverer, dated September 8, 1523, with a codicil dated May, 1526. Exhibited by Don Ignacio de Alcazar Castañeda.

(3) A copy of the letter written to the Catholic sovereigns by Columbus after his wreck on the coast of Jamaica in 1503. Exhibited by the Queen Regent.

(4) The original of a memorial addressed by Don Luis Colon, the grandson of the discoverer, to the Licenciado Prado, treasurer of their majesties, demanding the rights to which he was entitled under the contract made with the Catholic sovereigns by his grandfather. Exhibited by the Queen Regent.

There were also several medals struck in Spain and elsewhere from time to time commemorating the discovery of America.

In the Papal exhibit was a facsimile of an autographic letter from Alexander VI, Pontiff, dated at Rome, May 3, 1493, congratulating Ferdinand and Isabella upon the triumphant return of Columbus and invoking for them the divine blessing.

There was also a facsimile of the famous Bull of Demarcation by which the same Pope, upon the same date, divided the world between the Spaniards and the Portuguese.

Also a facsimile of a communication from Pope Alexander VI, dated June 25, 1493, to Friar Bernardo Boil, the first missionary to the New World, who accompanied Columbus on his second voyage.

Also a facsimile of a letter from Pope Julius II, dated at Rome, April 10, 1507, commending Bartholemew, the brother, and Diego, the son, of Christopher Columbus, to King Ferdinand, then an exile in Naples or Sicily.

The Government of Santo Domingo exhibited a facsimile of a cross set up by Columbus in 1493 at Santo Cerro in token of his first victory over the Indians, and a number of photographs of that island, which was the scene of the first civilized settlement in the New World; and the Government of Guatemala exhibited two manuscripts which are claimed to be genuine autograph letters of Columbus, but which are only clever copies of the originals, to Nicolo Oderigo and the directors of the Bank of St. George, preserved in the municipal palace at Genoa.

Spain is rich in precious manuscripts. In the archives of the Indies, and the Colombina Library at Seville; in the collection of the Duke of Veragua, the Duke of Alva, and the Royal Historical Society at Madrid are the most valuable and interesting historical documents in the world, while scattered through the Kingdom are private collections relating to the discovery and the conquest of America that are both unique and extensive. But for some reason none of them were exposed at the Columbian Historical Exposition, and it was noticeable that during all the festivities that attended the celebration of the anniversary the descendants of Columbus were conspicuous by their absence.

It was, therefore, as opportune as it was appropriate that a considerable portion of the space allotted to the United States should be occupied by objects illustrating the life and achievements of Christopher Columbus, and it was not unnatural that they should attract more than ordinary attention.

The collection was necessarily incomplete and unsymmetrical. It contained only such articles as had been made ready in July, 1892, for an Exposition that was to open in May, 1893; but it was sufficient to convey an adequate idea of the broad plan of which it was a part, and to indicate the purpose it was designed to accomplish. It was installed under my direction in two large and well-lighted rooms on the main floor at the right of the main entrance to the Bibliotheca National, the handsome and permanent building occupied by the Exposition. The rooms opened upon the principal patio of the building, which was beautifully embellished by plants and flowers.

Her Majesty the Queen Regent graciously asked a private view of the exhibit before the public opening of the Exposition, and made several appropriate suggestions as to its rearrangement, which were adopted.

The Iconografia Colombina, as it was designated in the official catalogue, was divided into four parts, as follows:

I. The portraits of Columbus and his descendants, and the monuments erected in his honor.

II. Places identified with the life history of Columbus.

III. Pictures illustrative of the manner in which America received its name.

IV. Remains of Spanish occupation in the United States.

## THE PORTRAITS OF COLUMBUS.

The portraits of Columbus, which were 77 in number, included the originals or copies of all that had been painted or published of any historical interest or artistic value up to the 1st of January, 1892. It was the first time any attempt had been made to assemble the various types and ideals, although partial and incomplete collections exist in several of the European and American libraries and galleries. In securing these pictures I received valuable assistance from Lieut. W. McCarty Little, United States Navy; Frank H. Mason, United States consul-general at Frankfort-on-the-Main; Henry Vignaud, secretary of legation, Paris; Remsen Whitehouse, secretary of legation, Rome; Col. F. D. Grant, United States minister, Vienna; B. F. Stevens, United States dispatch agent, London; Mr. Howell, the librarian of the British Museum; Hayden Edwards, United States consul-general, Berlin; Cav. Guiseppi Baldi, and James Fletcher, United States consul, Genoa; Nestor Ponce de Leon and Benjamin Betts, New York; Edward M. Barton, Worcester, Mass.; Prof. Halsey C. Ives, St. Louis, and from James W. Ellsworth, of Chicago, who generously furnished the funds to purchase the Lotto portrait, which was too valuable to be paid for from the slender appropriation allowed for the work. I am also under obligations to the Eastman Company, of Rochester, N. Y., for the excellence of the mechanical enlargements that were made at their establishment.

None of the portraits were collected or exhibited as works of art. They were presented solely for their historical interest, and to furnish a complete exhibit of the varied conceptions which artists in all countries, for four hundred years, have had of the appearance of the genius who discovered America. Nor were any of the portraits offered as authentic. It was distinctly stated in the catalogue of the collection that there was no evidence that the features of Columbus were ever painted or engraved by anyone during his life, and that the date of the earliest picture that pretended to represent him was six years later than his death. The most reliable authorities (and the subject has been under discussion for two centuries) agree in this opinion, and although the whole world was carefully searched in making this collection, the investigation only confirmed the belief that all are apocryphal. His portrait has been painted, like that of the Madonna and those of the saints, by many famous artists, each dependent upon the verbal descriptions given of the man by contemporaneous writers, and each conveying to the canvas his own conception of what the great seaman's face must have been; but it may not be said that any of the portraits are genuine, and it is believed that all of them are more or less fanciful.

Five contemporaneous writers, who knew him, sympathized with him, and were intimately associated with his career, have left us descriptions of his features and his person.

His son, Fernando, says:

> The Admiral was a well-made man, of a height above the medium, with a long face, and cheek bones somewhat prominent; neither too fat nor too lean. He had an aquiline nose, light-colored eyes, and a ruddy complexion. In his youth he had been fair, and his hair was of a light color, but after he was 30 years old it turned white. In eating and drinking he was an example of sobriety, as well as simple and modest about his person.

Gonzales Fernandez de Oviedo y Valdez witnessed the triumph of the discoverer at Barcelona, was present at several of his receptions, and at his interviews with the Queen. "Columbus," he writes, "was a man of honest parentage and sober life. He had a noble bearing, good looks, and a height above the medium, which was well carried. He had sharp eyes, and the other parts of his visage were well proportioned. His hair was a bright red, his complexion flushed and marked with freckles. His language was easy, prudent, showing a great genius, and he was gracious in manner."

Andres Bernaldez, who was known as "the good curate of Los Palacios," and at whose house at Grenada Columbus made his home for months at a time, wrote the Historia de los Reyes Catolicos, and gave a description of the person of the admiral. "Columbus," he said, "was a man of fine stature, strong of limb, with an elongated visage, fresh and ruddy of complexion, marked with freckles. He had a noble bearing, was dignified of speech, and bore a kindly manner."

Peter Martyr, or Petrus Martyris Anglerius, afterward secretary to Charles V, described the admiral in similar terms.

Fray Bartholome de Las Casas was also an intimate friend of Columbus. From him, also, we know that Columbus had red hair and freckles, keen gray eyes and aquiline nose, a large mouth and a sad expression of countenance, which was the result of much mental suffering. From him we know, too, that he was unusually reticent, but spoke with great fervor and fluency when so inclined. He describes him, too, as a lover of justice, but quick in anger when there was reason for it.



THE LA COSA.

These verbal portraits do not coincide with many of the pictures which bear the name of Columbus, and most of them were doubtless painted without a knowledge of what had been written of his appearance. The only portrait which is positively known to have been drawn during the life of the discoverer was a caricature, the sketch of La Cosa, the pilot.

No. 1. THE LA COSA VIGNETTE.

Juan de la Cosa was the pilot of Columbus, and made the first chart of the West Indies. It was drawn upon an oxhide, and is inscribed: "Juan de la Cosa la Fijo en el Puerto de St. Maria en ano de 1500." At the top, in the center, is a rude vignette, drawn with an ordinary pen and an awkward hand, representing St. Christopher bearing the Christ child across a stream, and meant to be symbolical of Columbus carrying Christianity to the New World. It was one of the legends of the day that La Cosa intended to give St. Christopher the features of Columbus. Baron von Humboldt, who had heard of the chart, found it in Paris, in 1832, in the library of Herr Walcknaer, from whom it was purchased by the Spanish Government, and it now hangs in the Naval Museum at Madrid



THE CAPRIOLO.
See page 222.

The several pictures which are intended to represent the real or the ideal Columbus may be grouped into four classes, as follows:

(1) Those of the Giovio type—either copies of the portrait which hung in the gallery of the archbishop of Como, or drawn from verbal descriptions given of the Admiral by his contemporaries, upon which that was undoubtedly based.

(2) The De Bry type, representing Columbus as a Dutchman.

(3) The portraits with beards and costumes of the century subsequent to his death.

(4) The fanciful pictures without pretense to authenticity.



THE GIOVIO.

No. 2. THE GIOVIO PORTRAIT, FROM AN OLD ENGRAVING (plate 1).

Paulus Jovius, or Paolo Giovio, as the name is given in Italian, was the archbishop of Nocera. He was a man of wealth, and of literary and artistic tastes. He was 23 years old when Columbus died. On the banks of Lake Como he erected a magnificent palace, which is said to have occupied the exact site of Pliny's villa. Attached to his palace was a gallery, in which hung the most famous private art collection of that age. It was particularly rich in portraits, and as Giovio was an ardent admirer of Columbus, a portrait of the latter hung in a conspicuous place. Fueillet de Conches, a learned modern French writer, says there were two portraits of Columbus in the collection, but an Italian author named Ticozzi, who described it in eight large volumes, published in 1546, mentions only one. The collection was subsequently described by Vasari in his Lives of the Painters, published at Florence in 1568. He alludes to but one portrait of Columbus, and accepts it as genuine, but does not name the artist, or give the time when or place where it was painted.



THE FLORENTINE.
See page 222.

It is known that in 1552 Cosmo di Medici and the Princess Hippolyti Gonzaga sent Cristofano dell Altissimo and Bernadino Campo, both competent artists, to Como, to copy the portrait of Columbus; and that in 1550 Ferdinand I of Austria did the same. About 1613 the collection of Giovio was divided among his descendants, and the pictures were widely scattered. It is impossible to trace them at this day, but five of the existing portraits of Columbus are claimed to have been the original of the archbishop's gallery. Circumstantial evidence is presented in support of each; but if the Giovio portrait was so often copied as above stated, the origin of the several claimants is explained.




THE YANEZ.
See page 223.

The Giovio portrait was used to illustrate a eulogy upon Columbus originally written by Giovio in 1549, under the title of "Elogia Virorum Bellica Virtute Illustrium," but the illustration did not appear until the second edition, which was published at Basle, 1575. According to De Conchas, this edition contained some very bad woodcuts by an engraver named Perna, and Ginguere, in his Biographie Universelle, says they were neither accurate nor well executed. The edition of 1578 contained similar portraits, engraved on wood by Tobias Stimmer, who was born at Schaffhausen in 1534. The same portrait of Columbus was described by Theobold Muller in True and Memorable Engravings or Pictures of Well Deserved and Famous Warriors, published at Basle, 1577, and also in Michel Beuther's Pictures of Famous Emperors, Kings, and Nobles, published at Basle in 1582.

No. 3. THE CAPRIOLO PORTRAIT (page 220).

This was engraved from the Giovian portrait, by Aliprando Capriolo, for the Ritratti dedi Cento Capitani Illustri, published at Rome in 1596, and was reproduced by Carderera and Navarette in their celebrated works on Columbus, as well as by many authors who accepted it as genuine. It closely resembles the engravings in Giovio's Elogia, but is considered a more accurate and artistic piece of work.



THE COGOLETO.
See page 224

No. 4. THE CRISPIN DE PAZ PORTRAIT (plate II).

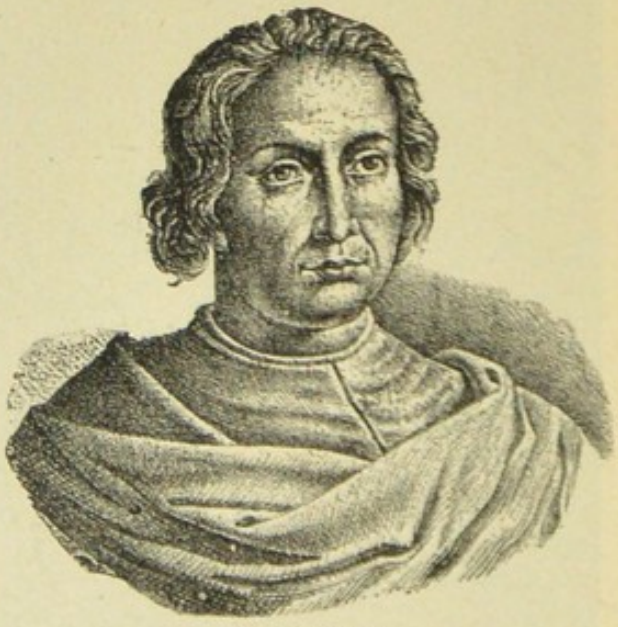
The portrait that hung in the luxurious palace of the archbishop of Nocera on the banks of Lake Como was engraved for another work, Effegies Regnum et Principium, Cologne, 1598, by Crispin de Paz, or Crispin de Passe, as the name is sometimes given, and as a work of art is considered to surpass both the woodcut in the Elogia of Giovio, and that of Capriolo. But the artist added a hood to the Franciscan frock, placed an octant in the hand, and hung a chain around the neck of Columbus. The appearance of the latter is explained by Carderera, on the ground that contemporary writers said he constantly wore over his monkish habit a chain of gold that was given him by Guacanagari, the cacique of Hispaniola.

A copy of the Giovian portrait, with the face reversed as it would appear in a mirror, was engraved for Peter von Opmeer's Opus Chronographicum, 1611.

No. 5. THE FLORENTINE PORTRAIT (page 221).

While a portrait that hangs in the Uffizi Gallery, at Florence, is claimed by some writers to have been the original Giovio, there seems to be indisputable evidence that it is a copy of that work, painted about the middle of the sixteenth century by Christofano dell Altissimo, at the order of Cosmo di Medici. It is painted on a panel of wood, and is considered an admirable work of art.

When Thomas Jefferson was minister to France, in 1784, he engaged an artist to copy "what was considered by the most competent critics to be the best authenticated likeness of Columbus." The Altissimo picture was selected, and the copy hung in Mr. Jefferson's library at Monticello until the settlement of his estate. It then passed into the hands of Mr. Israel Thorndike, who presented it to the Massachusetts Historical Society, Boston, November 26, 1835. Mr. Jefferson wrote of this portrait as follows:



THE NAVARETTE.
See page 226.

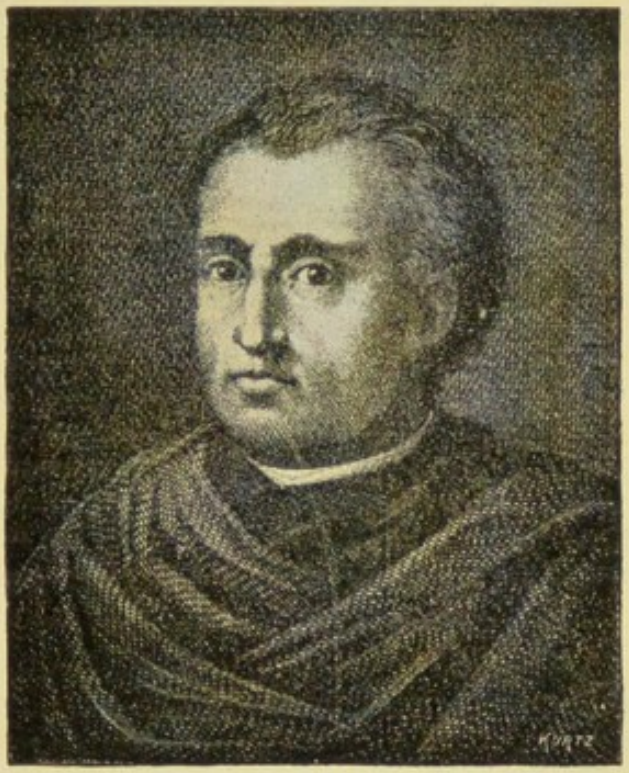
"The Columbus was taken for me from the original, which is in the gallery of Florence. I say from the original, because that it is well known that in collections of any note—and that of Florence is the first in the world—no copy is ever admitted, and an original existing in Genoa would be readily obtained for a royal collection in Florence. Vasari names this portrait, but does not say by whom it is made."




THE CRISPIN DE PAZ.

No. 6. THE YANEZ PORTRAIT (page 221).

In 1763 the Spanish Government purchased from Señor N. Yanez, of Grenada, four portraits—those of Columbus, Lope, Cortez, and Quevedo—all claiming to be genuine. The portrait of Columbus was placed in the National Library, and was recognized by all critics as bearing a close resemblance to that by Altissimo, at Florence. Artists who gave it close study were satisfied that it had been tampered with, and obtained permission to make an examination. On the upper margin of the canvas were the words "Christof Columbus novi orbis inventor." When subjected to a chemical test this inscription disappeared, and another was found beneath it which read, "Columb Lygur novi orbis reptor." Further investigation demonstrated that the original had been repainted, and by some inferior artist; and upon the further application of chemicals the flowing robe with a heavy fur collar, "more befitting a Muscovite than a mariner," as the investigators said, vanished, leaving a simple garb such as Columbus usually wore, a closely fitting tunic and a mantle folded across the breast. The lines of the face were also changed and a new expression was disclosed.



THE CANCELLIERA.
See page 226.

Carderera believes this to be a copy of the Giovio portrait, also painted in Italy, perhaps that made by order of Cosmo di Medici, in 1552, or that made for the Princess Hippolyte. It is of the same size as the Altissimo portrait at Florence, and is painted upon poplar wood, which was not used in Spain, although common in Italy. The style is that of the Florentine school of the middle of the sixteenth century, and the horizontal plaiting of the toga was in fashion at that date. Its age is about the same as that of the Altissimo picture, and the portraits of Cortez, Lope, and Quevedo, which were found with it, are painted on poplar panels of the same size, with the same materials, and evidently by the same hand. De Conches pronounces it the most ancient portrait of Columbus that exists, and Señor Rios y Rios, a good Spanish authority, maintains with considerable circumstantial evidence that the Yanez is the long-lost and much-desired original of the Giovian collection. Señor Montojo, of Madrid, insists that it formerly belonged to the Council of the Indies at Seville, and was probably painted by an artist named Ibanez.



THE BELVEDERE.
See page 227.

A copy of this portrait, by M. Hernandez, was secured by Gen. Lucius Fairchild when minister to Spain, and presented to the Historical Society of Wisconsin. It hangs in the capitol at Madison. There is also a copy in the collection of Dr. E. M. Hale, at Chicago.



THE CEVASCO.
See page 227.

No. 7. THE MARINE PORTRAIT. ORIGINAL IN THE MARINE MUSEUM, MADRID (plate III).

This is one of the most widely known and generally accepted portraits of Columbus, and has been used more than any other to illustrate biographies and volumes of history. It is given a conspicuous place in the Marine Museum at Madrid, and has been asserted to be a genuine portrait, painted in 1504 or 1505, at Seville, upon the return of Columbus from his fourth and last voyage, and shortly before his death. There is no testimony to sustain this claim, but there is very good evidence that it was painted during the present century, at the order of the ministry of marine, and that the artist used the Capriolo engraving as his model, taking the liberty to add age and signs of anxiety to the face of the Admiral.

A good copy was presented to Colby University, Maine, by the Honorable Hannibal Hamlin, while minister to Spain. It resembles the Caprioli very closely, except that the face is turned to the right instead of the left.

No. 8. THE RINCON PORTRAIT (plate IV).



THE BOSSI.
See page 227.

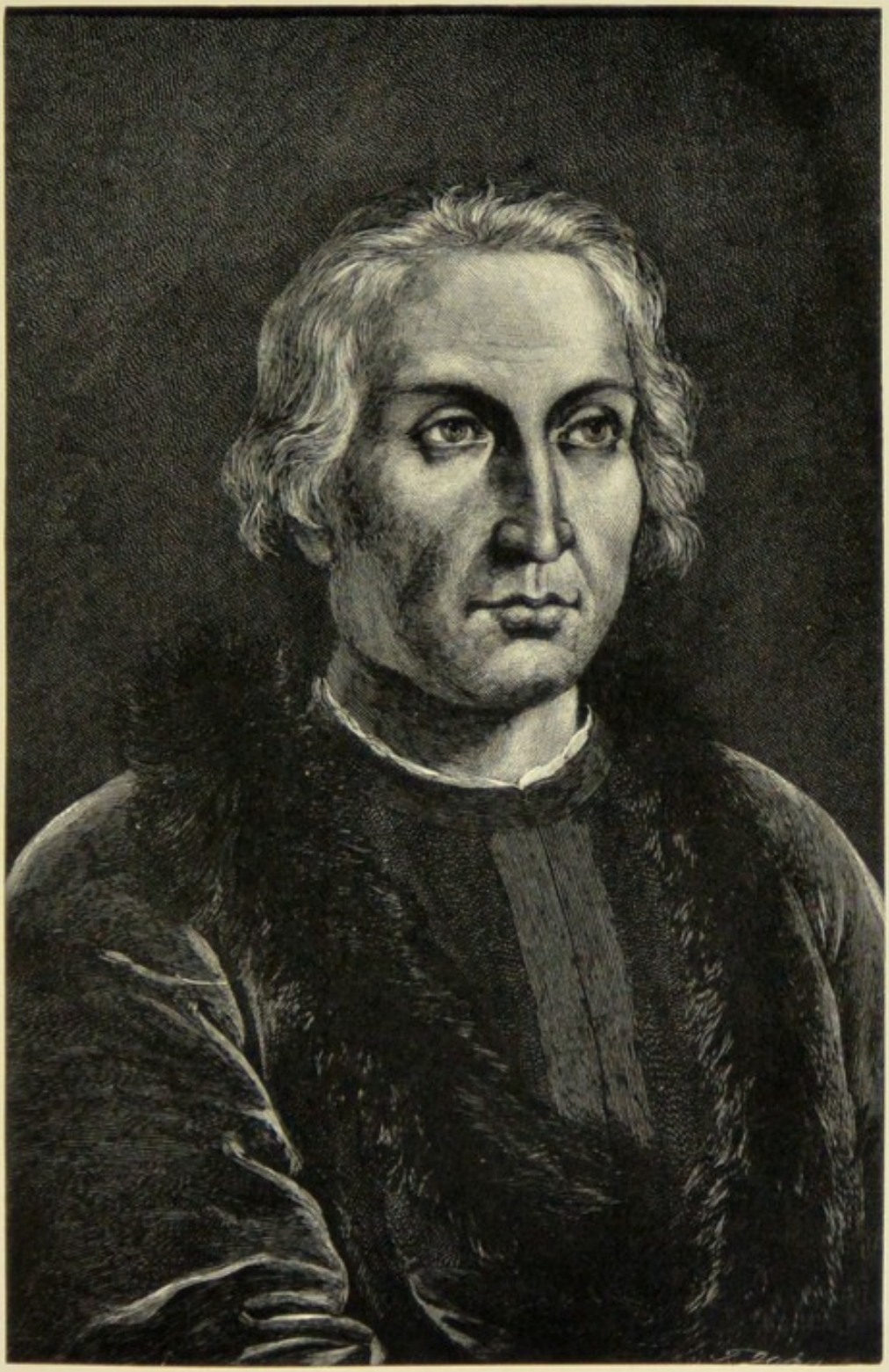
A portrait of Columbus which hangs in the private library of the Queen of Spain in the palace at Madrid is said to have been painted by Antonio del Rincon, upon the return of Columbus from his second voyage, although in the long list of the works of this famous artist there is no mention of this picture. Rincon was the founder of the Spanish school of portrait painting. He was made painter in ordinary to the court of Ferdinand and Isabella, who decorated him with the Order of Santiago in 1500. He was born at Guadalajara in 1446, and was therefore contemporary with Columbus. At the time of the latter's return from his first voyage, Rincon was engaged, under the orders of Cardinal Ximenes, in decorating the University of Alcala, and had every opportunity to paint his portrait had he desired to do so. He doubtless witnessed the triumphal reception of Columbus, and Sir William Stirling Maxwell, in his Annals of the Artists of Spain, says "he mingled with the great navigator in the courtly throngs of the presence chamber of Isabella."



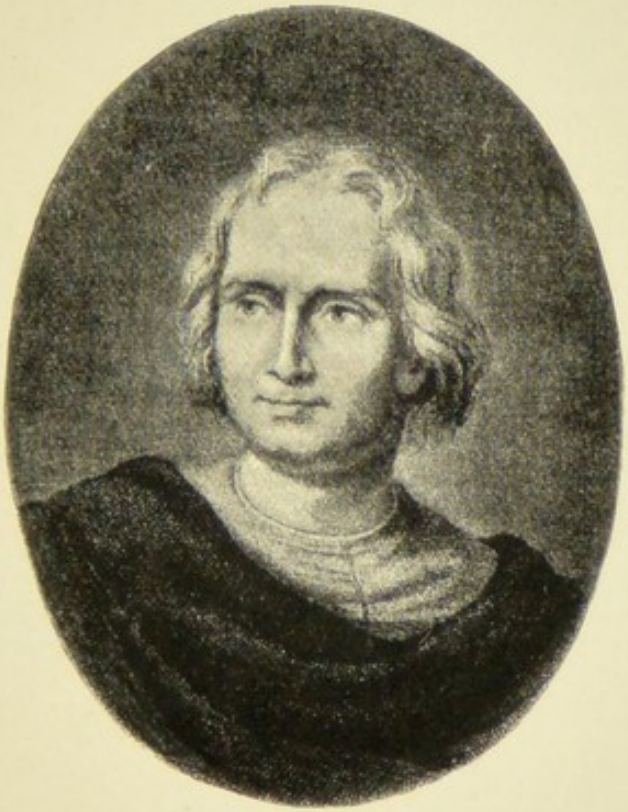
THE ARAMBURU.
See page 227.

No. 9. THE COGOLETO PORTRAIT (page 222).

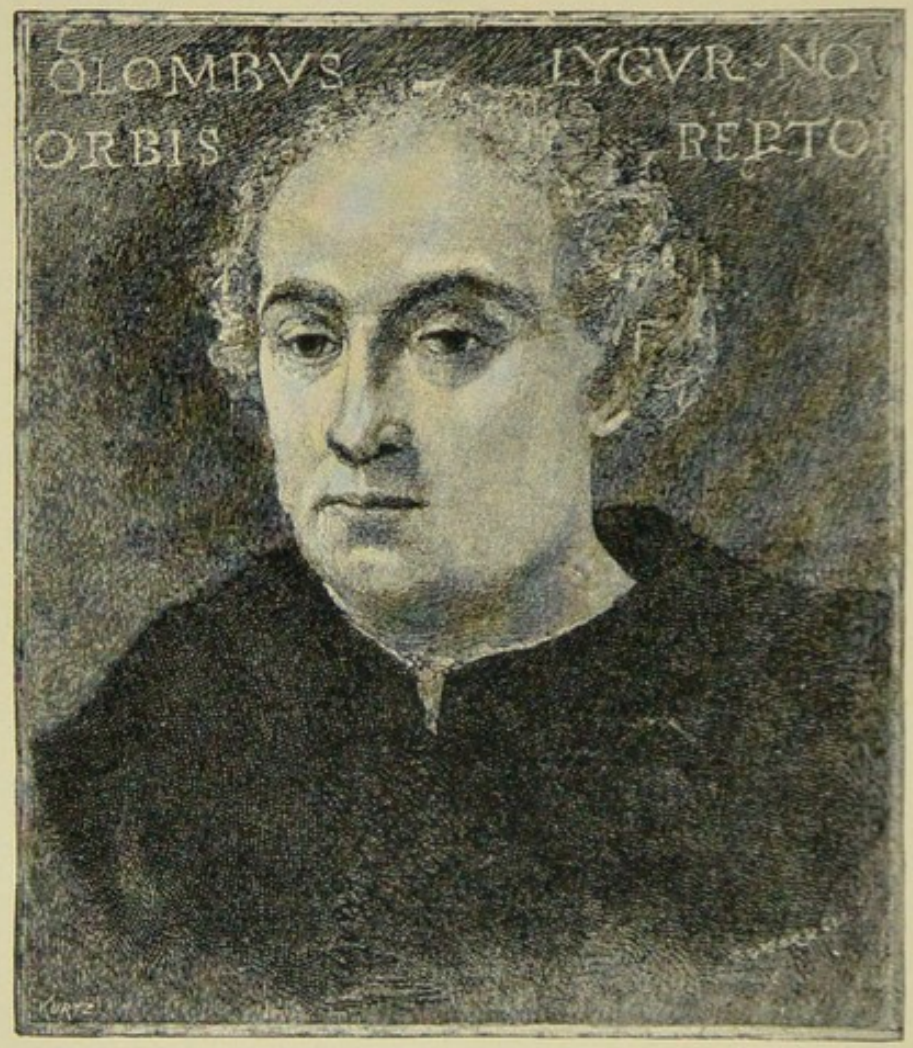
Cogoleto is a small town 15 miles from Genoa, which claims the honor of being the birthplace of Columbus. An old house on one of the principal streets bears a tablet to commemorate the fact, and visitors are shown the room in which the eyes that discovered America first opened to the light of day. The portrait, which bears no date or signature, hangs in the town hall. Its history can be traced back three centuries, and it, too, is asserted to be the original of the Giovian collection. The portrait bears a similar inscription to that of Dr. di Orchi at Como: "Christoforus Columbus novi orbis repertor," but the artist is unknown.



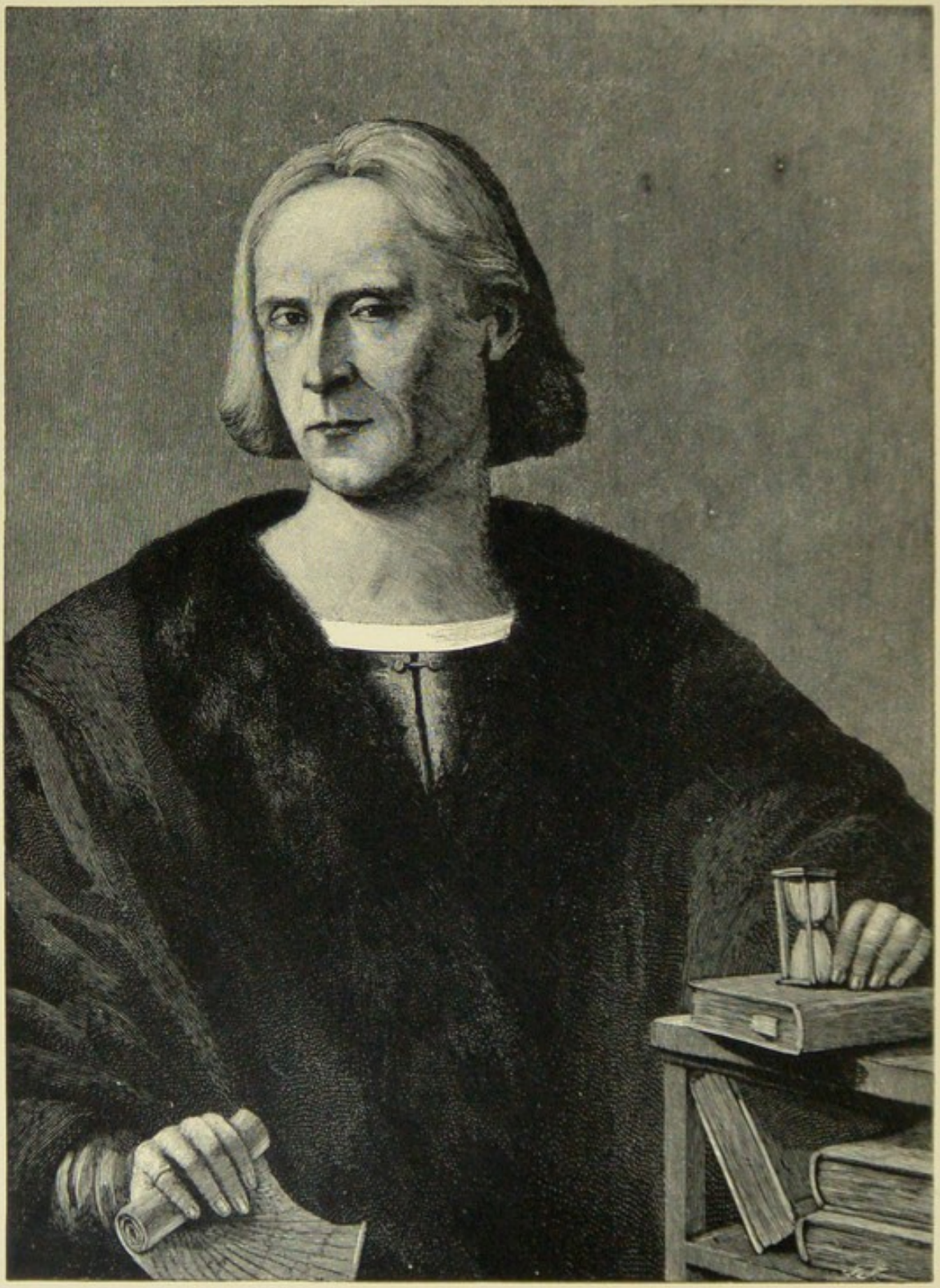
THE MARINE PORTRAIT.



THE RINCON.




THE DI ORCHI PORTRAIT.



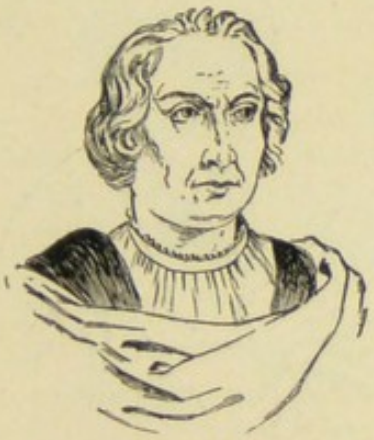
THE LORENZO LOTTO PORTRAIT.

No. 10. THE ORCHI PORTRAIT (plate v).

There is in possession of Dr. Alessandro di Orchi, of Como, Italy, a portrait bearing the inscription: "Columbus Lygur Novo Orbis Reptor," which is believed by many competent critics to be the original of the Giovian collection. According to Dr. di Orchi, the villa of Paolo Giovio was sold in 1600 to his nephew, Francisco Giovio, and thirteen years later the art collection was divided among the sons of the purchaser. Most of the pictures remained in the possession of the heirs of the eldest brother of the family, including the portrait of Columbus, and this was passed down, from father to son, until the last of the male line, Paolo Giovio, dying in 1849 without direct descendants, the picture of Columbus was inherited by his sister, Antonia Giovio, the wife of Dr. Alessandro di Orchi, its present owner. It has a striking resemblance to that in the museum in Florence. It bears no signature, but has been attributed to both Sebastian del Piombo and Bartolombo Suardo. Piombo could not have painted Columbus from life, as he was only 21 years old when the latter died, and at the date of the alleged visit of the great navigator to Rome he was 12 years of age and still living at Venice, where he was born in 1485. He removed to Rome a few years later, became a pupil of Michael Angelo, and was a rival of Rafael. He might have painted the Giovian portrait, for the Archbishop employed the best artists to contribute to his collection; but if so it was a copy or made from verbal descriptions. Bartolombo Suardo, or Suardi, also called Bramantino, was contemporary with Columbus, although a younger man, and reached his greatest fame in 1620. He was working at Rome in 1513 when the archbishop of Nocera was living. Dr. Fossati, who has given the subject considerable study, suggests that the portrait was painted in Rome, after an original sketch obtained from Bartholomew Columbus, who visited that city to intercede with the Pope in 1505. Or it may have been painted at the order of Giovio, who was frequently associated with Ferdinand, the son of Christopher Columbus, while he was in Rome in 1512.



THE FOCILLON.
See page 229.



THE LEFORT.
See page 229.



THE ZEARING.
See page 229.

No. 11. THE LORENZO LOTTO PORTRAIT (plate VI).

This portrait, which is recognized by experts to be as nearly authentic as any that exists, is believed to have been painted for Domenico Malipiero, a Venetian senator and historian, at the instance of his correspondent, Angelo Trevisan (Trivigiano), secretary to the ambassador sent to Spain by the Venetians in 1501, and who was in

constant communication with Columbus at that time. Malipiero's manuscripts, and presumably this picture, passed into the possession of Senator Francesco Longo. The Gradenigos were the heirs of Longo, and it was from them that the Caviliera Luigi Rossi, a steward of the Duchess of Parma, purchased the portait. Shortly before Rossi's death the picture was sold to a Signor Gondolfi, who had it restored and repaired, the badly damaged head and cap of an Indian at the right being cut out, and the canvas made square instead of oblong. From Gondolfi it passed to Signor Antonio della Rovere, from whom it was bought by Capt. Frank H. Mason, United States consul-general at Frankfort, for Mr. James W. Ellsworth, of Chicago. The signature and date read, "Lawrens Lotto f. 1512." Lotto was a painter scarcely second to Titian. He was born about 1480, and reached the summit of his fame about 1522. The chart which is represented in the portrait is very nearly like the Ruysch map published in the Rome edition of Ptolemy of 1508. This portrait was selected as the model for the face of Columbus upon the World's Columbian Exposition souvenir coin, and was awarded a silver medal at the Columbian Historical Exposition at Madrid as being the most authentic likeness of the discoverer.



THE HULL.
See page 229



THE RINCK.
See page 230.

No. 12. THE NAVARETTE PICTURE (page 222).

M. Navarette, in his Relations des Quatre Voyages de Christopher Colomb, Paris, 1828, uses as a frontispiece a beautiful engraving of the admiral, evidently copied from the portrait of Columbus in the ministry of marine at Madrid. It resembles the Capriolo, however, and wears the same costume, but the face is turned to the right instead of the left. The engraving has an inscription, which in English reads "Drawn on stone from an original and contemporary portrait belonging to His Catholic Majesty, by Pedro Columbus, Duke of Veragua, a great-grandson of the illustrious navigator."



THE GREGORI.
See page 230.

No. 13. THE CANCELLIERA PORTRAIT (page 223).

The family of Fidele Colombo, which sprang from the brother of Dominco, father of Christopher Columbus, owned what was known as the Castillo di Cuccaro, an ancient castle near the village of Cuccaro, in the Montserrat, Italy. In the hall of this castle was an alleged portrait of Columbus, which is said to have been painted by Antonio del Rincon, a famous Spanish artist contemporary with Columbus, and to have been brought to Italy from Spain by Baltazar Columbus, second cousin of the discoverer, who in the reign of Philip II contested in the courts with other relatives for the rights, titles, and dignities of Christopher Columbus. This portrait was accepted as genuine by Napione, and was used by him to illustrate his Della Patria di Colombo (Florence, 1805), and by Francisco Cancelliera in his Notizie di Vristofero Colombo (Rome, 1809). It is signed by Jean Patrini, and was engraved by Joseph Callandi. Patrini was a painter of the Milanese school and left many works of distinction. This portrait was given by the last

descendent of Fidele Colombo, about forty years ago, to Count Rosely de Lorgues, of Boulevard San Germain, Rue Chanel, No. 16, Paris, the author of the well-known eulogistic life of Columbus.

No. 14. THE BELVEDERE PORTRAIT (page 223).

In 1579, according to written evidence, Ferdinand I of Austria had a copy painted of the portrait owned by Archbishop Giovio. In 1610 it passed into the possession of the Archduke Ferdinand, his son, Count of Tyrol, who was also a nephew of Charles V of Spain. For many years it hung in the castle of Ambras, near Inspruck, in the Tyrol, but in 1805 it was returned to Vienna, where it now appears in one of the several magnificent collections of the Austrian capital. It is a miniature in oil, painted upon a small panel of wood. De Conches says it is very old, as old as the Altissimo at Florence, and was done by an accomplished artist, but it bears no signature. It was engraved for Frank'l's German poem, "Cristoforo Colombo" (Stuttgart, 1836).

No. 15. THE ROHRBECK PORTRAIT.

A young artist named Carl Rohrbeck, of Milwaukee, has produced a very excellent full-length portrait of Columbus in oil, from photographs of other and more famous representations of the discoverer.



THE MELLADO.
See page 231.

No. 16. THE CEVASCO PORTRAIT.

A portrait was presented to the city of Genoa some years ago by Commendador Cevasco, that bears signs of antiquity and resembles the accepted likeness of the discoverer, but the artist is unknown. It hangs in the royal palace. (See page 224).

No. 17. THE BOSSI PORTRAIT (page 224).

The Bossi portrait of Columbus as a boy was first published in 1596, as an engraved medallion to illustrate a biography of Columbus. It has no claim to genuineness, but was used by Bossi in La Vera Patria e la Vita di C. Columbo. The same face appears beside that of Vespucci in a frescoed frieze in the municipal palace at Genoa.

No. 18. THE ARAMBURU PICTURE (page 224).

A work of art, but a pure fancy, is the head of Columbus painted by Ricardo Aramburu in 1892. It is owned by Don Francisco de Paula Dominguez of Seville, and has been published widely in the illustrated papers of Spain.

An ancient portrait in oil, on a small panel, very similar to the Yanez in the National Library of Spain, hung for many years in the palace of the Marquis de Malpica at Madrid. It lacks the sadness of the Yanez face and has more hair, but it is of the same dimensions, and de Conches pronounces it a copy. The inscription on the background is the same. Carderera says:

"Although the painting is almost three hundred years old, it is unfortunately but a copy, somewhat shorter, of the portrait placed in the series of illustrious men in the gallery of Florence, and, like that of other different persons, scattered through the city, was copied, with slight alterations either in the costume or in the age, and of the same size, during the third part of the sixteenth century and the beginning of the

seventeenth, from those contained in the famous museum founded by Paulus Giovius in his country seat at Como, precisely on the spot where Pliny, the younger, had his villa."

According to Carderera the Giovian portrait was also copied for Don Pedro de Toledo, Fifth Marquis of Villafranca, in 1601. It has the same features as the Capriolo.

In a German translation of Washington Irving's Life of Columbus appears a quaint representation of the admiral in chains.

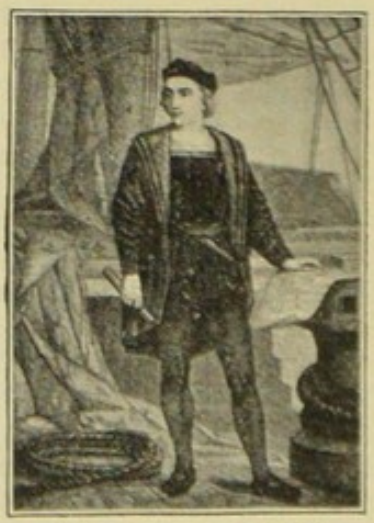


THE HAVANA.
See page 231.

No. 19. THE ROUEN PORTRAIT.

In the museum at Rouen, France, there used to be two alleged pictures of Columbus, side by side, but as unlike as it is possible for two portraits of the same person to be, and the contrast was very amusing. In one the hair is gray and thin, and the flesh is pallid, almost livid. It is a modern canvas, presented to the city in 1851 by Paul Le Carpentier, who painted it in 1835 from the Rincon in the Queen's library at Madrid, and inscribed it, "Columbus Lygur novi orbio Repertor." A note on the back says: "This portrait was copied in wax in 1835 from the original portrait of Sebastian del Piombo, which formed a part of the collection of the Escurial, and which is attributed by some to Antonio del Rincon."

The other portrait was a sharp and vigorous piece of work, with black hair, black eyes, considerable color, and expressive features. It points a finger to a sphere resting upon a table with some books. It is attributed both to Velasquez and to Ribera, and figures in the catalogue as the work of the first-named artist. Within recent years the catalogue has been corrected, so that the picture no longer pretends to be a portrait of Columbus, but as a "Portrait of a man disserting on a globe."



THE YOUTH OF COLUMBUS.
From an old print. (Page 231.)

No. 20. THE STUPPI PORTRAIT.

Undoubtedly a copy in oil of the Capriolo by G. Stuppi, engraved for Iconographia di Uomini Sommi nelle Scienze e nelle Arti Italiane, Napoli, 1854.

No. 21. THE FONTAINE PORTRAIT.

Painted by J. M. Fontaine, and engraved by P. Columbo, Duke de Veragua. Published by Danlos. Evidently a copy of the ministry of marine portrait, with a more cheerful expression.

No. 22. THE FARMER PORTRAIT.

The portrait which has been longest in America hangs in the New York State library, in the capitol at Albany. It was presented to the State in 1784 by Mrs. Maria Farmer, a granddaughter of Jacob Leister, governor of the province of New

York in 1689, and is said to have been painted in 1592, the centennial of the discovery, by some Spanish artist. It bears the inscription "Ano 1592, Æ. 23," which is supposed to mean that the artist represents Columbus at the age of 23.

The inscription on the frame reads: "Columbus. The gift of Maria Farmer to the senate of New York, 1784." The entry in the Senate journal for that year (p. 57) reads:

"A letter from Mrs. Maria Farmer, directed to his honor the president, offering to the acceptance of the senate an ancient portrait of the celebrated discoverer of America, Christopher Columbus, taken from an original painting, anno 1592, and which has been in her family for upward of one hundred and fifty years, was read.

"*Resolved*, That this senate do accept with grateful acknowledgments the ancient and valuable portrait offered by Mrs. Maria Farmer.

"*Ordered*, That the acceptance thereof be signified by the president in a letter to that lady with the thanks of the Senate."



TALLEYRAND PORTRAIT.
See page 232.

When the capitol was removed from New York in 1797 this picture was left behind, and remained in New York until 1827. In that year the clerk of the senate was directed to remove the portrait from New York and place it in the senate chamber. After considerable search it was found in the garret of the city hall and taken to Albany. In 1850 it was found to be somewhat damaged by heat, as it had been placed over the fireplace, and was sent to New York for restoration and reframing.

No. 23. THE FOCILLON ETCHING (page 225).

An etching has been made by F. Focillon, of Paris, after the painting in possession of Dr. di Orchi, of Como, and the portrait that hangs in the Naval Museum, Madrid. It is owned and exhibited by W. H. Lowdermilk and V. G. Fischer, of Washington, U. S. A.

No. 24. THE LEFORT ETCHING (page 225).

This is an artist's proof of an etching by M. Henri Lefort, from the portrait in the Marine Museum, Madrid. M. Henri Lefort, the author of this copy, was born in Paris, 1852. He was a pupil of Flameng and Courtry, and is now president of the French Society of Etchers.



BRADLEY PORTRAIT.
See page 234.

No. 25. THE ZEARING BAS-RELIEF (page 225).

The Zearing portrait is purely fanciful, and was made by H. H. Zearing, of Chicago, in 1890, after a close study of other portraits. The original is a bronze cast in low relief.

No. 26. PORTRAIT OF COLUMBUS. AUTHOR UNKNOWN.

A dignified but rather youthful representation of Columbus appears in several of his biographies and numerous works of biography and history; but there is no knowledge of its origin or authorship, and it is probably the work of some engraver.

No. 27. THE HULL PORTRAIT (page 226).

Miss Esther Hull, of Danbury, Conn., has a portrait of Columbus which is of evident antiquity, but there is no knowledge of its age or origin. It represents Columbus of middle age, with a dove resting upon his shoulder, and there is a companion

piece, by the same artist, of Americus Vespucci. All the owner knows of their history is that many years ago they were left for storage with Mr. William Jaggers, of New York, with several other paintings. In 1850 the owner wrote Mr. Jaggers, from a Western State, that he had met with reverses and desired to sell his collection. The two portraits were purchased by the father of Miss Hull, who brought them to Danbury. At the left-hand upper corner of each canvas is an inscription. On one is "Amerigo Vespucci," on the other "Cristoforo Colombo," which indicates that the artist was an Italian, but no signature can be traced. The canvas has been very frequently repaired by a delicate and skillful hand.



THE COSTA.
See page 234.

No. 28. THE RINCK PORTRAIT (page 226).

This portrait has a curious history. The owner is an old gentleman who lives on Clinton place, New York. Many years ago he was a dealer in second-hand articles in New Orleans, and purchased the picture at auction. It had belonged to an old Spanish family then, and is said to have been brought by them from Cuba. He claims that it is an original, painted when Columbus was an old man, and taken to San Domingo by one of his descendants. One corner is cut off, which Mr. Rinck believes was for the purpose of identification. It was brought before the Congress of Americanists at Luxembourg in 1877 and discussed at length.

No. 29. THE SAVAGE ENGRAVING.

An old engraving, which is claimed to represent Columbus, engraved by D. Edwin, from a painting by E. Savage, published in the city of Philadelphia, by the painter, in 1800. The inscription is as follows:

"The Landing of Christopher Columbus. On the morning of Oct. 12, 1492, Columbus (Richly Dress'd) with a drawn Sword in his hand First set his foot on the New World, which he had Discovered. The Portrait of Columbus is copied from the original Picture in the Collection of the Grand Duke of Tuscany at Florence."

Savage was a resident of Worcester County, Mass., and his will, on file in the probate court of that county, shows that he painted and engraved many portraits of distinguished men. There are two portraits of Washington by him, one owned by Harvard College, and the other by the Adams family at Quincy. The engraver, Edwin, was an artist of considerable note in his day.



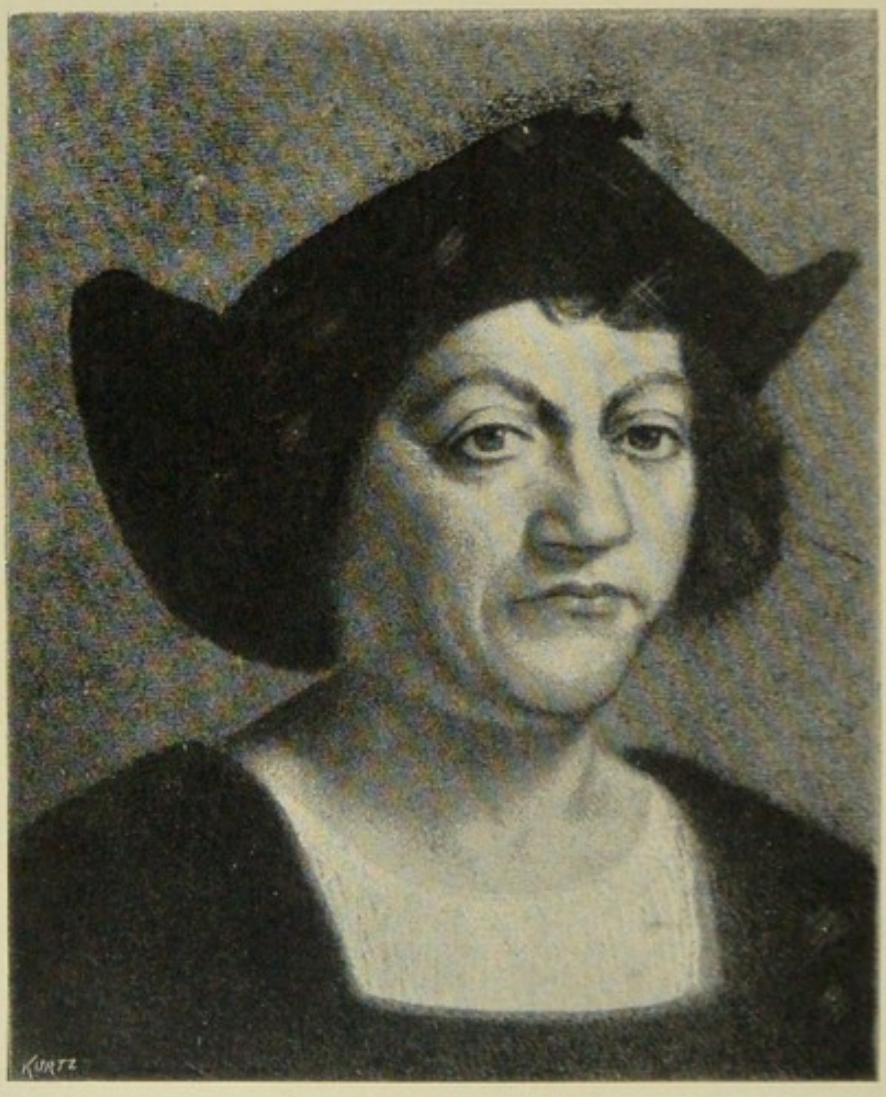
MONTANUS PORTRAIT.
See page 235.

No. 30. THE GREGORI PORTRAIT (page 226).

In the University of Notre Dame, South Bend, Ind., is a collection of pictures representing scenes in the life of Columbus, painted by Luigi Gregori, an Italian artist, as the gift of Father Sorin, a venerable member of the faculty. One of them represents Columbus in the costume of a Spanish courtier. The face is modeled after the accepted likeness, but it is a recent work, and offers no greater claim to attention than artistic merit.

No. 31. AN UNIDENTIFIED CARICATURE.

A curious freak of the imagination of some unknown artist is found in a preposterous picture that has been before the public for many years, labeled "A portrait of Christopher Columbus." It bears no resemblance to any other representation of him.



THE VERSAILLES.

The Spanish scientific review, entitled El Cosmos, in the editions for April 18 and 25, 1891, gives a description of an unpublished portrait of Columbus recently discovered. The picture, according to the statement in the publication, is painted in oil, belongs to a good school, is well preserved, and experts fix the date of its origin at the beginning of the sixteenth century. It measures 48 by 40 centimeters, and reproduces the head of Christopher Columbus, with these words disposed in the following order: Columbus Orbis Lygvy+Nov Reptor. It represents a man past 60 years of age, with a high forehead and scanty white hair, pronounced cheek bones, aquiline nose, and an unusually prominent forehead. It bears a general resemblance to the Florentine and Giovian types.



PARMIGIANO PORTRAIT.
See page 235.

No. 32. THE MELLADO PICTURE (page 227).

A purely fanciful portrait of Columbus appears in D. F. Mellado's translation into Spanish of Fenimore Cooper's Columbus, published at Madrid in 1852.

No. 33. THE BRYAN ENGRAVING.

What is claimed to be a portrait of Columbus in his youth is owned by William A. Bryan, Sandy Hill, N. Y., but the author is unknown.

No. 34. THE HAVANA PORTRAIT (page 228).

A portrait of Columbus, which hangs in the "consistorial hall" (council chamber) of the captain-general's palace at Havana, was presented to the municipality by one of the Dukes of Veragua, a descendant of Columbus, nearly two hundred years ago. The features differ from all other likenesses, and the admiral is given a small mustache and goatee. The garb is that of a Familiar of the Holy Inquisition. Its origin is unknown.

No. 35. WOODCUT FROM THE GOODRICH LIFE OF COLUMBUS.

A man by the name of Aaron Goodrich, of St. Paul, Minn., some years ago wrote a book entitled, A History of the Character and Achievements of the so-called Christopher Columbus, which was intended as a "protest against the further propagation of a falsehood in the name of history," and "to place in its true light the character of a man the merits of whose connection with the history of America has been magnified." This curious volume contains a picture of Columbus with a sword in one hand and a flag in the other, which was intended to be a portrait.



MORO PORTRAIT.
See page 235.

No. 36. THE HERNANDO PORTRAIT.

A modern piece of work of much merit artistically, but bearing no resemblance to the traditional features of Columbus. It is owned by Don Mariano Hernando, of Madrid.

No. 37. THE YOUTH OF COLUMBUS.--FROM AN OLD PRINT (page 228).

No. 38. THE VERSAILLES PORTRAIT (plate VII).

There were two portraits of Columbus in the great galleries at Versailles, France. One was presented by the Count de Montesquieu many years ago. It bears no signature, but Feuillet de Conches, the famous French savant, who spent a great deal of time in the investigation of its origin, believes that it was painted by a student of "Jean of Bruges," Jan Van Eyck, for with its heavy Flemish face it possesses all the characteristics of his school; and it is known that

his students were scattered widely over Spain and Portugal. One of the legends attached to this work is that it was painted while Columbus was at the court of Portugal, and De Conches observes that it is entirely probable that Columbus might have sat to a Flemish painter there. It is on a small wooden panel, and is of ancient appearance. J. D. C. Gavard has reproduced it in his Galeries Historique, and it has been beautifully engraved by Paolo Mercuri, the famous Roman artist. De Conches also believes that this portrait is the original of the De Bry (No. 46), which the latter refers to as having been stolen from the council of the Indies. It has been reproduced thirteen times with variations, by De Bry, 1595; J. Boissard, 1650; Isaac Bullart, 1682; D. Pauli Freheri, 1688; A. Azett, 1690; Etienne Desroches, 1723; Bodonia, 1781; Luigi Bosse, 1818; Geruano Scotto, 1821; J. D. C. Gavard, 1844; P. Mercuri, 1844; Angelos Sanguieneti, 1850; Edouard Cat, 1862.

The second Versailles portrait, which is said to have disappeared during the Franco-Prussian war, was very ancient also, and plainly of Dutch origin. It was painted on a small panel of wood, 12 by 14 centimeters in size. It was not on exhibition, but was retained in a private room. There was an anchor on the frame, and on the right side of the figure an inscription of eight lines in ancient Dutch, which read, "Cristoff de Colomb Groots Admiral Vost Zee onder Fernand," that is, "Christopher Columbus, Grand Admiral of the Eastern Seas, under Ferdinand." The head was completely bald, and the costume a great coat, or vitchouva, worn by sailors in the beginning of the sixteenth century. Its antiquity was evident, not only because of the materials used, but because of the costume and the style of letters and orthography of the inscription, which were not in vogue later than 1650.



CLADERA PORTRAIT.
See page 236.

No. 39. PORTRAIT OWNED BY THE DUKE OF TALLEYRAND (page 229).

One of the most artistic of all the alleged portraits of Columbus has hung for more than a century in the chateau of Valençay, department of Indre, France, and belongs to the Duc de Valençay de Talleyrand de Legan. It belonged to Prince Talleyrand, and is an ancient work. It is claimed that it was painted by Sebastian del Piombo, and it bears his signature. Piombo lived from 1485 to 1547, and was an artist of great fame. His family name was Luciano. His usual signature was Sebastian Venetus faciebat. The picture bears the following inscription: "Hæc est effigies Liguri Miranda Columbi antipodum primus rate qui penetravit in orbem. Sebastianus Venetus facit."

The National Gallery at London has a Resurrection of Lazarus, bearing the same signature as this portrait.

In the National Library, Paris, is a copy of the Talleyrand portrait, of which the engraver is unknown.

No. 40. THE JULIENNE PORTRAIT.

A modern fancy, painted in 1891 by M. Julienne, a celebrated artist of Madrid. It does not claim to be anything more than an ideal.

No. 41. THE LOUIS PHILIPPE PORTRAIT.

In 1837 King Louis Philippe, of France, presented to the chapter of the cathedral at Seville an alleged portrait of Columbus, which has since been hanging in the library founded by Fernando Columbus in that city. It is generally regarded as an excellent work of art, although the posture and drawing have sometimes been criticised. There is no signature, and the artist is unknown.


QVI RATE VELIVOLA OCCIDVOS PENETRAVIT AD ORIENTEM
PRIMVS ET AMERICAM NOBILITAVIT HVMVM
CHRISTOPHORVS COLVMBVS LIGVR INDIARV PRIM INVEI A 1492
ASTRORVM CONSULT ET IPSO NOBILIS AVSV
CHRISTOPHOR TALI FRONTE COLVMB FRAI

DE BRY.



THE VENETIAN MOSAIC.

No. 42. THE HERMITAGE PICTURE.

There hangs in the Hermitage at St. Petersburg, in that magnificent collection of art and archæology which Catherine the Great erected as her own monument, a portrait (Catalogue No. 852) of a man, by Ferdinand Bal, a Flemish artist of the seventeenth century, who was a pupil of Rembrandt. It is an excellent work of art, and was purchased by Count Bandoni, of Paris, in 1780. In his catalogue it appeared as a portrait of Columbus, but in modern catalogues it appears as the Philosopher.

In a biography of Columbus, published about two hundred years ago, in the German language, appears a rude picture of a man with a battle-ax in one hand and a shield in the other, standing on the deck of a vessel. Behind him are bags of gold and at his left a seaman's chest. It is claimed to be an "authentic likeness of the great discoverer."

No. 43. FACSIMILE OF THE DE BRY PICTURE (plate VIII).

In the preface to his famous work, Grand et Petit Voyages, published at Frankfort, 1595, familiarly known as De Bry's Voyages, the author says:

"Theodore De Bry sends help to the reader. In a former number of the History of America, containing not only a written account of wonderful and extraordinary matters relating to the recently discovered New World, but also pictorial representations, by means of drawings, of many scenes, it was stated that the discovery had been made by the persevering industry of Christopher Columbus, contrary to the expectation of all those whom he had consulted on the subject. As Columbus was a man of intelligence, and endowed with great genius and spirit, the King and Queen of Castile, before his departure, directed his portrait to be painted by a skillful artist, that they might have a memorial of him in case he should not return from his expedition. Of this portrait I have had the good fortune to obtain a copy, since finishing the fourth book of this work, through a friend, who had received it from the artist himself; and it has been my desire, kind reader, to share this pleasure with you, for which purpose I have caused it to be engraved in a reduced form on copper by my son, with as much care as possible, and now offer it for your inspection in this book. And, in truth, the portrait of one possessing such excellence deserves to be seen by all good men, for he was upright and courteous, pure and noble minded, and an earnest friend of peace and justice."




THE BAINBRIDGE.
See page 237.

At another place De Bry observes that the original of his portrait was painted from life by order of King Ferdinand, and was stolen from a salon of the council of the Indies and taken to the Netherlands. The engraving appears in all the many editions of De Bry's Voyages, and has been widely copied. It shows Columbus with a Dutch countenance, and in the earliest prints two warts appeared on his right cheek, but they were afterwards erased. De Conches, as stated above, insists that the picture in the Versailles Gallery (No. 27) was the original from which the De Bry was engraved, with a more elaborate costume and the hair dressed after the fashion of the time.

No. 44. THE VENETIAN MOSAIC (plate IX).

A mosaic portrait of Columbus was presented by the city of Venice to the city of Genoa as a peace offering to her ancient enemy when the latter joined the sisterhood of States which now constitutes the Kingdom of Italy. It is inclosed in a beautiful frame of ebony, inlaid with ivory, and is considered a remarkable work of art, although it makes no claim to genuineness and is of modern workmanship. The Giovio, Capriolo, and other accepted portraits of Columbus were used as models. The portrait hangs in the municipal palace at Genoa.

No. 45. THE BRADLEY PORTRAIT (page 229).

Mr. William Harrison Bradley, of Chicago, the United States consul at Nice, has a portrait of Columbus, which he purchased in the winter of 1891 from the heirs of an aristocratic French surgeon and courtier named Imbert-Dolonnes, who figured conspicuously at the court of Louis XVI. The portrait is of the De Bry type, and resembles very closely the Talleyrand canvas. During the general panic and flight which followed the inauguration of the revolution, Imbert-Dolonnes fled with the multitude of Royalists to seek safety out of Paris. For some time he remained secluded at Avignon, but, hearing that many of the King's paintings and household effects were to be sold at auction, he ventured to return and save from the wreck this portrait of Columbus and copies of two Titians, which are now in the Louvre. The story has come down through the family that Imbert-Dolonnes himself set a very high estimate on the portrait, and that it was a particular favorite of Marie Antoinette. The canvas is cased in an old frame. Its general tone is somewhat somber, and the "school" is unmistakably Flemish.

The navigator is represented in a dark-green or green-black coat, and his headdress is of the same hue. The background is filled in with a very warm and reddish brown. Across the top of the canvas is painted the legend in simple Latin, "Christoph. Colombo, Ligur. Orbem Alterum Excogitavit et primus Visit. an. 1492." At the side of the picture appears the line from Virgil, "Et mihi facti fama sat est."



COLUMBUS IN CHAINS.
From an old Print. (See page 237.)

How the portrait came into the royal family of France no one knows, but it is claimed to be the original of the De Bry.

In Freherus is a sour-faced De Bry, with the head turned to the right, by Rosapina. The inscription is "Christopher Columbus, Indiarum Primus Inventor."

No. 46. THE COSTA PORTRAIT (page 230).

A type of the De Bry or Versailles appears in Cento Ritratti de Illustri Italiani, Milano, 1825, Germo Costa, Del Germo Scotto.

No. 47. THE BERWICK-ALBA PICTURE (plate x).

There are two portraits bearing the name of the family of Berwick-Alba, which at one time held the titles and dignities descending from Columbus. One of them is a painting and the other an engraving. They are generally alike, representing Columbus arrayed in highly colored silks and embroideries—a costume he never wore, and which was unsuitable to his rank and circumstances. In the painting he is represented as seated in a gorgeous chair, while in the engraving he is represented as standing, and there are some additional variations in the background. The engraving was executed with considerable spirit and vigor by the distinguished artist, D. Rafael Esteve, from a drawing made by the painter Galiano, and bears this inscription: "El quadro original fué pintado en America por Von Loo" (the original was painted in America by Von Loo). No such artist is known in the annals of American art, but there was a painter of that name in Holland a century or more ago. The late Mr. James Lenox, the founder of the Lenox Library at New York, thought well of the picture, and a copy hangs in his collection.

No. 48. THE JOMARD PORTRAIT (plate xi).

The Jomard portrait is so called in honor of a distinguished scholar and critic, M. Jomard, for many years librarian of the Bibliothèque Nationale, Paris, who discovered it in a gallery at Vicenza, Italy, in 1844. "I saw it by chance," says M.



THE BERWICK-ALBA.

Jomard (in Bulletin de la Société de Géographie, Troisièmé Serie, Tome III, 1843), "though I was attracted by the ancient appearance of the painting, by its beauty, and by the noble character of the whole figure. * * * Drawing nearer to the painting, what was my surprise when I saw in gold letters of the style of the time, on the right angle, these two words, 'Christopher Columbus.' It will easily be believed that I lost no time in collecting all information apt to enlighten me as to its origin. Thanks to the kindness of the noble and learned Count Orti Manava, Podestat of Verona, I was soon in possession of all facts. It will be easily understood why such a treasure remained so long unknown. The family owning it kept it carefully, although unaware of its importance; the last member bequeathed it to his native city, and at his death it was placed in the public gallery."

M. Jomard does not assert that it was painted from life, but believes it to be the work of Titian or one of his students, perhaps Domenico Campagnola, between 1530 and 1540, and gives an extended argument to sustain this opinion. It is a superior piece of art, and it has been frequently copied to illustrate modern works on Columbus and American history; but the costume is that of a courtier of the eighteenth century, and the beard as shown was never worn in that way until more than eighty years after the death of both Columbus and Titian.

No. 49. THE MONTANUS ENGRAVING (page 230).

This portrait first appeared in Nieuwe en Onbekende Weereld, by Montanus, in 1671, and was copied in Ogilby's America. Also in the 1728 edition of Herrera. It is supposed to have been painted in Nuremberg in 1661.



THE BORGHESE.
See page 237.

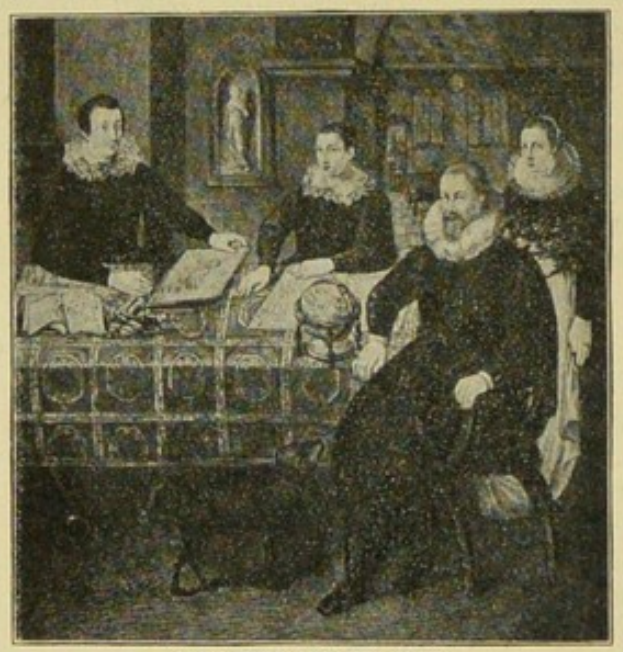
No. 50. THE PARMIGIANO PORTRAIT (page 231).

There hangs in the Royal Museo Borbonaico, at Naples, an alleged portrait of Columbus, which has more artistic merit than most of the others claiming to present his features, and was selected by Prescott to illustrate his Ferdinand and Isabella. It was formerly claimed to be genuine, but the best authorities now declare that it is not a portrait of Columbus at all, but of one Gilberto di Sassuolo, an Italian statesman and scholar who lived in Naples from 1502 to 1570. There is no doubt that it was painted by Francesco Mazziolo, who took the name of Parmigiano in honor of his native city, Parma. He was born in 1503, so that he was but 3 years old at the death of Columbus, and he died in 1540. He was a student of Rafael, and produced many great works, including a portrait of Americus Vespucci, which was also fanciful. Both the so-called Columbus and the Vespucci portraits were executed at Parma in 1527, at the order of Cardinal Alexander Farnese, and remained as decorations of his palace for many years. The King of Naples succeeded to the Farnese estates, and removed the painting to the Royal Museum some years later. The portrait of Columbus is a rare example of art, but it does not bear the slightest resemblance to the features of the Admiral as described by his contemporaries; nor is the garb such as was worn in Spain at the time he lived. Beautiful copies of both the Columbus and Americus portraits, by Antonio Scardino, were presented to the Antiquarian Society of Worcester, Mass., in 1853, by Mr. Ira M. Barton.

No. 51. THE ANTONIO MORO PORTRAIT (page 231).

Another beautiful work of art, whose artistic authenticity is fully established, is the portrait of Columbus purchased by Mr. Charles F. Gunther, of Chicago. It was painted by Sir Anthony Moore, an artist of English origin, known in Spain as Sir Antonio Moro, and in Flanders as Chevalier Antonius Moor von Dashhorst, who was

born in 1519, and died in 1581. Wornum regards him as "in every respect the best portrait painter of his time," and says that he represented in perfection the school of Flemish art at the time of Rubens and Rembrandt. Waagen, also an acknowledged authority, places him in the first rank among the masters of his epoch. He visited Madrid in 1552, at the request of Charles V, to paint the portraits of the royal family. The Madrid gallery contains some excellent examples from his brush, especially that of Queen Mary of England. He remained there until the time of Philip II, when for some slight offense, said to have been heretical utterances, he was denounced to the Inquisition. He escaped from Spain, however, and spent the rest of his life in Flanders. This portrait was painted about 1570, from a miniature of Columbus said to have been in the possession of the royal family at Madrid, at the order of Margaret of Parma, regent of the Netherlands under Philip II. Margaret was the natural daughter of Charles V of Spain and Margaret von Gest, a lady of his court, and was in turn the wife of Alessandro di Medici, Duke of Florence, and Octavio Farnese, Duke of Parma. She was the mother of Alessandro Farnese, the famous cardinal, for whom the Parmigiano portrait of Columbus, now at Naples, was painted. The Moro portrait was removed to Spain when the Spanish court abandoned the Netherlands, and it is said to have hung in the cabin of one of the vessels of the Spanish Armada during the famous sea fight of 1588. The vessel which carried it went to pieces on the Cornish coast of England, and the owner of the adjoining estate kept the picture as his share of the wreckage. From that date to the middle of the present century it remained in the possession of the same family, when it was purchased by William Cribb, of Covent Garden, London. His descendants sold it to Mr. Charles F. Gunther, of Chicago. The portrait was engraved in 1850, and was used by Irving to illustrate his Life of Columbus. It is painted upon a panel of wood, about 3 feet by 2 in size, and bears in faint letters the inscription "Ch. Colombo." The frame in which it is inclosed is a marvelous piece of carving and appears to be as old as the painting.



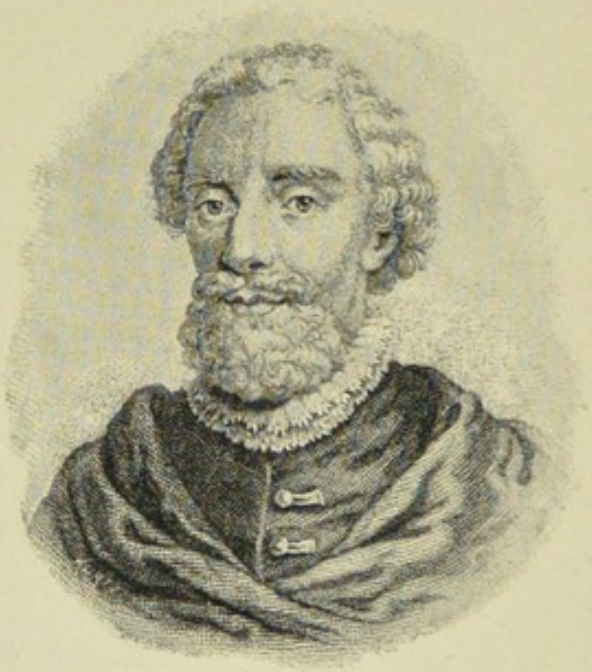
COLUMBUS AND HIS SONS.
See page 237.

No. 52. THE CLADERA PORTRAIT (page 232).

In the building known as the Lonja, at Seville, which was formerly the royal exchange, are kept the archives of the council of the Indies—a committee of churchmen and politicians, who had charge of the spiritual and temporal welfare of the New World for two centuries. Hanging over the principal entrance is a portrait of Columbus, representing him in ruff and armor, with a full young face, like a courtier of 30 years, and a mustache and imperial. This portrait was used as the model for the tablet that conceals the burial place of the alleged remains of Columbus in Havana. It was also used by Don Cristobal Cladera as a frontispiece to his Historical Investigations concerning the Discoveries of the Spaniards on the Ocean in the Fifteenth and the Principal Part of the Sixteenth Centuries, published at Madrid, in 1794. The signature of the engraving is "Bart Vasque la Grabo, 1791." The picture has been copied many times; but it is supposed to be an original of Luis Columbus, or some other member of the family, instead of the discoverer.




THE BRIERA.



THE HERRERA.

No. 53. THE BRIERA PORTRAIT (plate XII).

A portrait by Simeon Briera, and engraved by Antonio Carnercero in 1764, is evidently a copy of that just described, except that a globe has been introduced.

No. 54. THE BAINBRIDGE PORTRAIT (page 233).

An interesting old picture is owned by Mr. R. Somers Hayes, No. 39 West Thirty-eighth street, New York City. It is said to have been painted by one Cortez, a pupil of the famous Velasquez. It resembles the Cladera portrait, and is painted on a cedar panel. It belonged to an old Valencia family. Bernard Henry, who was consul of the United States at Gibraltar in 1804, married into the family, and obtained the picture by inheritance. He presented it to Commodore Bainbridge, of the United States Navy, from whom it was inherited by his grandson, Mr. Hayes.

No. 55. THE MUNOZ PORTRAIT.

In his celebrated Historia del Nuevo Mundo (Madrid, 1793), in which were presented for the first time many important documents from the archives of Spain that relate to the discovery, Dr. Juan B. Munoz presents a portrait of Columbus, with a beard, armor, and ruff of the seventeenth century, which, like many others, bears no resemblance to the traditional or printed descriptions of his person. It was painted by Mariano Maella, probably a hundred years after the death of Columbus, and is considered simply a fancy. The original is in the collection of the present Duke of Veragua, the descendant of Columbus, and a copy hangs in the archives of the Indies at Seville. Another copy was presented to the Philadelphia Academy of Arts by R. W. Meade in 1818, but disappeared some years later, and can not be traced. Delaplaine used it as the frontispiece of his Gallery of Distinguished Americans, published in Philadelphia in 1814.



THE FLAMENG.
See page 238.

No. 56. THE HERRERA ENGRAVING (plate XIII).

One of the standard works on early American history is Herrera's Historia General de los Hechos, published at Madrid in 1601, and familiarly known as Herrera's Decades. In the later editions appears a portrait of Columbus, which resembles in many respects that which Munoz adopted some years after, except that the face is turned in the opposite direction. It was accepted and copied by William Cullen Bryant and Sidney Howard Gay as a frontispiece to their History of America, but it does not recall the appearance of Columbus as described by his son and other associates. It was also used to illustrate Grove's Life of Cardinal Wolsey, London, 1742.

No. 57. COLUMBUS IN CHAINS (page 234).

No. 58. THE BORGHESE PICTURE (page 235).

A portrait in the Borghese Gallery, at Rome, which is catalogued as one of Columbus, and is said to have been painted in 1519, is believed by critics to be a portrayal of the Saviour's face by some early but unknown artist. According to Carderera it was painted for Prince Alobrandine, and for a century adorned his magnificent palace.

No. 59. COLUMBUS AND HIS SONS (page 236).

Mr. William Cunningham, of London, England, has kindly loaned a vigorous portrait of Columbus and his sons, which formerly belonged to Edward Horne, of Bevis Mount, near Southampton, and was sold by him to William Thompson, consul of the United States at the latter city for many years. Its origin and age are unknown, but it was engraved and published as early as 1794.

No. 60. THE FLAMENG PORTRAIT (page 237).

A picture painted by Leopold Flameng, a French artist, for the Marquis de Belloy, and purely fanciful. The collection, of which this is an example, is owned by Paul Ducroque, Paris. The entire collection were used as illustrations for Belloy's Columbus.



THE MENGS.

No. 61. THE MENGS PORTRAIT

An alleged portrait of Columbus, in oil, on canvas of small size, hangs in the public library at Concord, Mass., but it bears no resemblance to the traditional appearance of Columbus, and is unlike any other representation of him. It was presented to the library, in 1873, by Mr. A. P. Chamberlaine, of Concord, and is a copy, by Raphael Mengs, of an alleged Spanish portrait said to be by Titian. It was formerly in the collection of Letitia Bonaparte, Napoleon's mother—"Madame Mere"—at Rome, and was purchased by Mr. Chamberlaine after her death. There is a legend that Mengs, the artist, left a record somewhere that he made a copy of a portrait of Columbus, by Titian, with but a single change in it—the substitution of an admiral's cloak for the armor which Titian had painted; but this record has never been found, nor is there any evidence that Titian and Columbus ever met, or that the former ever painted a portrait of the great admiral.

No. 62. THE GIACOMO ZATTA PICTURE.

Feuilett De Conches, the French critic, describes a portrait of Columbus by Giacomo Zatta, or Latta, as "with the hair in disorder, the nose in air, the neck stretched, the shirt collar down, and dressed in the costume of 1792." Nothing is known about the artist or where the original can be found.

No. 63. THE PILOTY PICTURE.

A picture of Columbus on the deck of his vessel, by Piloty, is in the gallery of Count von Krack, Munich.



THE PILOTY.

THE PTOLEMY WOODCUT.

In the Venetian edition of the Cosmographia of Claudius Ptolemy, published in 1548, appears a curious picture that is claimed to represent Columbus, but the same picture had previously appeared in other publications over the title of "An Astronomer."

No. 64. THE THEVET ENGRAVING

Andre Thevet, in his Portraits et Vies des Hommes Illustres, which was first published in Paris in 1584, gives us a Columbus of a solemn type that looks more like an astrologer of the middle ages than a seaman. It is a rude woodcut and has been frequently copied. It appears in N. D. Clerck's Tooneel der Beroemder Hertogen, published at Delft in 1617; in North's edition of Plutarch's Lives, published at Cambridge in 1676; in Isaac Bullart's Academie des Sciences et des Arts, published at Brussels in 1682, and in several other works of later date. Clerck says that Thevet obtained the portrait in Lisbon, and that it was painted by a Dutch artist while Columbus was living there. Thevet went to America with the Marquis de Villegag-

non in 1555, when the latter attempted to establish a French colony near the mouth of the Rio de Janeiro, and returned the year following with Bois-le-Comte, seems to have sailed northward, and Thevet speaks of Canada and Newfoundland as if he had been there himself.

No. 65. THE PHILOPONO WOODCUT.

Honorio Philopono, a monk of the Order of St. Benedict, published a book in 1621 based upon the narratives of the priests and monks who accompanied Columbus and later explorers. The book had the following title: "Voyage to the New World of the Western Indies, given now to the press, made by the Most Reverend Father Dom Buell, of Catalonia, abbot of Monserrate, and apostolic legate á latere of the Holy See for the whole America, or New World, and patriarch of the same, and his associates or brethren of the same Order of St. Benedict, sent by His Holiness the Pope, Alexander VI, in 1492, to preach the Gospel of Christ to the barbarous people of those regions, written upon the notes and statements of several authors, and illustrated with engravings."



THE THEVET.
See page 238.

COLUMBUS IN CONVERSATION WITH AMERICUS VESPUCCI.

While at Seville in 1505, Columbus saw a good deal of Americus Vespucci. They had become acquainted while the Admiral was fitting out his ships for his second voyage, the contract for furnishing the supplies having been awarded to a merchant named Beradi, by whom Vespucci was employed, and the latter had active charge of the business. In the meantime Vespucci had himself made two voyages to the Indies, cruising along a good deal of the northern coast of South America, and down the east coast as far as Bahia, Brazil, where the Portuguese had established a trading post. It was at the conclusion of his second voyage, in September, 1504, that Americus had written the account of his discoveries, which, three years later, caused his name to be given to the New World; but there is no reason to believe that he anticipated or even hoped that his fame would be so closely linked to the western hemisphere. Nor is there evidence of the slightest rivalry or jealousy between the two voyagers. On the contrary, Columbus sent a letter to his son, on the 5th of February, 1505, by Americus, of whom he wrote:



PHILOPONO PORTRAIT.

"Within two days I have talked with Americus Vespucci, who will bear this to you, and who is summoned to court on matters of navigation. He has always manifested a disposition to be friendly to me. Fortune has not always favored him, and in this he is not different from many others. His ventures have not always been as successful as he would wish. He left me full of the kindliest purposes toward me, and will do anything for me which is in his power. I hardly knew what to tell him would be helpful in him to do for me, because I did not know what purpose there was in calling him to court. Find out what he can do, and he will do it; only let it be so managed that he will not be suspected of rendering me aid. I have told him all that it is possible to tell him as to my own affairs, including what I have done and what recompense I have had. Show this letter to the Adelantado, so that he may advise how Vespucci can be made serviceable to us."

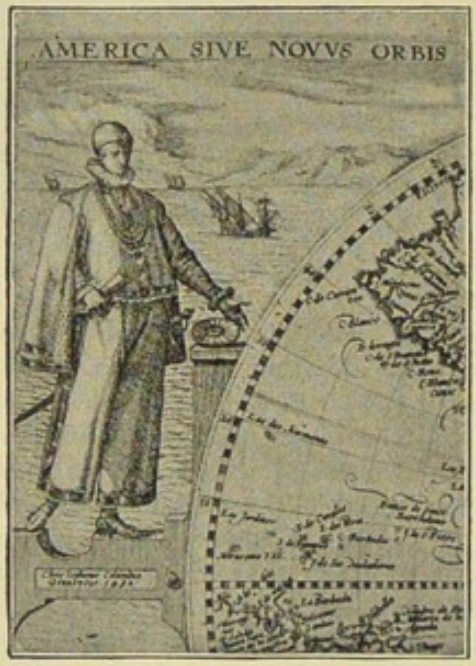
Shortly after this date Americus was appointed as a sort of general agent of the Spanish Government, at a salary of 30,000 maravedi, about $2,000 a year, to superintend the fitting out of expeditions to the Indies and the north coast of South America.

### No. 67. THE LAWSON PICTURE.

Mr. Robert Lawson, of Baltimore, Md., has a portrait of Columbus which he bought at an auction in 1851–52, where a number of other old paintings of a similar type were sold. Its age and author are unknown.

### No. 68. THE NOVAK PICTURE.

An old portrait of Columbus owned by Mr. Ernest Novak, of New York City, which belonged to the collection of a certain antiquarian in Seville, and at his death passed into other hands. The canvas is very old, and an attempt to bring out the colors only made the picture worse.




No. 66.
PORTRAIT FROM DE BRY'S VOYAGES.
See No. 43.

### No. 69. THE ERSKINE PICTURE.

An old portrait of Columbus, by Gentile Bellini (1421–1507), owned by Mr. Charles Erskine, of Roxbury, Mass. It is said to have been brought from England by Governor Benning Wentworth, of New Hampshire.

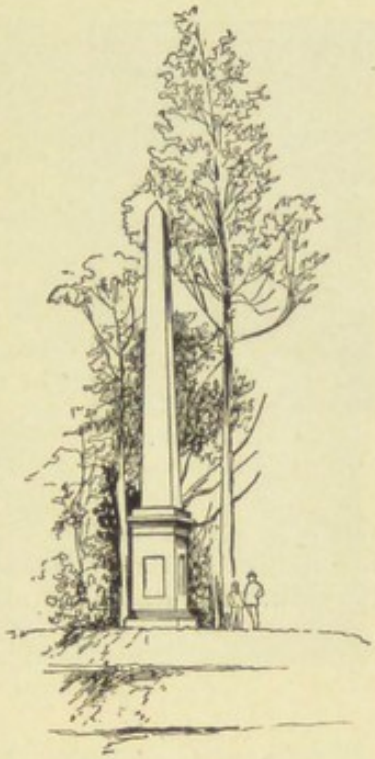
In addition to the portraits of Columbus there was an interesting collection of portraits of his descendants, so far as they could be obtained. The pictures of the earlier members of his family, his brothers, Bartholomew and Diego, and Diego and Ferdinand, his sons, and that of Beatriz Enriquez de Arana, the mother of Fernando Columbus, with whom he lived while at Cordova, were without doubt purely fanciful, but the authenticity of those of the later members of the Colon family was well established.

There were a number of facsimiles of autographs of Columbus, notably of the letters written by him to Nicolo Oderigo, the Genoese ambassador to Spain at the time of his return from his first voyage, and to the Bank of St. George. Here, too, were photographs of votive offerings which Columbus is said to have placed at the shrine of the Holy Virgin at Siena, Italy, upon his return from his first voyage, in obedience to a vow made by him during a terrible storm at sea.

## THE MONUMENTS OF COLUMBUS.

Associated with the portraits of Columbus were a series of models, photographs, and engravings of the monuments and statues that have been erected in his honor in various parts of the world, seventy-two in number, and the collection is believed to have been complete.

It is a common error of historical writers to lament that art has done so little to commemorate the event that stands most conspicuous among the achievements of men. Although it is true that no monument of appropriate proportions has ever been erected in honor of Columbus, like the stately shaft that bears testimony to the greatness of Washington in the city of his name, or the statue of Liberty at the sea gates of our metropolis, it is nevertheless a fact that the effigy of "the Admiral of the Indies" has been painted and carved oftener, perhaps, than any other except the Saviour of mankind, and that the world is reminded of its obligations to him by more monuments than have been reared to the honor of any other hero of history. There are no less than twenty-nine statues and monuments to Columbus in America alone, and the revival of interest in his career because of the four hundredth anniversary of the discovery will result in the erection of several more. There are six monuments to Columbus in Spain and seven in Italy, but the other nations of Europe have thus far neglected to pay such tribute to his memory, because, perhaps, they had no association with his career.



THE BALTIMORE MONUMENT.

The first monument to Columbus is that which is said to have been placed by King Ferdinand over his grave in the church of the Carthusian friars at Seville, but the stone has disappeared, if it ever existed, of which there is much doubt.



MONUMENT IN BALTIMORE.
Erected by Italian residents.

No. 70. THE BALTIMORE MONUMENT.

The first erected in America still stands in the grounds of the Samuel Ready Orphan Asylum, within the city limits of Baltimore. It is a plain shaft about 30 feet high, resting upon a turf-covered mound, and surrounded by a group of stately cedars. It bears the inscription, "Sacred to the Memory of Chris. Columbus, October XII, MDCCVIIIC;" and was erected by General d'Amamor, a French soldier of fortune, who came to the United States with Count de Grasse to serve in the Revolutionary army. After the surrender of Yorktown he took up his residence in the then suburbs of Baltimore, where he lived until 1797. The monument was dedicated on the three hundredth anniversary of the discovery of America.

No. 71. MODEL OF A STATUE ERECTED BY THE ITALIAN CITIZENS OF BALTIMORE.

One hundred years later the Italian residents of Baltimore erected another monument in honor of the great discoverer. It stands in Druid Hill Park, and was paid for by public subscription. The sculptor was Achille Canessa, of Genoa. The monument was unveiled on the 12th of October, 1892.

No. 72. MARBLE GROUP AT THE CAPITOL AT WASHINGTON.

When the main portion of the Capitol at Washington was completed, in 1846, a semicolossal group in marble was placed upon the southern buttress of the eastern portico at the right of the main entrance. It was carved in Italy, by Signor Persico, and cost $24,000; the first piece of statuary that was ever purchased by the Government of the United States. An armor-clad figure of the discoverer stands in a dramatic posture, holding aloft in the right hand a small globe on which is carved the word "America." A nude Indian girl crouches, awe-stricken, at his side.



MARBLE GROUP.
On Capitol steps, Washington.

A bill has been introduced in the Congress of the United States and has passed the Senate, appropriating $75,000 for the erection of a monument at the western entrance to the Capitol grounds at the head of Pennsylvania avenue, where a "peace monument" now stands. It is also proposed to erect a "triumphal arch" in honor of Columbus at the crest of the hill at the end of Sixteenth street.

No. 73. THE STEBBINS STATUE.

In 1867, a fine statue of Columbus was erected in Central Park, New York, by Mrs. Marshall O. Roberts, as a gift to that city. It was designed and executed in Rome, by Miss Emma Stebbins, sister of the Honorable Henry G. Stebbins, who also designed the fountain at the terrace in the park. The statue is 7 feet high, and the base 31 inches. It represents Columbus



COLUMBUS POINTING OUT THE LIGHT.

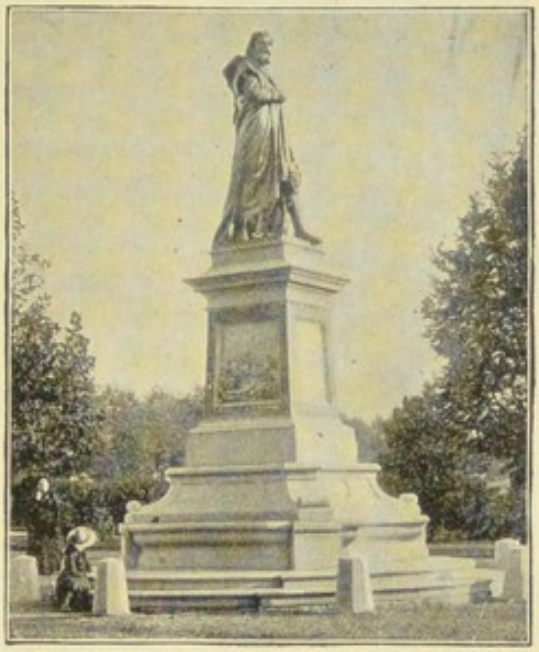
in the garb of a sailor with a mantle thrown over his shoulder. The face is copied from the accepted portraits of the Giovian type.

No. 74. COLUMBUS POINTING OUT THE LIGHT.

Mr. Napoleon Sarony, the well-known photographer of New York, has a beautiful group by D. Anvers, of Naples, representing Columbus on the deck of his caraval, pointing out the light he is said to have seen on the night before the discovery of land to Pedro Gutierez, a gentleman of the king's bedchamber, who accompanied him on the voyage.

No. 75. THE ST. LOUIS STATUE.

In 1886 a statue of Columbus was inaugurated at St. Louis, the gift of Mr. Henry Shaw, a public-spirited citizen of that place. It consists of the single figure of Columbus, in gilt bronze, of heroic size, standing on a somewhat lofty granite pedestal, which is enriched by four bronze panels, with reliefs portraying prominent events in his career. He is represented at the moment when, on the evening of the 11th of October, 1492, he imagined he saw a light in the westward, and is looking forward with an expression half anxious, half triumphant, to this beacon of an unknown world. The face of this statue is copied from that at Genoa. The figure was modeled and cast in the Müller foundry at Munich.



STATUE AT ST. LOUIS.

No. 76. THE INSPIRATION OF COLUMBUS.

Some years ago Mr. A. P. Chamberlaine, of Concord, Mass., presented to the Academy of Fine Arts, Boston, a beautiful piece of marble representing the First Inspiration of the Boy Columbus. He is represented as a youth, in the costume of the period, sitting upon the capstan of a vessel, with an open book in his hand, and his foot carelessly swinging in an iron ring that hangs from a staple in the capstan. It is the work of Guilio Monteverde, a young artist of Rome, in 1871, and was awarded the first gold medal at the National Art Exhibition at Parma that year. A duplicate is owned by Prince Giovanelli, of Florence. Monteverde is now a senator in the Italian Parliament.



INSPIRATION OF THE BOY COLUMBUS.

No. 77. STATUE IN LOUISBURG SQUARE, BOSTON.

There is another statue in Boston of Columbus as a boy, which stands in Louisburg Square, and was presented to the city in 1849 by Joseph Iasigi, a wealthy resident, of Grecian nativity. It was carved in Leghorn.



SACRAMENTO GROUP.

No. 78. THE SACRAMENTO GROUP.

A marble group, representing Columbus explaining his theory of a western passage to the Indies to Queen Isabella, was presented to the State of California by Mr. D. O. Mills, of New York City. It stands in the rotunda of the capitol at Sacramento. Larkin G. Mead was the sculptor. It was carved in Italy, from a single block of marble, and cost $60,000.

The most conspicuous ornament on the building of the Long Island Historical Library, Brooklyn, is a terra-cotta bust of Columbus, of modern but artistic workmanship, by Olin L. Warner, of New York, who took for his model the bust at Genoa, but introduced some changes of costume, including a headdress.

No. 79. THE WHITE HOUSE BUST.

In the main vestibule of the White House at Washington is a bust in marble, but its origin and authorship have been forgotten.



STATUE ON TOP OF MONUMENT, NEW YORK CITY.
Erected by Italian residents.

No. 80. THE PHILADELPHIA MONUMENT.

After the Centennial Exposition in 1876, the Italian residents of Philadelphia purchased a statue of Columbus there exhibited by one of their countrymen, and presented it to the park commissioners, by whom it was placed in Fairmount Park.

No. 81. THE CHICAGO HERALD MONUMENT.

In 1891 the Chicage Herald sent an expedition to Watling Island, and, at or near the point where Columbus is supposed to have landed, erected a column of masonry, which is surmounted by a marble globe bearing an appropriate inscription: "On this spot Columbus first set foot on the soil of the New World. Erected by the Chicago Herald, June 9, 1891.

Nos. 82, 83, AND 84. MONUMENT ERECTED BY ITALIAN RESIDENTS OF NEW YORK.

A beautiful statue of Columbus was erected by the Italian residents of New York last summer, and unveiled on the 12th of October, 1892. The design was by Gaetano Russo, an Italian sculptor, and the work was executed under the direction of a committee appointed by the Italian Government at Rome. The figure is 13 feet high, the shaft and pedestal 62 feet high, which, with the heavy stone foundation, gives the structure a total height of 84 feet from the ground. The figure is of marble, including the pedestal. The base is about 36 feet square. At the base of the circular marble shaft will be four



BAS-RELIEF ON MONUMENT, NEW YORK CITY.
Erected by Italian residents.



BAS-RELIEF ON MONUMENT, NEW YORK CITY.
Erected by Italian residents.

figures, one representing a Spaniard, the second an Italian, the third an American, and the fourth a winged genie. The work was done in Italy and cost $35,000. The sculptor gave the design and services free. The money to pay the expense was raised by subscription from the Italian citizens of New York.

No. 85. DESIGN OF MONUMENT TO BE ERECTED BY SPANISH CITIZENS IN NEW YORK.

Not to be outdone by their neighbors of Italian birth, the Spanish residents of New York propose to place in Central Park a magnificent fountain, from the base of which will rise a half globe. Upon its summit will stand a colossal figure of Columbus, explaining a chart to the two Pinzon brothers, his companions in the first voyage. It was designed by Fernando Miranda.



MONUMENT IN NEW YORK.
Erected by Spanish residents.

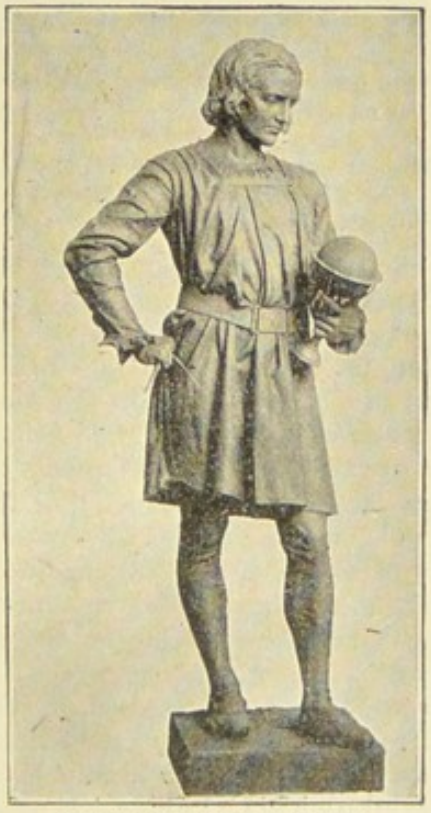


MIRANDA BUST.

No. 86. BUST OF COLUMBUS BY FERNANDO MIRANDA.

The people of Columbus, Ohio, propose to erect a monument to the man in whose honor their city was christened, and designs have been asked for from prominent artists.

It is proposed by the citizens of Chicago to erect a monument to Columbus on the lake front of that city, and its dedication will be a part of the services of the World's Fair. The monument will be placed on a quadrangular terrace, at each angle of which will be a lamp-post with torches, an anchor, and a chain, the links of which are symbolical of Columbus's days of captivity. Four long steps will be placed on either side, and the monument will consist of a pedestal ornamented on its principal front with a tablet in the shape of a medallion and destined for an inscription. The other fronts will contain each a bas-relief representing the following subjects: (1) the appearance of Columbus at the convent of La Rabida; (2) Queen Isabella offering her jewels; (3) the reception of Columbus at Barcelona on his return from his fourth voyage; and (4) reception by Queen Isabella. On the principal front of the base will be the prow of a vessel, terminated by a figure, the genius of Columbus, holding in each hand a torch and showing him the route to take. Above the vessel's prow, but back, will be the principal group, Columbus surrounded by a few of his companions, and illustrative of his pointing to the new land promised, and for which he had searched so long. On the lateral sides, about the height of the prow, and sitting on a small pedestal, Fame is proclaiming, to the sound of a trumpet, the glories of Christopher Columbus. The figure on the posterior side personifies the city of Chicago, supporting an escutcheon with this inscription: "The city of Chicago to Christopher Columbus."



STATUE ON DRAKE FOUNTAIN.

No. 87. THE DRAKE FOUNTAIN AT CHICAGO.

Mr. John B. Drake, of Chicago, presented to the people of that city a beautiful fountain, with an ice chamber capable of holding two tons of ice, and furnishing water at ten faucets. The monument is gothic in style, the base being made of

granite from Baveno, Italy. Upon the pedestal in front of the fountain is a bronze statue of Columbus 7 feet high, designed by R. H. Park, and cast in the Royal Foundry at Rome. The inscription reads, "Ice-water drinking fountain, presented to the city of Chicago by John B. Drake, 1892."

No. 88.—THE LIVERPOOL STATUE.



TABLET IN CATHEDRAL AT HAVANA.

On the portico of the Exchange building in Liverpool, England, stands a statue of Columbus, which was erected in 1866, and it is the only monument that was ever erected to Columbus in Europe outside of Italy and Spain.

No. 89.—THE NASSAU STATUE.

A statue of Columbus at Nassau, New Providence, in the Bahama Islands, was presented to the colony by Sir James Carmichael Smyth, governor of the Bahamas from 1829 to 1833. It was modeled in London in 1831, by an artist named Groggon. The monument stands directly in front of the Government house, is made of metal, and painted white. The figure is 9 feet high, and is placed upon a pedestal 6 feet high and 5 feet square. On the northern and seaward side of the pedestal is the inscription, "Columbus, 1492." It was erected in May, 1832.

No. 90. THE CARDENAS STATUE.

There is a statue at Cardenas, Cuba, which was erected by the celebrated Cuban authoress, Señora G. Gomez de Avellaneda, the wife of a former governor. It was carved by J. Piguer, of Madrid.

Nos. 91 and 92. THE CATHEDRAL TABLET, HAVANA. STATUE IN THE CAPTAIN-GENERAL'S PALACE, HAVANA. BUST IN EL TEMPLETE, HAVANA. COLUMBUS IN CHAINS, HAVANA.

In addition to the marble tablet that is embedded in the wall of the cathedral at Havana, where the remains of Columbus are supposed to rest, there are three statues to the discoverer in that city. One, a full-length, heroic figure in marble, stands upon a lofty pedestal in the courtyard of the palace of the captain-general. The second is a marble bust upon a column in front of the little chapel, "El Templete," which marks the spot where the first mass was celebrated on the island of Cuba; and the third is an impressive figure of an old man in chains sitting on the deck of a vessel, which ornaments the library of the Bibliotheca Publica, of the Royal Economical Society of the Friends of the Country, which has kindly loaned it for exhibition in La Rabida. It was modeled by Valtmijana, at Barcelona, Spain.



COLUMBUS IN CHAINS.

No. 93. THE MELERO STATUE.

Mr. Miguel Melero, director of the Academy of Painting and Sculpture at Havana, has designed and finished in gypsum a statue of Columbus that will be cast in bronze for the city of Colon, in the State of Matanzas, Cuba. The work is paid for by the generosity of a rich sugar planter in Matanzas.

No. 94. THE MELIDA DESIGN FOR A TOMB OF COLUMBUS, HAVANA.

On February 25, 1891, a royal decree was issued by the Government of Spain, through the ministry of colonies, inviting competition between Spanish artists for the erection of an appropriate sepulcher in which to preserve the alleged remains of Christopher Columbus in the cathedral at Havana, and for a statue in his honor in the central plaza of that city. Fifty thousand dollars was appropriated for the first and $100,000 for the others. Several designs were submitted to a jury, who awarded the first prize to Arthur Melida and a premium of $5,000; the second prize was given to Don Antonio Alsina; and the third to Don Francisco Fons The sepulcher is now being erected, upon the Melida design, at Havana.



MELIDA DESIGN FOR MONUMENT.

The Melida design represents a bier covered with a heavily embroidered pall, borne upon the shoulders of four heralds, in garments richly carved to represent lace and embroidered work. The two front figures bear scepters surmounted by images of the Madonna and St. James, the patron saint of Spain. On the front of their garments are represented the arms of Castile and Leon. The rear bearers represent Aragon and Navarre the former being indicated by four red staffs on a gold field, and the fourth has gold-linked chains on a red field. The group is supported on a pedestal ornamented about its edge with a Greek fret.



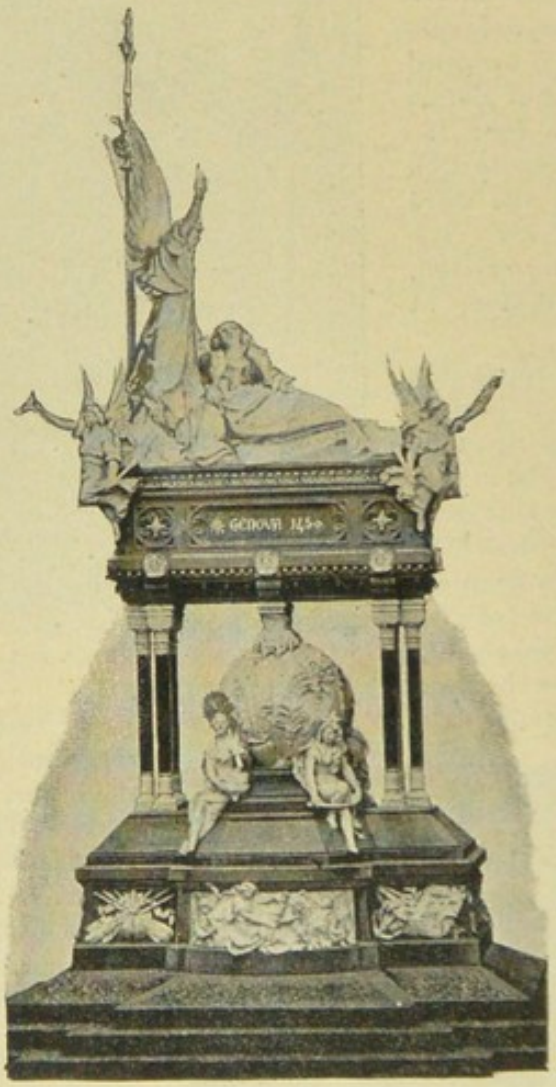
THE ALSINA DESIGN.

No. 95. DESIGN FOR A TOMB OF COLUMBUS BY ALSINA.

The design submitted by Antonio Alsina represents Spain and America united by the symbol of the Christian faith. The sitting statues represent Hope, Cosmography, and Navigation. The Spanish lion supports the shield of the Catholic kings. The statue of Fame, whose wings partly appear behind the upper group, is pointing to the name of Columbus inscribed on a medallion placed on the rear of the funereal urn.

No. 96. DESIGN FOR A TOMB OF COLUMBUS BY FONS.

The design of Francisco Fons represents a sarcophagus supported by six pillars, three at the head and three at the feet. Upon it lies Columbus, represented as in his dying bed, with a cross at his head, before which an angel is standing. One hand of the angel is resting on his shoulder and the other is pointing upward. At each corner of the sarcophagus is a winged figure representing Fame. Below it is a globe covered with tropical foliage in relief. About it sit four allegorical figures, and on the sides of the base, supporting the pillars, are symbolical figures in high relief.



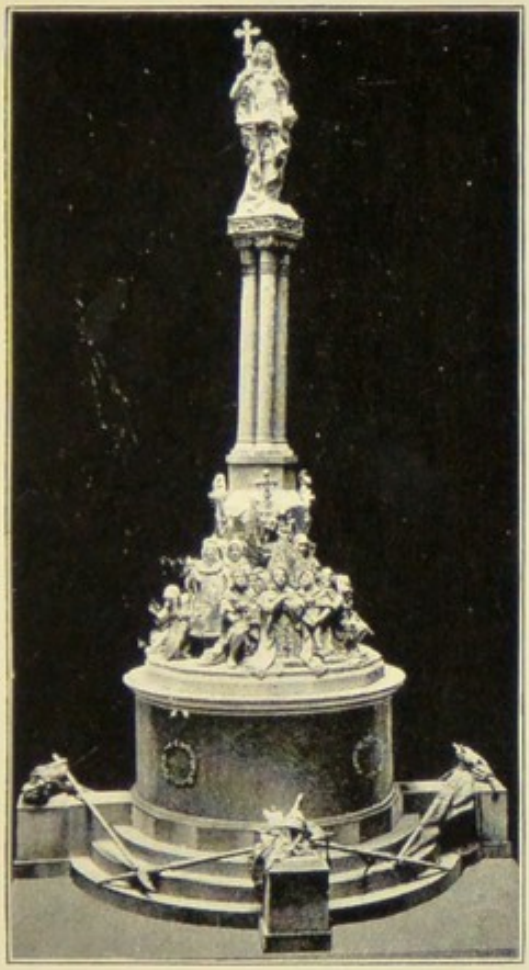
THE FONS DESIGN.

No. 97. DESIGN FOR MONUMENT TO COLUMBUS AT HAVANA, BY SUSILLO (pls. XIV–XVI).

The design submitted by Don Antonio Susillo was adopted for the monument, and it is now being carved. It represents a boat supporting a vessel, which has carved on its bow the date 1492. In it are two figures, one of an Indian and the other of a white man, bearing a cross. On one side is a large medallion of Ferdinand and Isabella. The globe rests on a truncated pyramidal base, which in turn is supported by a pedestal having at each of its four angles an allegorical figure and on each of its faces a a bronze bas-relief.

No. 98. THE SAN DOMINGO STATUE.

The statue of Columbus in the city of San Domingo, which was founded by Columbus, in front of the cathedral in which his bones lay for two hundred and fifty years, and where it is claimed they still remain, is a heroic statue in bronze.



THE SUSILLO DESIGN.



BAS-RELIEF ON SUSILLO DESIGN.

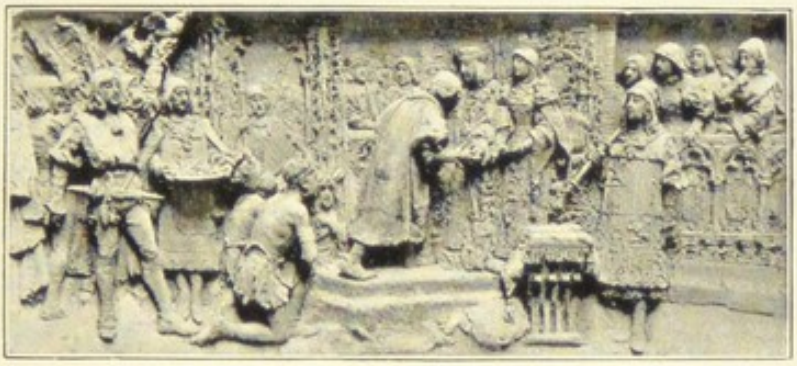


BASE OF SUSILLO MONUMENT.



BASE OF SUSILLO MONUMENT.









BAS-RELIEFS ON SUSILLO MONUMENT.

It stands in the center of the plaza opposite the Government palace. It was cast in France, by order of the Dominican Government, about 1880. It represents Columbus in heroic size, pointing to the westward. At the base is a life-size figure of an Indian girl, representing Anacaona, the unfortunate wife of the no less unfortunate cacique of Cibao, tracing an inscription which reads: "Yllustre y Esclarecido Varon, Don Cristoval Colon."

No. 99. THE ISABELLA MONUMENT.

Some enterprising and patriotic citizens of Boston have raised funds for the erection, on the site of Isabella, the first civilized settlement in the New World, of a statue to commemorate the event and the man. It is to be a bronze figure of Columbus, designed by the sculptor Buyens, of Ghent, and will be cast at Chicopee, Mass. It will stand on a massive pedestal of Cape Anne Granite. There are two bas-reliefs, representing the Genius of Christianity and the Genius of Civilization. The former is a female figure, representing the Mother Church fostering a little Indian child and pointing to a suspended cross in the distance, the emblem of man's salvation. The second bas-relief is an ideal figure of the Goddess Ceres drawn in a chariot by prancing horses; her arms are filled with gifts and flowers, and Columbus at the heads of the horses is pointing the way for her to follow. A third tablet carries an inscription in Latin, from the pen of M. Schroeder, as follows:

ANNO. CLAUDENTE. SAECULUM. XV
EX. QUO. COLONI. CHRISTIANI. COLUMBO. DUCE
HIC. POST. OPPIDUM. CONSTITUTUM
PRIMUM. IN. MUNDO. NOVO. TEMPLUM
CHRISTO. DEO. DICARUNT
CIVES. BOSTONIAE. SUB. AUSPICE
EPHEMERIS. BOSTONIENSIS
CUI. A. SACRO. CORDE. EST. NOMEN
NE. REI. TANTAE. MEMORIA. UNQUAM. DELABATUR
HAEC. MARMORI. COMMENDAVIT
A. D. MDCCCLXXXXII.

No. 100. MONUMENT IN THE CITY OF MEXICO.

The capital of Mexico has long had, in one of its public thoroughfares, a truly artistic monument to the great discoverer. It was executed by Cordier, a French sculptor, and was the gift to the city of one of her sons, Señor Don Antonio Escandon, by name. The subbase of this monument is a large platform of basalt, surrounded by a balustrade of iron, from which spring five lanterns. From the platform rises a square mass of red marble ornamented with basso-relievos. One of these represents the arms of Columbus, surrounded with garlands of laurel; another portrays the rebuilding of the monastery of Santa Maria de la Rabida; the third represents the discovery of the island of San Salvador, while the fourth reproduces a fragment of a letter from Columbus to Raefael Sanchez, beneath which is placed the dedication of the monument by the patriotic gentleman to whose munificence the city is indebted for the memorial. Surrounding the pedestal, four life-size figures, in bronze, stand above the basso-relievos, representing, respectively, Padre Marchena, guardian of the monastery of Santa de la Rabida; Padre Fra Diego Deza, confessor of King Ferdinand, to the encouragement and support of which two men the hardy adventurer owed the royal favor; Fra Pedro de Gante and Fra Bartolome de las Casas, the two missionaries who most earnestly gave their protection and services to the Indian natives of the soil. Surmounting the whole is the dignified effigy of Columbus, in the act of drawing aside the veil which hides the New World. In both conception and treatment this monument is conceded to rank with the best of its class, even in the Old World.

No. 101. THE PILAR STATUE, MEXICO.

A statue of Columbus, designed by Pilar, was erected in the Paseao de la Reforma, City of Mexico, October, 1892.

No. 102. THE STATUE AT COLON.

In the Colombian seaport which was christened Colon, in honor of the famous discoverer, but to which modern commerce has given the less distinguished and less appropriate name of Aspinwall, stands a bronze group of Columbus, by Vicente Vela, an Italian sculptor, the gift to that place of Eugenie, late unfortunate Empress of the French. It represents its subject clothed in the semimonkish garb which he sometimes wore, with his right hand touching, as if to protect, the half-clad Indian woman by his side, and is a pleasing and artistic monument.




PILAR STATUE.

No. 103. THE FOUNTAIN AT COLON.

A fountain at Colon is also dedicated to Columbus, and in one side of the column is a bas-relief in marble representing the landing at Guanahani.

No. 104. THE STATUE AT LIMA, PERU.

The statue of Columbus at Lima, Peru, was erected in 1850, by Salvatore Rovelli, an Italian, at the expense of the Republic, and it was dedicated with great ceremony. It is a handsome group, representing Columbus in the costume of a courtier of the sixteenth century, raising an Indian girl from the ground. The pedestal is of marble, bearing the inscription "A Cristoval Colon" upon one face, and upon the other three faces handsome urns intended for tropical plants, and the bust is handsomely carved with geographical and astronomical designs.

No. 105. THE VALPARAISO STATUE.

At Valparaiso, Chile, is a marble statue of the discoverer, of heroic size. It stands at an angle of two streets and in front of one of the handsomest houses of the city. The figure is of bronze and the pedestal of marble. On the several faces of the latter are appropriate inscriptions and representations of nautical implements. In the figure Columbus stands in an advancing attitude, holding a cross in his right hand.

No. 106. BUST AT SANTIAGO, CHILE.

The bust of Columbus at Santiago, Chile, is of marble, and represents a face of the De Bry type, with a Dutch cap and garments.

No. 107. THE GENOA MONUMENT (plates XVII and XVIII).

That which is admitted to be the finest existing monument to Columbus stands near the railway station in Genoa, the city of his birth. The Genoese monument was erected in 1862. It was first ordered from the sculptor Bartolini, who shortly after died. Freccia then took it up, but had only just finished a rough model; however, it was finished by Franzone and Svanascini, of Carra. It consists of a huge quadrangular pediment, at the angles of which are seated allegorical figures of Religion, Geography, Strength, and Wisdom. Resting on this pediment is a large cylindrical pedestal decorated with ships' prows, upon which stands a collossal statue of Columbus, with his left hand resting upon an anchor. At his feet, in a



GENOA MONUMENT.









BAS-RELIEFS ON GENOA MONUMENT.



CUSTODIA BUST.

half sitting, half kneeling posture, is an allegorical figure of America in the act of adorning a cross or crucifix which she holds in her right hand. The four bas-reliefs on the sides of the pediment represent the most important events in the life of Columbus: (1) Columbus before the Council of Salamanca; (2) Columbus taking formal possession of the New World; (3) his flattering reception on his return by the Spanish sovereigns, and (4) Columbus in chains.

No. 109. "THE CUSTODIA," GENOA (plate XIX).

The bust of Columbus which surmounts the hollow shaft called the "Custodia," at Genoa, in which the manuscripts and autographs of Columbus are preserved, was carved by Peschiera in 1826, but it has been repudiated by de Conchas, a learned critic, who claims that it is the head of a Roman emperor, by a deaf mute named Castilli.



STATUE IN RED PALACE, GENOA.

No. 110. STATUE IN RED PALACE, GENOA.

The statue of Columbus in the Red Palace, Genoa, represents him standing upon the deck of the ship pointing out land to his incredulous sailors, while behind him stands a padre with a cross. The pedestal is ornamented with prows of caravels, and on each side of it is a mythological figure representing Discovery and Industry.



BUST IN CIRCOLO FILOLOGICO É STENOGRAFICO, GENOA.

No. 111. BUST IN RED PALACE, GENOA.

The bust of Columbus, which stands in the Red Palace at Genoa, was carved from the Capriola portrait, which was submitted to the committee in charge by the Duke of Veragua, a descendant of Columbus, who was invited to recommend a model.

No. 112. STATUE IN COLLEGE AT GENOA.

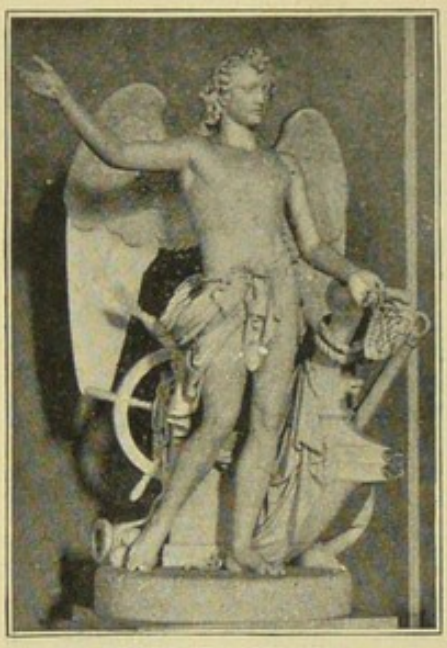
In 1892 the students of the Christopher Columbus College at Genoa demonstrated their patriotism by raising a large fund, which was expended in the erection of a statute to Columbus in the patio of that institution. It represents the discoverer in a sitting posture.

No. 113. PORCELAIN COPY OF BUST IN GENOA.

In the Philological Circle at Genoa is a beautiful piece of marble with a strong face very much like the traditional types of Columbus, but around the neck is a chain, to which is attached a medal bearing an unknown face.

No. 114. THE GENIUS OF COLUMBUS.

A beautiful figure in marble, representing the Genius of Columbus, stands in the Royal Palace at Genoa. It represents a young man with a genie with wings, surrounded by nautical implements.



GENIUS OF COLUMBUS.

No. 115. BUST AT ROME.

There is a bust of Columbus in the Capitoline Museum, Rome, but its origin and artist are unknown. There is a copy in marble in the rooms of the Historical Society at New York.

No. 116. THE COGOLETO MONUMENT.

At the town of Cogoleto, which claims to have been the birthplace of Columbus, is a heroic bust of the Giovian type upon a pedestal of granite, bearing an appropriate inscription. The pedestal also bears nautical designs, and upon one side is a griffin in marble.

No. 117. THE BARCELONA MONUMENT (pl. xx).

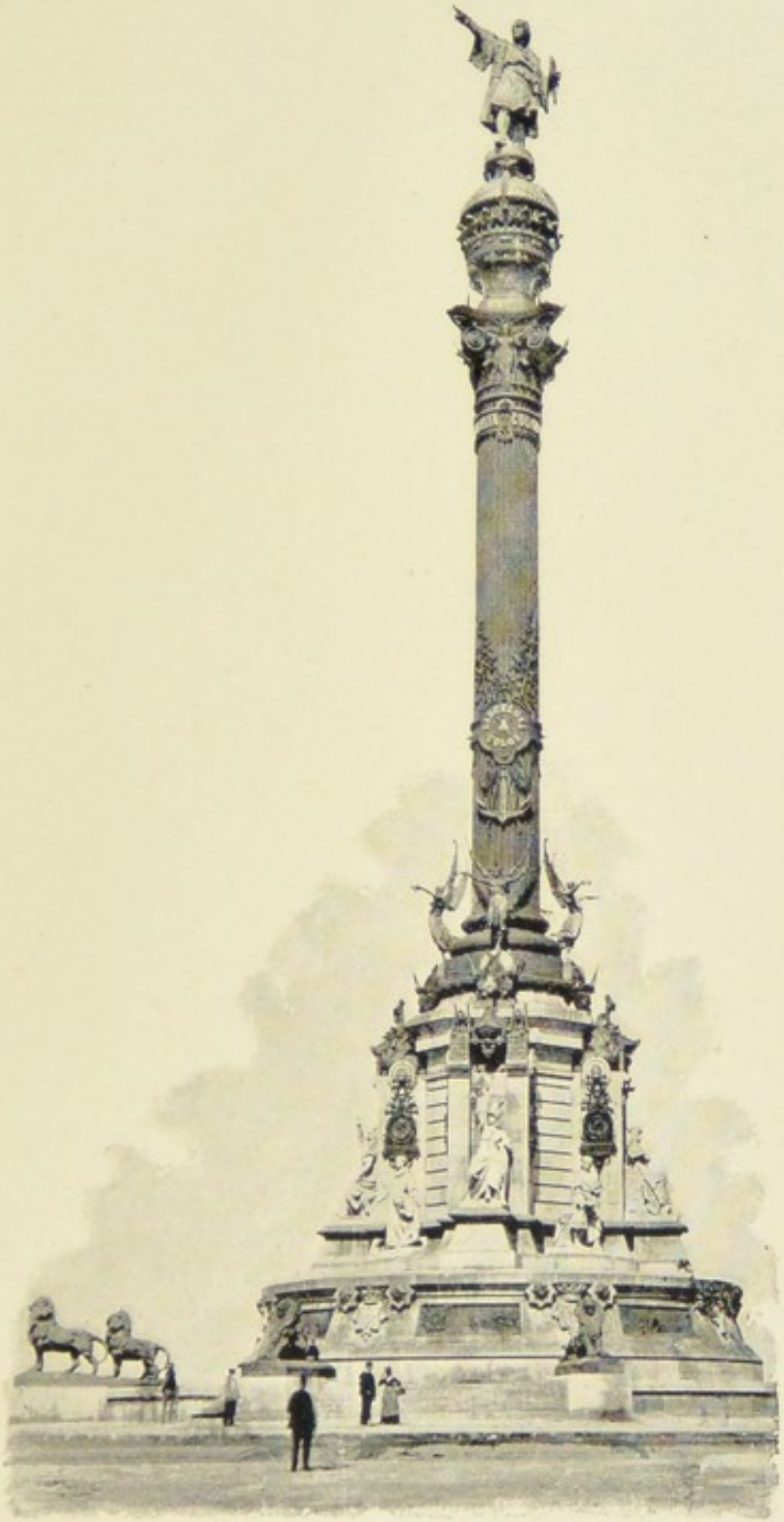
The monument to Columbus at Barcelona was unveiled, in the presence of Queen Christina and the ministers of state, on the 2d day of May, 1888. It cost $200,000. It is 240 feet high, and an hydraulic elevator carries visitors to the top. It was cast in eight pieces at Barcelona. The plan comprises an extensive landing stage at the harbor in front of the city, flanked on either side by the prow of a vessel, one representing the *Pinta*, and the other the *Niña*, with a magnificent balustrade, adorned by statues of famous explorers of various nations. Behind this stretches an ample paved square, shaded on its sides and rear by rows of ornamental trees, and from this in turn rises a lofty and elaborately decorated column, surmounted by the colossal figure of Columbus, holding in his left hand a marine chart, and pointing with his right to the newly discovered land. The base and accessory figures—one group of which represents the provinces of Leon, Castile, Arragon and Catalonia, the other portraying the patrons and friends of the intrepid Admiral—are of stone; the eight colossal lions guarding its base, and the main shaft, itself, are of iron; while the four graceful figures of Fame and Renown, the panels, with their elaborate reliefs, and the other decorative devices which enrich the monument, and the crowning effigy of of Columbus—which is a little over 18 feet in height, and weighs some 30 tons—are all bronze, cast from the cannons contributed for the purpose by the Spanish Government. This monument was the work of several artists, the principal figures being the conception of Rafael Atche, a Catalan sculptor, and the cost of defraying it was borne partly by the city and partly by voluntary subscription from various municipalities, corporations, and private individuals.



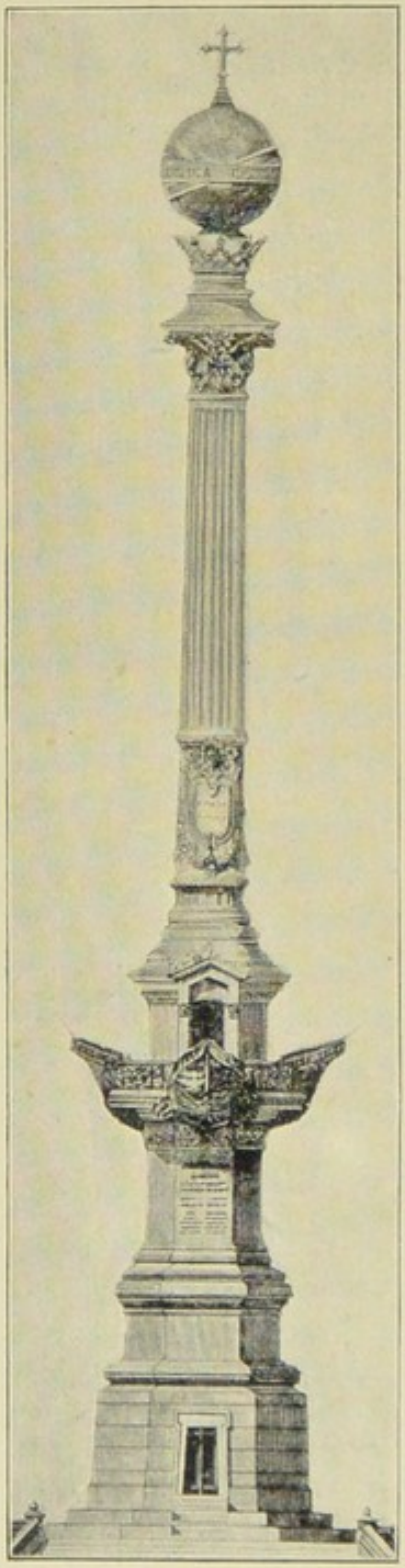

BUST IN CAPITOLINE MUSEUM, ROME.



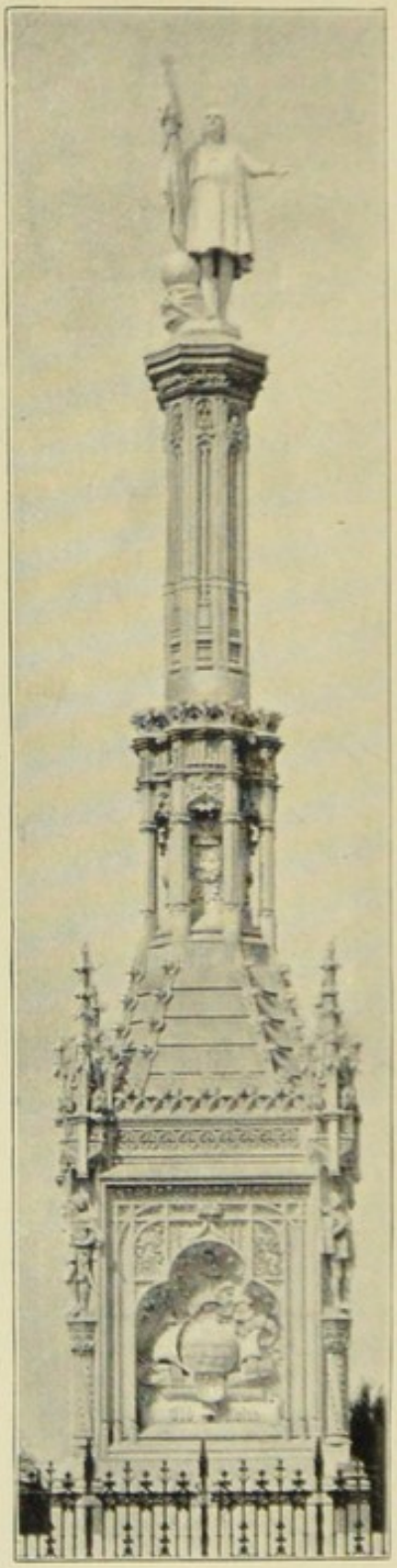
MONUMENT AT COGOLETO.



BARCELONA MONUMENT.



LA RABIDA MONUMENT.



MADRID MONUMENT.

In the courtyard of the Lonja at Seville, the building which was formerly the Royal Exchange but is now used to shelter the archives of the Council of the Indies, is an ancient and rather ordinary statue of Columbus in marble, erected nearly a hundred years ago.

No. 118. THE CARTUJA STATUE, SEVILLE, SPAIN.

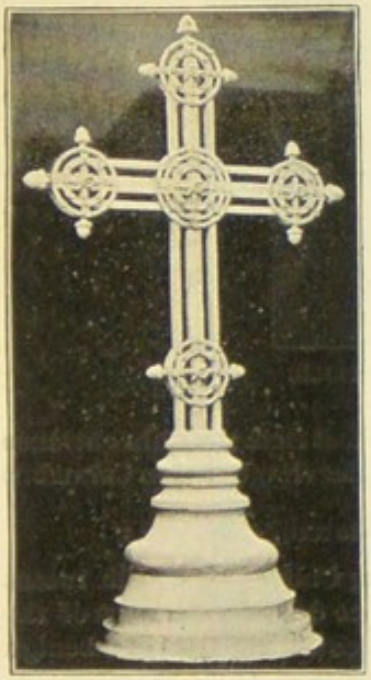
After Columbus returned from his last voyage to the New World, he found shelter in the old monastery of the Carthusian Monks at Seville, and there he remained for two years. After his death, at Valladolid, his remains were removed to the chapel of this monastery and lay for nearly half a century, when they were removed to Santo Domingo. The monastery is now occupied as a porcelain factory, but the chapel has been left intact and is still used for worship. Before the main entrance, under the shelter of some beautiful trees, is a statue of Columbus, by some unknown artist, that was erected many years ago.



SALAMANCA MONUMENT.

No. 119. SALAMANCA (SPAIN) MONUMENT.

At Valcuebo, a country farm once belonging to the Dominicans of Salamanca, Columbus was entertained by Diego de Deza—prior of the great Dominican convent of San Esteban and professor of theology at Salamanca—while the Junta of Spanish ecclestiastics considered his plans. The country people have a tradition that on the crest of a small hill near the house, now called "Toes de Colon," Columbus passed long hours conferring with his visitors or reading in solitude. The present owner, Don Martin de Solis, has erected a monument to his memory on this hill, consisting of a stone pyramid surmounted by a globe and surrounded by an ordinary iron fence.



CROSS ON TOP OF LA RABIDA.

No. 120. THE MONUMENT AT GRANADA, SPAIN.

A monument in honor of Columbus and Isabella was dedicated at Granada on the 2d of November, 1892. It is of highly polished black and white marble, and represents Isabella seated in a large gothic chair with a geographical chart on her lap. Before her stands Columbus explaining his theories. The sculptor was Mariano Bellinure.

No. 121. THE BEER STATUE.

After an investigation of the different portraits of Columbus the Lotto was adopted by Frederic Beer as a model for his statue of Columbus. It has been reproduced in bronze by Cottin. Columbus is represented on his ship, thoughtful, almost anxious, having on his face the absolute certainty of his calculations, but also the troublous inquietude of a solution that is fleeing from him. At his feet lie an anchor and a map of the world, around him are the signs of a revolt that will soon break out; but the serenity of the strong does not abandon him, and alone against all he believes and dares.

Nos. 122 AND 123. MONUMENT AT LA RABIDA. CROSS AT SUMMIT OF LA RABIDA MONUMENT (plate XXI).

On the 12th of October, 1892, a magnificent monument, erected by the Government of Spain in honor of Columbus and the Pinzon brothers, was dedicated with great ceremony. It stands in front of the old monastery of La Rabida, at Palos. It

represents a fluted Corinthian column capped by a crown supporting an orb surmounted by a cross. The column rests upon a prismatic support from which protrude four prows of vessels, and the pedestal of the whole is in the form of a tomb with an Egyptian-like entrance, to which broad staircases lead on four sides. The orb bears two bands—one about its equator, and the other representing the zodiac. On the Corinthian column are the names "M. Pinzon" and "V. Pinzon." Under the prows of the vessels is the name "C. Colon," with a list of the persons who accompanied him on his voyage of discovery.

No. 124. COLUMBUS AND THE PRIOR OF LA RABIDA.

There has always been a dispute as to the exact spot where Columbus first addressed the monks at La Rabida. Many years ago a shaft was erected about 600 yards from the convent to identify the place, and it has been very badly chipped by relic hunters, and the soft stone has worn rapidly away by exposure to the weather.



COLUMBUS EXPLAINING HIS PLANS TO THE PRIOR.

Some years later a second monument was erected about 30 feet from the main entrance where the historians claim later evidence locates the first interview between Columbus and the monks.

No. 125 THE MADRID MONUMENT (plate XXI).

The city of Madrid has honored itself, while honoring Columbus, by the recent erection of his effigy in bronze, of heroic size, in the Paseo de Recoletos, one of the principal promenades in the Spanish capital. This representation portrays a benign and reverent expression of countenance with the figure clothed in the ordinary costume of his period, wearing over it a short fur-trimmed over-garment. He stands on a lofty pedestal, or, rather, crowns a column of considerable height, his left hand outstretched, as if pointing to the newly discovered land he had reached after so many hardships, while the right upholds the furled flag of Spain, the cross-tipped staff of which rests upon a miniature semblance of the globe, which, in turn, rests upon the head of a capstan, about which a cordage cable is gracefully coiled.

No. 126. THE SUNOL STATUE (plate XXII).

The statue of Columbus at the top of the monument is by a Spanish artist named Sunol, and is considered a very fine figure. A duplicate of the Sunol statue is to be erected at New York.



SUNOL STATUE.

Nos. 127, 128, AND 129. THE SAMARTIN STATUE. STATUE IN SENATE CHAMBER, MADRID. PROPOSED STATUE BY GAUDARIAS, MADRID.

There is a similar statue in the offices of the ministry of colonies, Madrid, by J. Samartin.

A monument to Columbus at Madrid has been proposed by Don Alberto Palacio.



THE SAMARTIN STATUE.



STATUE IN SENATE CHAMBER, MADRID.



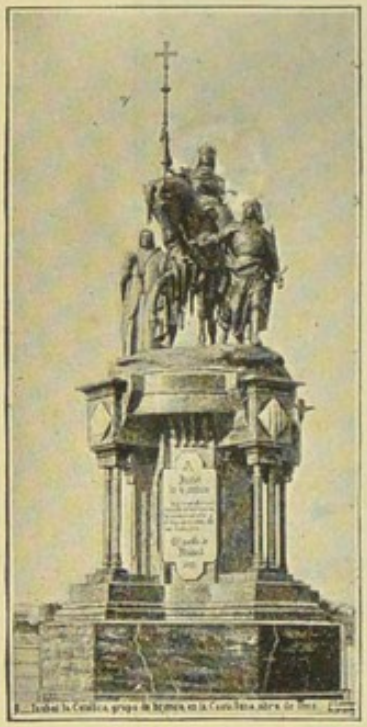
GAUDARIAS STATUE.

No. 130. PLUS ULTRA.

In the Royal Academy at Madrid is a beautiful allegory in marble entitled, "Plus ultra," or there is more beyond. The author was J. Gaudarias, and he intended this work to illustrate the discovery of the New World. It represents a female figure upon the back of a winged lion treading upon globes.

No. 131. THE ISABELLA GROUP, MADRID.

There is still a monumental group in Madrid which, while it was erected in honor of Queen Isabella, may be said to honor Columbus in equal degree, though his effigy is no part of it. This conception represents his royal patroness in bronze, holding aloft a cross, and seated on a richly caparisoned horse, whose reins are held on the one side by a monk and on the other side by a soldier, with an unsheathed sword resting on his left arm.



MONUMENT TO ISABELLA AT MADRID.

No. 132. THE SHIELD OF COLUMBUS.

There is in the Armeria Real (Royal Armory) at Madrid a remarkable shield, intended to commemorate the discoveries of Columbus, which was designed by Julio Romano, one of the most celebrated pupils of Rafael. It is said to have been made at the order of Charles V. According to mythology, Hercules divided the two mountains, Calpi and Abyla, which stood where now is Gibraltar, at the entrance of the Mediterranean Sea, placing one in Europe and the other in Africa, and then erected two pillars on their summits, bearing the inscription, "Non plus ultra," which means "there is nothing beyond." The design of the shield represents the moment when the pillars of Hercules are being extended to include the countries discovered by Columbus. Charles V stands upon a richly carved ornamented vessel, holding the standard of Spain, and crowned by victory. Fame, with her trumpet, is before him, and hands him a shield, upon which are the words "plus ultra" (there is something beyond). In the background Hercules appears, bearing the pillars away, to the astonishment of Neptune and other gods.

No. 133. THE TRIUMPH OF COLUMBUS, SKETCHED BY HIMSELF (page 257).

The contracts, commissions, and other papers of Columbus have been published in a book called the Codice Diplomatico, with some facsimiles. Among other relics is a sketch called The Triumph of Columbus, which is alleged to have been made by himself at Seville, in 1502, perhaps a suggestion to some artist who might wish to commemorate his deeds. In the sketch Columbus appears seated in a chariot with Providence by his side. Envy and Ignorance are monsters following in his wake, while Constancy, Tolerance, Christianity, Victory, and Hope, in the form of Seraphim, attend him. Above all is the floating figure of Fame, blowing two trumpets, one marked "Genoa" and the other "Fama Columbi."



SHIELD OF COLUMBUS.

Harrisse, in his Notes on Columbus, says that good judges assign this picture to Columbus's own hand. Although none of the drawings ascribed to him are authentic beyond doubt, it is true that he had the reputation of being a good draftsman. Feuillet de Conches, the well-known French writer, doubts its authenticity. The sketch is surrounded by explanatory notes in the manuscript of Columbus, or a very good imitation of it, and at the lower left-hand corner are the initial letters he was accustomed to use with his rubric.

No. 134. SPANISH MEDAL COMMEMORATING THE DISCOVERY, 1892. COLUMBUS MEDAL ISSUED BY SPANISH GOVERNMENT, 1892.




Anverso. Reverso.

MEDAL COMMEMORATING THE DISCOVERY OF AMERICA.

No. 135. THE LAWRENCE STATUE.

Miss Mary Trimble Lawrence, of New York, a member of the board of trustees of the Art Students' League and a pupil of Augustus St. Gaudens, was selected by the board of directors of the World's Columbian Exposition to furnish the model for a statue of Columbus to be erected upon the grounds at Jackson Park, Chicago. The commission was originally offered to St. Gaudens, but he suggested that Miss Lawrence be employed to work out his conception.

Columbus stands bareheaded, with face uplifted, clad in armor, as if he had just taken possession of the soil. In one hand he holds uplifted the standard of Castile and Aragon, as does the statue of the discoverer by the Spaniard, Sunol, and in the other his sword.



TRIUMPH OF COLUMBUS.

See page 256.

No. 136. THE STATUE AT PAVIA.

The early biographers of Columbus all asserted that he was educated at the University of Pavia, but later investigation fails to disclose any evidence of that fact. That he had a knowledge of the languages and the sciences there is no doubt, but in none of his own writings, and they are numerous, does he mention the place where he was educated. The reverend fathers of that university, however, claim that he was a student there, and have erected a pedestal and bust to commemorate the fact.

SCENES IDENTIFIED WITH THE LIFE OF COLUMBUS.

The collection of pictures representing scenes in the life of Columbus began with a series of views of the several cities that claimed the honor of being his birthplace, Genoa and Cogoleto being the most prominent.

Although the birthplace of Columbus may be in doubt, the strongest probabilities are in favor of Genoa. His pedigree and the movements of his family have been traced with remarkable patience by Henry Harrisse, who found in the archives of Genoa records of real estate transfers and other business transactions by the father of Columbus,

about the date of his birth; and Columbus, in his will, says, "I was born in Genoa." In a subsequent paragraph of the same document he writes, "I came from there and there was I born."

One of the most interesting of the pictures was a water-color sketch by Miss Bertha E. Perrie, of Washington, D. C., of the house at Quinto where the father and mother of Columbus lived and where they were married. The grandfather of Columbus lived at Terrarossa, a hamlet about 20 miles northeast of Genoa, and there his father was born. Some time between 1430 and 1445 he moved to Quinto al Mar, a little place on the coast 4 miles east of Genoa. The house in which he dwelt is still standing in the Via dei Colombo, No. 8, owned by Mr. Giuseppe Piaggio, and occupied by several peasant families. Here Domenico, the father of Christopher, was married to Susanna Fontanarossa, who came from Quezzi, and belonged to a race of weavers. About 1446 he moved into the city of Genoa, where he purchased a residence, and in that year qualified as a citizen. In 1471 Domenico Columbus went to Savona, where his wife died. About 1484 he returned to Genoa to reside with his daughter until his death, at an advanced age, in 1499 or 1500. He lived to see the triumph and enjoy the fame of his son, and it is believed that Christopher visited him after the first voyage. There is, in the municipal archives at Savona, a document witnessed by Columbus in 1472. On August 26, 1472, he indorsed a note for his father, and on August 7, 1473, signed a deed relinquishing all claims to the house in Genoa.

A series of plans in eight parts of the house at Genoa in which Columbus is said to have been born were also shown. The learned antiquarian, Marcello Staglieno, of Genoa, identified the Vico dritto del Ponticello, No. 37, as the house in which Dominico Columbus lived during the younger years of Christopher's life, and it is probable, although not certain, that the latter was born there. The discovery of the ownership was made by tracing back the title to the property. Through the efforts of Cavaliere Giuseppe Baldi $6,300 was raised in June, 1887, the property was purchased, and a tablet was placed over the door, with the Latin inscription which in English reads: "No house better deserves an inscription. This is the paternal home of Christopher Columbus, where he passed his childhood and youth." The house was, at that time, just outside of the city walls of Genoa, by the gate of St. Andrew.

Some writers argue that the republic instead of the city of Genoa was meant by Columbus when he said that he was born there, which will admit to the controversy the claims of several suburban towns in which his family at one time resided. In the little village of Cogoleto, about 15 miles from Genoa, an ancient structure is pointed out as the birthplace of Columbus which bears the following pretentious inscription: "Traveler, stop at this place. It was here that Columbus, the greatest man in the world, first saw the light; here in this humble house! There was one world; this man spoke and there were two."

There was a number of pictures of places identified with the career of Columbus in Spain, but these were not so new or novel as the large collection which represented the present appearance of Watling Island, which is believed by the best authorities to have been the landfall of the discoverer.

All the places in America visited by Columbus can be absolutely identified except his first landfall, called by the natives Guanahani, and by him San Salvador. Each of half a dozen islands in the Bahama group has had its advocates, but the highest authorities favor Watling Island because it answers more closely to the description given by Columbus in his journal. Watling Island lies in latitude 24° north. It is about 13 miles long, from 6 to 7 wide, and has an area of about 60 square miles, nearly half of which is covered by a series of lagoons, connected with each other by narrow passages. Watling Island is 175 miles from New Providence, the capital of the Bahamas, which can be reached by the New York and Cuba Line of steamers, and about 75 miles from Fortune Island, where the Atlas Line of steamers from New York touch, but it has no regular transportation facilities, and to reach it one must hire a sailboat at Nassau.

Although there has been some dispute about the actual landing place of Columbus on Watling Island, owing to a confused rendering of his journal, yet the majority of writers have agreed that it was on the east coast, in or near the bay known as Greens Harbor, and in a cove at its southern extremity. There is a headland there, whence the bay stretches northwardly some 3 miles, and an excellent place for landing, after the coral reefs have been passed, under the lee of the cliffs. Stopping here a day, Columbus explored the coast in small boats, keeping behind the barrier reefs of coral that lie off the beach and surround the island.

An important point in favor of Watling as the landfall of Columbus, in comparison with other islands claiming it, is the fact that it has in its center a great lagoon as a distinctive feature. Columbus particularly states that the first island on which he landed had a large lagoon in its center, and this description will only apply to Watling and to Crooked Island.

The only settlement on Watling Island is that of Cockburn Town, at Riding Rock Bay, on the west side of the island. Here is the port of entry, the house of the resident magistrate, a chapel, church, and a few score huts and houses. Riding Rock has a fine bay, but is exposed to storms at times and is then unsafe. It is supposed that Columbus came around the island—around its northern point—and then along the west shore as far as this point, whence he took his departure for Rum Cay and Long Island.

The Baptists are in the majority in Watling Island, and their chief place of worship is at Cockburn Town. Like nearly all the houses of the island, it is built with walls of stone, and covered with a roof of thatch composed of palm leaves.

The Bahamas, for many years after their settlement, were the abode of pirates and wreckers, who systematically pursued their nefarious business of wrecking vessels and sometimes murdering the crews for the plunder they obtained. The establishment of light-houses by the English Government was looked upon by them with deep resentment, a feeling with which they still regard them. The light-house at Watling is first-class, built upon a hill overlooking the site of the first landing place of Columbus, and is equipped with everything necessary to an isolated station where stores are not easily obtained.

The entire population of Watling, except the magistrate, the parson, the schoolmaster, and the police force (consisting of one individual), is composed of laborers and fishermen. In the interior of the island they have their "farms," where they work hard to raise a scant crop of corn, pineapples, bananas, and vegetables.

The present inhabitants of Watling support themselves by fishing, conching, wrecking, turtling, and trying to cultivate the thin soil that covers the rocks of which their barren island is composed. They earn a precarious existence, and are frequently on the point of starvation, as in the summer of 1892, when all the crops failed on account of the drought. They are honest, good workmen, and demand only 2 shillings a day for their services. From the nature of things, their island being so poor and so far distant from a market, being visited only by infrequent vessels, they can never improve their condition.

Of the several hundred people composing the population of Watling Island there are but two or three that are white. They are nearly all the descendants of the slaves freed by the English act of emancipation and who have succeeded to the estates of their former owners. These estates are now in ruins, the cleared fields long since overgrown with scrub, and ruin and desolation are visible everywhere.

The chief building material of the Bahamas, abundant everywhere, is the soft coral limestone, that is easily worked and sawed into building blocks. It makes the best of foundations and walls, giving strong and cool houses, and withstands the shocks of the hurricane as no other could. The roofs are of thatch, made from the native palmetto or "head palm," and neatly laid on the rafters. There are few glass windows, the apertures being closed with wooden shutters, and the furnishings of the houses are simple in the extreme.

Until quite recently, the only white family on the island was that of the resident magistrate, Hon. Maxwell Nairn, who has lived there for many years and is looked upon by the inhabitants of Watling Island as a father and friend. He has earned a reputation for uprightness and hospitality that is universal throughout the Bahamas, and the news that he was stricken with paralysis in the summer of 1892 was received with general sorrow. After many years of faithful service, he is now retired on a pittance of a pension not adequate for his support.

The collection included views of the coast and the interior of the island from every point of observation, and photographs of all the buildings and many of the inhabitants. There was a similar collection of views of the other islands visited by Columbus, and particularly the city of La Navidad, where he landed on the coast of Santo Domingo, and where his flagship, *Santa Maria*, was wrecked on Christmas eve, 1492. The settlement has ever since preserved the name of Guarico, and is identified with the present bourg of Petit Anse, not more than 3 miles from Cape Haytien.

The wreck of the *Santa Maria* occurred on Christmas eve, 1492, and from that circumstance Columbus called the first fort he erected here Navidad, or the Nativity. It was built mainly out of the wreckage of the flagship, and was said to be a tower surrounded with a ditch. Having then but two vessels, and not room enough for all, Columbus left some forty men at Navidad, and then, after provisioning and arming the fort, sailed for Spain.

The site of the fort is a hill, isolated by surrounding salines, or salt flats, and commanding the channels by which the vessels of Columbus approached the shore. The fort was destroyed and the garrison massacred by Indians in 1493, and Columbus, on his return on the second voyage, found not one of his men alive.

The next group of pictures represented the present appearance and condition of the city of Isabella, the first civilized settlement in the New World. After reaching the coast of Haiti in 1493, on his second voyage, finding the fort he had erected at Navidad destroyed and the garrison massacred, Columbus retraced his track to a point easterly from Navidad and Monte Cristi, and entered a small but sheltered harbor at a place nearer to the gold mountains of the interior. Here he disembarked his weary men and munitions and provisions, and began the foundation of a settlement, which he named Isabella, after his royal patroness.

He erected a church, a public storehouse, known as "The King's House," and a residence for himself, known as the "Governor's Palace." These were built of stone. Many private houses were constructed of wood, plaster, reeds, and such other material as were found on the ground. The city, however, was abandoned after the discovery of gold in the mountains, and fell into ruins. Mr. F. A. Ober, the Commissioner of the Columbian Exposition to the West Indies, made a thorough investigation of the ruins and brought back all of the stone that was left on the grounds.

The ruins of what is thought to have been the "King's House" were found on the bluff overlooking the river, and a little distance away were other ruins that may have been those of the church. The church was dedicated January 6, 1494, when high mass was celebrated by Friar Boyl and 12 ecclesiastics.

The site of Isabella is now completely overgrown with wild vegeta-

tion, chiefly the different forms of cacti there indigenous, which renders exploration somewhat difficult. But the cactus forms are beautiful, and the glimpses through the openings in the clumps of the Bajo-Bonico River, the bay, and the mountains beyond are attractive.

The ruins of what is known as the "Royal Mint," at Isabella, are just above the bay on the bluff, and there are numerous fragments of pottery shards there, supposed to be of the crucibles in which the gold from the Cibao was smelted, as well as of the roofing tiles of the buildings. Much of the structure has tumbled into the sea, but the greater portion, doubtless, has been carried away to Puerto Plata, for building purposes, in recent years.

The harbor of Isabella is small, and protected from the ocean by a line of coral reefs, the water being shallow, but of sufficient depth for the vessels of Columbus. A river flows into it called the Bajo-Bonico, which is a stream of some volume in the rainy season, but runs nearly dry in the summer. It rises in the mountains of the interior, and large quantities of mahogany logs are floated down its current from the hills. It now enters the bay at a little distance from the site of Isabella, but is thought to have flowed at the foot of the bluff in the time of Columbus.

There were, also, views of Concepcion de la Vega, Santo Cerro, Santiago de los Caballeros, Jacagua, Santo Tomas, and Vega Vieja, the towns that were established immediately after Isabella in the interior of Santo Domingo. In 1494, after the discovery of gold in the mountains of Cibao, everything transportable was removed from the old to the new town, including the bell, which was hung in the tower of the chapel at La Vega, and remained there until the place was destroyed by an earthquake in 1564, when the survivors built a third town near by.

Jacagua, or old Santiago, was founded by Columbus in 1494, and called Magdalena, but was destroyed by an earthquake in 1564. The town had a church and public buildings, and was, at the time of its destruction, a thriving settlement. The church was recently excavated at the expense of the Latin-American department of the Chicago Exposition, and many minor articles of antiquity discovered of the times in which it was built. The ruins are about 4 miles distant from the city of Santiago, the present chief city of the province of the same name, to which the inhabitants of Jacagua removed after the loss of their houses. The proprietor, Señor Don Ricardo Ovies, is intelligent and hospitable, speaks English fluently, and aided the Commissioner of the Exposition in his excavations, furnishing laborers and guidance and placing the entire property at his disposal. Through him many interesting relics were recovered which throw light upon the early history of the country.

The Cibao country, of Santo Domingo, of which La Vega and Santiago are the chief towns, and from which most of the antiquities recovered in the island have been obtained, is in the interior and is best reached from the port of Sanchez, at the head of the Bay of Samana. Thence

a railroad runs as far as La Vega, a distance of 64 miles, whence it is some 20 miles farther to Santiago.

The first gold found by the Spaniards in America came from the river Yaqui, north coast of Santo Domingo, which was called by Columbus the Rio del Oro, or River of Gold, from the richness of its sands. It is said that golden particles adhered to the hoops of the water casks when the sailors took water at the mouth of the river. The richest deposits of gold, or rather the largest nuggets, were found in tributaries of the Yaqui, such as the Yanico, on the bank of which the fort, for the defense of the gold region, called Santo Tomas was built and garrisoned by 50 men.

Santo Tomas was the first fort erected in the interior of Santo Domingo, and guarded the gold region of the famous Cibao. The site of the fortress was traced by the Columbian Commissioner in 1892 and photographed. At the base of the hill on which the fortress was built runs a stream, the sands and gravel of which contained gold at the time the Spaniards came, and even to-day some gold is obtained by the people living there.

The old fort, Concepcion de la Vega, was built by orders of Columbus in 1494, shortly before or soon after the first great victory over the Indians on the Royal Vega. It lies some 6 miles from the present town of La Vega, and there yet remains enough to show the original plan, though it is entirely in ruins except the northeast angle, where the circular bastion is nearly perfect. Here the walls are about 10 feet high, 6 feet thick, with a space inside of 16 feet. The old fort was probably about 200 feet square, built of brick, and with circular bastions at the four corners. The fortress itself is the only structure of ancient Concepcion sufficiently preserved to indicate its original outline. It was intended to keep in subjection the Indians of Santo Domingo. A lombard was discovered in the fort, and has been used for many years in the firing of salutes in honor of the virgin of Santo Cerro.

Santiago de los Caballeros, in the interior of Santo Domingo, was settled by hidalgos, Spaniards of noble blood, who obtained permission from the King of Spain to affix this distinguished appellation, "de los Caballeros" (of the gentlemen) to their city. Hence, there are yet resident there the descendants of some of the conquistadores, who have retained at least a portion of the arms and martial equipment of their ancestors, and from them were obtained several old Toledos that were exhibited. The blades are vouched for as genuine from Toledo in Spain, which has produced as famous work as Damascus, and which were carried by the conquerors of America, and did valiant service against the Indians. They are not numerous, and the most of them that can be found are supplied with new hilts, of rude and native workmanship, making them unique and valuable.

The present town of La Vega has no ruins or antiquities, being a

commercial center, near the banks of the River Camu. About 4 miles beyond is the Santo Cerro, or Holy Hill, with a modern church, and a mile or so farther the ruined city of Vega Vieja, or Old Vega, destroyed by earthquake over three hundred years ago. Many minor antiquities pertaining to the period of the conquest have been found there, and are still unearthed.

The city of Concepcion de la Vega, or Vega Vieja, as it is now called by the natives, was completely destroyed by an earthquake in 1564. It was at that time an important place, beautifully situated, and as all the gold of the Cibao was brought there to be refined, previous to being sent to Spain, it has been thought that a great deal of treasure has been buried in the ruins. People have been digging for over three hundred years, not only for treasure, but for the brick and stone as building material. The old Spanish bricks are better than any now to be obtained, and the cut stone is excellent. The consequence is that the old city is nearly obliterated, only the fortress retaining any semblance of its original shape.

At Santo Cerro, the holy hill of Santo Domingo, may be seen an ancient tree, called by the natives the "Nispero de Colon," beneath which, tradition states, Columbus stood while directing the operations of his army against the Indians in 1494, when the great victory then gained decided their fate forever. It is regarded as a sacred relic, and beneath it mass was celebrated after the victory. A cross was set up also by Columbus, upon which the Virgin (it is said) once descended, and which was removed to the cathedral at Santo Domingo in 1514, where it has been revered as a most sacred relic.

On the summit of the hill is a handsome chapel, recently completed, which contains a very old and revered image of the Virgin. The chapel is near the site of the first cross erected here by Columbus, and over a "holy well," to which have been ascribed miraculous virtues. In his will Columbus directed his son Diego, when his estates yielded a sufficient revenue for the purpose, to erect a chapel on the sacred hill of the "Royal Plain" of Santo Domingo, where masses might be said daily for the repose of the souls of himself and his relatives. A church was erected at this place shortly after, but it is not known that Diego contributed anything toward the expense.

The "Holy Hill," or Santo Cerro, lies about 5 miles distant from La Vega, which is reached by the Samana Railroad from the Bay of Samana. It is a famous place in the annals of the island, and seldom can a Dominican be found who has not at some time seen it. The village is composed of the priest's house and a single row of miserable thatched huts, occupied by the people who make a living selling relics and attending upon the church, which contains the revered image of the Virgin.

In May, 1494, on his second voyage, Columbus discovered the beautiful coast of Jamaica, anchoring in the spacious harbor of St. Anns

Bay, which he named Santa Gloria. At this same place, on his fourth voyage, he ran his vessels ashore to prevent their sinking, and passed many months there before he was rescued.

"St. Anns is considered the finest parish on the north coast," says an old writer. "Earth has nothing more lovely than the pastures and pimento groves of St. Anns, nothing more enchanting than its hills and vales, delicious in verdure and redolent with the fragrance of spices. Embellished with wood and water from the deep forests whence the streams descend to the ocean in beautiful falls, the blue haze of the air blends and harmonizes all into beauty."

Dry Harbor, called by the first discoverers Puerto Buenos, lies to the west of St. Anns, and was visited by Columbus. Near this harbor is a cave of great length, with two long galleries hung with stalactites of much beauty. It was at the end of his fourth and last voyage that Columbus, driven thither by a storm, entered the port of Puerto Bueno, but finding no water here, stood eastward to the present harbor of St. Anns.

There was a full series of pictures in the collection representing the places visited by Columbus on his third voyage, when, it will be remembered, he was taken back to Spain in chains. On the fourth voyage, in 1502, Columbus coasted along the north shore of Central America, where his first landing place was at Carxinas Point, near the town of Truxillo, Honduras.

Had he gone farther westward he might have anticipated Cortez in the conquest of Mexico, but he was not looking for new lands. He sought a western passage around the world, and, turning eastward, groped along the coast seeking the channel he felt should be there, cruising into each river and following the shore lines of each gulf and bay. Exposure and disappointment had shattered the constitution of the once hardy seaman, and his strength was fast failing. His old enemy the gout had attacked him again, and the miasmatic coasts had filled him with fever. There was little left of him but his will. He had a bunk built in the bow of his little vessel where he could rest his weary bones and still guide the course of his fleet. And thus he explored the whole coast of the isthmus from Yucatan to Colombia, finding an unbroken line of continent, in defiance of all his theories, in contradiction to all his reasoning, and an impassable barrier to the ambition he had cherished for thirty years.

On the coast of Honduras Columbus found evidences of a higher civilization than had appeared among the natives of the islands he had previously visited. The Indians were better looking, more intelligent, and more warlike than any he had yet seen. While the natives of the islands stood in awe of the white men and showed a gentleness of demeanor, those of Honduras offered resistance at once, and greeted the voyagers with a shower of arrows from their crossbows. They wore garments of cotton, they had copper knives and hatchets, pottery of

exquisite workmanship, and their houses were built of stone and adobe. The Government of Honduras has recently issued a decree for the erection of a monument to mark the spot where Columbus first landed upon the soil of Central America. It will be a life-size statue, standing upon a pedestal, and will bear the inscription: "The Republic of Honduras to Christopher Columbus, 1492–1892."

A series of pictures was given also of the present appearance of all the places visited by him. At the site of Puerto Bello, on the Isthmus of Panama, Columbus established a colony during his fourth and last voyage, for the purpose of ascertaining the source from which the Indians got their gold; but it existed only four months. Several of the party were massacred by the Indians and many died of disease. The food became low, and the ships were so worm-eaten that they would scarcely float, so he started back toward Hispaniola, and the leaking caravels were beached in Santa Gloria Bay, on the northern coast of Jamaica. As the name (bestowed by Columbus in 1502) implies, Puerto Bello has a very fine harbor, with from 8 to 10 fathoms of water at the entrance of the bay, with Drake Point on the north and Buenaventura Island on the south. A town was founded there in 1584, which rapidly grew in importance, being the great depot for the gold and silver from Peru brought across the isthmus and taken to Spain by the royal galleons. It was destroyed in 1739 by Admiral Vernon, of the British navy. The population was at that time 10,000, but it is now less than 1,000, the decline being due to the loss of trade and the unhealthiness of its situation.

A mile or more to the east of St. Anns Bay, which Columbus named Santa Gloria, he ran his ships aground, and, lashing them together, built thatched cabins on their decks. "Thus castled in the sea, he hoped to be able to repel any invaders, and at the same time to keep his men from roving about the neighborhood and committing their usual excesses." Here he was compelled to remain for nearly a year, until finally rescued by a vessel from Santo Domingo. The cove is a beautiful and secluded one, with white sand beach and bordering fringe of sea-grape trees.

A very interesting series of pictures illustrated the two alleged burial places of Columbus, in Santo Domingo and Havana, and were presented with impartiality. These pictures were made by Mr. Frederick A. Ober, the commissioner of the Chicago Exposition to the West Indies, with the permission of the archbishop of Santo Domingo and others in authority.

Columbus died on the 20th of May, 1506, after partaking of the holy sacrament, and uttering the words "Into Thy hands, Oh, Lord, I commit my spirit."

The house at Valladolid, Spain, in which Columbus died May 20, 1506, is still standing, and is visited by multitudes of tourists. At the time of his death it was an inn. His brother, Bartholomew, was with him. In none of the chronicles of the time, and they were numerous,

is there any allusion to the event. It was not until nearly a month after that the fact was officially recorded, and then in the briefest and most indifferent manner. On the back of one of his belated appeals to the King some clerk wrote "The within admiral is dead." The house is a plain structure, at No. 2 Calle Ancha de Magdalena, its most noteworthy feature, until recently, being a sign over the door announcing the sale within of Leche de burros y vacas (cows and asses' milk).

The biographies of Columbus usually state that King Ferdinand ordered the removal of the remains of Columbus to Seville immediately after his death, and erected a monument bearing the inscription: "A Castilla y a Leon, Nuevo Mundo dio Colon." (To Castile and Leon, Columbus gave a new world.)

This statement did not appear in print for eight years after, and if the will of Diego can be accepted as testimony, the remains of Columbus were removed three years after his death to the vault of the Carthusian Monastery of Las Cuevas, near Seville, by members of his own family, who erected the monument without the aid or knowledge of the King. His remains were first deposited in the Convent of San Francisco, Valladolid, and subsequently removed to Seville in 1513, whence, about the year 1541, they were taken to Santo Domingo.

In 1537, upon the application of Dona Maria de Toledo, the widow of Diego Columbus, a royal order was issued permitting the removal of the body of Columbus to Santo Domingo, but for some reason it was not carried out, and three separate orders to the same effect were granted to Dona Maria between 1537 and 1541. In the latter year her efforts appear to have been successful, although some historians hold that the removal did not take place until nine years later, upon the completion of the great cathedral at Santo Domingo. The records of that city throw no light upon the controversy, for it was not until 1676 that an entry was made in canonical books of the cathedral concerning the reentombment of the remains. It is said, however, that when the city was sacked by Sir Francis Drake, the British freebooter, in 1585, the archives of the cathedral were destroyed.

When the treaty of Basle, in 1795, transferred the colony of Santo Domingo from the Spaniards to the French, the Duke of Veragua, who had inherited the titles and estates of the admiral, obtained permission to transport the remains to Havana, in order that they might remain on Spanish soil. With great solemnity and ceremony, what was believed to be the coffin of Christopher Columbus was removed from the presbytery of the Santo Domingo cathedral, and, attended by a splendid retinue of ecclesiastic and civil dignitaries, with a fleet of the Spanish navy, was carried to Havana and there embedded in the walls of the cathedral to the left of the altar.

On the 14th of May, 1877, while the cathedral at Santo Domingo was being restored, some workmen discovered, on the epistle side of the altar, a metallic box. The archbishop was at once notified, and he directed the box to be removed, in the presence of a number of officials.

It was found to bear an inscription in Spanish which reads: "The Admiral Don Luis Colon, Duke of Veragua, Marquis of Jamaica." The discovery caused great excitement. On the opposite or gospel side of the altar two more crypts were disclosed. One was empty, from which the coffin transported to Havana was taken. The other contained a metallic box similar to that in which the remains of Luis Columbus were found. Within it were a quantity of dust, a number of bones, a portion of a skull, a leaden ball, and a silver plate about 2 inches long. It was supposed that these were the remains of Christopher Columbus, because of certain inscriptions on the box.

The box was of lead, about a quarter of an inch thick. It was 18 inches long, and about 9 inches wide and 10 inches deep. On the front and on one end was the letter "C;" on the other end the letter "A," which were supposed to signify "Cristoval Colon, admiral."

On the top of the lid were the letters "D. de la A. Per A.," interpreted "Descubridor de la America Primer Almirante" (discoverer of America, the first admiral).

On the under side of the lid was written in German text, "Ylletre Y Esdo Varon, Dn. Cristoval Colon" (illustrious and renowned man, Don Christopher Columbus).

On one side of a silver plate, which appeared at one time to have been screwed or bolted to the inside of the box, was inscribed "U Cristoval Colon," which is supposed to mean "Urna Cristoval Colon" (the coffin of Christopher Columbus).

On the other side of the plate were the words: "U a pte de los rtos del pmer Alte D. Cristoval Colon D.," which are deciphered to be "Urna perteneciente de los restos del primer Almirante Don Cristoval Colon Descubridor," or in English, "Urn belonging to the remains of the first admiral, Christopher Columbus, discoverer."

The finest dust was carefully gathered up and placed in a little casket of gold and crystal, such as is used by ladies to keep their jewels in, and placed in the lead chest. The latter was sealed and then inclosed in an octagonal case of satinwood with glass panels, which was secured with three locks, to which the minister of public works, the archbishop, and the governor of the city have the keys. The case was further protected by broad bands of white ribbon, sealed with wax, and stamped with the official seals of the three officials named, so that it may not be opened without the consent and presence of all of them. It was then placed in a vault at the left of the altar.

Once each year, on the 10th of September, the precious casket is exposed to public view in the presence of the officials of the Government and the public, when high mass is celebrated by the archbishop for the repose of the soul of the great discoverer.

The people of Havana and of Spain still insist that the genuine remains of Columbus were transported to the former city in 1795, and a very earnest controversy has been continued from 1877 to the present

day. Several volumes have been written on the subject, the most important of which is a report of the Royal Academy of History at Madrid, which, at the request of the late King of Spain and the people of Havana, made an investigation, and decided in favor of the claims of the Cuban capital. The whole question rests upon the integrity of the inscriptions on the casket that was found in 1877. If they are genuine the cathedral of Santo Domingo contains the bones of Columbus.

An interesting series of reprints from early publications illustrating the voyages of Columbus was given, all of them being engravings of the sixteenth century.

### THE CHRISTENING OF AMERICA ILLUSTRATED.

During the summer of 1891, with the permission of the Secretary of State, and under my direction, Capt. Frank H. Mason, United States consul-general at Frankfort-on the-Main, Germany, who is a thorough scholar and artist, spent some time at the old town of St. Die, in Lorraine, investigating the manner in which the New World received the name America, and obtaining relics of the men who christened it. The results of Captain Mason's work were shown at the Madrid Exposition by a series of most interesting views of the place as it looked in the early part of the sixteenth century and as it appears to-day. He secured also the portraits of all of the men who are responsible for the name America, and from the early records of the place obtained much interesting information concerning them that had never been published.

For more than three centuries Vespucci rested under the disgrace of having usurped the title of the lands which Columbus discovered. It was not until 1837 that Alexander von Humboldt pointed out the real culprit, and showed that the name America was first suggested by a paragraph in a small Latin treatise written by Martin Waldseemuller and published during the year 1507 at St. Die, a village in southeastern Lorraine. This little book was entitled Cosmographiæ Introductio (the rudiments of geography), and the story of its authorship and publication and the unforeseen part it played in christening the Western Hemisphere forms one of the most curious and fascinating narratives in the whole record of bibliography.

The manuscript of Cosmographiæ was begun during the summer of 1506, within a month, it may be, of the day when Christopher Columbus, already poor, neglected, and discredited at court, was laid in his humble grave. It was finished during the following winter, and the first edition was published on the "VII Kalend. May, 1507," which corresponds under the Gregorian calendar to the 25th of April in that year. The success of the enterprise was immediate and extraordinary. Four editions of the Cosmographiæ were published at St. Die within less than five months, two bearing the date of April 25, as above stated, and two more marked the "III Kalends Septembris," which corresponds to the 29th of August. The title is as follows:

Introduction to Cosmography, together with some principles of Geometry necessary to the purpose. Also four voyages (navigationes) of Americus Vespucius. A description of universal Cosmography, both stereometrical and planometrical, together with what was unknown to Ptolemy and has been recently discovered.

*Distich.* Neither the earth nor the stars possess anything greater than God or Cæsar, for the God rules the stars and Cæsar the climes of the earth.

Among the inmates of the monastery the three most notable were the poet, Pierre de Blarru, Jean Basin, an accomplished linguist, and Waltier or Gautrin Lud, director of the mines of Lorraine and secretary to Duke René II, the sovereign of the province and one of the most enlightened princes of his time. To these were subsequently added Martin Waldseemuller and Matthias Ringman, both of whom were distinguished as linguists, geographers and devotees of science and letters.

Under the ninth title, "De quibusdam cosmographiæ rudimentis," the author, who has been describing Europe, Asia, and Africa as three climates or grand divisions of the globe, as designated by Ptolemy, abruptly launches the following proposition:

Americo. Nunc vero and hecpartes sunt latius lustratæ et alia quarta pars per Americu Vesputium (Vt in sequentibus audietur) inventa est-qua non video cur quis iure vetet ab Americo inventore sagacis ingenij viro Amerigen quasi Americi terram sive Americam discendam-cum Europa et Asia a mulieribus sua fortita sint nomina.

Which in English reads:

But now that these parts have been more widely explored and another fourth part discovered by Americus Vespucius (as will be seen hereafter), I do not see why we should quietly refuse to name it America, namely, the land of Americus or America, after its discoverer, Americus, a man of sagacious mind, since both Europe and Asia derived their names from women.

"But for these nine lines," says Harrisse, "written by an obscure geographer in a little village of the Vosges, the Western Hemisphere might have been called 'The Land of the Holy Cross,' or 'Atlantis,' or 'Columbia,' 'Hesperides,' or 'Iberia,' 'New India,' or simply 'The Indies,' as it is designated officially in Spain to this day."

As it was, however, the suggestion of Hylacomylus was immediately adopted by geographers everywhere; the new land beyond the Atlantic had, by a stroke of a pen, been christened for all time to come.

The village of St. Die (Urbs Deodati) was founded about the year 660 A. D., by St. Deodate, ex-bishop of Nevers, who resigned his bishopric and retired to a pleasant valley on the headwaters of the River Meurthe. Here he founded a chapel which he named "Galilee." The chapel in time expanded to a church, was christened Notre Dame, and around it was built a powerful monastery with beetling walls and encircling moat, a citadel and defense for the followers of the cross.

Under the patronage of Duke René a society of learned and inquiring men was constituted, which, about the beginning of the sixteenth century, were associated at St. Die for mutual inspiration and assistance, under the title of "Gymnase Vosgien," or Academy of the Vosges.

Duke René II, "King of Jerusalem and Sicily," was a grandson of "Good King René," and was not only a scholar and patriot but a soldier of shining renown in an age when prowess on the field was the one sure title to fame. As the hero of the battle of Morat and the chivalrous conqueror of Charles the Bold, he figures conspicuously in the annals of his time. Upon his accession to the throne of Lorraine he found his country invaded and harassed by Charles and his Burgundians. After repeated but fruitless appeals to the King of France for promised aid, he raised a force of Swiss and Germans, and joining to these his own scanty but patriotic army, he fell upon and completely routed the invaders before the walls of Nancy, in the year 1477, and there is to be seen to-day in the marshes near the town a cross which marks the spot where the body of Charles was found among the débris of the fight. René gave his fallen adversary a magnificent burial, and devoted the remainder of his life to study, the encouragement of learning, and to repairing the fortunes of his war-wasted province. He died in 1508, and his epitaph tells us that he loved but three things—justice, peace, and letters.

It was the custom for learned men in those times to conceal their personal identity under a classical pseudonym, and accordingly the young graduate at Freiburg assumed a Greco-Latinized rendition of his somewhat archaic family name and called himself Martinus Hylacomylus. That is to say, the German Wald-see-muller (miller of the lake-in the-woods) was converted into a combination of the Greek words *Hyle* (forest) and *mylos* (miller).

The real authors of the Cosmographiæ were Martin Waldseemuller and his learned and devoted assistant, Matthias Ringman. Of the family and antecedents of Waldseemuller little is known beyond the fact that his parents lived in Freiburg, where Martin was born about 1481, and on the 7th of December, 1490, was enrolled by Rector Conrad Knoll as a primary student in the university of that town. At what date he first went to St. Die can only be conjectured. It was apparently in 1504 or 1505, at which time he was in his twenty-second or twenty-third year. He was then an accomplished Greek and Latin scholar, a skillful mathematician and draftsman, and was inspired and excited by the geographical discoveries which were then reconstructing men's ideas of the physical globe. The pious members of the Vosgien Gymnase, whose proposed revision of Ptolemy was to be based on the original Greek text, apparently engaged for the work of revision the young secular, who, being fresh from the university lectures, would possess all the latest information.

The cathedral, with its exquisite gothic cloisters and pretty outdoor reading pulpit facing the quadrangle; the petite Église archaic, in its simplicity, but pure in style as a Grecian temple, encircled by the citadel walls of red sandstone, softened and enriched in color by the storm and sunshine of centuries, all remain stately and beautiful as ever; but the Chapitre is no longer supreme, and a modern Protestant church,

with its neatly slated spire and cushioned pews, stands near the center of the town to mark the foothold of a new faith.

In the municipal library of St. Die there is preserved as its most precious possession a magnificent illuminated volume—the Graduel or Lectern, containing the plain song of the various offices and ceremonials of the Chapitre for the entire year. It is enriched with hundreds of miniatures, illuminated initials, painted margins, and colophons, which illustrate many interesting phases of the history of St. Die, as well as its industries, political vicissitudes, and the social conditions which prevailed in that community during the period of the Vosgien Gymnase.

Gautrin Lud, the founder and controlling spirit of the Gymnase, was born at St. Die about the year 1448. He came from wealthy and distinguished stock, his mother, Jeannette d'Ainveau, being a daughter of one of the noblest families of Lorraine, and his father a soldier of distinction in the service of the king.

The art of printing with movable types was hardly fifty years old, printing facilities were everywhere limited, and in order to carry out its plans the Gymnase needed a press and type of its own. Here the wealth and enterprise of Gautrin Lud came to the rescue. In 1494 that liberal prelate had set up in his own house in the principal street of St. Die a rude printing machine, with a font of large, round-faced type.

Modern St. Die is a thriving town of nearly 12,000 people, who are engaged mainly in weaving, spinning, tanning, and various industries connected with the manufacture and consumption of pine lumber, which grows abundantly in that picturesque region. It is the terminus of a railway which was originally laid out from Luneville to Markirch in Alsace, but which stopped abruptly at St. Die, where the events of 1870 drew the new frontier of Germany across its path.

The house of Jean Basin was partially destroyed by fire in 1554, but the walls remain intact, so that the structure was rebuilt, or rather restored, with exactly its original form and dimensions; and in that condition it exists to-day, the most perfectly preserved domicile that remains from the Gymnase Vosgien.

Ringman was, from all accounts, a man of extraordinary zeal and versatility. Of his family nothing is known, but his parents must have been in comfortable circumstances to afford him the thorough education he received. He was born in 1482, near the monastery of Paeris, in the valley of the Vosges. About the year 1500, when the discoveries of Columbus, Cabot, and Alonzo de Ojeda had set the educated world aflame, Ringman shared in the enthusiasm and took up a thorough course in mathematics and cosmography. He studied at Paris until 1503, when, at the age of 21, he returned to Strassburg, bringing with him a copy of the memorable letter which Americus Vespucius had written from Cape Verde in June, 1501, to his patron, Lorenzo de Medici, at Florence, giving a somewhat superficial account of his third

voyage of discovery. This letter had been translated from Italian into French and a smaller edition published at Paris. The letter was a mere sketch, but contained so much that was new and interesting that Ringman translated it into Latin and published it in pamphlet form at Strassburg in August, 1503.

Jean Basin, of Sandaucourt, the second member of the Gymnase, was like Gautrin Lud, a canon of the Chapitre of St. Die, and a classical scholar of unusual attainments. His leisure hours were devoted to literature. He was wealthy and luxurious, and inhabited a handsome canonical residence which stood at the northwest corner of a block or irregular group of buildings, of which the house of Gautrin Lud, with its printing office, formed the southeast or diagonally opposite corner.

A copy of the Strassburg edition of the Cosmographiæ Introductio found its way in 1524 to the library of Fernando Columbus, son of the great admiral, at Seville, where it became one of the favorite volumes of that renowned collector of rare and interesting books. Fernando Columbus was an inveterate traveler, and from his copious notes written on the margin and fly leaf of the Cosmographiæ, he would seem to have read it mainly for the information that it gave on the geography and climate of Europe, and to have overlooked or ignored the rank injustice which it offered to the memory of his father. Fernando had this book in his possession during the fifteen years preceding his death in 1539, and the fact that he did not in his famous History of Christopher Columbus denounce the Cosmographiæ and its author, is held by M. Harrisse and other experts to prove that the history attributed to Fernando was not actually written by him or within his knowledge.

A very interesting feature of this exhibit was a map prepared by Prof. G. Brown Goode, of the National Museum at Washington, showing the places in the United States that have been named in honor of Columbus.

### Relics of Spanish Occupation in America

This exhibit consisted of a series of large photographs showing views of all the places identified with Spanish domination within the territory of the United States, including St. Augustine, New Mexico, Arizona, and California.

I am, sir, very respectfully, your obedient servant,

William E. Curtis.

Rear-Admiral Stephen B. Luce, U. S. N.,
*Commissioner-General of the United States to the Columbian Historical Exposition, Madrid, Spain.*

# CATALOGUE OF THE COLLECTION OF PICTURES REPRESENTING VARIOUS PLACES IDENTIFIED WITH THE LIFE OF COLUMBUS

Exhibited by the Latin-American Department of the Columbian Universal Exposition at Chicago.

151. House in Quinto in which Columbus' parents were married.
152. General view of Cogoleto, Italy, which claims to be the birthplace of Columbus.
153. Beach at Cogoleto, Italy.
154. House in Cogoleto, in which it is claimed that Columbus was born.
155. Street in Cogoleto, in which is the house in which Columbus is said to have been born.
156. Map of Genoa.
157. View of the port and city of Genoa.
158. Street in Genoa, in which is the house in which it is claimed that Columbus was born.
159. House in Genoa in which it is claimed that Columbus was born.
160. Plan of Columbus's house in Genoa (eight parts).
161. House in Valladolid in which Columbus died.
162. Cathedral of Havana, in which the remains of Columbus are believed to be deposited.
163. Cathedral of Havana.
164. Altar of the Cathedral of Havana.
165. Cathedral of Santo Domingo.
166. Vaults in the Cathedral of Santo Domingo, which contained the supposed remains of Columbus and his son.
167. Cloisters of the Cathedral of Santo Domingo.
168. Photograph of the urn containing the leaden box inclosing the supposed remains of Columbus, at Santo Domingo.
169. Urn at Genoa containing some of the supposed ashes of Columbus.
170. Departure of Columbus from the port of Palos. By Leopold Flameng.
171. Departure of Columbus. From De Bry's Voyages.
172. Arrival of Columbus in the New World. From De Bry's Voyages.
173. Landing of Columbus on Guanahani. From an old engraving.
174. Landing of Columbus. By Bobbett.
175. Landing of Columbus. By F. O. C. Darley.
176. Landing of Columbus. By Christian Rubens.
177. The Last Moments of Columbus. By Carlos Lira. The original is in the Museum of Fine Arts at Santiago de Chile.
178. Death of Columbus. By Luigi Gregori. The original is at South Bend, Ind.
179. Place on Watling Island where Columbus is believed to have landed.
180. View of Watling Island, the first land seen by Columbus.
181. Present appearance of the place where Columbus landed for the first time on the continent.
182. The island of San Salvador, called Guanahani by the natives, and known in modern geography under the name of Watling Island.
183. Present inhabitants of Watling Island.

184. Persons of distinction in Watling Island.
185. House of the magistrate of Watling Island.
186. Houses of the chief inhabitants of Watling Island.
187. Types of the inhabitants of Watling Island.
188. Port of Jibara, Cuba. The place where Columbus first landed on that island, in 1492.
189. Site on which stood Guarico, an Indian village of Guacanagari, Haiti, visited by Columbus on his first voyage.
190. Sandbanks in the roadstead of Petit Anse, near Cape Haitien, where Columbus erected the Fort of the Nativity, in 1492.
191. Coast of Haiti, the Navidad of Columbus, 1492.
192. Isabella Bay, Santo Domingo, where the first town in the New World was founded, in 1493.
193. Promontory of the coast where Columbus landed in the *Isabella*, on his second voyage.
194. Lower Bonico or Isabella River, Santo Domingo, where the first town in America arose.
195. Ruins of Isabella, Santo Domingo, the most ancient town in America.
196. Present appearance of the ruins of Isabella, the first establishment of European civilization in America, founded in 1493.
197. Present appearance of the site on which stood the King's house, in Isabella.
198. Present inhabitants of the site on which stood the city of Isabella.
199. The city of Puerto Plata, Santo Domingo.
200. Bay of Santa Gloria, Jamaica, visited by Columbus on his first voyage.
201. Bay of Samana, Santo Domingo, visited by Columbus on his first voyage.
202. View of the Mountains of Cibao and the port of Los Hidalgos, 1493.
203. Ancient fortress in Concepcion de la Vega, founded by Columbus in 1493.
204. Church of the Holy Hill (Santo Cerro), Santo Domingo.
205. Church of the Holy Hill and Columbus's Tree.
206. The Holy Hill, Santo Domingo.
207. Church of the Holy Hill, Santo Domingo.
208. Indian village near Truxillo, Honduras, visited by Columbus on his last voyage.
209. Two houses in the time of the aborigines, in Truxillo, Honduras, where Columbus landed in 1502.
210. Truxillo, the first Spanish establishment on the coast of Terra Firma.
211. Ancient chapel in Truxillo, Honduras.
212. View of the river near Truxillo, where the companions of Columbus fought with the natives.
213. View on the River Dulce, Guatemala, visited by Columbus on his first voyage.
214. Bay of Santa Gloria, Jamaica, which Columbus visited on his fourth voyage, in 1503.
215. Coast at Santa Ana, Jamaica, where Columbus was shipwrecked on his fourth voyage, in 1503.
216. Port Maria, Jamaica.
217. Don Cristobal Bay, where Columbus put into port, and remained eleven months.
218. Lucca, Jamaica, visited by Columbus on his fourth voyage.
219. Present appearance of Don Cristobal Bay.
220. Port of Jamaica, called Dry Harbor.
221. Prison built on the ruins of the first fort erected by the Spaniards in Jamaica.
222. View of Santo Domingo. From a photograph.
223. View of Santo Domingo from the citadel.
224. View of Santo Domingo from the bay.
225. View of the city of Santo Domingo.
226. Typical scene in the city of Santo Domingo
227. Ancient church in Santo Domingo.
228. Ancient wall in Santo Domingo.

229. Interior of the Convent of San Francisco, in Santo Domingo.
230. Church of San Antonio, Santo Domingo.
231. The "Homenaje" (Fealty), Santo Domingo.
232. The "Homenaje," Santo Domingo, mouth of the Ozama River.
233. A glance at the streets of Santo Domingo.
234. Ruins of the palace of Don Diego Columbus, in Santo Domingo, as they are to-day.
235. Gate of the city of Santo Domingo.
236. Entrance of the bay of Santo Domingo.
237. Ruins of an ancient convent in Santo Domingo.
238. Gate and sentry boxes on the wall of Santo Domingo.
239. Citadel of Santo Domingo.

STRANGE THINGS SEEN BY COLUMBUS ON HIS VOYAGE, TAKEN FROM ANCIENT PUBLICATIONS.

240. Indians welcoming the Spaniards. Taken from the Voyage to the New World of the West Indies, by Philopono.
241. Indians mounted on a whale. Taken from the Voyage to the New World of the West Indies, by Philopono.
242. Terrible monster seen by Columbus. Taken from the History of America, by Ogilby.
243. Columbus treating with the Indians on the coast of Cuba. Taken from De Bry's Voyages.
244. Strange monster of the New World. Taken from De Bry's Voyages.
245. Mass celebrated on top of a whale. Taken from the Voyage to the New World of the West Indies, by Philopono.
246. The first mass celebrated in the New World. Taken from the Voyage to the New World of the West Indies, by Philopono.
247. Indian mode of making bread. From an old engraving.
248. Natives of America leading the way to their Queen. From an old engraving.
249. Battle between Spaniards and cannibals. Taken from the Voyage to the New World of the West Indies, by Philopono.
250. Great conversion of the Indians. Taken from the Voyage to the New World of the West Indies, by Philopono.
251. Slaughter of priests by the Indians. From De Bry's Voyages.
252. Cannibals roasting children. Taken from the Voyage to the New World of the West Indies, by Philopono.
253. First plate published with regard to the natives of America. Taken from a German geography published in Augsburg in 1497.
254. Indian mode of torturing the Spaniards by pouring gold down their throats. From De Bry's Voyages.
255. Welcome to the discoverer. From an old engraving.
256. Quarrel between Columbus and Porras. From De Bry's Voyages.
257. Landing of Columbus on Pearl Island. From De Bry's Voyages.
258. First map of Santo Domingo.

VIEWS OF THE PLACE IN WHICH AMERICA RECEIVED ITS NAME, IN 1507.

259. St. Die in the tenth century.
260. Citadel of St. Die, France.
261. View of St. Die.
262. Entrance to the monastery of St. Die.
263. View of the ancient monastery of St. Die.
264. The River Meurthe at St. Die.
265. Ancient cathedral of St. Die.
266. House of Jean Basin.

267. House in St. Die.
268. House of Jean Basin.
269. Town of St. Die. View taken from the southwest.

PORTRAITS OF THE MEN WHO GAVE ITS NAME TO AMERICA.

270. Portrait of King René II, in the form of a medallion.
271. Equestrian statue of King René II.
272. Jean Basin.
273. Duke René II.
274. Matthias Ringman.
275. Gautrin Lud.
276. Title-page of the book entitled Cosmographiæ Introductio.
277. The eighth book which was published relative to America.
278. First land seen by Leif Erickson, who, according to the Scandinavians, discovered America in the tenth century. Prepared by Prof. E. N. Horsford, of Cambridge, Mass.
279. Geographical map of Behaim, prepared in 1492. The original is in Nuremberg.

MEMENTOES OF THE SPANISH DOMINATION IN AMERICA.

280. Havana in 1633. From the History of America, by Ogilby.
281. St. Augustine in 1633. From the History of America, by Ogilby.
282. St. Augustine and Fort Carolina in 1671.
283. St. Augustine in 1892. From a photograph
284. Fort Marion, Florida, 1892.
285. Exterior of Fort Marion, Florida, 1892.
286. View of the city of St. Augustine. Exhibited by H. M. Flagler, of New York.
287. View of the Ponce de Leon Hotel in St. Augustine. Exhibited by H. M. Flagler, of New York.
288. First plate of New York. From the History of America, by Ogilby.
289. Church of San Miguel, New Mexico.
290. Interior of the church of San Miguel, New Mexico.
291. Mission of San Gabriel, California.
292. Interior of the chapel of the mission of San Gabriel.
293. Mission of Santa Ines, California.
294. Cloisters of the mission of St. John the Baptist.
295. Mission of St. John the Baptist, California.
296. Mission of San Antonio, California.
297. Mission of San Carlos, near Monterey.
298. Mission of San Miguel, California.
299. Mission of San Antonio de Padua, California.
300. Exterior of the mission of San Luis Rey, California.
301. Ruins of the cloisters of the mission of San Luis Rey.
302. View of the ruins of the mission of San Luis Rey.
303. Cloisters of the mission of Santa Barbara.
304. Garden of the mission of Santa Barbara.
305. Mission of Santa Barbara.
306. Ruins of the mission of San Juan Capistrano, California.
307. View of Honduras, where Columbus landed.
308. Truxillo, the first Spanish town in Central America.
309. Columbian University, Washington, District of Columbia.
310. Map of the United States and Territories, with adjacent parts of Canada and Mexico; also part of the West Indies, showing places bearing the name of Christopher Columbus, in honor of his memory. Arranged for the fourth centenary of the discovery of America, by Dr. G. Brown Goode.

# CATALOGUE OF THE HEMENWAY COLLECTION IN THE HISTORICO-AMERICAN EXPOSITION OF MADRID.

By Dr. J. WALTER FEWKES.

## BRIEF DESCRIPTION.

The Hemenway expedition is a private undertaking, supported by Mrs. Mary Hemenway, of Boston, United States of America, and has for its object the investigation of the ethnological and archæological problems of the Pueblo Indians of New Mexico and Arizona. In the course of several years' work the members of the expedition have amassed a large collection of ethnological and archæological objects from that region, together with much data previously unknown. During the summers of 1891 and 1892 the labor had for its main object the study of the sedentary Indians of Arizona, called the Ho-pi.

The collection here exhibited is intended chiefly to show the result of the operations during the last two years relative to the excavations and to the publication of these results, without any reference whatever to the operations prior to 1891, nor to any except those which were carried on in the province of Tusayan.

The exhibit of the Hemenway expedition is a monograph of a single tribe of the Indian pueblos, and the articles which figure in it have been selected and arranged to show what were formerly and what are now the customs of certain Indian pueblos of the ancient province of Tusayan, Arizona. An effort has been made to render this collection a monograph of the most primitive of the sedentary Indians now inhabiting the southwestern part of the United States bordering on Mexico. This subject has been treated under two points of view, the archæological and the ethnological. These two aspects of pueblo life are practically identical, the one being merely the ancient aspect of the other; and by only considering the collection under these two points of view one may familiarize himself with the character of the Indian customs at the epoch of Columbus and of the Conquest, and the probable modifications which they have undergone through the contact which they have had with the superior civilization with which they were asso-

ciated. The Indians represented in the monograph installed in this room have changed so little during the last three centuries that we may assert that, recognizing the greater antiquity of the archæological objects, their resemblance to the ethnological objects proves that the two are identical, and that, in studying the ancient objects, we are considering the productions, not of a distinct race, but of one and the same people. Many of the archæological objects found in ruins which existed when the discovery of Arizona took place are so similar to the modern ones that, considering the subject from the ethnological as well as archæological point of view, we must perceive we are dealing with a race which is in nearly the same condition in which it was at the time of the Conquest.

The province of Tusayan, from which these specimens came, is situated in the northeast part of the Territory of Arizona, near the Grand Canyon of the Colorado. This region was discovered by the Spanish conquerors entering it from Mexico, and was described in early accounts, copies of some of which figure in the exhibit. It is a plateau, situated at a height of 7,000 feet above the level of the sea, very dry and barren, furrowed by canyons, and covered with "mesas" forming steep precipices. The few rivers which exist in this desert dry up in summer, and change to impetuous torrents after the great rains of the autumn and winter. There are a few fragile trees scattered over the plains, but there is little grass and very scanty shrubbery. The cactus abounds in some places and the sage-bush is very common.

None of the great mammifera are now found in this arid desert. The bison never visited these deserts, and the larger ruminants have always been scarce. The wolf, the coyote, and the rabbit are almost the sole large mammalia existing there. Of these, the last is the only one that is hunted to a considerable extent, although, in the mountains of the West, the antelope, the wild goat, the American lion, and the bear are still found.

Reptiles abound, some of them being very poisonous, and many kinds of birds form a rich fauna, which has been but partially studied.

The varied and abundant flora is characteristic of the arid belt of the United States and Mexico. The expedition has in course of publication an extensive memoir on the alimentary plants and those used by the Ho-pi, especially for medicines, incantations, and food.

The Ho-pi Indians are now some two thousand in number, and live in seven towns, built on the tops of the inaccessible mountain mesas, the way to which is by steep paths, in many cases cut in the living rock. The sites of these towns have no vegetation, as their gardens are on the arid plains which extend at the foot of the mesas. They are compelled to carry up from the plains the food, the water, the fuel, and everything that is needed for the uses of life.

Of these seven towns, three—Wal-pi, Si-tcom-o-vi, and Ha-no—are situated on a mesa which extends to the east of the others. The dis-

tance which separates each of these three towns from the others is a stone's throw. The first two are genuine Ho-pi, while Ha-no is a colony of Indians invited to their present territory by the Ho-pi toward the year A. D. 1710. Their language is different from that of their neighbors, and many differences exist between the customs of the two.

The second mesa is about 7 miles distant from the one already mentioned, and comprises two towns, Mi-coñ-in-o-vi and Ci-pau-lo-vi; the latter situated on an isolated height. At about 3 miles to the west of Mi-coñ-in-o-vi, on the continuation of the second mesa, is Ci-mo-pa-vi. Orai-bi, the most populous and ancient of the Ho-pi towns, is about 15 miles from the last one mentioned, and the mesa on which it is situated is separated from the second mesa, already mentioned, by an extensive plain.

The inhabited Ho-pi towns are of stone, and vary from one to four stories, forming common constructions with many rooms, and having access to the upper stories by hand ladders. The Christian religion does not exist among these Indians, but they retain the religion of their ancestors. The last Spanish missionaries who lived among them were killed by being thrown from the top of the mesas, toward the end of the seventeenth century.

In the province of Tusayan there are many ruins of ancient towns, the greater part of which, as the present Ho-pi claim, were inhabited by their ancestors. The legends relative to the destruction and history of the events which occurred when some of these towns were destroyed are very circumstantial. The most important of these ruins is called A-wa-to-bi, "the high place of the bow people," and was destroyed by the other towns, which were indignant because its inhabitants had received the Spaniards and accepted Christianity. Many of the jars and other ceramic objects came from excavations made at A-wa-to-bi and the burying ground situated near that place. A-wa-to-bi was a flourishing city in the time of the Spanish conqueror Vargas, and sent numerous forces to fight him.

The ancient Wal-pi of the conquerors is now in ruins at the extremity of the mesa on which the modern town stands. A church was built at this place, and fragments of its beams may be seen in modern houses.

Many of the articles which figure in this collection are from the ruins of Si-kya-ki. Si-kya-ki, situated on the foot hills under the first mesa, was destroyed many years ago. Its exact antiquity is unknown, but it is thought that the Spanish conquerors found it uninhabited. Several of the most important articles came from the numerous ruins near Keam Canyon, 10 miles to the east of the first mesa. No systematic or scientific exploration of the Ho-pi ruins has ever been made, and a large number of the articles here exhibited were sold to a trader, Mr. T. V. Keam, by the Indians. In this way that gentleman obtained the greater part of the collection, and the Hemenway expedition acquired it from him.

The Ho-pi Indians are small of statue, peaceable, industrious, and speak a native dialect different from the language of the other towns of New Mexico and Arizona.

Some American ethnologists assert that in language they are related to the Shoshones; but their true affinities still remain undecided. They do not permit polygamy, and do not buy their wives, whom they treat with respect. The houses and domestic implements belong to the women, who are skillful potters and basket makers, and also take part in the labors of the field. The men weave blankets, and are industrious, intelligent, and very religious. All belong to some priesthood, and participate in complicated ceremonies. The religion consists of an elaborate system of ceremonies and practices, one important rite corresponding to each month. These practices last nine days, during which secret ceremonies are performed in underground rooms called "kibvas." These rites usually terminate in a public sacred dance, none except the initiated being permitted to be present at the other ceremonies.

In spite of the heroic efforts of zealous missionaries, there are no Christians among these Indians, although the influence of Christianity is noticeable in some of their ceremonies.

The Ho-pi have much love for their antiquity, and preserve with great care the traditions of the ancients. They dramatize some of these traditions in their sacred dances, as do also the priests in their secret ceremonies.

The Ho-pi possess a rich Pantheon of gods and heroes, but without having any god superior to all the others. These divinities belong to different orders, the most important being the rain clouds, the sun, the star, the surface of the earth, and the Germ god. The great feathered serpent is an important personage.

1. Fragment of a bell which belonged to one of the mission churches of Tusayan. This fragment was found and preserved by the Indians of Wal-pi. The mission was destroyed toward the year 1700, and that of A-wa-to-bi was burnt by the other towns because it was "powako," or sorcerer (Christian). This single fragment of the bell was found among the rubbish on the spot which had been occupied by the church, and bears marks of the action of fire. It is one of the few remains still preserved of the ancient missions, which were completely destroyed, although beams of the roofs of some of them are found in modern buildings. The photograph behind the bell shows the present condition of the ancient mission of the town, and was taken from the entrance, looking toward the altar.
2. Imitation of a loom, showing the mode of weaving, made for the purpose of exhibiting the various pieces used. The blankets were woven by the men, not by the women. Blankets of the Navajoes are suspended along the walls of the room.
3. Collection of ancient awls, drills, and needles, some of which were doubtless used in weaving. They come from the excavations of the rooms of the ruins of A-wa-to-bi, destroyed A. D. 1700.
4. Basket for carrying food or water. Both the nomad and the sedentary Indians use these baskets; they are made by the Kohonino, who live near the Grand Canyon, in the northwestern part of Arizona.

5. Native tobacco (nicotina attenuata), used in the ceremonies. The Indians of Tusayan smoke the leaves of various plants, and use various mixtures in their religious rites. In these rites the one who controls the pipe, and who is an important functionary, must light it and immediately hand it to the chief, friendly words being exchanged between the two. The chief blows from his mouth the smoke which he has inhaled toward the four cardinal points, north, south, east, west, upward, downward, and over the altar. They believe that the smoke is the cloud symbolized by it; and the ceremonies in which they smoke have some secret relation to the offerings made to the gods of rain. They use the utmost care in making the mixtures of tobacco which are to serve for this sacred purpose, and the pipe must be lit with fire produced in the manner prescribed by the rite. Every ceremony and council meeting of chiefs begins and ends with this brotherly smoking.
6. Putc-ko-hu, clubs for killing rabbits. These clubs, are used in hunting rabbits, of which there are many in the plains surrounding the towns of Tusayan. These weapons are in some cases curved, in others straight, and are thrown horizontally. The black bands of paint which the more elaborate have on their sides symbolize the ears of the rabbit. The rabbit hunts are religious rites. The maidens have a special one. On returning to the town they ornament the rabbits in the manner required by ceremony; after sprinkling them with meal they cut off a fragment and throw it in the fire. Those who take part in these hunts go on horseback. The clubs are thrown to a considerable distance, but unlike the boomerang which they resemble, never return to the thrower.
7. Gne-las, curved sticks with which the maidens dress their hair, forming two large verticils above the ears. These coils keep the hair in its place, and the size of the verticil is illustrated by specimen No. 1, on which hair still remains. Near by are pieces of a cord made of human hair, which came from the ruins of A-wa-to-bi. It was used for tying the hair strings and was found in a niche of the wall of a room near the church. The married women wear their hair in two braids, which they wear hanging down, and not in curls, as that style is exclusively that of the unmarried ones. The special coiffure of the maidens typifies the pumpkin which has not yet ripened, and they imitate it in dolls with wooden appendices, combined with bars forming rays, and filaments of wool.
8. Ceremonial blanket, of native cotton, with symbolical figures. It is the present of the bridegroom to the bride, who uses it for the ceremonies. The men also wear them in the sacred dances in which they represent Ka-tci-na-ma-nas, or Ka-tci-nas maidens. It takes several months to make these blankets, which are of great value. The triangles which they have on the border and the maiden and rectangular figure represent symbolically the butterfly.
9. Various kinds of arrows used by the Ho-pi in their hunts. These Indians are tillers of the soil and are peaceable, and their hunts are insignificant and the sport is of little interest.
10. Shoes of various kinds for adults and children. The pair which has the greatest interest is that made of the skin of the "Felis concolor," which is rarely used for this purpose.
11. Ladles of mountain sheep's horn. Formerly very common; now they are very scarce among the Tusayan Indians, as the animal mentioned, of whose horns they were made, has almost entirely disappeared from this region.
12. Pi-lan-ko-hu, stick for making fire by the ancient process. It is used in the ceremonial firemaking at a festival of the November moon, called Na-ac-nai-ya.
13. Bow and arrows, toys of the Indian children. They were given to them at the celebration of the religious ceremony called "The Good-bye of the Ka-tci-na."

14. Wedding present of the husband to his wife at the time of marriage. It is used in the religious ceremonies, such as the consecration of the children to the sun. The Ka-tci-na-ma-nas or Ka-tci-na maids also use them in the sacred dances.
15. Spoons of Mountain sheep's horn.
16. Characteristic skull from near the burying ground of the ruins of A-wa-to-bi. The dead were interred in hillocks of moving sand, and skeletons are uncovered from time to time by the action of the wind. The corpse was placed in the position of a man seated with the knees drawn up to the breast and the arms close to the body. They buried with the dead man a dish containing food or a jar containing provisions. The present Ho-pi inter their dead among the rocks at the foot of the heights of the mesas where they live, and still continue to place jars with food near them, though it is true that usually these jars are broken. Above the grave they place a stick such as they use in the planting and tie feathers to it. They wash the dead before burial, and put sacred meal on the face and different parts of the body, and, in like manner, place feathers on the body and over the heart.
17. Parts of the dress of the sacred dances.
18. Moccasins, Indian shoes.
19. Perforator for hard bodies, such as shells, stones, turquoises, etc.
20. Women's belts made of native wool of natural colors. Their use is universal, and the men and women make them indiscriminately.

22 (21). Blanket of the priests in the celebration of the serpent dance. It is ornamented with the likeness of the great feathered serpent, and with symbolical figures of the feet of ducks, and frogs. The parallel lines at the top and bottom represent the rainbow.

23. Bracelets, ornaments of the priests in the serpent dance.
24. Various kinds of Pa-ho, or offerings made with due ceremony, and deposited on the shrines during religious rites. The nature of these articles varies from small pieces of willow an inch long to cylinders of wood, or in some cases a board with figures drawn on it. The round sticks are usually doubled, tied together by filaments of native cotton. They are called male and female, the latter having a face painted on the flat side. Usually, a pinch of sacred meal wrapped in a corn husk, is fastened to them. The Indians believe that the sacred meal is the food of the Pa-ho. They also fasten to them a hawk's feather and a few small herbs. These Pa-hos are placed on the ground, and then sprinkled with sacred meal. The white disk with green spots is an offering to all the gods of the four cardinal points, which is placed on the altars at the departure of the Ka-tci-nas or gods, in the festival of the August moon.

    The last sticks on the right are precolumbian Pa-hos found in a cave near some ruins. The wooden cylinders, much injured by the atmospheric changes, are offerings for the ripening of the pumpkins, and came from a shrine near a ruin. These offerings are still made, and there are appropriate ceremonies for them.

    The zigzag Pa-ho is an offering to the lightning, which, as the Indians believe, fertilizes the earth and engenders life.
25. Four osier baskets of different shapes, for carrying provisions and water. The Ho-pi are not in the habit of using them, but every Navajo family usually has several. The basket smeared inside and outside with pitch is a water jar.
26. Annulet of corn husk, symbolizing the whirling of the clouds and the female of the lightning serpent. A similar annulet is placed at the head of the picture of the female of the lightning serpent in the sand mosaic. (No. 104.)
27. Ta-pu-i-pa-hos. These boards are carried in the hand during the celebration of the sacred dance called Mam-zrau-ti, and are arranged in pairs, as shown by the photograph. They have symbolical emblems on them and are painted anew every year. The ceremony of the Mam-zrau always takes place in September, and the boards are used on the last day of the nine during which the

festival lasts. The pictures are typical of the antelope, Sa-li-ko, and, possibly, represent the family of the person who bears it. The picture at the side represents various objects, and the pamphlet contains a description of this ceremony. The town of A-wa-to-bi formerly observed this woman's rite, and when it was destroyed the ceremony was taught to the Walpis by one of the members of the family of the Serpent, whose descendant and maternal representative is now one of the chief priestesses.

In the following numbers are shown the various appurtenances of dress and articles used in the ceremony called the serpent dance; it lasts nine days and nine nights, is celebrated every two years, and is a most interesting dramatized legend. Two brotherhoods of priests, called the Snake and the Antelope, unite in the presentation of it.

Seven of the nine days are secret, and consist of private ceremonies which take place in sacred subterranean rooms called kib-vas. During these festivals, the Indians catch venomous snakes, and various rites are performed in which they handle them with impunity. By far the most important is that of the bathing of the snakes and the manufacture of the antidote for their poison. The priests of the Antelope also dedicate an altar of sand to the gods of the four cardinal points, and make them offerings.

On the ninth day the celebrants carry live snakes in their mouths during the dance, and set them free when it is ended.

The blankets and the other parts of the dress of the Snake priests are the same as those which are worn in the dance, and there is in the collection a complete suit worn by a priest.

28. Package of hawk's feathers, died red with oxide of iron, called cu-ta. The red is the symbol of war. At the ends of these feathers are fastened feathers of a bluebird. A priest wore this bundle of feathers on his head in the serpent dance in the month of August, 1891.

The bluebird feathers commemorate an episode in the historical legend of the Serpent hero, an ancient mythological personage who visited the interior of the earth, guided by the sun. These bundles of feathers are placed around the altars and figures of sand during the celebration of the secret ceremony at the Snake dance.

29. The Snake priests carefully preserve from year to year the feathers which serve to adorn them, arranging them in a package, and tying them with a strip of buckskin, as shown in this specimen.

30. Picture of the uprights of the altar of the ceremony Mam-zrau-ti. This altar is constructed of wooden sticks on which is stretched a deerskin ornamented with symbolic paintings representing the cloud and other gods. The cloth behind these uprights has the cloud gods and lightning serpents painted on it. The two fetishes placed in front of the cloth are the Mam-zrau boy and girl, the chief idols of the ceremony.

On the ground, in front of the altar, is a row of fetishes set in a ridge of sand. These have distinct powers, as described in the pamphlet accompanying the picture.

On the ground in front of the altar three clouds and two lightning snakes are represented in a sand picture. The conical upright bodies on the ground between the row of fetishes and the sand picture, are the palladia (tiponis) of the priesthood of Mam-zrau-ti.

This altar is removed after the termination of the ceremony, and an effort is made to prevent anyone who is not initiated from seeing it. It is very ancient, and regarded as very sacred. (For a description of the Mam-zrau-ti ceremony see The American Anthropologist, Washington, April, 1892.)

31. Skin of a small mammal which the priests wear on their girdles during the ceremony of the serpent dance. Every part of the dress is symbolic, and the skins used are those of animals mentioned in the legend of the adventures of the Serpent hero in his journey under the earth.

32. Shoulder belt which the priests of the Serpent wear during the dance as a preservative against the stings of the venomous snakes. It is of buckskin, dyed with oxide of iron, and is worn on the right shoulder. The little globes containing the charms are attached to the whole of the back of the shoulder belt where the fringes begin. The fetish is made of clay, moistened with a liquid prepared with great ceremony, and over which the traditional songs are sung.

    This piece of clay is molded with the hand and incised with the nail of the thumb, to represent the Great Feathered Serpent. Every priest wears several charms during the dance.
33. Red belt of the priests in the serpent dance. It was used in the ceremony of 1891.
34. Moccasins, shoes with silver buttons, of a Snake priest.
35. Rings which the priests wear on their ankles in the serpent dance.
36. Wrist guard used in the serpent dance. The object of this apparatus is to prevent the cord of the bow from striking the hand after shooting the arrow. The wrist guard, which was formerly only of silver, is now adorned with various metals.
37. Medicine bag containing sacred meal, which the priests carry when they go to catch snakes; also one of the whip handles used in charming serpents. It has a snake painted on it, and was used in the Serpent drama in 1891.
38. Nak-tci, or boards which the women carry on their heads in the butterfly dance. Nine distinct specimens, all ornamented with appropriate symbols, among which the sun, the cloud, and the growth of the corn (maize) deserve mention, figure in the collection.
39. Knotted white cotton belt, worn by those who take part in the sacred dances.
40. Woolen garter, worn as an ornament above the knee in the religious dances.
41. Fox skin, worn suspended from the belt at the back by those who take part in the religious dances. The fox skin receives a very careful preparation for this purpose, and is one of the most important ornaments of the so-called Ka-tci-nas or gods. It is also suspended at the entrance of the sacred room during the secret rites, to give notice that the religious ceremonies are going on.
42. Special head ornament for the sacred dances.
43. Blanket worn on the waist in the serpent dance. It is made of native cotton, spun and woven by the Indians and dyed with oxide of iron. From the lower edge of this skirt, as is seen in the adjoining specimen, hang some small metallic cones representing bells, which rattle when the wearer moves in the dance.
44. Crown. Symbol of the "cloud" which the leader wears in the La-la-kon-ti dance, praying for the fructification of the crops and the fecundity of the animals. In this ceremony, to which great attention is paid, and which lasts nine days and nine nights, the chief priestess makes with sand a representation of the sun, like that in the center of the room (603). It is an invocation praying for the fructification of plants and the fecundity of animals and of the human race.
45. Board which Zuñi women wear on the head in the Ham-po-ney dance. The central figure represents the sun, and the crosses at the top and bottom, the stars. The triangular pieces of wood, arranged in terraces, represent the clouds.
46. Helmet worn by the priests of the horns, or warriors, when they light the new fire in the estufas at the November festival. The horns are an imitation of those of the wild goats. During this celebration the young men are initiated into the priesthoods. The "Na-ac-nai-ya," a baptismal washing of the head, owes its name to a portion of the ceremony of initiation.
47. Wooden tablet representing the lightning. It is worn on the helmet, or is placed on the altars during the ceremonies. The serpent represents the lightning, and it is represented as male and female in the altars and mosaics of sand.
48. Claws of a small bear, used in the incantations and ceremonies at which the sacred medicines are prepared.

49. Slat with painting representing lightning. It is used in the ceremonies to imitate the whistling of the wind and the rolling of the thunder. They are also used to prevent the curious from intruding where some ceremony is being performed. The whizzing of this slat resembles that of the wind and is connected with the invocations to the winds.
50. Seven rattles, carried by the Ka-tci-nas in the sacred dances. They are of gourd, with symbolic signs. All these symbols are of great interest, the cloud, the "O-mou-uh" with the rain, and the swastic cross deserving special mention. These rattles consist of a gourd with a wooden handle, and contain grains of corn or pebbles. Those who take part in the dance carry them in their hands, and shake them in unison with their singing. They are also made of clay, and many clay ladles contain pebbles in their handles, and can therefore serve as timbrels.
51. Original mask worn by the "Ka-tci-na-wu-pa-mo" in sacred dances. This is the chief of the Ka-tci-nas, and takes part in the December festivals.
52. Mask worn by the priests who represent women in the sacred dances. The red hair above the eyes reproduces an ancient coiffure, now obsolete. The Ka-tci-na-ma-nas or Ka-tci-nas (virgins) appear with similar masks in all the dances which take place from December to July.
53. Head ornament worn by the members of the Brotherhood of the "Horn," in the ceremony of lighting the new fire which is celebrated in November.
54. Gourd horns worn on the head by the priests of the congregation called the "Kwa-kwan-ti."
55. Very ancient helmet or mask, which was used in the sacred dances. The helmet was formerly of bison hide, but is now usually of any kind of leather, there being many made of leather from Spanish saddles. The high part represents the rainbow. The paintings of the head are symbolical, and vary according to the dances. Those who wear these helmets personify gods, and form a choir in the sacred dances. The appendage which the helmet has on the left side represents the flower of the gourd.
56. Board which is worn on the head in the corn dance, Ka-tci-na (Sio-hu-mis-ka-tci-na). The symbols which it bears are those of the cloud, the rainbow, the growing corn, and the blossom of the sunflower. The adjoining slab is called nak-tci, and represents a cloud.
57. Buckskin disk, on which are painted the moon and a star, which is placed near the altar in the religious ceremonies.
58. Primitive musical instruments which were used in the sacred dances. The sticks, with notches on them, are placed on a dry, hollow gourd, and are rubbed with the adjoining bone, a sound produced by the friction being obtained as the result. This music has to be in unison with the dancing, and is played by the men who represent women in the dances.
59. Tortoise shell rattles with small sheep hoofs attached to them. They are tied on the left calf below the knee, and by the movement of the leg produce a sound in unison with the songs of the dancers.
60. Tortoise shell rattle resembling the preceding, with the sheep hoofs outside.
61. Headband of a chief in the sacred dance.
62. Bands with symbolic pictures of clouds, which the Ka-tci-nas wear on their heels in the sacred dances.

WOODEN FIGURINES.

These figurines of the Ho-pi Indians are images of the gods of mythology, and represent, with greater or less exactness, the personages who take part in the ceremonies. Each one typifies some divinity or is the reproduction of some one of the fetiches used in various rites. They are made of cottonwood, and are given to the girls at the celebration of the Niman or farewell Ka-tci-na. The girls treat them as dolls. They are never regarded as fetiches or idols and are never worshipped. Each

specimen bears the name of the Ka-tci-na which it represents. The mothers illustrate ancient traditions by making use of these dolls in giving practical lessons on the symbols of the gods. More than seventy-five distinct classes of Ka-tci-nas are represented by dolls. They are sometimes of clay, but the material prescribed for their manufacture is cottonwood.

A large number of these personages have fox skins tied around the neck, the characters emblematic of different gods.

The dolls are painted with natural colors, emblematic of the four cardinal points. These colors are yellow ocher, malachite, shale, oxide of iron, and white clay. Some, too, are painted with mineral colors bought from Indian traders.

The vignette at the side represents additional dolls which were not brought with the collection.

63. Doll representing the mythological being who gave the Indians all kinds of seeds. She is called Sa-li-ko-ma-na, and is regarded as the wife of Sa-li-ko, who initiates the boys in the rites of the priesthoods, according to an ancient legend. The Sa-li-ko-ma-na dolls always have on their heads ornaments forming a ladder, representing the cloud, and curved lines around the mouth, as a representation of the rainbow.
64. Sa-li-ko-ma-na doll with a feather dress. On the forehead is seen the symbol of the panicle, because it was she who first brought corn to the Indians, and on both sides of the head, the symbol of the green gourd. The bow on top of the head represents the rainbow.
65. Image of Sa-li-ko, the god of corn. He is represented as a giant, and appears as such in the ceremonies. The blanket which he wears is a wedding blanket with butterflies on the border. He is always represented with two horns and a crown of eagle's feathers.
66. Tal-a-wi-pi-ki-ka-tci-na. The lightning Ka-tci-na. He carries in each hand the emblem of the lightning.
67. Image of Ho-tchan-e-ka-tci-na. The black net on the body represents the feather dress, and the crown on the head, the eagle's feathers.
68. The same as the preceding number.
69. Images with imperfect symbols.
70. Image of Sio-hu-mis-ka-tci-na, or, god of the green corn placed in a row. The festival of this god is celebrated in July and August, at intervals of several years. It is a rite of the Zuñi Indians, introduced into the religion of the Tusayan Indians.
71. Images of the gluttonous priests, who amuse the spectators at the sacred dances during their celebration by eating immoderately and performing all kinds of fooleries. These gluttons belong to a very ancient organization or priesthood, and some of their rites are immoral. To this same order belong others who wear masks, with balls of clay or bags of seeds on top of their heads. These are called "mud-heads" or clowns.
72. Image of Ma-lo-ka-tci-na, whose festival is celebrated in July. The symbolism is identically the same as that of the helmets which are used in the festivals.
73. Image of the Hu-mis-ka-tci-na, or, god of the green corn placed in a row. His festival is celebrated in August and is one of the most interesting religious rites of these nations. They frequently combine it with the departure of the gods, and regard it as very sacred.
74. Sa-li-ko-ma-na.
75. Sa-li-ko-ma-na.
76. Sa-li-ko-ma-na.
77. Image of the mother of the monsters, who appears in the village every year; she is the bugbear of bad children. Men with large helmets in imitation of the heads of reptiles represent the monsters.

78. Image of Navajo Ka-tci-na. The Navajoes are nomad Indians, neighbors of the Ho-pi. The former have taken many gods and rites from the latter.
79. Image with a "phallic" symbol on its breast.
80. Image of a Navajo god.
81. Image of the Flute Ka-tci-na. The order of the Priests of the Flute, consisting of two organizations, celebrates every two years a very elaborate festival of nine days, previously described.

82 and 83. Images of ancient Ka-tci-nas.

84 and 85. Images of Navajo Ka-tci-nas.

86. Image of the Ho-tcan-e, a very important personage in the ceremonies.
87. Image of a Navajo Ka-tci-na.
88. Image with the emblems of the owl.
89. Unknown image.
90. Image of the wolf Ka-tci-na, comrade in war, and for this reason painted red.
91. Image of Sa-li-ko-ma-na, or virgin of the corn. The tablet on the head is called "nak-tci" and represents the clouds, each color corresponding to one of the cardinal points in the following order: north, yellow; west, green; south, red; east, white; up, black; down, spotted (with dots).

    The white dresses represent the wedding blanket, and the dark ones below, the ordinary tunics or blankets.

92. Image of Sa-li-ko-ma-na.
93. Image of Sa-li-ko-ma-na.
94. Image of Sa-li-ko-ma-na.
95. Image representing a glutton priest inside of a jar. Similar idols are used at the December festival, for which several jars with wooden snakes are prepared; they are placed in front of the altar, and at intervals, the snakes are made to leap from the jar in which they are placed.
96. Wooden birds used in a ceremony called that of the "Flute," which alternates with the serpent dance in August. Six of the birds serve to typify the cardinal points.
97. Reproduction of an antelope in wood.
98. Birds used in the religious rites. One of them can be made to move its wings by means of a rod placed inside of the tube on which it is fastened.
99. Image of the gourd Ka-tci-na.
100. Image of the star god.
101. Image of a mythological hero.
102. Image of Ko-kly-ka-tci-na.

SAND MOSAIC OR DRY PAINTING.

103 to 105. Pictures called sand mosaics, prepared with sand of six colors in the "estufas," or sacred rooms, during the religious ceremonies. The chiefs make them on the ground, in front of the altar, at fixed periods, and with regard to certain rules. The colors which are used are yellow, green, blue, red, white, and black, brown being also permitted to be used. They are emblematic of the cardinal points, north, west, south, east, up, and down.

103. The picture on the left is that which is made in the La-la-kon-ti, a festival held by the women in September in honor of the god of germs. The figure on the left is the star god; that on the right, the patroness of the ceremony, called La-kon-ma-na or La-kon virgin. She is represented carrying in her hand a small basket like those suspended on the wall. The accompanying pamphlet contains a description of the La-la-kon-ti and the rules relative to these sand mosaics.

104, 105. The other two sand pictures are those which adorn the altar of the "estufa" of the priests of the Antelope and of the Serpent during the biennial celebration of the serpent dance. The central mosaic is a symbolic representation of

the cloud gods, O-mow-uh, and of the four cardinal points. The four colored darts on the upper side are the four lightning snakes. Two of them are males and two females, as shown by the model. The parallel lines outside of the picture represent the rain.

The mosaic on the right is called the house of the serpents. It is made on the floor of the estufa of the serpents, immediately before washing those animals, which are placed on it to dry. The figure in the center of the mosaic is the mountain lion. The red line which runs from the heart to the mouth is the line of respiration or of life.

106–113. Altar of sorcery of the cloud, similar to those which are made at all the religious festivals, to prepare the offerings which are made to the cardinal points, north, west, south, east, up, and down. The chief priest prepares this altar on the floor of the estufa or kib-va, in the following manner:

A regular heap of fine valley sand is first sifted on the ground. Afterwards six lines are traced with sacred meal, intersecting each other at the same center. One corresponds to the north-south line, another to the east-west, the third to that of up and down. The medicine jar is deposited at the point of intersection of these lines, and at the end of each line of meal is laid an ear of corn of the color corresponding to the direction: To the north, yellow; to the west, green or blue; to the south, red; to the east, white; up, black; down, spotted. Over each ear of corn is placed a pebble or rock crystal; on each side, a small bunch of feathers. During the preparation of the magic medicine, which is very complicated, the traditional songs are sung.

106. The rectangular jar in which the medicine is mixed. The ornaments on the four sides, forming terraces which represent the clouds, which are also painted on the inside. The parallel lines represent the rain. Frog figure in its middle round about; which, in the regular circle, is a row of figures representing tadpoles. These are also represented under the rain on each side, and dragon flies in the corners, on each side of which are emblems of the rain. The rain festivals are among the most important that the Indians of Tusayan now celebrate, since the region which they inhabit is very dry, and because it rains little or not at all there in summer.

107. Ancient jar for salt in the religious rites.

108. Receptacle for sacred meal in the religious rites. This meal is used in all the ceremonies as an offering to the gods.

109. Corn, sprinkler, lightning stone of the cardinal points. The color of the corn corresponds to the direction. The sprinkler serves to sprinkle with medicine the offerings which are made to the cardinal points.

110. Rattle which serves to accompany the traditional singing during the incantation. These rattles and other similar ones are used in all the religious rites.

111. Sacred meal. It is used in all the rites to sprinkle the offerings, the faces of the men when they personify gods, at the altar, and to throw toward the rising sun. It is customary to anoint the faces of the novices when they are about to enter the priesthood, those of the children when they are consecrated to the sun, and the bodies of the dead. Its use is not omitted in any religious rite. It is prepared from corn with great care, and is regarded as sacred.

112. Ancient jar for sacred meal. It has butterflies painted on the outside, they being associated with the summer and the ripening of the corn.

113. Different kinds of native corn of the color characteristic of the god of each direction. Corn of various colors is very common in the fields of the Indians of Tusayan. In the diagram is seen the arrangement of the altar of the incantation of the cloud, and some of the articles which are used to perform that incantation. The colors of the corn indicate the directions of the cardinal points. This altar is identical with that which is made in August at the ceremony which precedes the serpent dance.

### MODERN POTTERY OF TUSAYAN.

This case contains modern pottery of the present Indian inhabitants of the towns of Tusayan. The various specimens show the variety of the pottery manufactured by them, and also give an idea of the utensils which they use in the ordinary employments of the houses. Everything is made by hand, and the pictures are all emblematic. The decorations are sometimes pictures of gods, but the drawings are usually circles, rosettes, birds, and flowers. Occasionally they successfully reproduce the ancient models, but the art has greatly degenerated, and is no longer of the same importance as formerly.

The fineness of the ancient jars, in contrast with that of the modern ones, is due to the great care with which they worked the clay which was to be used in their manufacture and the skill with which they painted them.

The ceramic industry has greatly degenerated, and the tendency to simplify the ornaments has increased. Pottery is made by the women; never by the men. There are certain days of the year specially devoted to the manufacture of pottery, and on certain nights the villages are illuminated by the fires made to bake it.

### STONE IMPLEMENTS AND IDOLS.

The collection of articles of stone displays the various shapes which the Ho-pi Indians used in ancient times. Almost all are now obsolete, or are used in the religious rites. The stone specimens are hatchets, agricultural implements, pipes, fetishes, ornaments, mortars and rollers, images, etc.

115 (114). Stone mortar and piece of roller for grinding paint at the ceremonies. A little green carbonate of copper still remains in the inside.
116. Small mortar with flat surface, with green paint, found in a ruin.
117. Well-made mortar and roller. Both from near Wal-pi.
118. Flat stone for grinding paint.
119. Flat stone with a shallow cavity, and flat stone for grinding paint intended for the religious rites.
120. Round stone serving as a defensive weapon.
121. Ancient stone shovel. It is used in planting corn.
122. Two stone hoes used in the ceremonies. They are called Tca-ma-hia and are placed on the altar in the serpent dance.
123. Head of an ancient stone hoe.
124. Ancient stone shovel.
125. Stone hoe, found in an ancient ruin.
126. Stone hoe.
127. Stone hoe.
128. Piece of an ancient stone article.
129. Stone hoe.
130. Stone implement.
131. Stone shovel.
132. Stone hoe.
133. Ancient stone implement.
134. Ancient stone hoe.
135. Round stone object, with a groove, which served as a weapon in war.
136. Clay disks for polishing jars and other ceramic articles, found in an ancient ruin.
137. Fragment of a stone for grinding corn.
138. Paint pan, for grinding paint for the ceremonies.
140 (139). Sharpening stone, from A-wa-to-bi. It is used for polishing the shafts of the arrows, and has a bow, an arrow, and the emblem of the serpent carved on it.
141. Small buckskin bag for sacred meal.

142. Ancient bracelet of shells.
143. Earrings of shells with turquoises.
144. Necklace of shells.
145. Necklace of shells.
146. Necklace of shells.
147. Charm which is carried in the medicine bag.
148. Earring consisting of a small shell and a stone hanging by a strip of buckskin.
149. Fetish and earrings of lignite.
150. Various specimens of stones and ornaments of shells and clay. Seashells possess great value as an ornament, and in their absence, they are imitated with clay. Several with varied ornaments are collected under this number.
151. Stone for polishing arrows.
152. Stone for polishing arrows.
153. Stone for polishing arrows.
154. Stone fetish of the mountain lion (Felis concolor).
155. Stones roughly representing animals and used as fetishes.
156. Fetish to be suspended from the neck, as a personal amulet.
157. Eagle ka-tci-na and fetish. The colors of the fetishes are related to the cardinal points. They serve to give success in hunting.
158. Zuñi fetish of the lion, for hunting.
159. Zuñi fetish of the bear, for hunting.
160. Fetishes of the spider woman, a powerful goddess of the Tusayan mythology. She is the wife of the sun and the mother of the twin gods of war.
161. Fetishes of the mountain lion.
162. Fetish.
163. Fetish of the wolf.
164. Fetish of the bear.
165. Fetish.
166. Fetish of the bear, painted yellow to show that it is the northern bear.
167. Triangular stone, resembling a fetish, and used as such.
168–171. Four clay fetishes of the bear, with emblematic characters on the nose.
172. Fetish with offerings attached to its neck. These fetishes, or similar ones, are placed on the altars during the religious ceremonies, and are usually kept in niches made in the walls of private houses. Sometimes the owners attach to the necks of these objects tufts of cotton, with small feathers from the breast of the eagle hanging from them. It is also the custom to sprinkle them, at fixed periods, with sacred flour. In the great ceremony of the Serpent, during the celebration of a very remarkable rite, in which the most complicated ceremonies are observed, the first priest of the Antelope blows four times upon the fetish of the bear great quantities of smoke, smoking an ancient pipe called the great pipe of the cloud. To the Indians of Tusayan tobacco smoke typifies the cloud and is used in the ceremonies which are performed in praying for rain. Smoking during the religious ceremonies is a serious thing, and is done with the greatest gravity and reverence.
173. Mouthpiece for smoking, and pipe.
174. Great pipe of the snow, similar to that which is smoked in the December ceremony in prayers for snow. Found in the ruins of A-wa-to-bi.
175. Pipes with square bowls.
177 (176). Clay mouthpiece. The reed cigarette used in the ceremonies is a small rush, around which a long filament of cotton is twined.
178. Clay figure of the "clown" priests, or "mud-heads," carrying a child on its shoulders, illustrating a legendary incident.
179. Figure of the god of war.
180. Figure of a Ho-pi married woman.
181. Figure of a Ho-pi maiden, showing the special coiffure of the maidens. This coiffure typifies the blossom of the gourd.

182. Clay figure representing an unknown animal, which seems to be a sheep.
183–187. Clay figures of unknown personages, adorned with indistinct emblems. These objects represent the persons who take part in the ceremonies, or are merely secular. They are of clay baked in the sun, and painted with earth of different colors. They are usually suspended in the houses, but never worshiped. Several of these were given to children, who use them as playthings.
188. Clay fetishes of an unknown animal.
189. Personal fetishes which are worn as necklaces. They are also sometimes worn hanging from the back in little bags.
190. Hunting stone, which they say is an eagle. It is customary to carry these stones, or other similar ones, on hunting excursions, before undertaking which certain simple ceremonies are observed, and prayers repeated.
191. Stone hatchet, with handle attached by tendons.
192–196. Small stone hatchets, from near the pueblo of Walpi.
197. Small stone hatchet with two grooves for the handle.
198. Small stone hatchet from A-wa-to-bi.
199–206. Stone clubs.
207–220. Small stone hatchets, from ruins near Walpi.
221, 222–230. Various kinds of hatchets of polished stone, from Tusayan ruins. Found buried or on the surface of the ground.
231–234. Large ancient stone hatchets.
235. Rough, flat stone hatchet.
236. Hatchet with the edge in the shape of a cone.
237. Small hatchet with the edge finely worked.
238–240. Small, rough hatchets.
241–245. Clubs.
246. Small, flat stone hatchet.
247. Small, sharp stone hatchet.
248. Long stone weapon.
249. Long stone weapon.
250. Small, flat hatchet.

The stone articles employed by the ancestors of the present Indians of Tusayan, and on certain occasions by the present representatives of the race, do not differ from those found in other parts of North America. These ancient articles are no longer used except in the ceremonies to recall ancient customs.

### ANCIENT POTTERY OF TUSAYAN.

The collection of ancient pottery from the ruins of Tusayan is the result of several years of collecting, and is unique. The greater part was collected by Mr. Thomas V. Keam, an Indian trader, from whom it was bought by the Hemenway expedition. A large number of these articles have never been exhibited outside of the Indian towns, and many of them were obtained in excavations made last summer (1892).

The collection is divided into groups, beginning with the simplest pottery, of rough manufacture and without ornament, and passing on to the class having simple decorations in the form of spirals, to that of the pottery with incisions.

The following classification of the pottery, although imperfect, may be made from the color and ornaments:

I. Black and white.
II. Transition pottery.
III. Orange pottery.
IV. Of various colors.
V. Red pottery.

Only the decorated pottery enters into this classification. Many specimens are worthy of mention, from the beauty of their shape and material, and some of the unornamented specimens deserve notice.

The plans placed in the cases of ancient pottery are of ruins in the south of Arizona, and indicate the configuration of the ancient towns in the valleys of the Salado and Gila rivers.

The Hemenway expedition has made important excavations in this region. The plans reproduce a single town, composed of twenty-four groups of dwellings with a large central building.

RED POTTERY.

The small collection of red pottery is among the best of the ancient ware. It is not manufactured at the present time and the knowledge of how it was made has died out. The fineness of the material of the pottery of the ancient Ho-pi is unequaled. The best specimen is No. 267, the classic form of which is readily seen. The external figures are simple. The colors usually employed in decorating this pottery are white and black.

251. Ancient food bowl, with plain handle and paintings on the inside in white, black, and red.
252. Jar with figures formed by broken lines.
253. Jar ornamented with the head of a bird and symbolic offerings, called pa-hos.
254. Ancient ceremonial jar, with figures.
255. Salt holder.
256. Ancient jar, with painted spirals.
257. Bowl for food, with paintings formed of broken lines.
258. Bowl for food.
259. Small bowl with inclined border, ornamented with cloud symbols.
260. Fragment of ladle, with the handle broken.
261. Ladle.
262. Receptacle for salt or sacred flour, which is carried at the side.
263. Vertical jar for salt.
264. Hemispherical jar with inclined edge.
265. Hemispherical jar with parallel lines.
266. Hemispherical jar, with holes for passing a cord, for the purpose of carrying it suspended from the shoulder.
267. Wide-mouthed jar.
268. Ladle with a single white circle.
269. Square clay box, with emblems of the cloud, used in the ceremonies for salt or sacred flour.
270. Jar with white and black figures resembling a chessboard.
271. Ladle.
272. Fretted jar.
273. Small jar.
274. Painted jar with small mouth
275. Jar with well-executed figures of the growing gourd, the cloud, and the circle.
276. Jar with various ornaments.
277. Jar with symbolic figures.
278. Sacred jar with external figures and ornaments.
279. Large jar with external paintings of rectangles, squares, frets, and circles. It has been used many years in the religious rites of the present Wal-pi, and is said to have come from a ruin in the northern part of Arizona.

POTTERY OF VARIOUS COLORS.

The so-called variegated pottery is among the best that the ancient potters manufactured. The clay is fine and the decoration artistic. It is only found in one or two of the most ancient ruins, and no attempt is ever made now to imitate it. It is orange or red on one side and of variegated color on the other. The number of speci-

mens of this pottery found in ruins is much less than that of any other kind except the red or orange. They are therefore of great value, in spite of their not being very artistic. The decorations are various, and, for the most part, simple.

280. Large jar with figures made up of broken lines.
281. Jar with a painted bird.
282. Bowl for food.
283. Bowl for food, with emblematic figures.
284. Salt holder.
285. Jar with black and white figures.
286. Jar for ceremonies, with spiral figures.
287. Small painted jar.
288. Jar for ceremonies, with emblems of the cloud alternating with those of the gourd.
289. Jar of ancient pottery, which has been used for many years in the ceremonies at Wal-pi.
290. Jar with wings on both sides, imitating a bird.
291. Jar in the form of an amphora, with emblems of the cloud.
292. Jar for carrying the sacred flour in the ceremonies. It has the sun on one side.
293. Jar much esteemed by the Ho-pi for its great antiquity, with emblems the meaning of which the present Indians do not know.
294. Jar with a mythological bird, the wings of which represent the clouds.
295. Narrow-necked jar, with emblems of the cloud and the lightning. The band of the neck is not closed, which signifies that it was made by an unmarried woman.
296. Jar with series of spiral figures.
297. Jar with the emblems of the cloud and circle; the latter probably formerly the symbol of the sun.
298. Jar with unknown symbols.
299. Ancient drinking jar.
300. Ancient drinking jar, with cloud symbols.
301. Rare and unique jar, with emblematic pictures of the dwellings and families which constituted the tribe painted on opposite sides, alternating with the virgin emblem. The same picture is found reproduced in carved pictures or engravings cut in the rocks near the town of Wal-pi.

### TRANSITION POTTERY.

The pottery of this class is very common in the burying ground of A-wa-to-bi. The clay is fine, and the decorations usually have more richness than those of the white and black pottery. Here, for the first time, we meet symbolized gods, which never occur in the less perfect black and white pottery. Still, there is little variety in the shape of the jars, and they are not an improvement on those which belong to the black and white class already mentioned. The collection of transition pottery contains several house articles.

302. One of the bowls of the greatest merit in the collection. The decorations are variegated, and the clay is very fine. The Ho-pi potters regard it as one of the best productions of their industry in ancient times. The four imitations of white and red birds represent the thunder bird, a mythological creation of the Indians, about which there are many tales. These birds appear flying near the mouth of the jar, preserving the circle of ceremonies, which is never altered in the religious rites. Together with the drawings, the jars have engravings, which characterize the best specimens of the Ho-pi pottery. This is seen in the crooks in front of the wings. These crooks typify the powerful warrior society called Kwa-kwan-ti. There are four of these

birds, one corresponding to each of the cardinal points—north, south, east, and west. The black and red lines, crossed by two other parallel lines, represent the dragon fly, a symbol of water. It is also a beneficent animal, to which, according to the traditions, the corn crop has often been due.

303. Jar with unclosed band around the neck. The opening of this band represents the line of life.
304. Jar with good decorations of frets and representation of clouds.
305. Jar for water or food, with unknown symbols.
306. Jar with emblems of a mythological bird and stars.
307. Jar with band and fret.
308. Ladle having a fantastic animal with wings painted on the inside. The dots represent feathers.
309. Jar for food.
310. Small jar with rough drawings, found near a skeleton.
311. Ceremonial jar.
312. Sacred vase, from the sand hills near A-wa-to-bi.
313. Jar with two handles and sunflowers.
314. One of the vases in which the priests carry sacred flour.
315. Ancient jar, found in a tomb.
316. Jar the decorations of which represent an ancient game of the Ho-pi.
317. Ancient vase, with rude drawings.
318. Bowl with one of the buckskin nets which the priests bear in the ceremonies to pray for rain. Ancient vase with a modern net.
319. Ancient sacred vase.
320. Ancient vase with symbols of clouds.
321. Small water jar. It was used in the ceremonies which are performed in prayers for rain.
322. Ancient vase used in prayers for rain.
323. Vase for water used in prayers for rain.
324. Small jar which was anciently used in the ceremonies which were performed in praying for rain.
325. Clay spoon for secular uses.
326. Ladle for nonreligious uses.
327. Ancient vase, the use of which is not known.
328. Ancient vase, the use of which is not known.
329. Ceremonial jar, found near a skeleton, at A-wa-to-bi.
330. Ancient water jar.
331. Ancient jar for flour.
332. Ancient water jar, with handles through which to pass a strap in order to carry it suspended at the side. It was adapted for excursions.
333. Sacred vase, similar to that which is used at the festival of the Flute. It was probably used by the ancestors of those who now form part of the fraternity of the Flute.
334. Burial bowl for food.
335. Ancient vase having an ancient ka-tci-na, or god, painted on the inside. It has the serpent and the butterfly on the outside.
336. Ancient ladle, with unknown emblems.
337. Ceremonial jar.
338. Ceremonial vase, in which was formerly kept the honey which was used in certain rites.
339. Burial bowl for food, from a grave at A-wa-to-bi.
340–392. Vases and jars for food, of various shapes and symbols. Found in graves at A-wa-to-bi and neighboring burying grounds.
393. Burial bowl for provisions. It has an offering to the gods of rain elaborately drawn on it.

WHITE AND BLACK POTTERY.

Nos. 394 to 468 display the features of the so-called white and black pottery, which is no longer made, and can only be found in one or two ruins near Keam's Canyon. Among the specimens of this pottery are comprised all the types now in use. The decorations are very simple, as they represent neither animals, plants, nor sacred emblems. It is, without any doubt, the simplest class of the painted pottery of Tusayan.

394. Vase with bands, dots, and triangles interlaced. It is one of the most regularly shaped specimens in the collection.
395. Large jar for holding water or for carrying it from one place to another. It is the best painted specimen of all the white and black pottery.
396. Amphora, with a zigzig band around the edge. The only one of this shape, and with these characteristic decorations.
397. Drinking vase, with three salient protuberances. It very probably represents some imaginary bird.
398. Sieve for scattering flour or sand.
399. Jar with a single handle, with painted triangles. One of the simplest forms of the white and black pottery.
400. Vase in the shape of a shoe, for carrying the sacred flour in the ceremonies.
401. Small water jar.
402. Ladle.
403. Ladle with zigzag figures and long neck.
404. Hemispherical vase for ceremonies.
405. Vase for food, found in a grave.
406. Vase for food, with emblems of the cloud and of the four cardinal points.
407. Ancient pan for paint.
408. Vase for food, from a grave.
409. Ancient drinking cup.
410. Vase in the shape of a shoe, for sacred flour.
411. Vase for food, with figures imitating rectangles.
412. Vase for food, with figures on the outside. In ancient pottery, as well as in modern, it is very rarely that vases for food are found with decorations on the outside.
413. Ancient bowl, with handle. It probably served as a ladle.
414. Narrow-mouthed jar, with spirals.
415. Vase with handle and triangular figures.
416. Narrow-mouthed jar, with spirals and parallel lines. The spiral is the emblem of the whirlwind god.
417. Narrow-mouthed cup.
418. Large water jar. The decorations are very characteristic. Similar jars were also used for cooking and for boiling water.
419. Paint jar.
420. Cup with diagonal figures.
421. Bowl with a single handle, or ladle.
422. Pan for holding the paint with which the decorations and sacred objects were painted.
423. Wide-mouthed vase.
424. Vase for carrying water on long excursions.
425. Long-necked cup.
426. Drinking cup.
427. Perforated vase, for sifting sand or flour. It is possible that this was used in making the sand pictures in the ancient ceremonies.
428. Drinking cup, well executed, and of large size.
429. Paint pan.
430–432. Drinking cups.

433. Salt vase.
434. Long-necked globular vase.
435. Vase with two compartments, which were used for salt or pepper.
436. Water jar, with zigzag drawings.
437, 438. Cups.
439. Bowl for food, very fine, and with emblems of the cloud.
440. Salt vase, with zigzag and parallel lines.
441. Vase for food, with half spirals and black broken lines.
442. Vase of extraordinary shape, with handle. Its former use is unknown.
443. Long-necked vase.
444. Amphora, for transporting provisions, usually corn bread.
445. Fretted vase.
446. Ancient vase for ceremonies.
447. Vase with handles for cords. It is used on long excursions.
448. Ancient vase with spirals, which was formerly used in the ceremonies connected with the "Mam-zrau-ti" dance. Observe on the side the combination of figures forming rectangles and spirals. This jar, which is well painted, displays the highest degree of perfection attained by the Indians of Tusayan in the decoration of the white and black pottery, and is the most valuable of the specimens from the ruins near Keam's Canyon.
449. Well-polished drinking cup.
450. The colors of this bowl recall those of the transition pottery. It is the only specimen of this ware which was found in a grave near the inhabited villages.
451. Vase for food, with triangles formed by black lines.
452. Bowl for food.
453. Jar for carrying food on long excursions. It is also used for water.
454. Drinking cup, with white and black squares.
455. Ancient jar.
456. Cups.
457. Large drinking bowl.
458, 459. Drinking cups.
460. Wide-mouthed jar.
461. Jar with two conical handles, for fastening a cord.
462. Cup with large handle.
463. Jar for food.
464. Jar for food.
465. Bowl with a single handle. The inside is painted black, with white zigzags. It was found in a grave.
466. Bowl with large circles.
467. Bowl with figures representing the teeth of the Ka-tci-nas.
468. Small cup used as a spoon. The handle of a similar cup which stands near the preceding has the shape of an open fan. Similar cups are now used for the purpose mentioned.

### RUDE POTTERY WITHOUT DECORATIONS.

This class, the most primitive of the ancient pottery, occupies three cases in the northern part of the room, and is divided into smooth and wrinkled pottery. This rude pottery, which is in some cases decorated, is common in ruins near Wal-pi and Keam's Canyon. It comprises, in general, vases, bowls, and large jars for cooking. They are usually of coarse clay.

The potter's wheel was not known, and the potters polished the outside of the ware with a stone, a piece of another jar, or with a stick.

The larger vases serve indiscriminately for cooking and for storage. The former are more or less blackened by fire. Those used as depositories were buried in the ground here and there, the Indians filling them with water or provisions when they went on any expedition, in order to find it fresh on their return.

Some of the specimens of the smooth rude pottery have external incisions made with the thumb nail, a sharpened stone, or a stick. It was sometimes customary to smear the outside of the jar or vase with pitch. The black specimens owe their color to the smoke produced during their baking. This rude pottery is made to this day, and was anciently made at the same time as the finer pottery. The Indians are accustomed to regard the wrinkled pottery as very ancient. It is found in the most ancient ruins, including those of the cliff-dwellers, and shows the first step taken in the decoration of pottery.

The best specimen is No. 495, in which triangles and circles are combined, a very rare thing in the ancient pottery. It was found in a room at the ruins of Si-kya-ki.

### BURIAL ARTICLES FROM ALTARS AND GRAVES.

The collection of small clay articles found in graves at the foot of the mesas of the Ho-pi illustrate the kind of objects which were formerly placed over the dead. Some were also offerings made to the gods, especially to Ma-sau-wuh, the god of fire and death. These objects constituted offerings, as already said, and never had any other use, though the smallest may have served as playthings for the children.

### ANCIENT LADLES.

The collection of ancient ladles from the ruins of the pueblos of Tusayan is instructive as regards the emblems painted on these articles. They are of all shapes and made of different clays, decorated with characteristic figures on the inside and outside.

These ladles were sometimes used in the religious rites. They were filled with sacred flour, which was piled in front of the fetishes, or was scattered over the sand mosaics of the altars. Many of these ladles have pebbles inside of the handles, and serve as rattles, both in the games and in the most solemn rites of the sacred dances.

Every figure on these rattles is symbolic, and the technical study of this symbolism has a close connection with that of the ornaments of the baskets, images, blankets, and pottery.

With a view to establishing a comparison, a ladle of mountain-sheep horn has been placed among them. Many of these objects, if not all, were probably used in the ceremonies and not in the ordinary employments of life.

### ADOBE (CLAY BAKED IN THE SUN) TILES, WITH SYMBOLIC PAINTINGS.

These tiles are modern imitations of those which were formerly made for the ceremonies which were solemnized in the estufas. This collection was manufactured many years ago, and the only person who knew how to prepare them is dead. We see in them the characteristic symbolism of the gods, and the various spiral windings, circles, and frets which are used for decorating the pottery. On comparing them with the images we easily see the sun, the god of the corn, and others. These tiles are not used for ornaments of houses and are rarely manufactured by the Indians. The value of this collection, unique for the study of the symbolism, together with that of the pottery, is great, but with certain limitations, as the articles composing it are modern.

Similar tiles are now used in the religious ceremonies of the present inhabitants of Tusayan, and are, for the most part, traditional, and the priests hold them in great veneration. The picture of an ancient tile called the Ho-ko-na-ma-na, or Butterfly Virgin, introduced in the serpent dance, is exhibited in the case with the specimens.

### PHOTOGRAPHS OF SACRED DANCES AND PARAPHERNALIA.

1. Group of glutton priests or clowns. These priests accompany the Ka-tci-nas in their dances and try to amuse the spectators. This priesthood is one of the most ancient of Tusayan, and, according to their traditions, has existed since the epoch when the race came out from the center of the earth.

2. The Snake priests leaving the town. Their mission is to catch the serpents which are to be used in the dance.
3. Row of sacred dancers, or Ka-tci-nas, with two women Ka-tci-nas wrapped in the ceremonial blankets.
4. A Snake priest emerging from the kib-va to take part in the sacred dance.
5. The Snake altar.
6. Ceremony of the purification, which takes place after that in which the serpents are carried in the mouth.
7. The same ceremony.
8. The same ceremony.
9. The same ceremony.
10. The principal street of the pueblo of Wal-pi and the Snake priests retiring from the plaza.
11. The Snake priests preparing to undertake the hunt for the serpents which are to be used in the ceremony.
12. Priest at the door of the estufa.
13. Place in which the serpents are confined before the dance.
14. The Snake chief. He has in his left hand a whip for charming snakes, and a small bag of sacred flour to anoint the head of those animals, which they claim to be related to the fraternity which celebrates the dance mentioned.
15. Black zigzag lines which the priests of the Serpent paint on their bodies, legs, and arms. The black lines are of clay and saliva.
16. Snake priest dressed for the ceremony.
17. Ceremony of the purification. On the last of the nine days of the festival the Snake priests eat nothing. At the conclusion of the dance they take a drink which purifies them. On the following day a more complicated ceremony of purification takes place.
18. Snake priests going off to hunt snakes.
19. Snake dance. This is the public ceremony which takes place in the presence of all the inhabitants of the pueblos. The two fraternities which take part in it are the Antelope and the Snake. In this ceremony the priests of the latter fraternity carry living venomous snakes in their mouths. Those who take part in the dance and the spectators are seen in the photograph.
20. Small ladder leading to the kib-va, or sacred rooms in which the secret mysteries of the Snake ceremony are held. From this ladder hang a bow and arrows with red horsehair and the skin of a small mammal. Their object is to notify the uninitiated that ceremonies at which they are not permitted to be present are being performed in the subterranean room.
21. The courier emerging from the kib-va of the Antelope with the sacred offerings which are to be made to the gods of the four cardinal points. On each of the first seven days of the Snake ceremony this man goes around the pueblo following a circle and placing the offerings on the four altars of the gods of the cardinal points. Each day the diameter of the circle diminishes; on the first it is about 7 miles, and the last is confined to going around the hatch of the kib-va. He carries the offerings on his back. In his left hand he has the sacred flour, with which he sprinkles the offerings after he has placed them on the altars.
22. The Snake priests in rank at the beginning of the dance.
23. The chief of the Snake priests taking the flag from the ladder, to give notice that the mysteries of the ceremony of the Snake have ended.
24. The Antelope priests inviting the Snake priests to come out of their kib-va and to go to the plaza to carry the serpents around the sacred rock. Each of the Antelope priests deposits a handful of flour at the door of the house of the Snake priests, calling in a low tone.
25. Ceremony of the purification.
26. Snake priest going to the hunt.

27. Hatch-way of the Snake kib-va. A man is seen entering.
28. Ka-tci-na dance, called the "Good-bye of the Ka-tci-nas."
29. Objects used in the Mam-zrau-ti ceremony, a dance of women, which takes place in October. (1) Offering to the Whirlwind god; (2) head ornament of hawk's feathers and horsehair, emblematic of the sun; (3 and 4) the two faces of a screen called a moisture tablet, which is carried on the back; 3, the obverse; 4, the reverse. The two disks are miniature food symbols offered to the gods of the cardinal points.
30. Articles used in the ceremony held to light the new fire. (1) Head ornament of a novice whom they are about to initiate; (2) the Virgin of the Dawn, patroness of the ceremony of the new fire; (3) offering to the god of Fire; (4) offering to the god of War. These are of wood, and are placed on the ground before the ceremony begins. (5) Standard of the ceremony of the new fire; (6) implements which are used to light the new fire; (7) the ears of corn, which correspond to the four cardinal points, the upward, and the downward. These are hung up in the kib-va while the ceremony of lighting the fire is going on.
31. Row of shields, corresponding to the four cardinal points, the upward, and the downward, one additional. They are used in the ceremony of the Su-my-ko-li.
32. Standard which is suspended over the kib-va of the Antelope while the secret Snake rites are being celebrated.
33. Standard which is suspended over the Snake kib-va during the same rites.
34. The four slabs of clay and wood, corresponding to the four cardinal points, which are used in the ceremony of the Flute. They all have symbolic figures of the cloud, the lightning, and the rain.
35. Pillar, or primitive solar gnomon, for determining the time of the religious dances.
36. Plume or feathers, worn on the head by the members of a warrior society.
37. Butterfly virgin, clay tile used in the ceremonies in which the adventures of the Snake hero during his journey under the earth are dramatized. It has the cloud, butterflies, and tadpoles depicted on it.
38. Shrine, with door closing the room.
39. Shrine under a great cliff.
40. Two wooden fetishes of the ceremony of the Flute.
41. Staff of the Ma-lo-ka-tci-na. The dancers carry it in their hands. The ear of corn represents the mother, the feathers the four cardinal points.
42. Snake whip. The handle has the Great Serpent (Feathered Serpent) engraved and painted in green on it. The feathers are from an eagle's tail, and each has a bluebird's feather at its extremity.
43. Pa-hos, or sacred offerings of the Snake ceremony. The largest is of the length of the arm from the heart to the extremities of the fingers; the smallest is the length of the middle finger. Both have the four feathers corresponding to the north, west, south, and east.
44. Ka-tci-na-ma-na, or man dressed like a woman to take part in the religious dances.
45. "Clay-head" priest.
46. Bower erected in the plaza of the pueblo of Wal-pi during the ceremony of the Flute.
47. Zuñi dancer, with mask.
48. Adobe ball with the figure of the Serpent. The Snake priests carry this as a charm on their shoulder belts, and make it with great ceremony.
49. Large pipe which the priests of the Serpent smoke during the baptism of the Snakes. This pipe has the cloud and the lightning depicted upon it.
50. Standard of the priesthood of the Flute.
51. Offering of a Zuñi warrior priesthood.

52. Diagram of the room in which the offerings are made at the summer solstice. The offerings made at the same epoch.
53. The Old scold; personage with a mask, who takes part in Zuñi ceremony.
54. Ka-tci-na, or sacred dance.
55. Offering made to the gods of the cardinal points at the festival of the farewell of the Ka-tci-nas.
56. Ceremony for rain, called the "Ducking of the Clowns." The ten naked priests called Clowns go around the pueblo singing traditional songs, and the women, who are on the roofs of their houses, pour water upon the heads of the priests or throw handfuls of flour on them.
57. Aña-ka-tci-na, a rain dance. In making these pictures and photographs the natural tendency of the Indians not to consent to the taking of photographs of their religious ceremonies has been encountered. They believe that by means of sorceries the likeness of a person or of an object may be used to exert an evil influence on them, and for this reason they have an extreme distrust of the photographic apparatus.

The pueblo of Zuñi, in which some of the photographs were taken, is not in the province of Tusayan, but an adjoining territory, the civilization of both peoples being remarkably alike.

BURIAL FOOD BOWLS.

The collection of burial bowls contains some of the best specimens of the ancient pottery, and displays the symbolism of the ancient Ho-pi. Almost all were found in the sand hills near the ruins of A-wa-to-bi. During four days they filled these vases with food for the dead, and did not usually bring broken vases as they do now. The corpse had its legs doubled close to the body, and was generally buried looking toward the east. The strong winds which sweep the sand hills disinter a skeleton from time to time and show the presence of these vases. The hillocks which surround the graves also contain fragments of ancient vases.

These burial bowls usually have symbols painted on the inside, the meaning of which the present Indians do not know. In general, these figures are simple, of a single color, representing the cloud, tadpoles, offerings to the gods, and occasionally flowers, insects, and birds. On the outside they have not usually more than the border of the bowl and offerings to the gods.

STARS ON THE WALL.

The four stars on the wall and the three bows over the windows are made of baskets, on which are seen the different decorations with which the Indians embellished this class of objects. The baskets which the Ho-pi made are of two distinct classes, the respective characters of which are best observed in those over the windows.

The Indians use them for carrying bread or flour, and they are a very common article in the interior of every house. In the ceremony of La-la-kon-ti those who take part in it carry them in their hands, and throw them at the spectators as presents.

These baskets were made by the Indians of Tusayan, and are characteristic of this tribe. They have figures painted on them in the colors of the country, reproducing symbolism of religious or profane subjects.

The class of baskets with a continuous spiral is made in the second mesa; the other kind in O-rai-bi, the most populous and least civilized of all the pueblos of Tusayan. When the outer end of the spiral remains loose the fact is symbolic, and has the same meaning as the unclosed band with which some of the ancient and modern vases are ornamented. The inhabitants of the first mesa do not make these baskets.

BLANKETS NAILED TO THE WALL.

The blankets covering the walls of the room of the Hemenway collection were made by the Navajo Indians, who are nomadic, and are neighbors of the Tusayan Indians. The figures are symbolic, representing star, lightning, and other gods.

Some of the colors are pigments of the country, others paints bought from the whites. All these blankets were woven by women with hand looms, from wool spun by the Indians. Under No. 2 are shown a small model of a loom and the accompanying implements. The Tusayan Indians have long known how to weave blankets, and probably taught the art to the Navajoes. The zigzag figures represent the lightning, and the crosses the Star god. The men wear these blankets in the ceremonies, but they weave others with the sole object of selling them to the white traders. They usually use the wool of sheep, though the Ho-pi make blankets also of rabbit skins. The ceremonial blankets are generally made from the cotton of the country. The Navajos, who live near the line of the railroad, use wool spun in American factories, which the traders sell them.

ANCIENT ALTAR CLOTH.

This very ancient cloth was painted by an order of priests called the "Clowns" or "Gluttons" (Tcu-ku-wym-ki-ya). It has been used in many of their secret ceremonies, and the owners were with great difficulty induced to give it up, owing to the honor and respect which they pay to their secret rites. The rites in which it was used are unknown, and the symbolism is obscure, but figures of the dragon fly and tadpole are seen pictured upon it.

The figure in the center has some connection with the gods of the cardinal points, and is sometimes seen on the helmets worn by those who take part in the sacred dances. The altar cloth is surrounded by a belt which is like that which the women commonly wear.

SYMBOLIC ORNAMENTS ON THE WALLS.

The two pictures on the walls above the blankets represent common symbols of the Ho-pi Indians. That on the left is a copy of the sand picture made in the ceremony of the Serpent by Wi-kio Chief of the priests of the Antelope. It represents the four clouds, of four distinct colors, corresponding to the four cardinal points. The four darts are the four lightning serpents, two of which, the green and the white, are females, and two, the yellow and the red, males. They have the respective symbols of their sex painted on one side of the head. A rectangle with two diagonals distinguishes the female. Over the symbol of the male lightning serpent is painted a small cylinder of willow, from which hangs a cord with feathers at its end. Over the symbol of the female is placed a similar object in the shape of a hoop made of corn husk. A necklace consisting of four black parallel lines around the neck is painted on every lightning serpent.

The representation of the cloud and the lightning are in a frame of four colors, emblematic of the four cardinal points. A number of parallel black lines, representing the rain, issue from the lower line.

The symbol of the gods of rain, O-mow-uh, is found, with some modifications, on pottery, blankets, baskets, pictures, and the articles used in the dance, and is one which these people reproduce most frequently. Almost all the ceremonies have for their object a prayer that this god will be propitious to them, and offerings are made to him in all their secret rites.

The picture on the right represents Sa-li-ko-ma-na, a beneficent goddess, the wife of Sa-li-ko. This goddess brought man the seeds of all the vegetables, and is regarded a very beneficent being. The reader will find her symbolism in the number relating to the image of this divinity. The red lines on the body probably represent the ancient feather ornaments. This picture is a copy of a drawing of the goddess made on a clay tile, and is an exact reproduction of it in all its details. The wings which it has on the sides of the body represent clouds.

PUBLICATIONS OF THE HEMENWAY EXPEDITION.

The publications of the Hemenway expedition during the last two years are found in the Journal of American Folk Lore, Houghton, Mifflin & Co., Boston; The American Anthropologist, Washington, D. C., and others. The official organ is A Journal

of American Ethnology and Archæology, Houghton, Mifflin & Co., Boston, two volumes of which have been already published.

Copies of the publications are exhibited in this case.

Volume I, Journal of American Ethnology and Archæology, contains an article on Zuñi melodies, by Mr. B. I. Gilman. This music was taken from the Indian singer by the phonograph. In this case is seen one of the cylinders of the phonograph on which Indian music was taken. The Indians were made to sing in front of the phonograph, and the impressions thus obtained serve to retain the music and were used in writing it. The members of the Hemenway expedition were the first to employ this method.

## THE BANDELIER COLLECTION OF COPIES OF DOCUMENTS RELATIVE TO THE HISTORY OF NEW MEXICO AND ARIZONA.

[From the archives of the Hemenway expedition.]

The books placed on the lower shelf in this case are copies of ancient documents now existing in Mexico, Santa Fe, N. Mex., and other points in the southwestern part of the United States.

These copies were made by the eminent scholar, Mr. A. F. Bandelier, formerly a member of the expedition. Part of the results of his studies on the historical documents of New Mexico and Arizona, the portion of the United States constituting the principal base of the labors of the Hemenway expedition, were published by the Archæological Institute of America and the Hemenway expedition, in the volume on exhibition.

The following is a list of the works copies of which are exhibited in this case:

SONORA.

[Spanish titles and translation.]

1. Misión de Nebomes de N. P. S. Francisco de Borja. Años de 1658–59.
   Nebomes Mission of Our Holy Father Francisco de Borja. 1658–59.
2. Carta dando noticia al P. Provincial Ambrosio Odobe que los Pimos piden el bautismo. P. José Osorio, S. J., 1690.
   Letter notifying the Father Provincial Ambrosio Odobe that the Pimos ask for baptism. Father José Osorio, S. J., 1690.
3. Informe al Virrey del estado de las Misiones de la Compañia en Sinaloa y Sonora. General D. Pedro Rivera, 1727.
   Report to the Viceroy of the state of the Company's Missions in Sinaloa and Sonora. General Don Pedro Rivera, 1727.
4. Testimonio auténtico de lo sucedido en la visita que, por órden del Dean y Cabildo de Guadalajara, hizo en las Misiones de Sinaloa y Sonora. Fr. D. Tomas de Ugarte, 1673.
   Authentic testimony of what happened on the visit which he made, by order of the Dean and Chapter of Guadalajara, to the Missions of Sinaloa and Sonora. Fray Don Tomas de Ugarte, 1673.
5. Catálogo de las partidas de Sonora. 1685.
   List of the laws of Sonora. 1685.
6. Breve relacion de la victoria de los Pimos. P. Eusebio Francisco Kino, S. J., 1698.
   Brief account of the victory over the Pimos. Father Eusebio Francisco Kino, S. J., 1698.
7. Relación de Nuestra Senora de los Remedios. P. Eusebio Francisco Kino, S. J., 1698.
   Account of Our Lady of the Remedies. Father Eusebio Francisco Kino, S. J., 1698.
8. Carta al P. Horacio Polici. P. Eusebio Francisco Kino, S. J., 1698.
   Letter to Father Horacio Polici. Father Eusebio Francisco Kino, S. J., 1698.

9. Relación del estado de la Pimería. PP. Horacio Polici y E. Kino, 1697.
   Account of the state of the Pimeria. Fathers Horacio Polici and E. Kino, 1697.
10. Relación del viaje al Río Gila. PP. Kino, Cristóbal Bernal, etc., 1697.
    Account of the journey to the River Gila. Fathers Kino, Cristobal Bernal, etc., 1697.
11. Carta al Virrey. P. Miguel Janvier Almansa, S. J., 1724.
    Letter to the Viceroy. Father Miguel Garico Almansa, S. J., 1724.
12. Idem.
    The same.
13. Informe del Capitán y de los vecinos del Real de Nacosari. D. Ventura Fernández Calvo, 1724.
    Report of the Captain and residents of the Real de Nacosari. Don Ventura Fernandez Calvo, 1724.
14. Estado de la provincia de Sonora. 1730.
    State of the Province of Sonora. 1730.
15. Noticias de la Pimería. 1740.
    Notes on the Pimeria. 1740.
16. Carta al P. Rector José de Echeverría. P. Jacob Sedelmair, S. J., 1747.
    Letter to the Father Rector José de Echeverría. Father Jacob Sedelmair, S. J., 1747.
17. Relación de los Rios Gila y Colorado. P. Jacob Sedelmair, S. J., 1746.
    Account of the Gila and Colorado Rivers. Father Jacob Sedelmair, S. J., 1746.
18. Noticia breve de la expedición de Sonora y Cinaloo. 1771.
    Brief account of the expedition to Sonora and Sinaloa. 1771.
19. Noticia de las Misiones de Sonora. P. Fr. Antonio de los Reyes, 1772.
    Account of the Missions of Sonora. Father Fray Antonio de los Reyes, 1772.

NEW MEXICO, 1595—1778.

1. Discurso y proposición que se hace á V. M. de lo tocante á los descubrimientos dez Nuevo Méjico. Conde de Monterey, 1602.
   Address and proposition made to Your Majesty with regard to the discoveries of New Mexico. Count de Monterry, 1602.
2. Real cédula. 1685.
   Royal decree. 1685.
3. Informe al Rey sobre las tierras de Nuevo Méjico, Quivira y Teguayo. Fr. Alonso de Posados, 1686.
   Report to the King on the lands of New Mexico, Quivira and Teguayo. Fray Alonso de Posados, 1686.
4. Memorial acerca de la replobación de Nuevo Méjico, y ventajas que ofrece el reino de Quivira. Fr. Nicolas Lopez, 1686.
   Memorial with regard to the resettlement of New Mexico, and advantages offered by the kingdom of Quivira. Fray Nicolas Lopez, 1686.
5. Memorial informando de las naciones del Oriente. Juan Domínguez de Mendoza, 1686 (?).
   Memorial giving an account of the nations of the East. Juan Domínguez de Mendoza, 1686 (?).
6. Real cédula. 1596.
   Royal decree. 1596.
7. Mandamiento á D. Juan de Oñate. Conde de Monterey, 1596.
   Order to Don Juan de Oñate. Count de Monterey, 1596.
8. Relaciones de todas las cosas que en el Nuevo Méjico se han visto y sabido, así por mar como por tierra, desde el año de 1538 hasta él de 1626. Fr. Jerónimo de Zarate Salmerón, 1626.
   Accounts of all the things which have been seen and known in New Mexico, both by sea and land, from the year 1538 to the year 1626. Fray Jerónimo de Zarate Salmerón, 1626.

9. Relación anónima de la reconquista y de la replobación del Nuevo Méjico. 1718.
   Anonymous account of the reconquest and of the resettlement of New Mexico. 1718.
10. Diario y derrotero de lo caminado, visto, y observado en el discurso de la visita general de presidios situados en las provincias Ynternas de Nueva España. D. Pedro de Rivera, 1736.
    Diary and itinerary of the traveling, seeing, and observing in the account of the general inspection of forts situated in the interior provinces of New Spain. Don Pedro de Rivera, 1736.
11. Carta al P. Fr. Agustín Morfi. Fr. Silvestre Vélez de Escalante, 1778.
    Letter to Father Fray Agustín Morfi. Fray Silvestre Vélez de Escalante, 1778.

NEW MEXICO, 1541–1793.

1. Relación postrera de Sivola. Fr. Toribio Motolinia, 1541.
   Last account of Sivola. Fray Toribio Motolinia, 1541.
2. Real cédula. 1570.
   Royal decree. 1570.
3. Real cédula. 1600.
   Royal decree. 1600.
4. Ley inserta en la Ordenanza del 17 de Diciembre, 1603.
   Law inserted in the Ordinance of December 17, 1603.
5. Real cédula. 1620.
   Royal decree. 1620.
6. Petición contra Juan Lopez Holguín. Pobladores de San Gabriel, 1604.
   Petition against Juan Lopez Holguín. Settlers of San Gabriel, 1604.
7. Autos de Proceso contra Juan de Escañamad, 1617.
   Proceedings in the suit against Juan de Escañamad, 1617.
8. Real cédula, 1631.
   Royal decree, 1631.
9. Real cédula, 1636.
   Royal decree, 1636.
10. Mandamiento del Tribunal de la Santa Cruzada. Don Lopez Altamirano y Castilla, 1633.
    Order of the Court of the Holy Crusade. Don Lopez Altamirano y Castilla, 1633.
11. Mandamiento del Virrey de la Nueva España. Marqués de Cerraloo, 1634.
    Order of the Viceroy of New Spain. Marquis de Cerralbo, 1634.
12. Autos sobre las Misiones de Zuñi, 1636.
    Documents concerning the Zuñi Missions, 1636.
13. Autos sobre excomuniones, 1636.
    Decrees concerning excommunications. 1636.
14. Carta á Fr. Cristóbal de Quiros. Fr. Jerónimo de la Llana, 1636.
    Letter to Fray Cristóbal de Quiros. Fray Jerónimo de la Llana, 1636.
15. Carta al Virrey. Fr. Pedro Zambrano, 1636.
    Letter to the Viceroy. Fray Pedro Zambrano, 1636.
16. Carta al Virrey. Fr. Antonio de Ybargaray, 1636.
    Letter to the Viceroy. Fray Antonio de Ybargaray, 1636.
17. Carta al Virrey. Custº Defª del Nuevo Méjico, 1636.
    Letter to the Viceroy. Custody and defence of New Mexico, 1636.
18. Certificación. Fr. Cristóbal de Quiros, 1636.
    Certificate. Fray Cristóbal de Quiros, 1636.
19. Carta al Virrey. Francisco Gómez Soto Mayor, 1638.
    Letter to the Viceroy. Francisco Gómez Soto Mayor, 1638.
20. Carta al Virrey. Cabildo de Santa Fé, 1639.
    Letter to the Viceroy. Corporation of Santa Fé, 1639.
21. Informe al Conde de Salvatierra. D. Juan de Palafox y Mendoza, Obispo, etc., 1642.

Report to the Count de Salvatierra. Don Juan de Palafoa y Mendoza, Bishop, etc., 1642.

22. Real cédula. 1643.
Royal decree. 1643.
23.[1] Autos de proceso (original). Alonso Pacheco de Heredia, 1643.
Proceedings of suit (original). Alonso Pacheco de Heredia, 1643.
24. Carta al Rey. Fr. Andrés Suarez, 1647.
Letter to the King. Fray Andrés Suarez, 1647.
25. Real cédula. 1650.
Royal decree. 1650.
26. Real cédula. 1654.
Royal decree. 1654.
27. Mandamiento sobre los Indios bravos. Diego de Peñalosa Brizeño, 1664.
Order concerning the savage Indians. Diego de Peñalosa Brizeño, 1664.
28. Real cédula. 1665.
Royal decree. 1665.
29. Real cédula. 1668.
Royal decree. 1668.
30. Real cédula. 1674.
Royal decree. 1674.
31. Carta al Virrey. Fr. Francisco de Ayeta, 1676.
Letter to the Viceroy. Fray Francisco de Ayeta, 1676.
32. Parecer del Fiscal Real. Martin de Sólis Miranda, 1676.
Opinion of the Royal Attorney-General. Martin de Sólis Miranda, 1676.
33. Auto acordado. Audiencia de Méjico, 1676.
Decree granted. Audience of Mexico, 1676.
34. Real cédula. 1678.
Royal decree. 1678.
35. Diario del sitio de Santa Fé. Antonio de Otermín, 1680.
Journal of the siege of Santa Fé. Antonio de Otermín, 1680.
36. Diario de la salida de Nuevo Méjico. Antonio de Otermín, 1680.
Journal of the departure from New Mexico. Antonio de Otermín, 1680.
37. Carta al Virrey. Fr. Francisco de Ayeta, 1680.
Letter to the Viceroy. Fray Francisco de Ayeta, 1680.
38. Interrogatorios y declaraciones de Indios. Antonio de Otermín, 1681.
Interrogatories and declarations of Indians. Antonio de Otermín, 1681.
39. Merced á Ignacio de Roybal. Pedro Rodríguez Cubero, 1698.
Grant to Ignacio de Roybal. Pedro Rodríguez Cubero, 1698.
40. Merced á Lorenzo de Carabajal. Martin Hurtado, 1707–8.
Grant to Lorenzo de Carabajal. Martin Hurtado, 1707–8.
41. Merced á Juan González. José Chacón Medina Salazar, 1711–12.
Grant to Juan González. José Chacón Medina Salazar, 1711-12.
42. Carta al Virrey. Pedro Fermín de Mendinueta, 1772.
Letter to the Viceroy. Pedro Fermín de Mendinueta, 1772.
43. Apuntes históricos sobre el Nuevo Méjico. Antonio Bonilla, 1776.
Historical notes on New Mexico. Antonio Bonilla, 1776.
44. Descripción Geográfica de Nuevo Méjico. Fr. Juan Agustín Morfi, 1782.
Geographical description of New Mexico. Fray Juan Agustín Morfi, 1782.
45. Comunicado de Real cédula (original). Marqués de Sonora, 1786.
Communication of Royal decree. Marquis of Sonora, 1786.
46. Comunicado de mandamiento del Virrey (original). Jacobo Ugarte y Loyola, 1786.
Communication of order of the Viceroy (original). Jacobo Ugarte y Loyola, 1785.

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[1] Mentioned in table of contents, not in the volume.

47. Real cédula sobre religiosos. 1603.
Royal decree concerning monks. 1603.
48. Real cédula sobre religiosos. 1624.
Royal decree concerning monks. 1624.
49. Real cédula, Patronazgo. 1629.
Royal decree, presentations. 1629.
50. Real cédula, Patronazgo. 1634.
Royal decree, presentations. 1634.
51. Reales provisiones y cédulas sobre el tratamiento de los Indios y su proteccion. Juan Francisco de Montemayor, 1530–1677.
Royal directions and decrees concerning the treatment of the Indians and their protection. Juan Francisco de Montemayor, 1530–1677.

NEW MEXICO AND CHIHUAHUA, 1602-1690.

1. Real cédula en favor de D. Juan de Oñate y de sus descendientes. D. Felipe III, 1602.
Royal decree in favor of Don Juan de Oñate and of his descendants. Don Philip III, 1602.
2. Nombramiento del Capitan Thomé Domínguez por Cabo del Despacho. Francisco Martínez de Baeza, 1636.
Appointment of Captain Thomé Domínguez as Chief of the Office. Francisco Martínez de Bæza, 1636.
3. Auto de fundación de la Misión de Nuestra Señora de Guadalupe de los Mansos del Paso del Norte. Fr. Gracia de San Francisco, 1659.
Decree of establishment of the Mission of Our Lady of Guadalupe of the Mansos of Paso del Norte. Fray Gracia de San Francisco, 1659.
4. Certificado de benedición de la piedra fundamental de la Iglesia de Nuestra Señora de Guadalupe del Paso. Fr. Gracia de San Francisco, 1662.
Certificate of benediction of the corner stone of the church of Our Lady of Guadalupe of the Pass. Fray Gracia de San Francisco, 1662.
5. Autos que se hicieron sobre clamar los vecinos de este reino para salir a mejorarse de puesto por la grave necesidad que padecian. Antonio de Otermín, 1681.
Decrees issued with regard to the residents of this kingdom clamoring to change their location for a better one on account of the great distress which they were suffering. Antonio de Otermín, 1681.
6. Extractos del "Libro Real de Asientos y Pagos de Pobladores y Soldados, etc." Antonio de Otermín, 1681.
Extracts from the Royal Book of Entries and Payments of Settlers and Soldiers, etc. Antonio de Otermín, 1681.
7. Tanto de Requerimiento que se despachó á Francisco Ramírez, Alcalde Mayor de Casas Grandes. Antonio de Otermín, 1681.
Requisition sent to Francisco Ramírez, Chief Alcalde of Casas Grandes. Antonio de Otermín, 1681.
8. Bando. Antonio de Otermín, 1681.
Proclamation. Antonio de Otermín, 1681.
9. Autos y diligéncias por dichos de algunas Personas. Antonio de Otermín, 1681.
Decrees and proceedings on depositions of some persons. Antonio de Otermín, 1681.
10. Fragmento de los autos é interrogatorios. Antonio de Otermín, 1681.
Fragment of the decrees and interrogatories. Antonio de Otermín, 1681.
11. Autos y diligéncias sobre poblar y asentar los Indios Pueblos, traidos del Nuevo Méjico, en las inmediaciones del Paso del Norte. Antonio de Otermín, 1682.
Decrees and proceedings with regard to settling and fixing in the neighborhood of Paso del Norte the Pueblo Indians brought from New Mexico. Antonio de Otermín, 1682.

12. Autos criminales contra Juan Paititi. Antonio de Otermín, 1682.
Criminal proceedings against Juan Paititi. Antonio de Otermín, 1682
13. Causa contra Juan Cucala. Antonio de Otermín, 1682.
Suit against Juan Cucala. Antonio de Otermín, 1682.
14. Mandamiento del Virrey de la Nueva España, en que declara la judisdicción desde el Río del Sacramento de esta jurisdicción del Nuevo Méjico. Marqués de la Laguna, 1682.
Order of the Viceroy of New Spain, in which he declares the jurisdiction of New Mexico (to extend) from the Sacramento River. Marquis de la Laguna, 1682.
15. Representación al Virrey de parte del Gobernador de la Nueva Vizcaya. Bartolomé de Estrada, 1683.
Representations to the Viceroy from the Governor of New Biscay. Bartolomé de Estrada, 1683.
16. Certificación del Escribano Real. Miguel de Aranda, 1683.
Certificate of the Royal Notary. Miguel de Aranda, 1683.
17. Informe de los pobladores, etc., de San Joseph de Parral. Justicia y vecinos de Parral, 1683.
Report of the settlers, etc., of San Joseph de Parral. Magistrate and residents of Parral, 1683.
18. Bando que se publicó para que todos los vesinos pasen muestra. Domingo Jironza Petriz de Cruzate, 1683.
Proclamation published for all the residents to be mustered. Domingo Jironza Petriz de Cruzate, 1683.
19. Declaración sobre la muerte de un Indio Jano. Diego Varela, 1683.
Declaration concerning the death of a Jano Indian. Diego Varela, 1683.
20. Orden que dió Su Señoría á Felipe Bravo. Domingo Jironza Petriz de Cruzate, 1683.
Order given by His Excellency to Felipe Bravo. Domingo Jironza Petriz de Cruzate, 1683.
21. Instrucción militar al Sargento Mayor Roque de Madrid, para la campaña contra los Mansos. Domingo Jironza Petriz de Cruzate, 1684.
Military instructions to Sergeant-Major Roque de Madrid for the campaign against the Mansos. Domingo Jironza Petriz de Cruzate, 1684.
22. Petición al Gobernador Petriz de Cruzate. Francisco de Anaya, 1684.
Petition to Governor Petriz de Cruzate. Francisco de Anaya, 1684.
23. Interrogatorios de Indios (fragmento). Antonio de Otermín, 1681.
Interrogatories of Indians (fragment). Antonio de Otermín, 1681.
24. Confesiones y declaraciones de varios Indios de los pueblos del Nuevo Méjico (fragmento tronco, etc.). Antonio de Otermín, 1683.
Confessions and declarations of several Indians from the pueblos of New Mexico (mutilated fragment). Antonio de Otermín, 1683.
25. Causa criminal, por denunciación de Andrés Jopita, contra nueve Indios, etc. Domingo Jironza Petriz de Cruzate, 1684.
Criminal prosecution on the accusation of Andres Jopita against nine Indians, etc. Domingo Jironza Petriz de Cruzate, 1684.
26. Causa criminal contra los Indios Cristianos Mansos. Domingo Jironza Petriz de Cruzate, 1684.
Criminal prosecution against the Christian Manso Indians. Domingo Jironza Petriz de Cruzate, 1684.
27. Confesion de Francisco, Indio de nación Tigua de la Isleta. Domingo Jironza Petriz de Cruzate, 1684.
Confession of Francisco, an Indian of the Tigua de la Isleta nation. Domingo Jironza Petriz de Cruzate, 1684.
28. Diario del viaje á la junta de los ríos, y hasta el río de Pecos y Nuecos (fragmento). Juan Domínguez Mendoza, 1684.
Diary of the journey to the confluence of the rivers, and to the Pecos and Nuecos Rivers (fragment). Juan Domínguez Mendoza, 1684.

29. Carta al Gobernador Cruzate. Felipe Romero y otros, 1684.
Letter to Governor Cruzate. Felipe Romero and others, 1684.
30. Pedimento al Maestre de Campo Domínguez de Mendoza. Felipe Romero y otros, 1684.
Petition to Quartermaster Domínguez de Mendoza. Felipe Romero and others, 1684.
31. Petición al Gobernador Cruzate. Felipe Romero y otros, 1684.
Petition to Governor Cruzate. Felipe Romero and others, 1684.
32. Acto que se hizo en el peñol de los Xanos, etc. Francisco Ramírez de Salazar, 1684.
Proceedings which took place at the Rock of Los Xanos. Francisco Ramirez de Salazar, 1684.
33. Auto de remisión al Virrey de los autos formados por Juan Domínguez de Mendoza sobre sus descubrimientos. Domingo Petriz de Cruzate, 1684.
Act of delivery to the Viceroy of the documents drawn up by Juan Domínguez de Mendoza concerning his discoveries. Domingo Petriz de Cruzate, 1684.
34. Lista y muestra de la gente que va á hacer castigo y justa guerra á los Indios apóstatas, etc., Janos, Sumas y demás naciones. Roque Madrid, 1684.
List and muster roll of the men who are going to inflict punishment and just war on the apostate Indians, etc., Janos, Sumas and other nations. Roque Madrid, 1684.
35. Orden contra el Sargento Mayor Sebastian de Herrera y su familia. Domingo Jironza Petriz de Cruzate, 1684.
Order against Sergeant-Major Sebastian de Herrera and his family. Domingo Jironza Petriz de Cruzate, 1684.
36. Testimonio sacado de los autos del Presidente del Cabildo, etc., en que piden licencia para salirse de este puesto. Cabildo de Santa Fé y el Gobernador Petriz de Cruzate, 1684.
Testimony drawn from the proceedings of the President of the Corporation, etc., in which they request permission to leave this post. Corporation of Santa Fe and Governor Petriz de Cruzate, 1684.
37. Orden del Sargento Mayor Roque Madrid para que ejecute la sentencia de muerte pronunciada contra los Apaches. Domingo Jironza Petriz de Cruzate, 1685.
Order to Sergeant-Major Roque Madrid to execute the sentence of death pronounced against the Apaches. Domingo Jironza Petriz de Cruzate, 1685.
38. Registro de una mina de plomo de Abalos. Domingo Jironza Petriz de Cruzate, 1685.
Register of a lead mine at Abalos. Domingo Jironza Petriz de Cruzate, 1685.
39. Autos del Pleito entre Francisco Lucero y Juan Domínguez de Mendoza. Domingo Jironza Petriz de Cruzate, 1685.
Record of the suit between Francisco Lucero and Juan Domínguez de Mendoza, 1685.
40. Testimonio de las requisitorias que se remitieron á diferentes jurisdiciones. Domingo Jironza Petriz de Cruzate, 1685.
Statement of the requisitions sent to various jurisdictions. Domingo Jironza Petriz de Cruzate, 1685.
41. Testimonio á la letra de la caussa criminal que se ha seguido contra el Maestre de Campo Juan Domínguez de Mendoza y los demás que con él hicieron fuga. Domingo Jironza Petriz de Cruzate, 1685.
Literal report of the criminal proceedings instituted against Quartermaster Juan Domínguez de Mendoza and the others who fled with him. Domingo Jironza Petriz de Cruzate, 1685.
42. Petición al Cabildo de Santa Fé. Lorenzo Madrid y Sebastian González, 1685.
Petition to the Corporation of Santa Fe. Lorenzo Madrid and Sebastian González, 1685.

43. Bando para que se esté con toda guardia y custodia en sus casas. Pedro Reneros de Posada, 1686.
    Proclamatian to remain with all precautions and vigilance in their houses. Pedro Reneros de Posada, 1686.
44. Sentencia contra los Indios cautivos del pueblo de Santa Ana. Pedro Reneros de Posada, 1687.
    Sentence against the captive Indians of the pueblo of Santa Ana. Pedro Reneros de Posada, 1687.
45. Bando para que los soldados no vendan caballos, etc. Pedro Reneros de Posada, 1687.
    Proclamation that the soldiers must not sell horses, etc. Pedro Reneros de Posada, 1687.
46. Licencia al Maestro de Campo Juan Domínguez de Mendoza para que pueda sacar del Paso del Norte á su mujer y familia. Conde de la Mondova, 1688.
    Permission to Quartermaster Juan Domínguez de Mendoza to take his wife and family from Paso del Norte. Count de la Mendova, 1688.
47. Licencia que se la concedió al Maestro de Campo Diego Lucero, por mandato del Excmo Sr. Virrey. D. Jironza Petriz de Cruzate, 1689.
    Furlough granted to Quartermaster Diego Lucero by order of His Excellency the Viceroy. D. Jironza Petriz de Cruzate, 1689.
48. Fragmentos de interrogatorios tocante á la residencia de D. Pedro Reneros Posada, 1690.
    Fragments of interrogatories concerning the accounts of Don Pedro Reneros Posada, 1690.

NEW MEXICO, 1620–1729.

1. Traslado de Real cédula dirijida al P. Fr. Esteban de Perea. Don Philip III, 1620.
   Copy of Royal decree addressed to Father Fray Esteban de Perea. Don Philip III, 1620.
2. Ynformaciones y diligéncias de Diego Lucero de Godoy, 1680.
   Marriage notice and proceedings of Diego Lucero de Godoy, 1680.
3. Petición al P. Custodio Fr. Francisco de Vargas. Pedro Reneros Posada, 1689.
   Petition to the Father Custodian, Fray Francisco de Vargas. Pedro Reneros de Posada, 1689.
4. Testimonio de mandamientos de los Virreyes de la Nueva España, tocantes á las límites del Nuevo Méjico y de Nueva Vizcaya, 1682, 1690, 1749.
   List of orders of the Viceroys of New Spain, concerning the boundaries of New Mexico and New Biscay, 1682, 1690, 1749.
5. Carta-patente para que se alisten los religiosos que quieran ir á la conversion de los Apaches. Fr. Francisco de Vargas, 1691.
   Pastoral letter directing the enrollment of the ecclesiastics who wish to go to convert the Apaches. Fray Francisco de Vargas, 1691.
6. Testimonio de petición á Diego de Vargas. Fr. Salvador de San Antonio, 1694.
   Copy of petition to Diego de Vargas. Fray Salvador de San Antonio, 1694.
7. Certificación de los huesos de Fr. Juan de Jésus, hallados en el pueblo de los Jemes, juntos á una estufa. Diego de Vargas, 1694.
   Certification of the bones of Fray Juan de Jesus, found in the pueblo of the Jemes, near an "estufa." Diego de Vargas, 1694.
8. Relación sumaria de las operaciones militares del año 1694 (fragmento). Diego de Vargas, 1694.
   Brief account of the military operations of the year 1694 (fragment). Diego de Vargas, 1694.
9. Ynformación de Juan de Archebec y Antonia Gutiérrez, viuda, 1697.
   Marriage notice of Juan de Archebec and Antonia Gutiérrez, widow, 1697.

10. Repartimiento á los vecinos del Nuevo Méjico, tanto de géneros como de ganados. Diego de Vargas, 1697.
    Distribution to the inhabitants of New Mexico, both of goods and sheep. Diego de Vargas, 1697.
11. Autos y edictos contra Juan Paez Hurtado. Pedro Rodríguez Cubero, 1697.
    Proceedings and decrees against Juan Paez Hurtado. Pedro Rodríguez Cubero, 1697.
12. Ynformación y diligéncias matrimoniales de Pedro Meusnier y Lucía Madrid. 1699.
    Marriage notice and proceedings of Pedro Meusnier and Lucia Madrid. 1699.
13. Carta al Gobernador Pedro Rodríguez Cubero. Juan de Ulibarri, 1700.
    Letter to Governor Pedro Rodríguez Cubero. Juan de Ulibarri, 1700.
14. Merced de Bernalillo. Pedro Rodríguez Cubero, 1701.
    Grant of Bernalillo. Pedro Rodríguez Cubero, 1701.
15. Autos de guerra de la primera campaña contra los Apaches Faraones. Diego de Vargas, 1704.
    War documents of the first campaign against the Farao Apaches. Diego de Vargas, 1704.
16. Carta de testamento. Diego de Vargas, 1704.
    Will. Diego de Vargas, 1704.
17. Autos y juntas de guerra sobre las invasiones que hacian los Navajos. Francisco Cuerbo y Valdés, 1705.
    Proceedings and councils of war concerning the irruptions made by the Navajos. Francisco Cuerbo y Valdés, 1705.
18. Mandamiento para que los vecinos del Nuevo Méjico envíen á la doctrina los naturales mulatos y negros del reino. Francisco Cuerbo y Valdés, 1705.
    Order for the inhabitants of New Mexico to send the mulatto and black natives of the kingdom to be taught. Francisco Cuerbo y Valdés, 1705.
19. Testimonio del mandamiento del Virrey Duque de Alburquerque sobre la fundición de la villa de Alburquerque, 1706.
    Copy of the order of the Viceroy Duke of Alburquerque concerning the foundation of the town of Alburquerque, 1706.
20. Carta al Gobernador Cuerbo y Valdés sobre que mande retirar la escolta de Zuñi. Cristóbal Gomez, 1706.
    Letter to Governor Cuerbo y Valdés with regard to his ordering the withdrawal of the garrison from Zuñi. Cristóbal Gomez, 1706.
21. Orden al Capitan Francisco Valdés Soribas sobre la guerra contra los Moquis. Francisco Cuerbo y Valdés, 1706.
    Order to Captain Francisco Valdés Soribas concerning the war against the Moquis. Francisco Cuerbo y Valdés, 1706.
22. Junta de guerra en el Pasaje de los Chupaderos, camino para Moqui. Juan Roque Gutiérrez, 1706.
    Council of war at the Pass of the Suckers (Pasaje de los Chupaderos), on the road to Moqui. Juan Roque Gutiérrez, 1706.
23. Autos y diligéncias (fragmento). Antonio Valverde Cosío, 1710.
    Decrees and documents (fragment). Antonio Valverde Cosío, 1710.
24. Bando para que se despachará una posta para la ciudad de Méjico. Marqués de la Peñuela, 1712.
    Proclamation concerning the dispatch of a courier to the city of Mexico. Marquis de la Peñuela, 1712.
25. Junta y auto sobre que se celebre el día 14 de Septiembre, en conmemoración de la toma de la villa por Vargas. Cabildo de Santa Fé, 1712.
    Council and decree concerning the celebration of the 14th September, in commemoration of the taking of the town by Vargas. Corporation of Santa Fe, 1712.

26. Testimonio de diligencia sobre la fundación de Alburquerque, Santa María de Orado y San Diego de Pojuaque. Ignacio Flores Mogollón, 1712.
Copy of document concerning the foundation of Alburquerque, Santa María de Orado and San Diego de Pojuaque. Ignacio Flores Mogollón, 1712.
27. Auto y junta de guerra sobre un robo que hicieron los Navajos en San Ildefonso, etc. Ignacio Flores Mogollón, 1713.
Decree and council of war concerning a robbery committed by the Navajos at San Ildefonso, etc. Ignacio Flores Mogollón, 1713.
28. Auto y junta de guerra sobre los Apaches Faraones. Ignacio Flores Mogollón, 1714.
Decree and council of war concerning the Farao Apaches. Ignacio Flores Mogollón, 1714.
29. Bando para que se bautizasen todos los cautivos Apaches en el Nuevo Méjico. Ignacio Flores Mogollón, 1714.
Proclamation that all the Apache prisoners in New Mexico must be baptized. Ignacio Flores Mogollón, 1714.
30. Testimonio de las juntas de guerra sobre hacer la guerra en la Sierra de Ladrones, y robo de un Español que trajeron los Apaches. Ignacio Flores Mogollón, 1715.
Proceedings of the councils of war with regard to carrying on the war in the Sierra de Ladrones (Robber Mountains), and abduction of a Spaniard whom the Apaches carried off. Ignacio Flores Mogollón, 1715.
31. Mandamiento al Cabildo de Santa Fé para que los soldados dieran sus poderes á quien les pareciere. Duque de Linares, 1715.
Order to the corporation of Santa Fe for the soldiers to give their powers to whomever they please. Duke of Linares, 1715.
32. Requerimiento al Vice-custodio para que ponga ministro en la Misión de alma de Zuñi, y respuesta, etc. Ignacio Flores Mogollón, 1715.
Request to the Vice-Custodian to place a priest at the spiritual Mission of Zuñi, and reply, etc. Ignacio Flores Mogollón, 1715.
33. Certificación de la entrega del gobierno del Nuevo Méjico á D. Felix Martínez. Cabildo de Santa Fé, 1715.
Certificate of the surrender of the Government of New Mexico to Don Felix Martinez. Corporation of Santa Fe, 1715.
34. Orden al Acalde Menor de la villa de Alburquerque, tenga aprontados de armas y caballos á los vecinos para la campaña de Moqui. Felix Martínez, 1716.
Order to the Lesser Alcalde of the town of Alburquerque to have the inhabitants furnished with arms and horses for the Moqui campaign. Felix Martínez, 1716.
35. Testimonio de la suerte que entregaron el palacio al Gobernador D. Felix Martínez. Cabildo de Santa Fé, 1716.
Certificate of the condition in which the palace was turned over to the Governor, Don Felix Martínez. Corporation of Santa Fe, 1716.
36. Mendamiento para que los Indios vengan á poner enramadas el día de Corpus Christi. Felix Martínez, 1716.
Order for the Indians to come and erect booths on Corpus Christi Day. Felix Martínez, 1716.
37. Orden al Alcalde Mayor de Santa Cruz para que tenga aprontada la gente para la campaña contra los Moquis. Felix Martínez, 1716.
Order to the Chief Alcalde of Santa Cruz to have the forces prepared for the campaign against the Moquis. Felix Martínez, 1716.
38. Mandamiento para la publicación de los edictos de la fé. Felix Martínez, 1716.
Order for the publication of the edicts of the faith. Felix Martínez, 1716.
39. Autos que se formaron sobre la entrada de la provincia de Moqui. Felix Martínez, 1716.
Decrees issued on the entrance into the province of Moqui. Felix Martínez, 1716.

40. Carta cordillera. Fr. Antonio Camargo, 1717.
Letter. Fray Antonio Camargo, 1717.
41. Probanza hecha por los oficiales del presidio de Santa Fé contra D. Felix Martínez (fragmento). 1718.
Evidence given by the officers of the garrison of Santa Fe against Don Felix Martínez (fragment). 1718.
42. Autos y pareceres sobre el pedimento de los Tanos de Galisteo de ir á Moqui. Antonio Valverde Cosío, 1718.
Decrees and opinions concerning the petition of the Tanos of Galisteo to go to Moqui. Antonio Valverde Cosío, 1718.
43. Proceso contra un Indio de Taos que había tomado peyote y alborotado el pueblo. Antonio Valverde Cosío, 1720.
Prosecution of a Taos Indian who had taken peyote and disturbed the town. Antonio Valverde Cosío, 1720.
44. Junta y paraceres sobre la jornada al reconocimiento de las poblaciones Francesas al nordeste, y sobre establecimiento de un presidio en puesto del Cuartelejo. Antonio Valverde Cosío, 1720.
Council and opinions with regard to the journey to inspect the French settlements to the northeast, and the establishment of a garrison at the post of the Quartelejo. Antonio Valverde Cosío, 1720.
45. Inventarios y autos de liquidación y participación del caudal que quedó por la muerte del Capitan Juan de Archibeque. 1720.
Inventories and decrees of settlement and distribution of the property left by the death of Capt. Juan de Archibeque. 1720.
46. Autos y pareceres sobre la replobación del Nuevo Méjico y reconquista de Moqui. Antonio Cobian Busto, 1722.
Decrees and opinions concerning the resettlement of New Mexico and the reconquest of Moqui. Antonio Cobian Busto, 1722.
47. Autos sobre comercio ilícito con los Franceses del Oriente y Luisiana. Juan Domingo Bustamante, 1724.
Decrees concerning illicit commerce with the French of the East and Louisiana. Juan Domingo Bustamante, 1724.
48. Paraceres del Fiscal Real y del Auditor sobre la causa contra D. Antonio Valverde Cosío, y sentencia (fragmento). Marques de Casafuerte, 1727.
Opinions of the Royal Attorney-General and Auditor touching the prosecution of Don Antonio Valverde Cosío and sentence (fragment). Marquis de Casafuerte, 1827.
49. Apuntes sobre el alzamiento de los pueblos del Jemez, Zia, Santa Ana y Cochiti, en el año de 1728, y sobre la epidemia del sarampión, la cual principió á fines del mismo año. Fr. Carlos Delgado, 1729.
Notes on the revolt of the towns of the Jemez, Zia, Santa Ana, and Cochiti, in the year 1728, and on the epidemic measles which began at the close of the same year. Fray Carlos Delgado, 1729.

NEW MEXICO, 1680–1761.

1. Ynforme al Virrey, Marques de Cruillas. Fr. Pedro Serrano, 1761.
Report to the Viceroy, the Marquis de Cruillas. Fray Pedro Serrano, 1761.
2. Carta al P. Procurador Fr. José Miguel de los Ríos. Fr. Manuel Trigo, 1754.
Letter to the father solicitor, Fray José Miguel de los Ríos. Fray Manuel Trigo, 1754.
3. Estado de la Misión de San Lorenzo de Zumas.
State of the Mission of San Lorenzo de Zumas.
4. Carta al P. Comisario Fr. Domingo de Noriega. Fr. Francisco de Ayeta, 1680.
Letter to the Father Commissary, Fray Domingo de Noriega. Fray Francisco de Ayeta, 1680.

5. Carta al Virrey. Fr. Francisco de Ayeta, 1680.
   Letter to the Viceroy. Fray Francisco de Ayeta, 1680.
6. Carta al P. Comisario Fr. Pedro Navarrete. Fr. José Yrigoyen, 1744.
   Letter to the Father Commissary, Fray Pedro Navarrete. Fray José Yrigoyen, 1744.
7. Gobierno de las Misiones de Xemeze Ysleta. Fr. Joaquín de Jésus Ruíz.
   Management of the Missions of Xemeze Ysleta. Fray Joaquín de Jésus Ruíz.
8. Ynforme sobre las Misiones de Cebolieta, etc. D. Thomas Vélez Gorchupin, 1750.
   Report on the Missions of Cebolleta, etc. Don Thomas Vélez Gorchupin, 1750.
9. Dictámen fiscal. Martin de Sólis Miranda, 1681.
   Decision of the Attorney-General. Martin de Sólis Miranda, 1681.
10. Interrogatorios de preguntas, etc. Antonio de Otermín, 1681.
    Lists of questions, etc. Antonio de Otermín, 1681.
    Descripcion Geográfica Natural y Curiosa de la Provincia de Sonora, por un Amigo del servicio de Dios y del rey nuestro señor. 1764.
    Geographical description, natural and curious, of the province of Sonora, by a friend of the service of God and of our Lord the King. 1764. (103 pages.)

NEW MEXICO, 1682–1793.

1. Ynformaciones matrimoniales de Sebastian de Herrera, 1682.
   Marriage notice of Sebastian de Herrera, 1682.
2. Ynformaciones matrimoniales de Domingo de Herrera, 1683.
   Marriage notice of Domingo de Herrera, 1683.
3. Petición para dispensa matrimonial. Juan Lucero de Godoy, 1688.
   Petition for marriage dispensation. Juan Lucero de Godoy, 1688.
4. Autos da fundación de la villa nueva de Santa Cruz de la Cañada. Diego de Vargas, 1695.
   Decrees for the foundation of the new town of Santa Cruz de la Cañada. Diego de Vargas, 1695.
5. Lista de ventiuna familias de Zacatecas que se mandaron poblar en la villa nueva de Santa Cruz. Diego de Vargas, 1696.
   List of twenty-one families of Zacatecas which were sent to settle in the new town of Santa Cruz. Diego de Vargas, 1696.
6. Pedimento á Diego de Vargas para despoblar Santa Cruz y mudarse á la Alameda. Vecinos de Santa Cruz, 1696.
   Petition to Diego de Vargas to abandon Santa Cruz and move to the Alameda. Residents of Santa Cruz, 1696.
7. Merced de la Bajada. Pedro Rodríguez Cubero, 1698.
   Grant of the Bajada (Descent). Pedro Rodríguez Cubero, 1698.
8. Ynformaciones matrimoniales de Santiago Geollet. 1699.
   Marriage notice of Santiago Giollet. 1699.
9. Merced á Lorenzo de Madrid. Pedro Rodríguez Cubero, 1699.
   Grant to Lorenzo de Madrid. Pedro Rodríguez Cubero, 1699.
10. Causa de la Misión de San Juan contra Lorenzo de Madrid, sobre terrenos en el Canada. 1704–5.
    Suit of the Mission of San Juan against Lorenzo de Madrid, with regard to lands in the Canada. 1704–5.
11. Ynformaciones matrimoniales de Miguel Durán y María de Gamboa. 1705–6.
    Marriage notice of Miguel Durán and María de Gamboa. 1705–6.
12. Ynformaciones matrimoniales de Juan del Archibeque y Manuela Roybal. 1719.
    Marriage notice of Juan del Archibeque and Manuela Roybal. 1719.
13. Autos de residencia de D. Juan Ignacio Flores Mogollón. Juan de Estrada Antillón, 1721.
    Accounts of Don Juan Ignacio Flores Mogollón. Juan de Estrada Antillón, 1721.
14. Ynformaciones matrimoniales de Manuel Flores. 1723.
    Marriage notice of Manuel Flores. 1723.

15. Ynformaciones matrimoniales de Bernardino de Sena y Manuela Ruibal. 1727.
Marriage notice of Bernardino de Sena and Manuela Ruibal. 1727.
16. Merced de la Cañada de Cochiti. Juan Domingo Bustamante, 1728.
Grant of the Canada (Glen) of Cochiti. Juan Domingo Bustamante, 1728.
17. Petición para poblar el pueblo viejo de Sandía. Indios genízaros, 1733.
Petition to settle the old pueblo of Sandía. Mixed Indians, 1733.
18. Consulta sobre Misiones de Navajos. Joaquín Codallos y Rabal, 1744.
Report on Navajo Missions. Joaquín Codallos y Rabal, 1744.
19. Auto y petición sobre abandonar los puestos de Abiquiu, Ojo Caliente and Pueblo Quemado. Joaquín Codallos y Rabal, 1748.
Proceedings and petition with regard to abandoning the posts of Abiquiri, Ojo Caliente, and Pueblo Quemado. Joaquín Codallos y Rabal, 1748.
20. Causa contra los Indios de los pueblos de Cochiti y Tezuque. Joaquín Codallos y Rabal, 1748.
Suit against the Indians of the towns of Cochiti and Tezuque. Joaquín Codallos y Rabal, 1748.
21. Causa contra los Indios de San Juan. Joaquín Codallos y Rabal, 1748.
Suit against the Indians of San Juan. Joaquín Codallos y Rabal, 1748.
22. Declaración sobre cosas de Navajo. Felix Sanchez, 1748.
Declaration concerning Navajo matters. Felix Sanchez, 1748.
23. Declaración sobre cosas de Navajo. Indio Ventura, 1748.
Declaration concerning Navajo matters. Ventura Indian, 1748.
24. Superior despacho sobre repueble de Sandía, y merced de Sandía. Joaquín Codallos y Rabal, 1748.
Decision of the Governor concerning the resettlement of Sandía, and grant of Sandia. Joaquín Codallos y Rabal, 1748.
25. Autos sobre el ataque de Pecos. Joaquín Codallos y Rabal, 1748.
Decrees concerning the attack on Pecos. Joaquín Codallos y Rabal, 1748.
26. Auto prohibiendo el despueble del partido de Chama. Tomás Vélez Cachupin, 1749.
Decree forbidding the abandonment of the District of Chama. Tomás Vélez Cachupin, 1749.
27. Autos sobre el repueble de Abiquiú. Tomás Vélez Cachupin, 1750.
Decrees concerning the resettlement of Abiquiú. Tomás Vélez Cachupin, 1750.
28. Parecer sobre el repueble de Abiquiú. Marques de Altamira, 1750.
Opinion with regard to the resettlement of Abiquiú. Marquis de Altamira, 1750.
29. Carta al Gobernador del Nuevo Méjico. Conde de Revillagigedo, 1751.
Letter to the Governor of New Mexico. Count of Revillagigedo, 1751
30. Merced de Abiquiú. Tomás Vélez Cachupin, 1754.
Grant of Abiquiú. Tomás Vélez Cachupin, 1754.
31. Diligencias sobre la solicitud del cuerpo de Fr. Jerónimo de la Llana. Francisco María del Valle, 1759.
Documents concerning the anxiety about the body of Fray Jerónimo de la Llana. Francisco María del Valle, 1759.
32. Real posesión de San Miguel de Laredo. Tomás Vélez Cachupin, 1759.
Royal possession of San Miguel de Laredo. Tomás Vélez Cachupin, 1759.
33. Merced del Ojo de San Mateo. Pedro Fermin de Mendinueta, 1770.
Grant of the Ojo de San Mateo (St. Matthew's Eye). Pedro Fermin de Mendinueta, 1770.
34. Mandamiento sobre el repueble de Abiquiú. Pedro Fermin de Mendinueta, 1770.
Order with regard to the resettlement of Abiquiú. Pedro Fermin de Mendinueta, 1770.
35. Representación para desplobar el puesto de Carnué. Pobladores de Carnué, 1771.
Petition for the abandonment of the post of Carnue. Settlers of Carnue, 1771.
36. Fé de sepultura de las víctimas de la matanza de Tomé. Fr. Andrés García, 1777.
Certificate of the burial of the victims of the Tome massacre. Fray Andrés García, 1777.

37. Lista de las muertes hechas por los Indios gentiles en las parroquías de San Juan y Santa Clara. 1742–1818.
List of the murders committed by the heathen Indians in the Parishes of San Juan and Santa Clara. 1742–1818.
38. Sentencia dada á favor de los Indios de Santa Clara. Juan Bautista de Anza, 1780.
Judgment given in favor of the Santa Clara Indians. Juan Bautista de Anza, 1780.
39. Apuntes sobre la epidemia de viruelas en San Juan y Chama. 1781.
Notes on the smallpox epidemic in San Juan and Chama. 1781.
40. Apuntes para la historia de Zuñi. 1699–1711.
Notes for the history of Zuñi. 1699–1711.
41. Apuntes para la historia de Pojuaque y Nambé. 1707–1753.
Notes for the history of Pojuaque and Nambe. 1707–1753.
42. Apuntes para la historia de San Ildefonso. 1700–1705.
Notes for the history of San Ildefonso. 1700–1705.
43. Apuntes para la historia de Pecos. 1695–1772.
Notes for the history of Pecos. 1695–1772.
44. Apuntes para la historia de Galisteo. 1728–1767.
Notes for the history of Galisteo. 1728–1767.
45. Apuntes para la historia de Alburquerque. 1774–1775.
Notes for the history of Alburquerque. 1774–1775.
46. Apuntes para la historia de Isleta. 1724-1776.
Notes for the history of Isleta. 1724–1776.
47. Apuntes para la historia de Picuires. 1748–1779.
Notes for the history of Picuires. 1748–1779.
48. Apuntes para la historia de Acoma y Laguna. 1728–1771.
Notes for the history of Acoma and Laguna. 1728–1771.
49. Petición al Comandante de Arizpe. Indios Tehuas, 1786.
Petition to the Commandant of Arizpe. Tehua Indians, 1786.
50. Mandamiento al Alcalde Mayor de los Tehuas. Juan Bautista de Anza, 1784.
Order to the Chief Alcalde of the Tehuas. Juan Bautista de Anza, 1784.
51. Petición contra el Alcalde de Laguna. Fr. Tomás Salvador Fernández, 1786.
Petition against the Alcalde of Laguna. Fray Tomás Salvador Fernández, 1786.
52. Memorial al Comandante General. Fr. Santiago Fernández de Siena, 1784.
Memorial to the Commander-in-chief. Fray Santiago Fernández de Siena, 1784.
53 Orden ol Alcalde Mayor de Santa Cruz. Fernando de la Concha, 1793.
Order to the Chief Alcalde of Santa Cruz. Fernando de la Concha, 1793.

NEW MEXICO, 1682–1715.

1. Real cédula, nombrando á Domingo Jironza Petriz de Cruzate por Gobernador de Nuevo Méjico. D. Felipe II, 1682.
Royal decree appointing Domingo Jironza Petriz de Cruzate Governor of New Mexico. Don Philip II, 1682.
2. Petición á Diego de Vargas. Francisco de Anaya Almazán, 1692.
Petition to Diego de Vargas. Francisco de Anaya Almazán, 1692.
3. Bando para que los habitantes del Paso del Norte se alisten para la entrada en el Nuevo Méjico. Diego de Vargas, 1693.
Proclamation for the inhabitants of Paso del Norte to enroll themselves for the entrance into New Mexico. Diego de Vargas, 1693.
4. Mandamiento para que se guarden al Cabildo de Santa Fé sus honores y preeminencias. Conde de Galve, 1694.
Order that the corporation of Santa Fe retain its honors and privileges. Count de Galve, 1694.
5. Mandamiento al Gobernador de Nueva Vizcaya. Conde de Galve, 1694.
Order to the Governor of New Biscay. Count de Galve, 1694.

6. Bando prohibiendo á los Españoles vender armas á los Indios. Diego de Vargas, 1695.
   Proclamation forbidding the Spaniards to sell arms to the Indians. Diego de Vargas, 1695.
7. Testimonio y certificación dada al P. Fr. Diego Leimos. Diego de Vargas, 1695.
   Recommendation and certificate given to Father Fray Diego Leimos. Diego de Vargas, 1695.
8. Declaración tocante á que los pueblos Indios intentan sublevarse. Fr. Francisco de Vargas, 1695.
   Declaration concerning the intention of the Indian towns to revolt. Fray Francisco de Vargas, 1695.
9. Carta á Fr. Francisco de Vargas. Fr. Francisco Corbera, 1695.
   Letter to Fray Francisco de Vargas. Fray Francisco Corbera, 1695.
10. Carta á los Padres religiosos (fragmento). Fr. Francisco de Vargas, 1695.
    Letter to reverend Fathers (fragment). Fray Francisco de Vargas, 1695.
11. Carta al P. Custodio (fragmento). Fr. Francisco Jiménez de Cisneros, 1696.
    Letter to the Father Custodian (fragment). Fray Francisco Jiménez de Cisneros, 1696.
12. Petición á Diego de Vargas. Definitorio del Nuevo Méjico, 1696.
    Petition to Diego de Vargas. Chapter of New Mexico, 1696.
13. Carta á Diego de Vargas sobre la conjuración de los pueblos. Definitorio del Nuevo Méjico, 1696.
    Letter to Diego de Vargas concerning the conspiracy of the Indian towns. Chapter of New Mexico, 1696.
14. Petición á Diego de Vargas sobre el próximo alzamiento de los pueblos. Definitorio del Nuevo Méjico, 1696.
    Petition to Diego de Vargas concerning the impending rising of the towns. Chapter of New Mexico, 1696.
15. Petición á Diego de Vargas. Fr. Francisco de Vargas, 1696.
    Petition to Diego de Vargas. Fray Francisco de Vargas, 1696.
16. Carta al P. Custodio. Fr. Joseph de Arbizu, 1696.
    Letter to the Father Custodian. Fray Joseph de Arbizu, 1696.
17. Aviso á Diego de Vargas. Domingo Tuguague, Gobernador de Tezuque, 1696.
    Warning to Diego de Vargas. Domingo Tuguague, Governor of Tezuque, 1696.
18. Primer cuaderno de autos de guerra sobre el alzamiento de 1696. Diego de Vargas, 1696.
    First volume of war documents concerning the rising of 1696. Diego de Vargas, 1696.
19. Segundo cuaderno (incompleto). Diego de Vargas, 1696.
    Second volume (incomplete). Diego de Vargas, 1696.
20. Escritura de venta de una casa en Santa Fé á Francisco de Anaya Almazán. Hijas de Francisco Lucero, 1697.
    Deed of sale of a house in Santa Fe to Francisco de Anaya Almazán. Daughters of Francisco Lucero, 1697.
21. Petición contra Diego de Vargas. Cabildo de Santa Fé, 1697.
    Petition against Diego de Vargas. Corporation of Santa Fe, 1697.
22. Petitión y autos de pleyto contra Diego de Vargas. Pedro Rodríguez Cubero, 1697.
    Petition and proceedings of suit against Diego de Vargas. Pedro Rodríguez Cubero, 1697.
23. Orden de poner preso al Capitan Juan Paez Hurtado. Pedro Rodríguez Cubero, 1697.
    Order to arrest Captain Juan Paez Hurtado. Pedro Rodríguez Cubero, 1697.
24. Razón .... con el espiritú con que murieron los ministros misioneros el año de 1696. 1696.
    Discourse on the spirit in which the missionary priests died in the year 1696. 1696.

25. Real cédula en favor de Antonio Valverde Cosío. D. Carlos II, 1699.
Royal decree in favor of Antonio Valverde Cosío. Don Carlos II, 1699.
26. Certificación en favor de Andrés de Vetanzos. Cabildo de Santa Fé, 1701.
Certificate in favor of Andrés de Vetanzos. Corporation of Santa Fe, 1701.
27. Interrogatorios en los pueblos de Laguna, Acoma y Zuñi. Juan de Ulibarri, 1702.
Interrogatories in the pueblos of Laguna, Acoma, and Zuñi. Juan de Ulibarri, 1702.
28. Autos de justificación á Diego de Vargas. Cabildo de Santa Fé, 1703.
Documents of justification to Diego de Vargas. Corporation of Santa Fe, 1703.
29. Petición al Marques de la Naba. Indios Tehuas, 1703.
Petition to Marquis de la Naba. Tehua Indians, 1703.
30. Autos sobre la llegada de Moquis al pueblo de Taos. Diego de Vargas, 1704.
Decrees on the arrival of Moquis at the pueblo of Taos. Diego de Vargas, 1704.
31. Inventario de los bienes de Diego de Vargas. Juan Paez Hurtado, 1704.
Inventory of the property of Diego de Vargas. Juan Paez Hurtado, 1704.
32. Autos de pleitos de los Indios de San Ildefonso contra Ignacio Roybal. Juan Paez Hurtado, 1704.
Records of suits of the Indians of San Ildefonso against Ignacio Roybal. Juan Paez Hurtado, 1704.
33. Bando sobre rescates con Apaches. Juan Paez Hurtado, 1704.
Proclamation concerning ransoms with Apaches. Juan Paez Hurtado, 1704.
34. Diligencias sobre haber contraido amistad los pueblos con los infieles. Juan Paez Hurtado, 1704–5.
Documents with regard to the pueblos having contracted friendship with the heathen. Juan Paez Hurtado, 1704–5.
35. Petición á favor de Antonio de Chaves. Fernando Durán y Chaves, 1705.
Petition in favor of Antonio de Chaves. Fernando Durán y Chaves, 1705.
36. Petición y autos sobre rescates. Francisco Cuerbo y Valdés, 1705.
Petition and decrees concerning ransoms. Francisco Cuerbo y Valdés, 1705.
37. Orden destinando á Nicolás Ortiz. Francisco Cuerbo y Valdés, 1705.
Order appointing Nicolás Ortiz. Francisco Cuerbo y Valdés, 1705.
38. Bando para que se reedifique la villa de Santa Fé. Francisco Cuerbo y Valdés, 1705.
Proclamation for the rebuilding of the town of Santa Fe. Francisco Cuerbo y Valdés, 1705.
39. Carta al Maestre de Campo Juan Roque Gutiérrez. Francisco Cuerbo y Valdés, 1706.
Letter to Quartermaster Juan Roque Gutiérrez. Francisco Cuerbo y Valdés, 1706.
40. Petición á Fr. Agustín de Colina. Pobladores de Santa María del Grado, 1706.
Petition to Fray Agustín de Colina. Settlers of Santa María del Grado, 1706.
41. Autos de junta de guerra. Francisco Cuerbo y Valdés, 1707.
Proceedings of council of war. Francisco Cuerbo y Valdés, 1707.
42. Mandamiento sobre tierras. Marques de la Peñuela, 1707.
Order concerning lands. Marquis de la Peñuela, 1707.
43. Petición contra Roque Madrid. Indios de San Juan, 1707.
Petition against Roque Madrid. San Juan Indians, 1707.
44. Petición al Cabildo Santa Fé. Vecinos de Alburquerque, 1708.
Petition to the Corporation of Santa Fe. Residents of Alburquerque, 1708.
45. Certificación sobre cosas de Moqui (original fragmentario). Fr. Joseph Xardon, 1728.
Certificate concerning Moqui matters (fragmentary original). Fray Joseph Xardon, 1728.
46. Mandamiento para que se pueblen los Indios Sumas. Juan Ignacio Flores Mogollón, 1712.
Order for settling the Suma Indians. Juan Ignacio Flores Mogollón, 1712.

47. Petición al Definitorio de Nuevo Méjico. Felix Martínez (original), 1712.
Petition to the Chapter of New Mexico. Felix Martínez (original), 1712.
48. Autos sobre la venida de un Indio Tano, huido de los Navajos. Juan Ignacio Flores Mogollón, 1713.
Documents concerning the arrival of a Tano Indian who had escaped from the Navajoes. Juan Ignacio Flores Mogollón, 1713.
49. Junta de guerra sobre muertes hechas por los Apaches en el Arroyo Hondo. Juan Ignacio Flores Mogollón, 1715.
Council of war concerning murders committed by the Apaches at the Arroyo Hondo (Deep Stream). Juan Ignacio Flores Mogollón, 1715.
50. Mandamiento al Gobernador de Nuevo Méjico. Duque de Linares, 1714.
Order to the Governor of New Mexico. Duke de Linares, 1714.
51. Causa contra Lorenzo Rodríguez. Juan Ignacio Flores Mogollón, 1715.
Proceedings against Lorenzo Rodríguez. Juan Ignacio Flores Mogollón, 1715.

A. Two documents are missing, one between Nos. 6 and 7, a fragment relating to Father Francisco de Jésus. Diego de Vargas, 1694.

B. The other between Nos. 35 and 36. Order, etc. Francisco Cuerbo y Valdés, 1705.

MEXICO AND NEW MEXICO, 1692–1742.

1. Petición del Cabildo de Santa Fé al Gobernador Diego de Vargas, sobre desplobar el Paso del Norte, y retirarse á otra parte del Sur, y autos hechos sobre el caso. Archivos U. S. Sur. Gen. Santa Fé (copia de un fragmento), 1692.
Petition of the Corporation of Santa Fe to Governor Diego de Vargas, with regard to abandoning Paso del Norte, and retiring to another part of the south, and documents drawn up on the subject. Archives of the U. S. Surveyor-General, Santa Fé (copy of a fragment), 1692.
2. Diligencias hechas sobre la muerte de María Quitería Sandoval, mujer de Sebastian Antonio Varela; cautivada por los Comanches en el pueblo de Taos el año de 1766. Archivos de la parroquía del Paso del Nbrte, 1776.
Documents drawn up concerning the death of Maria Quiteria Sandoval, wife of Sebastian Antonio Varela, taken prisoner by the Comanches in the town of Taos in the year 1766. Archives of the Parish of Paso del Norte, 1776.
3. Certificación en favor del Bachiller D. Santiago de Roybal, dada por el Gobernador del Nuevo Méjico, D. Gaspar Domingo de Mendoza, año 1742. Archivos de la parroquía del Paso del Norte, Méjico (testimonio), 1742.
Certificate in favor of Bachelor-of-Arts Don Santiago de Roybal, given by the Governor of New Mexico, Don Gaspar Domingo de Mendoza, in the year 1742. Archives of the Parish of Paso del Norte, Mexico (copy), 1742.
4. Testimonio á la letra del despacho original del excelentísimo Sr. Conde de Fuenclara, Virrey, Gobernador y Capitan General que fué de esta Nueva España, el cual me presentó el R. P. Fr. Juan Joseph, Juez Misabal Custodio de esta Santa Custodia de la Conversión de San Pablo, en orden al establecimiento y fundación de cuatro Misiones en la provincia de Navajo, en la forma que adentro se percibe. Archivos Territoriales de la Agrimensura General, Santa Fe, N. M., 1747.
Literal copy of the original despatch of His Excellency the Count de Fuenclara, former Viceroy, Governor, and Captain-General of this New Spain, which was given to me by the Rev. Father Fray Juan Joseph, Judge Custodian of this Holy Custody of the Conversion of St. Paul, for the establishment and foundation of four Missions in the province of Navajo, in the manner shown within. Territorial Archives of the General Survey, Santa Fe, N. M., 1747.
5. Requerimiento del Capitan D. Alonso Victores Rubín de Zelis, al Vicario D. Miguel de Oleachea, para que se retirase de la Misión de las Caldes á las Casas Reales del Paso del Norte, por la sublevación que intentaban los Indios de la sobredicha Misión. Archivos de la Parroquía del Paso del Norte, Méjico, 1749.

Request of Captain Don Alonso Victores Rubin de Zelis to the Vicar Don Miguel de Oleachea, to withdraw from the Mission of Las Caldes to the Casas Reales (Royal Houses) of Paso del Norte, on account of the rebellion which the Indians of that Mission were planning Archives of the Parish of Paso del Norte, Mexico, 1749.

6. Carta del Obispo D. Pedro Tamarón al Bachiller D. Santiago Roibal. Archivos de la Parroquía del Paso del Norte, Méjico, 1762.

   Letter of Bishop Don Pedro Tamaron to Bachelor Don Santiago Roibal. Archives of the Parish of Paso del Norte, Mexico, 1762.

7. Ynbentario de los papeles pertenecientes á lo gubernativo del tiempo que fuí Gobernador y Capitan General de este nuevo reino de México, y entrega que de ellos hago al Sr. D. Tomás Vélez Cachupin, Gobernador y Capitan General de este dicho reino, hoy de Febrero de 1762, A. S. Papeles de Abraham Gold, Santa Fé, N. M., 1762.

   Inventory of the papers belonging to the Government during the time that I was Governor and Captain-General of this new kingdom of Mexico, and delivery which I make of them to Don Tomás Vélez Cachupin, Governor and Captain-General of this said kingdom, this day of February, 1762. Papers of Abraham Gold, Santa Fe, New Mexico, 1762.

8. Inventario de los autos civiles y criminales obrados en el tiempo del gobierno del Sr. D. Tomás Vélez Cachupin, en la segunda vez que en propiedad se le concedió la piedad de S. M. de este reino de Nuevo Méjico. Papeles de Abraham Gold, Santa Fe, N. M., 1767.

   Inventory of the civil and criminal decrees issued during the time of the government of Don Tomás Vélez Cachupin, during the second time that thefavor of His Majesty granted him the government of this kingdom of New Mexico. Abraham Gold's papers, Santa Fe, N. M., 1767.

9. Parecer de la Real Audiencia de Méjico sobre la conducta de D. Diego de Vargas en la reconquista del Nuevo Méjico. Testimonio perteneciente á D. José Lagunal, Santa Fé, N. M., 1697.

   Opinion of the Royal Audience of Mexico concerning the conduct of Don Diego de Vargas in the reconquest of New Mexico. Copy belonging to Don José Lagunal, Santa Fe, N. M., 1697.

10. Mandamiento de la Nueva España al Gobernador de Nuevo Méjico, Pedro Rodríguez Cubero, tocante á lo resuelto en la junta general de la Audiencia Real de Méjico. Documentos pertenecientes á John Gray, Esq., Santa Fé, N. M., 1698.

    Order from New Spain to the Governor of New Mexico, Pedro Rodríguez Cubero, with regard to what was resolved at the general meeting of the Royal Audience of Mexico. Documents belonging to John Gray, Esq., Santa Fe, N. M., 1698.

11. Visita que hizo el Sr. Marques de la Naba de Brazinas, Gobernador y Capitan Gen eral de este reino y provincia de Nuevo Méjico, su conquistador á su costa y reconquistador Castellano de sus fuerzas y presidios por S. M., en donde constan las diligencias que en la villa nueva de Santa Cruz hizo sobre los pedimentos que presentaron los vecinos Mejicanos, en que pretendian las tierras de dicha villa nueva y Cañada, y lo demás que en dicha visita de los naturales se ejecutó. Documentos pertenecientes á John Gray, Esq., Santa Fé Nuevo Méjico, 1704.

    Visit made by the Marquis de la Naba de Brazinas, Governor and Captain-General of this kingdom and province of New Mexico, its conqueror at his own cost, and Spanish reconqueror of its forces and forts for His Majesty, showing the action which he took in the new town of Santa Cruz, concerning the petitions presented by the Mexican inhabitants, in which they claimed the lands of the said new town and Canada (Glen), and the rest that was done during the said visit of the natives. Documents belonging to John Gray, Esq., Santa Fe, New Mexico, 1704.

12. ario de la campaña que el Maestro de Campo Roque Madrid hizo contra los Indios Navajos, por mandato del Gobernador D. Francisco Cuerbo y Valdés, el año 1705. El original para en posesión del Sr. D. José Segura, Santa Fé, N. M.
Journal of the campaign which the Quartermaster Roque Madrid made against the Navajo Indians by order of the Governor, Don Francisco Cuerbo y Valdés, in the year 1705. The original is in the possession of Don José Segura, Santa Fe, N. M.

13. Parecer del P. Fr. Gonzalo Sobence Barreda, sobre la reduccion á pueblos de los Indios Sumas. Archivos de la Parroquía del Paso del Norte, Méjico, 1713.
Opinion of Father Fray Gonzalo Sobence Barreda with regard to confining the Suma Indians to towns. Archives of the Parish of Paso del Norte, Mexico, 1713.

14. Diligencias que se hicieron sobre la sublevación de los Indios Mansos, Sumas y Janos, y se remitieron los originales al superior gobierno de Su Exceléncia. 1711–1713.
Documents drawn up concerning the rebellion of the Menso, Suma, and Jano Indians; the originals were transmitted to the superior government of His Excellency. 1711–1713.

15. Mandamiento del Excmo. Sr. Duque de Linares, en que manda al Señor Gobernador D. Juan Ygnacio Flores Mogollón, le informe sobre la entrada que pretende hacer á la provincia de Moqui el P. Agustín de Campos, de la Compañia de Jésus. Archivos del U. S. Sur. Gen., Santa Fé, N. M., 1714.
Order from his excellency the Duke of Linares, in which he commands Governor Don Juan Ignacio Flores Mogollón to report to him concerning the entrance which Father Agustín de Campos, of the Company of Jesus, intends to make into the province of Moqui. Archives of the U. S. Sur. Gen., Santa Fe, N. M., 1714.

16. Petición del Capitan Diego Arias y diligencias que se hicieron contra él del Tanque de la Ciénega. Archivos del U. S. Sur. Gen., Santa Fe, N. M., 1715.
Petition of Captain Diego Arias and proceedings instituted against Captain del Tanque de la Ciénega. Archives of the U. S. Sur. Gen., Santa Fe, N. M., 1715.

17. Diligencias ejecutadas contra los Indios Sumas por sus osadías y sublevacion. 1725–27.
Measures taken against the Suma Indians for their insubordination and rebellion. 1725–27.

18. Declaración de Miguel y de María Teresa acerca de un parentesco que decían tenían. Archivos de la Parroquía del Paso del Norte, Méjico, 1727.
Declaration of Miguel and Maria Teresa concerning a relationship which they said existed between them. Archives of the Parish of Paso del Norte, Mexico, 1727.

19. Orden del Vicario D. José de Bustamante al P. Fr. José Antonio Guerrero, ministero de Santa Fé, para que casase á un Indio Panana con una India Cargua, ambos sirvientes. Archivos de la Parroquía de Nuestra Señora de Guadalupe del Paso del Norte, Méjico, 1732.
Order of the Vicar, Don José de Bustamante, to Father Fray José Antonio Guerrero, minister (priest) of Santa Fe, to marry a Panana Indian to a Cargua Indian woman, both servants. Archives of the Parish of our Lady of Guadalupe of Paso del Norte, Mexico, 1732.

20. Ynformaciones matrimoniales dadas por parte de Francisco Lira y Bárbara, de nación Caigua, siruente del Capitan D. Joseph de Aganza, en 29 de Heno de 1735. Archivos de la Parroquía del Paso del Norte, Ciudad Juarez, 1735.
Marriage notice given by Francisco Sira and Barbara, of the Caigua nation, servant of Captain Don Joseph de Aganza, June 29, 1735. Archives of the Parish of Paso del Norte, Ciudad Juarez, 1735.

21. Ynformaciones de Pedro Suriate con María Petrona, hechas en este año de 1732, Febrero 25. Archivos de la Parroquía de Nuestra Señora de Guadalupe del Paso del Norte, Méjico, 1732.

Marriage notice of Pedro Suriate and Maria Petrona, made this year of 1732, February 25. Archives of the Parish of Our Lady of Guadalupe of Paso del Norte, Mexico, 1732.

Autos echos de visita para el teniente Coronel D. Gaspar Domingo de Mendoza, Gounnador y Capitan G'ral del Reyno del Nuevo Mexco. Srio Manuel Sanz. de Garnisa. A. D. 1742.

Minutes made of the visit of Lieutenant-Colonel Don Gaspar Domingo de Mendoza, Governor and Captain General of the kingdom of New Mexico; Secretary, Manuel Sanz de Garnisa.

NEW MEXICO, 1704-1822.

1. Demanda puesta por Juana de Apodaco contra Miguel Garatuza y Felipa de la Cruz, su hija, y assimismo por Juan de Chaves contra los susodichos, y lo demás que en estos autos se expresa, etc. Archivos del pueblo de Santa Clara, Nuevo Méjico, 1704.

   Claim made by Juana de Apodaca against Miguel Garatuza and Felipa de la Cruz, his daughter, and also by Juan de Chaves against the same and the rest that is set forth in these documents, etc. Archives of the town of Santa Clara, New Mexico, 1704.

2. Causa criminal contra Jerónimo Dirucaca, Indio del pueblo de Picuries. Archivos Territoriales, Santa Fé, Nuevo Méjico (original). 1713. Auto de culpa y cargo.

   Criminal prosecution against Jerónimo Dirucaca, an Indian of the town of Picuries. Territorial Archives, Santa Fe, New Mexico (original), 1713. Writ of accusation and charge.

3. Diligencias hechas sobre un crimen de bestialidad cometido por un Indio de nación Manso, llamado Juan Estevan Panocha. Archivos de la Parroquía del Paso del Norte, Méjico (original), 1724.

   Documents drawn up concerning a bestial crime committed by an Indian of the Manso Nation, named Juan Esteban Panocha. Archives of the Parish of Paso del Norte, Mexico (original), 1724.

4. Confesión de Diego Zuazo, hecha voluntariamente, de hechicerías cometidas por él, y entrega de los objectos é implementos que usaba en ello. Archivos de la Parroquía del Paso del Norte (original), 1727.

   Confession of Diego Zuazo, made voluntarily, of sorceries committed by him and surrender of the articles and implements which he used therein. Archives of the Parish of Paso del Norte (original), 1727.

5. Autos y diligencias contra los hechiceros de los pueblos de la Isleta y del Paso del Rio del Norte. Archivos de la Parroquía del Paso del Norte (original), 1728.

   Decrees and proceedings against the sorcerers of the towns of the Isleta and of the Paso del Rio del Norte (Pass of the North River). Archives of the Parish of Paso del Norte (original), 1728.

6. Requerimiento al Capitan Joseph Valentín de Aganza por parte del P. Fr. Salvador Lopez, tocante á los hechiceros de la Isleta y del Paso del Río del Norte, etc. Archivos de la Parroquía del Paso del Norte (original), 1728.

   Request to Captain Joseph Valentín de Aganza from Father Fray Salvador Lopez concerning the sorcerers of the Isleta and of the Paso del Rio del Norte, etc. Archives of the Parish of Paso del Norte (original), 1728.

7. Causa criminal contra unos Indios del pueblo de Santa Fé, denunciados por hechiceros. Archivos Territoriales, Santa Fé, Nuevo Méjico, 1732.

   Criminal prosecution against some Indians of the town of Santa Fe, denounced as sorcerers. Territorial Archives, Santa Fe, New Mexico, 1732.

8. Autos que se siguen contra la persona de D. Tomasillo, Indio del Paso del Río del Norte, por relación que de él hizo Antonio Joseph Telles, asimismo Indio del pueblo del Paso, ante su Padre ministro, Fr. Joseph Blanco, y éste lo remitió con carta ante el Sr. Vicario, D. Francisco Pedro Romano, Juez Eclesiástico de

la jurisdicción del Paso, cuya denuncia es por hechicero, seguidos en 13 de Abril de 1742, etc. Archivos de la Parroquia del Paso del Norte, Méjico (original), 1742.

Proceedings instituted against the person of Don Tomasillo, an Indian of del Paso del Rio del Norte, on an information laid against him by Antonio Joseph Telles, also an Indian of the town of Paso, before his Father minister, Fray Joseph Blanco, who sent him with a letter to the Vicar, Don Francisco Pedro Romano, Ecclesiastical Judge of the Jurisdiction of Paso, which accusation is for sorcery, instituted April 13, 1742, etc. Archives of the Parish of Paso del Norte, Mexico (original), 1742.

9. Causa contra Joseph de Amparán, Gobernador del Pueblo de Santa María de las Caldas, por accusacion de los Indios del dicho pueblo de ser el dicho hechicero. Archivos de la Parroquia del Paso del Norte (original, fragmento), 1742.

Prosecution against Joseph de Amparán, Governor of the town of Santa Maria de las Caldras, on the accusation of the Indians of the said town that the same is a sorcerer. Archives of the Parish of Paso del Norte (original, fragment), 1742.

10. Causas de María Montoya Guachile y de Felipe de la Cruz, el Saladito, por hechizeros. Archivos de la Parroquía del Paso del Norte (original), Méjico, 1746.

Prosecution of Maria Montoya Guachile and of Felipe de la Cruz, el Saladito, for sorcery. Archives of the Parish of Paso del Norte (original), Mexico, 1746.

11. Certificación de Gaspar Ortiz sobre brujerías de los Indios de Nambé. Archivos del Territorio del Nuevo Méjico (MSS.), Santa Fé, 1822.

Certificate of Gaspar Ortiz concerning the sorceries of the Indians of Nambe. Archives of the Territory of New Mexico (MSS.), Santa Fe, 1822.

### NEW MEXICO, 1764–1845.

1. Descripción del reino del Nuevo Méjico. Citation from "Breve Resumen," etc., etc. Villanueva y Chavarri, 1764.

Description of the kingdom of New Mexico. "Brief Résumé," etc., etc. Villanueva and Chavarri, 1764.

2. Estado que manifiesta el número de vasallos y habitantes que tiene el Rey en esta provincia, con distinción de estados, classes y castas de todas personas de ambos sexos, con inclusion de los párvulos. Santa Fé, 1790.

Statement showing the number of vassals and inhabitants that the King has in this province, with distinction of ranks, classes, and castes of all persons of both sexes, including children. Santa Fe, 1790.

3. Padrón de todas las gentes del pueblo de Zuñi. 1790.

Noticia de la Misión del Sōr. San José de la Laguna, que ocupa el P. Fr. José Benito Pereyro, religioso de la Regular Observancia de N. S. P. S. Francisco; sus progresos en los años de 1800 y 1801, etc., etc. 1801.

Register of all the people of the town of Zuñi. 1790.

Account of the Mission of San Jose de la Laguna, occupied by Father Fray José Benito Pereyro, a monk of the Regular Observance of our Holy Father San Francisco; its progress in the years 1800 and 1801, etc., etc. 1801.

4. Petición de Bernardo de Castro al Virrey de Nueva España, sobre el descubrimiento del Cerro de Oro. Archives U. S. Sur. Gen.'s Office, Santa Fe. (No date of the original; copy), 1803.

Petition of Bernardo de Castro to the Viceroy of New Spain, concerning the discovery of the Golden Hill. Archives U. S.

5. Borrador de carta escrita por el Gobernador del Nuevo Méjico, tocante al descubrimiento del Cerro de Oro. Archives U. S. Sur. Gen.'s Office, Santa Fe, N. M., 1803.

Draft of letter written by the Governor of New Mexico, with regard to the discovery of the Golden Hill. Archives U. S.

6. Carta del Gobernador del Nuevo Méjico, sobre la expedición de Bernardo de Castro al Cerro de Oro. Archives U. S. Sur. Gen., Santa Fe (borrador), 1830.
   Letter of the Governor of New Mexico concerning the expedition of Bernardo Castro to the Golden Hill.
7. Carta del Gobernador del Nuevo Méjico, tocante á las expediciones en busca del Cerro de Oro. Archives U. S. Sur. Gen., Santa Fe (borrador), 1829.
   Letter of the Governor of New Mexico concerning the expeditions in search of the Golden Hill.
8. Mandamiento del Alcalde Mayor de la jurisdicción de Jemez. Papeles de David J. Miller, Santa Fe, N. M., 1813.
   Order of the Chief Alcalde of the jurisdiction of Jemez. Papers of David J. Miller, Santa Fe, 1813.
9. Informe sobre los límites que se reconocen en el territorio de su mando, etc., etc. Archives of U. S. Sur. Gen., Santa Fe, 1826.
   Report on the boundaries which are recognized in the territory under his command, etc., etc.
10. Ayuntamiento, de Cochiti: cuenta que manifiesta el fondo que reconoce este Ayuntamiento, con explicación de la entrada, salida y existencia que ha habido hasta la presente. Documentos pertenecientes á la firma de Catron, Claney & Knaebel, Santa Fe, N. M., 1826.
    City Council of Cochiti: account showing the capital which this Council recognizes, with a statement of the receipts, disbursements, and stock up to the present time.
11. Borrador de la estadística 2, que se formó en 8 de Abril de 1827. Documentos de la firma de Catron, Claney & Knaebel, Santa Fe, N. M.
    Copy of the 2nd statistics drawn up April 8, 1827. Documents of the firm of Catron, Claney & Knaebel, Santa Fe, N. M.
12. Breve noticia de la provincia del Nuevo Méjico y su custodia de la Conversión de San Pablo, segun los papeles del Archivo del Gobierno y del P. Murillo Velarde, en el Tomo IX de su Geografía Histórica, y otras noticias de varios anuncios de dicha provincia. Papeles del Señor Arzobispo.
    Short account of the province of New Mexico and its reliquary of the Conversion of St. Paul, according to the papers in the Archives of the Government and those of Father Murillo Velarde, in the ninth volume of his Historical Geography, and other accounts from various advertisements of said province. The Archbishop's papers.
13. Merced del Río Colorado. Archivos de Taos County, 1842.
    Grant of the Colorado River. Archives of Taos County.
14. Promulgación del decreto de la Asamblea Departamental del Nuevo Méjico, imponiendo un prestamo de dece mil pesos. 1845.
    Promulgation of the decree of the Provincial Assembly of New Mexico, ordering a loan of 12,000 pesos. 1845.
15. Plan que manifiesta el censo general del Territorio de Nuevo Méjico con respecto á su población, etc., etc. (Extract.)
    Plan showing the general census of the Territory of New Mexico with respect to its population, etc., etc. (Extract.)

OTHER VOLUMES.

Relación del descrubimiento del Nvovo Méjico á Sr. de Montoya. In Roma. Por Bartolomé Bonfadino, 1608.
Account of the discovery of New Mexico to Señor de Montoya, at Rome, by Bartolomé Bonfadino, 1608.
Historia del Nueva Méjico. Capitan Gaspar de Vilagra, 1610.
History of New Mexico. Captain Gaspar de Vilagra, 1610.
Luz de Tierra Incognita, etc. Por el Capitan Juan Mateo Mange, 1720.
Light from an unknown Land, etc. By Captain Juan Mateo Mange, 1720.

## EXHIBIT OF THE PEABODY MUSEUM.

In addition to the Hemenway expedition there is in this room a collection of photographs and books exhibited by the Peabody Museum of American Ethnology and Archæology.

This institution is at Cambridge, Mass. (United States), and is connected with Harvard University. It contains a large collection of American archæological and ethnological objects. The chief wealth of this collection consists in archæological objects, particularly those relating to the mound builders and to the ancient inhabitants of the eastern part of the United States. Harvard University is one of the few American institutions of education which impart instruction to their students concerning the archæology of America. The class is under the charge of Professor Putnam who is the curator of the museum.

The two screens covered with photographs exhibit a portion of the scientific labors of the Peabody Museum. The most interesting photographs of the collection are those of the excavations made at Copan, Honduras, and give an idea of the peculiar character of the houses, "stelas," plazas (squares), etc. There are also among them photographs of the explorations directed by the Peabody Museum at Labna, Yucatan.

This institution contributes photographs of extensive excavations and scientific studies of mounds, made in the valley of the Ohio River, in the United States, which photographs are also displayed on the screens. The Serpent Mound, situated in the valley of the Ohio River, has been accurately studied by Prof. F. W. Putnam, curator of the Peabody Museum, and the photographs of these excavations are on the screen placed in the northern part of the hall. The Serpent Mound now belongs to the Peabody Museum, and the land around it is inclosed by a fence forming a park.

In the case at the side are the publications of the Peabody Museum of American Ethnology and Archælogy. It publishes annually records of the progress made, and occasionally bulletins in 8vo. Several quarto volumes have also been printed. In addition, assistants connected with the museum have written and published articles in various scientific magazines. Several volumes have been prepared on articles in the collection.

# ANCIENT MEXICAN FEATHER WORK AT THE COLUMBIAN HISTORICAL EXPOSITION AT MADRID.

By ZELIA NUTTALL, Delegate of the Peabody Museum of American Archæology and Ethnology, Cambridge, Mass., U. S. A.

Since my interest in ancient Mexican feather work was stimulated, some years ago, by the quaintly illustrated Laurentian manuscript of Sahagun's Historia, I have made efforts to ascertain how many representative specimens of this peculiar indigenous art are in existence at the present day.

In 1890 I submitted to the members of the International Congress of Americanists, assembled in Paris, a description and colored photographs of a beautiful specimen of native feather work that I had discovered in Florence, and expressed at the same time the hope to learn of similar relics elsewhere. Although my hope was not realized before the opening of the exhibition at Madrid, I fully expected that this would draw forth from obscurity some fine samples of the curious art. My expectations, on the whole, were not realized, and I was obliged to assume that, as such relics were not forthcoming on this momentous occasion, they probably did not exist. As the majority of specimens known were, however, assembled in the exhibition, in the original, or in counterpart, I was afforded at all events an unprecedented opportunity for making a review of the remnants that have thus far escaped destruction.

The present report, which I have amplified by references to all relics of the kind that have come under my notice during my researches in European museums, aims at being a complete inventory of all specimens of ancient Mexican feather work, dating from the sixteenth and seventeenth centuries, known to be in existence at the present day. As such it may not only prove useful for future reference, but also stimulate an interest which may lead to the discovery of further specimens.

The only original pieces of Mexican feather work, dating from about the time of the Conquest, contained in the whole exhibition, were the two shields belonging to the Royal Museum at Stuttgart. These were displayed in the section of the Imperial German Government, and their presence deserves appreciative recognition.

A fine copy of a similar contemporary shield, preserved at the National Museum of the City of Mexico, was exhibited in the Mexican section. This shield is of especial historical interest, for, after having in all probability, formed part of the presents sent by Cortes to Charles V, it was preserved in Austria for nearly three centuries, and was only sent back to Mexico at the instance of the ill-fated Emperor Maximilian, who presented it to the National Museum.

Among the objects exhibited by the National Museum of Washington was a large water-colored sketch of the shield discovered by the writer in 1890, at the Castle of Ambras, Tyrol. Since then it and other ancient Mexican relics have been transferred to the Imperial Museum at Vienna. In an adjoining room, in the same section, I displayed a similar copy in oil colors, and subsequently presented it to the newly founded National Museum at Madrid.

The four above-mentioned shields, illustrated descriptions of which have been published[1], belong to the category of gala shields, such as were used by native chieftains in ceremonial dances, etc.

They are composed of narrow strips of cane skillfully interwoven with cotton threads and surrounded by a circular wooden frame. This foundation was covered with leather, as in the specimen in the National Museum of Mexico, or with fine agave paper, as in the other specimens, and on the smooth surface thus obtained the feather mosaic was glued.

The Ambras shield is by far the best preserved and most valuable example of the kind. It was originally adorned with a magnificent fringe composed of Quetzal feathers and displays a boldly drawn monster, probably a coyote, whose eyes, claws, teeth, and outlines are marked by thin pieces or strips of gold, applied in a skillful and peculiar manner.

The probabilities are that this, as well as the other three shields, was among the presents sent by Cortes to the Emperor Charles V. It certainly belonged to a nephew of the Emperor Archduke Ferdinand of Tyrol, and is minutely described in the inventory of his famous collection of armor, dated 1596. In this same document the magnificent piece of feather work (Pl. I) now preserved at Vienna, is designated as a hat or headdress. In later inventories, when it had lost a part of its original decoration, it was described as an apron. Subsequently it was described respectively by different writers as a cloak and a standard.[2]

[1] See Ferdinand von Hochstetter, Ueber alt-mexikanische Reliquien, Wien, 1884. Zelia Nuttall, Verhandlungen der Berliner anthropologischen Gesellschaft, 1891, p. 485. Also articles "On ancient Mexican shields" and "Coyote or bear?", Internationales Archiv für Ethnographie Band V, 1892, and VII, 1893. Franz Heger, Altmexikanische Reliquien aus dem Schlosse Ambras in Tirol, Wien, 1892.

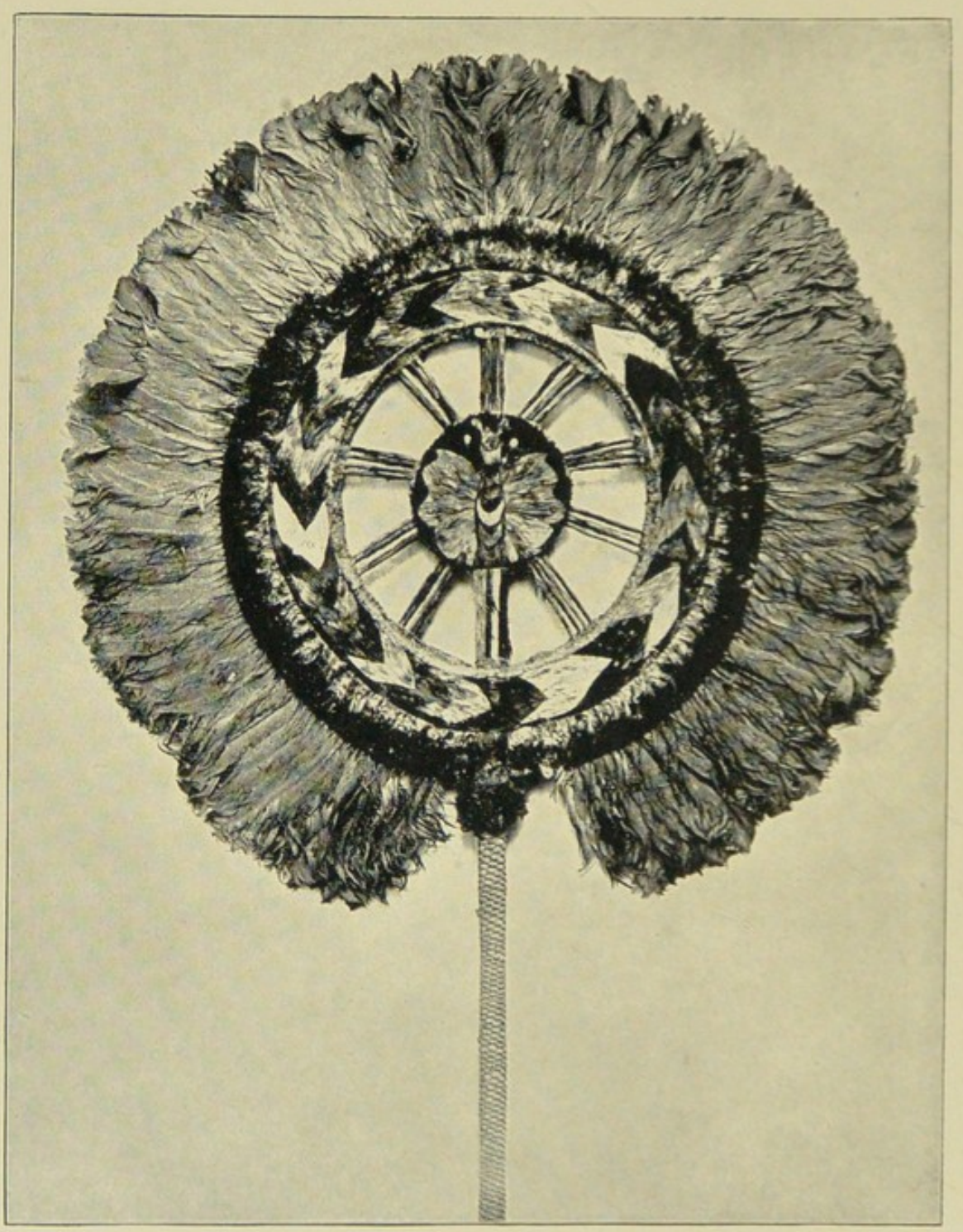
[2] See *Y. Maler*, p. 1., Nuñez-Ortega, p. 281, Anales del Museo Nacional, tomo III. Zelia Nuttall, Standard or Headdress. Peabody Museum Papers, vol. 1, No. 1. Compte rendu de la huitième session du Congrès International des Américanistes, Paris, 1890, p. 453. Ed. Seler, Zeitschrift für Ethnologie, Band XXI, p. 63, Verhandl., 1891, p. 114; ditto, 1893, p. 44. Max Uhle, Zeitschrift für Ethnologie, Heft II, p. 144.



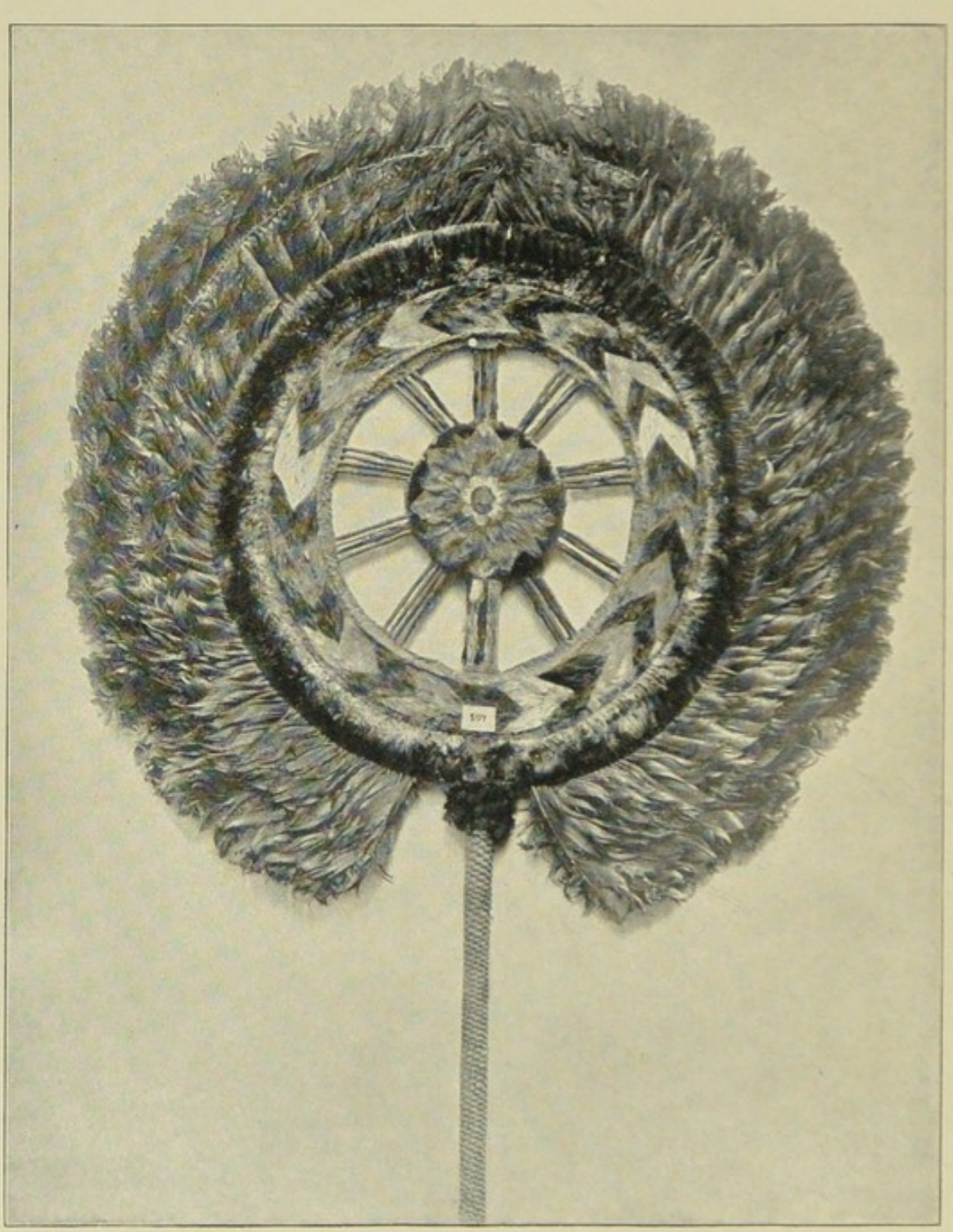
A. Boen & Co. Lith. Baltimore

NUTTALL

FEATHER PIECE: HEAD-DRESS (STANDARD) PRESERVED AT ETHNOGRAPHICAL MUSEUM, VIENNA.



OBVERSE OF ANCIENT MEXICAN FEATHER FAN.
Preserved at Castle Ambras, Tyrol.



REVERSE OF ANCIENT MEXICAN FEATHER FAN.
Preserved at Castle Ambras, Tyrol.

My study of the question led me to adopt the identification before 1596 at a time when the feather piece was complete, and when information concerning its purpose could be obtained at first hand.

In the United States section of the exhibition a picture, copied from a native manuscript, was exhibited by me. It represented a personage wearing a headdress identical in form and general character with the Vienna original. In the Austrian section the picture of this relic published by Ferdinand von Hochstetter, was displayed in one of the cases. This was the only visible record of the existence of ancient Mexican relics in the imperial museums at Vienna.

Nevertheless, they possess a larger number of fine specimens of Mexican and Hispano-Mexican feather work than any other museum in Europe or America. Besides the magnificent headdress and the Ambras shield, the Imperial Ethnographical Museum owns the curious native fan, dating from the time of the Conquest, which I also discovered at the castle of Ambras (Pls. II and III). Two other contemporary relics, not represented at the exhibition, complete the list of known specimens. The first is the interesting "delantal," or native apron, intended to be suspended from the neck, belonging to the Royal Ethnographical Museum at Berlin. This has been described by Dr. Ed. Seler in his valuable contribution published in the Rapport du Congrès International des Américanistes, Paris, 1890, p. 401.

The second is the mantle "of Montezuma," preserved at the Royal Museum of Armoury at Brussels, where I saw it in 1888. It is chiefly composed of scarlet feathers, and these are attached to a network by a series of knots. This unique specimen has been described by Señor Nuñez-Ortega and Dr. Ed. Seler in their respective publications already cited.

These relics complete the inventory of all of the specimens of purely indigenous feather work whose existence and whereabouts are known. Unless it should receive unforeseen additions, it shows that of the many hundreds of similar trophies which were sent to Europe by the Conquerors, there survive only: Four shields, 1 headdress, 1 fan, 1 apron, and 1 mantle; 8 pieces in all, 5 of which were represented at the Madrid Exposition.

The age and rarity of these relics undoubtedly render them extremely valuable from an ethnological standpoint. A critical examination reveals, however, that although admirable in workmanship and very effective, they scarcely testify to such an extraordinary degree of technical skill or artistic taste as to justify the panegyrics bestowed upon this branch of native industry by the Spanish chroniclers.

Thus, Fray Toribio de Motolinia wrote that newcomers in Mexico from Spain or Italy remained open-mouthed in amazement on seeing, for the first time, the exquisite work of the Amantecas, who reproduced with facility and utmost perfection in feather mosaic, any painting or design given them to copy.[1]

[1] Historia de los Indios de Nueva España, ed. Izcabalceta, p. 68.

Fray Geromino de Mendieta, also writing at the close of the sixteenth century, relates that—

> What seems to surpass the genius of man was the native art of producing, by means of feathers, the same results obtained by the best painters with their brushes and colors. Having, nowadays, had ample opportunities of seeing our works of art, the faculties (of the Amantecas) have been enlarged and stimulated, and it is a marvel with what perfection they exercised their art, so entirely new to us, and produced images and pictures worthy of being presented to princes, kings, and sovereign pontiffs.[1]

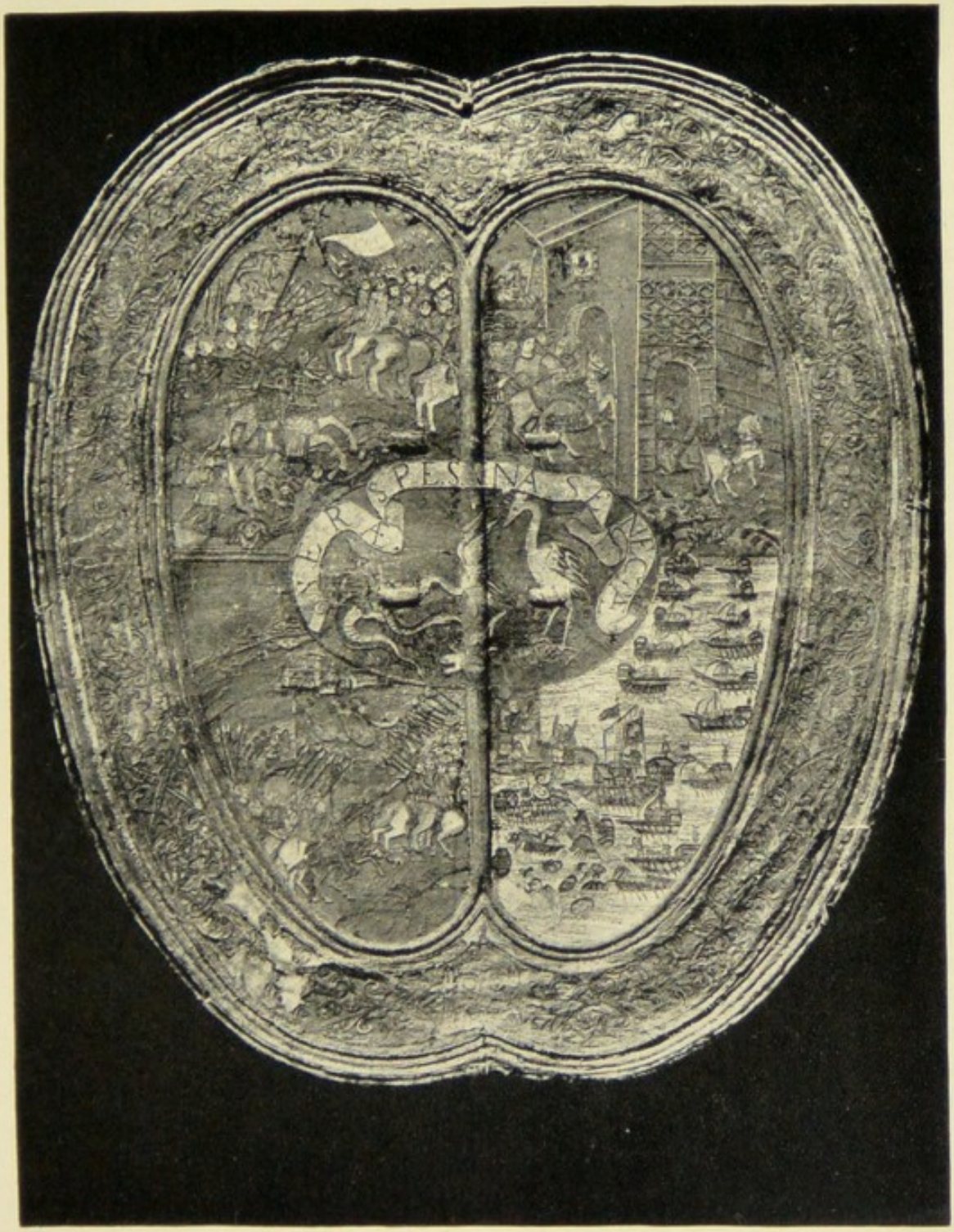
From this and further testimony, and a critical examination of samples of purely native production enumerated above, it is evident that although the art of working in feathers had long been practiced in Mexico and had developed a remarkable degree of dexterity, it did not reach its highest development until infused with new life by contact with Spanish art. Motilinia and Mendieta expatiate on the wonderful quickness of perception that characterized the native artisans in every branch of industry, and relate many instances of their producing counterparts, difficult to distinguish from the originals of European manufacture.

Toward the close of the sixteenth century native art and industry attained its highest development in the City of Mexico, under the fostering care of the Spanish missionaries who, at that time, zealously sought to educate the Indians and took a paternal interest and pride in their talents and improvement. It may be a surprise to many to learn that a few masterpieces still exist that date from this period, and were actually intended to be presented to "princes kings, or sovereign pontiffs."

Having had occasion to examine these carefully, I can testify that they fully justify the enthusiasm of the Spanish friars whose words of praise have been quoted above.

A remarkable specimen of feather mosaic, a shield (Pl. IV), dating from this period, was displayed in the historical European exhibition toward its close. This shield pertains to the royal collection of the Armory, at Madrid, and is reputed to have belonged to Phillip II. It is designated as such in the inventory preserved, but no place of origin is assigned to it. During my visit to the Royal Armory in October, 1893, the shield arrested my attention, and I identified it as being of Hispano-Mexican workmanship. Having communicated this identification to the distinguished and learned director, Count Valencia, he courteously afforded me every facility for making a close examination of the shield and kindly furnished me with photographs and historical data relating to the battle scenes depicted on its face. As a specimen of Hispano Mexican art, it became endowed with a fresh interest, and was promptly transferred to the exhibition building, where it subsequently attracted much attention. Brief notices of the above facts appeared in a Madrid paper, and in Science, January 3,

[1] Historia Ecclesiastica Indiana, ed. Izcabalceta, p. 405.



MEXICAN FEATHER MOSAIC SHIELD OF PHILIPPE II.

The subjects are: The conquest of Granada, 1492; the battle of Las Navas de Tolosa, 1212; battle of Lepanto, 1571, and the battle of Muhlberg, 1547.

Original in the Royal Armory, Madrid.

1893, but no detailed description and illustration of the shield has since been published.

It is a large "adarga," of the peculiar, rounded, heart-shaped, form that was originally Moorish, but was adopted by the Spaniards in the sixteenth century and generally used by their mounted lancers. It is made of stout leather, with ribs of cane, and may have been manufactured in Spain and sent to Mexico to be only decorated there. On the other hand, it may be a clever imitation of a Spanish shield made by a native artisan, a fact that would have enhanced its value as a curiosity. The design, executed in the tiniest of feathers and covering the entire face of the shield, shows artistic merit, and is undoubtedly of Spanish origin. A broad and beautiful border of rich arabesque design surrounds the field, which displays four divisions, each containing an historical scene. These represent the four memorable victories gained by the Spaniards. The first is the battle of "las Navas," fought under Alfonso VIII, in 1212; the second, the entry into Granada by Ferdinand and Isabella in 1492. In the third, the battle of Muhlberg, which took place in 1547, the Emperor, Charles V, is represented on horseback, in the foreground, in precisely the same attitude and armor as in his famous equestrian portrait by Titian, a fact proving that the artist who designed the decoration of the shield must have copied from the latter original.

The fourth scene shows the naval victory of Lepanto, with both fleets in action, and the Spanish conqueror, John of Austria, receiving homage from the vanquished Moors. As this event transpired in 1571, during the reign of Phillip II, the reputed possessor of the shield, a clue to its age is afforded by this date.

A curious allegorical group occupies the center of its field and consists of two herons, wearing royal crowns, one bird in a passive attitude, the other, smaller in size, advancing with outstretched wings and pecking at a recumbent wounded dragon, near to which is a smaller reptile. This curious group is surmounted by a scroll bearing the device, "Serae. spes. unas. senectae." I was informed by Count de Valencia that this, translated, signifies "The only hope of declining age," and that the group represents the Roman Catholic faith (symbolized by one heron), defended by the Spanish Monarch (symbolized by the fighting bird), against infidelity and heresy (represented under the form of the dragon and smaller reptile).

A close study of the group and the motto on the scroll leads me to give the allegorical device a slightly different interpretation, and to conclude that, though made during the lifetime of Phillip II, the shield was destined for his only son and heir, for the latter was the sole person to whom the motto could apply, and therefore be appropriately inscribed on his shield. It should be borne in mind that Phillip II died in 1598, at the age of 71, and was succeeded by the only surviving offspring of his four marriages, Phillip III, aged 21.

The devotion of Phillip II to the Roman Catholic Church, the zeal with which he persecuted all heretics, his virulent persecutions of the Moriscoes, and his care to cultivate these traits in his young son, are well known. Phillip II must, indeed, have regarded his youthful heir as his only hope, and intrusted the latter with the prosecution of his ardent desire, the extirpation of infidelity and heresy in his realm. The banishment of the Moors, which had already been decreed by Charles V, was, indeed, carried into execution by Phillip III in 1609. In judging of this cruel deed it should be realized that Phillip III only fulfilled thereby the long-cherished desire not only of his father but also of his grandfather, and that the action was therefore the natural outcome of family traditions and influences.

All facts considered incline to the belief that the motto refers directly to the young infant, Phillip of Spain, and that it is he who figures on the shield under the form of the smaller heron attacking the monster, Infidelity. The larger bird, in a passive attitude, might readily represent Phillip II, the hereditary defender of the Roman Catholic faith. This inference is further corroborated by the fact that both birds wear the same form of serrated royal crowns, which would scarcely be the case if one of the herons typified the Church. Moreover, the motto could not possibly have applied to Phillip II unless bestowed upon him by his father, and the latter died in 1558, thirteen years earlier than the battle of Lepanto which figures on the shield.

The manufacture of this interesting relic must be assigned to the period between the victory at Lepanto (1571) and the death of Phillip II, in 1598. Its actual preservation is a matter of wonder and congratulation, more especially when it is realized how narrowly it escaped destruction in 1844, when a disastrous fire broke out in the Royal Armory. When rescued from this by Count de Valencia it was much disfigured by smoke and soot, and the removal of these revealed that the velvety surface had permanently lost the remainder of its former luster. Scant traces of humming-bird feathers are left to testify to the lost splendor of the rich border. Fortunately, the battle scenes are comparatively uninjured, and are of such exquisite, minute, and perfect mosaic work that even in its present condition the shield deserves to be termed a marvel of human ingenuity and technical skill.

It has a rival in the beautiful bishop's miter that belongs to the royal treasury in the Pitti Palace at Florence, and is in a remarkable and almost perfect state of preservation. Visitors to the United States section of the exhibition were able to form an idea of the original from the miniature copies partly executed in metallic colors that I exhibited there. The front and back of the miter and its pendants are entirely covered with an extremely rich design of a religious character, executed in feather mosaic. The design is evidently the work of a Spaniard, for the names of the apostles and patriarchs depicted around the border are in the Spanish language. At a first glance it might be supposed

that the miter was either enameled or on copper, painted on velvet or silk, but an indescribably beautiful and novel effect is produced by the employment of a background entirely composed of the wing feathers with metallic luster that grow on the heads and breasts of tropical humming birds. When I first saw the precious relic and made inquiries about its age and origin I was informed by the custodian in charge that it dated from the seventeenth century and had belonged to a cardinal or pope of the Medici family.[1]

No documentary evidence seems, however, to be obtainable. The indication given leads, however, to the conclusion that the miter belonged to the Cardinal Alessandro de Medici, a native of Florence, who died in 1605, a few weeks after his consecration as Pope Leo XI.

The relic is thus assigned to the same period as the Madrid shield, and the comparison between the workmanship of each seems to indicate that they were both made by the same hand.

A second miter, apparently of the same style of design and execution, is preserved at the Kunsthistorisches Hofmuseum at Vienna. I recently learned of its existence by a mere chance, and I believe that this is not generally known.

In his article cited above, Hochstetter mentions that he first found the ancient Mexican feather piece, which he identified as a standard, "next to a bishop's miter" in a museum case.

Beyond this bare mention I know of no publication in which the miter figures. Not having visited Vienna since I learned of its preservation there, I am indebted to the kindness of a scientific friend for the following data concerning it. The relic is displayed in Case IV, hall 23, is entered as No. 48, in the official general catalogue, wherein it was described as follows:

> Miter, of Hispano-Mexican workmanship, covered with a mosaic composed of humming-bird feathers. On the obverse the genealogical tree of Christ is represented. The reverse displays a rosebush with the apostles and a crucifix issuing forth from its flowers.

In the special catalogue of the same year, 1891, the following valuable detail is added:

> The word Buenagia, meaning Good Road and being the motto of the Spanish D'Avila family, occurs in each of the pendants above the embroidered arms of a cardinal. With the exception of these arms that are embroidered in silks, the entire miter is of feather mosaic.

In the above catalogues no date is assigned to the miter, but it seemingly belongs to the Ambras collection and consequently antedates 1595.

It seems as though, after having been made in Mexico, the miter was only assigned to an owner when it reached Europe, for the embroidered arms could not have formed part of the original design, and must have

[1] See Zelia Nuttall, Ouvrages en plumes du Mexique. Rapport du Congrès des Américanistes, Paris, 1890, p. 460.

been an unforeseen and necessary addition made at a later period with means at hand.

Toward the period to which the miter evidently belongs, two distinguished members of the D'Avila family held high ecclesiastical positions in Spain, but thus far I have not succeeded in ascertaining whether either of them attained cardinalship.

Sancho d'Avila, born at Avila in Old Castile in 1546, was consecutively bishop of Murcia, Jaen, Sagonte, and Placentia, and died in 1625.

Gil Gonzalez d'Avila was born at Avila in 1559 (according to Chambers' Encyclopedia), or in 1578 (according to Oettinger, Moniteur des dates), and died in 1658. He was a Jesuit, a canon of Salamanca and, moreover, royal historiographer for Castile and the Indies. He wrote many voluminous works, the best known of which is perhaps the Teatro Ecclesiastica de la primitiva Iglesia de las Indias Occidentales (Madrid, 1649–1656). Although these facts do not suffice to establish the individual ownership of the miter, they certainly reveal an interesting connection between the D'Avila family, the Church, and Mexico. It will be interesting to ascertain how and when the miter came into the possession of Archduke Ferdinand, who was one of the most indefatigable collectors and curiosity hunters of his time.

The three historical relics that have been described are probably specimens of the finest feather mosaic produced in Mexico at the culminating period, when the best native workers were employed in copying beautiful designs made by Spanish artists. A high form of decorative art was thus developed, the productions of which rival a miniature on vellum for delicacy of execution and combining the beauties of a silky, smooth surface like that of velvet, with a metallic brilliancy of color and iridescence resembling that of the Limoges enamels. When strictly confined and applied to decorative purposes, as in these specimens, the native art of painting with feathers affords even now artistic gratification and evokes admiration and approval. The same can not be said of the curious reproductions of Spanish paintings, usually pictures of saints, which became a favorite and staple production of the native artists. A few samples of this kind were exhibited in the Mexican section of the exhibition, and consisted of a series of finely-executed copies of Spanish pictures of saints, and a large archaic head of Christ of native design and coarse execution.

I was informed that these were probably the oldest existing specimens preserved in Mexico, and that they had recently been discovered in an old provincial church.

The only specimen of the kind in Europe to which a date can safely be assigned, are those which originally belonged to the Ambras collection, and consequently antedate 1596. One of these, representing St. Jerome and the lion in the desert, is still preserved at the Castle of Ambras, and attention was drawn to it in my publication on "Ancient Mexican shields."

Two other pictures representing a Madonna and St. Peter before Christ are now in the Kunsthistorisches Museum at Vienna, and are numbered 24 and 25 in the general catalogue.

The Royal Ethnographical Museum in Berlin and Mr. Phillip Bectier (?), of Darmstadt, possess some fine examples of the kind. It would be difficult to determine the precise age of the majority of these curiosities of technical skill, as the native art has never become extinct in Mexico, and is even practiced to the present day. Unfortunately whereas the best and apparently oldest specimens are painstaking copies of excellent originals, the more modern productions show a steady deterioration of workmanship, taste, and design. A painful contrast to earlier productions is the meritorious but utterly inartistic historical relic that occupied a conspicuous place in the National Museum of the City of Mexico, and is described in the catalogue as "Arms of the Republic of Mexico, surrounded by trophies, composed of feathers in imitation of the old native feathers-mosaic work by Señor José Rodriguez, who presented it to the congress in 1829."

A brief summary of the present report establishes that there exists at the present day eight fine specimens of purely native work, dating from the time of the Conquest. The exhibition contained the originals of two and copies of three of these. Of the three masterpieces of Hispano-Mexican art preserved, one was exhibited in original and another in copy.

Moreover, reproductions of paintings by means of feathers were also displayed, and thus the exhibition afforded unprecedented opportunities for the study of the different branches of the peculiar art of working in feathers, invented and practiced by the aborigines of Mexico.

# THE ANCIENT CENTRAL AND SOUTH AMERICAN POTTERY IN THE COLUMBIAN HISTORICAL EXPOSITION AT MADRID IN 1892.

By WALTER HOUGH, Ph. D.

There is an attractiveness about a collection of ancient American pottery which arrests the most casual observer. The forms, having their origin from natural sources, or from the conception of the potter, the decorations with the lines of inquiry which they provoke, and the uses of these objects, whether they entered into the religious or the home life of the ancient people, all stimulate the mind to further inquiries.

Looking deeper into the finished products the student is compelled to observe the materials—their combination and temper rendering the clay fit for use—the building up of the vessel, the tools for forming, polishing the surface, the brushes, the colors, the decoration, and the final baptism in fire.

It is principally to this study of technique that the following paper relates, in order to give an idea of the state of the potter's art in Central and South America at times more or less remote. The material for examination consisted of large collections from Mexico, Guatemala, Nicaragua, Costa Rica, Colombia, Ecuador, and Peru, with small collections from several other States exhibited in the Columbian Historical Exhibition at Madrid.

It has seemed better to describe the pottery by countries, although manifestly the older culture areas do not often coincide with the present political boundaries. The time has not yet come when the ancient tribal areas can be accurately determined, but to the attainment of this result the testimony of pottery is of great value.

The order followed in this examination, the results of which are set forth in this paper, is as follows: (1) The paste, whether simple or mixed, and the components; (2) the mode of construction; (3) the surface—whether natural, tooled, or burnished—the slips or glazes, if any; (4) the ornamentation; (5) the forms.

One of the earliest discoveries in the ceramic art was the dégraissant, or temper. Pure clay paste is nearly always unsuitable, because in drying or firing it usually cracks from unequal stress, and especially so since primitive pottery might not be dried gradually in places of uniform temperature.

The potter's art and all subsequent progress in the art depended on the tempering of the clay. It must be observed, however, that some clays are naturally tempered from conditions of deposition and a mixture of clays answers the purpose of temper. The selection of clay and its preparation require great care.

The temper is of many kinds, such as broken shell, broken rock, sand, ashes, mica, lime, broken potsherds, vegetable fiber, etc. The paste of unbaked clay lamps of the Eskimo of the Yukon delta is mixed with hair and seal blood, making a very strong ware. The earliest unbaked ware, as well as the bricks with chopped straw, of the Egyptians, Assyrians, and Chinese depended for their strength and permanency on the temper.

The function of dégraissants and cements, according to Semper, "besides destroying the homogeneity of the paste, is to furnish innumerable points of rest throughout the mass that reduce the fragility of the ware after burning and the danger of cracking, whether through change of temperature or by shock. The coarser particles serve to break up and distribute the undulations by which the cracks are propagated, very much as a fracture in a pane of glass may be arrested by boring a hole at the extremity of the crack."[1]

Fine pottery can not have a coarse dégraissant. The latter lowers the tenacity of the paste and interferes with the surface finish. The temper of shell often causes the pottery to exfoliate, or slack, in a short time.

The Catawba Indians do not use tempers, nor as a rule do the modern Mexican potters, where a mixture of homogenous clays answers the purpose.

Following the preparation of the clay the next step is the construction of the vessel.

By simple manipulation with the hands small vessels can be formed from lumps of clay. Larger vessels can not be modeled, but may be laid up with ropes of clay by the process of coiling, building up a short section at a time, pressing the coils together, allowing to harden, and continuing the process. Coiling is the greatest aid to the securing of form in larger vessels, besides seeming to give a fibrous structure to clay by arranging it in the lines of greatest tenacity.

Even when the vessels are molded in baskets, nets, or over forms coiling is in effect practiced, as the masses of clay added will assume a cylindrical form in the hand of the potter before being pressed into junction.

The process of coiling is widespread and ancient; within historic times it has been practiced at various points in this hemisphere as a native art by the introduced African slaves.

It is not strange that the need for molds had occurred to the early potter and caused him to use baskets and forms, not unmindful of the ornamentation so secured and preserving indelibly the styles of weaving.

[1] Semper. Der Stil, Band II, p. 122.

In the centers of American civilization molds came to be used, and casts for molds, perfectly made, were taken from natural objects. It is scarcely possible to say that the wheel was known.

The tools of the aboriginal potter are very simple. For grinding the clay a flat stone suffices. A shell, bit of gourd, a smooth beach pebble aids the potter's fingers in building up the vessels and smooth stones or the thumb nail gives the finish when the clay becomes hard. A sharp stick or thorn scratches ornamentation in the clay or a figured paddle gives the desired design.

The spine of a palm, or a roughly made brush of hair, or vegetable fiber supplies a paint brush.

When the vessel or other object receives its form from the hand of the potter, his next care is the treatment of the surface. Here begins the most fascinating chapter of the ceramic art, the record on enduring terra cotta of æsthetic ideas, the origin and expression of art forms, and the beginning of modeling and painting.

One often finds the surface of the most ancient pottery rough, with rude ornamentation, bearing the impress of rough surfaces and unskillful handling. This is not alone a feature of time, but also of culture and surroundings.

There seem to be the following stages in the decoration of pottery:

(1) Natural surface from the hands of the potter; furrows or scratches in the paste; impress of rough surfaces, as basketry, nets, paddles, the coiling lines, finger ornamentations, etc., giving rise to stamps, forms, and molds.

(2) Applied fillets, bosses, etc., on the paste running to higher grades of relief modeling and luting.

(3) Wash or slip-paints leading to polychrome decoration.

(4) Tooling or burnishing to render the surface less porous, like glaze. The same effect was procured by melted resin.

The last step of the process rendering the clay anhydrous and durable is the firing. Modern aboriginal pottery is burned in the open air by setting up the dried ware, piling around it grass, leaves, or other inflammable material, preferably bark, and firing it to a red heat in clear coals. The ware is allowed to cool slowly in the ashes to prevent cracks.

To secure black ware the objects are burned to a certain degree as above and the fire dampened or smothered with fresh fuel, sometimes resinous, producing a tarry smoke, which penetrates the pores of the pottery. It was usually the object to produce black ware, but frequently the dark, common ware of the greater part of the United States and Africa seems to have been due to imperfect firing.

There is evidently as much skill necessary in baking the ware as in any other portion of the pottery art. Kilns or pits in the ground for firing ware may have been used in Peru, Mexico, Colombia, and other American centers of artistic pottery.

It is probable that by certain adventitious or accidental circumstances the American potters may have produced a vernis or glaze on an occasional object; however, glazes were perhaps not desired, as the porous character of the ware was its chief good quality, giving coolness to water, etc. With kilns, better fuel, giving stronger firing, there is no reason why the American potters should not have been able to fuse the slip forming an enamel, or on stoneware clay to have secured the vernis which precedes the glaze.

The color of pottery is usually due to the form in which iron exists in the clay and the thoroughness of firing. Iron in clay is nearly always in the form of a carbonate, which burns to a red oxide. When there is a silicate of iron the clay burns to cream color. Strong firing burns out carbonaceous materials.

In the course of this investigation the broad field of the origin of form and ornament could scarcely be touched.

It appears that the first stages of an art like pottery are marked with uniformity; then as specialization takes place centers of styles appear, until the higher advances are made in a region where environment and germane causes work together with man's adaptability for the attainment of the results.

Generally, in these collections two classes of pottery can be distinguished, (1) Cult pottery and (2) domestic pottery.

## THE POTTERY OF MEXICO.

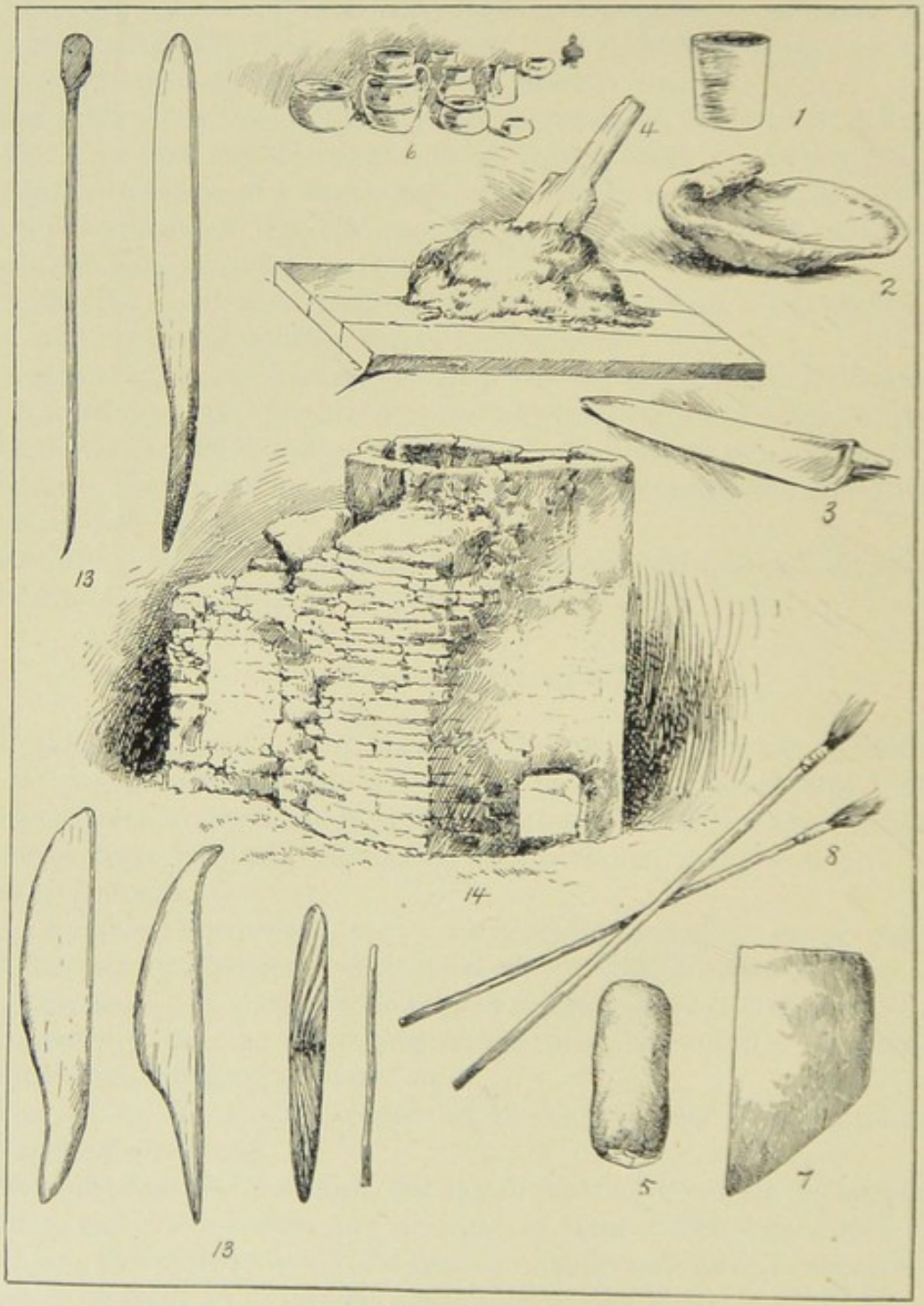
In the great collection of Mexican antiquities exhibited in Madrid there was a vast quantity of pottery, as well as stone and metal. These objects, under the care of Dr. Troncoso, of the Mexican National Museum, were grouped ethnically, and included many tribes of the Mexican stocks.

As a general impression, the pottery seems to belong to one great culture area, with slight differences among the Mayas, Aztecs, etc. The two classes of pottery with regard to function can be distinguished here, namely, pottery for domestic and other uses and cult pottery, images, "idols," masks, vases, etc.

The art of the modern potter of Mexico may tell us something of the ancient processes.

The manufacture of modern pottery in Mexico is usually in the hands of men, and there is also now division of labor. The wheel and kiln are used, but pottery in a great variety is now made as in former times; there is, indeed, an unbroken continuity of the potter's art in Mexico without deterioration on the whole. The ancient art can thus be reconstructed by the present art.

A detailed description of the processes of the Indian potter of Guadalajara and the collections made by Dr. Edward Palmer will cast much light on this subject.




Figs. 1-8, 13-14.

APPLIANCES OF THE MODERN MEXICAN POTTER. GUADALAJARA, MEXICO.

From specimens in the U. S. National Museum.

The Indians of Tonalon are celebrated for the manufacture of the finer water bottles, drinking cups, animal and fruit forms.

The clay is of two varieties: one black and tenacious, from the marshy places; the other, a gray, friable, kaolinic clay, from the high river banks. The clay is dug out and carried to the pottery, dried, and the two kinds mixed in equal proportions, as the white clay is too loose by itself and the black clay too sticky.

After the clay is ground very fine on a metate and sifted, water is added and the mass worked with the hands on a slab of mesquite wood, a stone implement being also used to aid the hands. Practice enables the potter to tell when the clay is ready for use.

The ware is built up of sections shaped over a form, showing that the Mexican pottery is in a transition between coiling and modeling.

In the operation the potter takes a piece of clay large enough to form the body of a simple cup (fig. 1, Pl. I), lays it on a slab of stone, and flattens it out with the flattener (fig. 2, Pl. I). The form is then encircled with the sheet of clay and the surplus at the joint cut away with an old knife blade (fig. 3, Pl. I). The seam is obliterated by dipping the fingers in water and rubbing the surface. Another flat piece of clay forms the bottom, and is joined in the same way. Then the surface is paddled with a wooden paddle (fig. 4, Pl. I) to make the clay firm.

The piece is then gone over with the fingers, taken off the mold, allowed to dry, and slipped with white clay, called "sweet earth," mixed with water, because it imparts a sweet taste to water, for which the Guadalajara pottery is famous.

When dry enough the ware is rubbed inside with smooth stones and burnished on the outside with a piece of iron set in a clay handle (fig. 5, Pl. I).

If a pitcher (fig. 6, Pl. I) is to be made, the body is formed as above, the form taken out, the hand is inserted and a roll of clay for the rim attached. The pot is then twirled on the hand and the clay worked with moist fingers to the required shape and thickness. The surface is beaten with the paddle and smoothed with a piece of leather or sheet iron (fig. 7, Pl. I), polished, dried, and painted with brushes of dog hair (fig. 8, Pl. I).

The red and black paint are native colors, and the white is clay. To make the pottery dry evenly it is put into a pit, covered with a mat. This casts light on the ancient procedure. After the ware has dried it is burned in kilns like that described as used by Pantaleon Panduro.

Pantaleon Panduro, an Indian, is the most skillful of the Guadalajara figurine makers. He is an adept at modeling from life, and his figures and groups are much sought after.

The clay used by the figurine makers is the same as that described. The heads or bodies are made either solid or hollow, and the faces squeezed in a mold (fig. 9, Pl. II). The finished heads are shown in figs. 10 and 11, Pl. II.

The bodies are built up in sections and the clothing is made of sheets of clay tried over a form (fig. 12, Pl. II) and applied. The whole is touched up with modeling tools (fig. 13, Pl. I) adapted for various uses, burned in a kiln (fig. 14, Pl. I), and painted with various native and acquired colors mixed with the milk of the mulberry tree, Morus celtidifolia. A portrait bust by Pantaleon Panduro is shown (fig. 15, Pl. II), his workshop (fig. 16, Pl. II), and a group of the Guadalajara ware (fig. 17, Pl. II).

The paste of ancient Mexican pottery, as a rule, is quite uniform and rarely gives evidence of a coarse dégraissant. Experience has taught the modern workmen that the admixture of different kinds of clay answers all the purposes of tempering, as did the shell, mica, etc., of the ancient potters. Dr. Berendt has also found wash gold in the paste of Yucatan pottery. The Maya ware burns to various shades from red to slate color. These colors are found in all localities, and are due to the firing and components of the clay.

In the construction of ware the Mexican potters were conversant with molds; some shallow, like stamps, for the front portion of the figurines, masks, etc., and others for the entire vessel. A portion of a mold believed to be from the Nahua area was exhibited and is the only example in this very large collection. This extremely rare object is the only ancient mold the writer has seen. No examples of coiling were found. It is probable that the small, plain vessels were made in sections as described in the manufacture of Guadalajara pottery. The complicated vases were undoubtedly so made, and the modeled or molded portions luted on and the finishing touches applied.

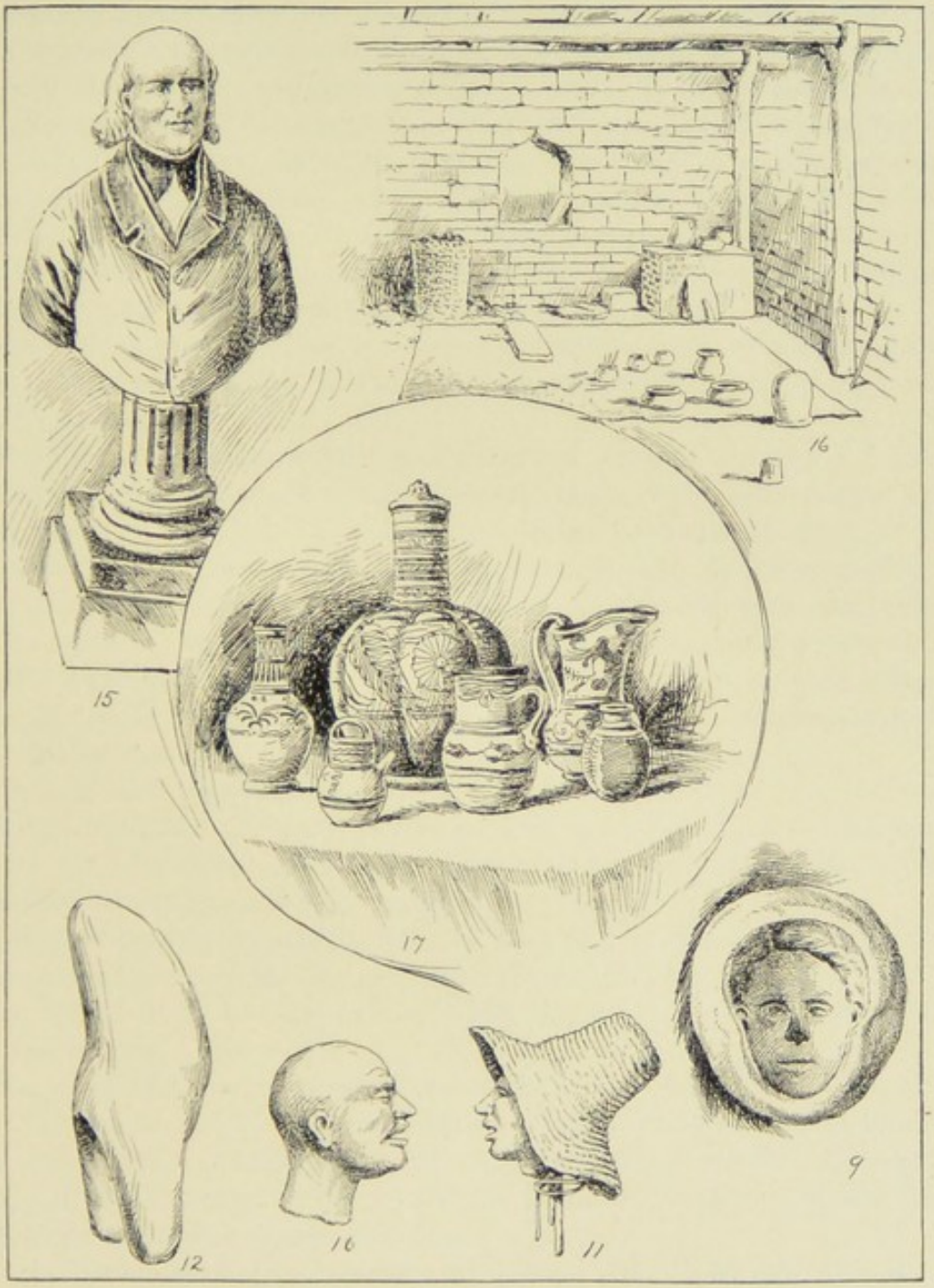
The surface of Mexican pottery was finished by polishing or burnishing with tools, and the painted ware was sometimes polished. The natural surface was sometimes left without tooling. The slip is often missing, having been dissolved away by long burial. The marks of finishing tools may be noticed.

The common pipe-clay slip or paint was known all over Mexico. On the small cult figures this slip was applied with a brush, and probably formed the base for the addition of colors used for painting. No genuine glazes have been observed, and if a finish of resin varnish was applied to the ancient ware it has disappeared with time.

Dr. Berendt mentions a vase dug out at Jaina, on the Gulf coast north of Campeche, which was varnished and painted.[1]

The ornamentation by impressions in the paste are undulations, triangles, stars, crosses, and frets, especially in the Tecos group. The art of inlaying, or forming a mosaic of bits of shell, etc., pressed into the paste, as practiced by the modern potter of Morelos, seems not to be ancient. The bulging or indenting of the paste is not found in the old ware.

[1] Hartt. Pottery among Savage Races. Amer. Nat., Feb., 1879, p. 90.




Figs. 9-12, 15-17.

APPLIANCES AND PRODUCTS OF THE MODERN MEXICAN POTTER. GUADALAJARA, MEXICO.

From specimens in the U. S. National Museum.

Stamps were freely used, and many fine examples of cylindrical stamps to be rolled on the clay, like the Assyrian seals, have been found. There are also flat, round, and oval stamps with handles.

The majority of the pieces are painted in the usual red, white, and black pigments of the primitive artist. In Mexico for the first time appears a green color on pottery. A number of Tarasco vases are painted with superposed colors, as green on red, and the latter on paste color, yellow on red, or green on yellow on red. If this green is the copper pigment used by the Zuñi and Moki it must have been applied on the baked ware, as it would burn black. There are a number of affinities between the Mexican ware and the ware of the Pueblos of the United States, of which Dr. Fewkes made a study.

The designs are animal or symbolic, and perhaps the colors are also symbolic, and no botanical patterns are found.

There is a great variety of forms of vessels, from domestic plates, bowls, jars, bottles, etc., to the complex cult vases, funerary urns, etc., which are familiar.

The form of the jicara fruit was observed among the Tecos. There is a tendency to angularity in some of the vases, which shows that they were made in sections. The Zapotecs seem to have excelled in the manufacture of the complicated vases. In the Spanish section a very interesting case of archæological frauds from Mexico was exhibited, and in it were many grotesque vases. For many years these frauds have been cunningly made to deceive travelers, so that a Mexican grotesque vase or other archæological object requires careful authentication.

Vessels with rattles in the feet are frequent in Mexico.

Small figurines are very numerous and give a distinctive character to Mexican pottery. The finest figures come from the Nahua area. The Zapotec masks are very good.

Pipes of pottery appear in Mexico for the first time. In the Troano manuscript some of the figures are represented smoking the tubular cigar-holder type of pipe of the Zuñi, Hupa, and other tribes of the United States.

Censers like those of Costa Rica in the shape of a ladle are found in the Tarasco area. There is a number of musical instruments in shell and other forms. One of these from the Tarascos gives the eight notes of the diatonic scale. Pottery animal fetiches like those of the Zuñi and Moki are found among the Tecos.

It is hoped that Dr. Troncoso will soon publish an account of the splendid antiquities now in the Mexican National Museum.

## THE POTTERY OF COSTA RICA.

Perhaps the largest and most complete archæological collection exhibited in Madrid was that of Costa Rica. There were several thousand pieces of pottery, arranged in the following classes: Pans, cooking

pots, jars without supports, incense burners, vases with handles, crocks, tripod tazzas, vases without reliefs, trays, stamps, images, whistles, and rattles. These were carefully catalogued, localized, and related to the Indians formerly living on the areas where the pottery was collected.

Señor Anastasio Alfaro, director of the National Museum of Costa Rica at San José, deserves great credit for the way the Costa Rican specimens are in hand and for the illustration in every possible manner by maps, paintings, photographs, etc., the derivation of the specimens following the most approved museum methods.

The frequent failure to see the relation of buried art works to the tribes historically known to have occupied the spot gives rise to a great deal of confusion and misapprehension. It is pleasant to see the new leaven of scientific candor working in the science of archæology.

The following notes on Costa Rican pottery by the late Professor Gabb are interesting:

> The pottery now made is the coarsest and poorest I have ever seen. None of the finely made and elaborately ornamented vessels found in the huacas or graves are made at present. The use for half a century or more of foreign cast-iron pots and kettles has restricted this industry, and possibly helped to injure the character of the work. But two or three vessels taken by me from the Tiribi graves certainly not less than 50 or 60 years old are in no respect superior to those made at the present day. Native earthenware is now only used for receptacles for chicha. The jars are large, say from 10 to 20 gallons capacity, the form is very simple, the workmanship is rough, the clay is coarse and badly mixed, the burning is almost imperfect, and they are always without the slightest attempt at ornament. The jars are molded by hand, the clay being added spirally and molded by the fingers and trimmed with a smooth stick, in exactly the same manner as I have seen done by the negro women in Santo Domingo. After a certain amount of drying they are burnt in the open air in a fire of sticks heaped over them. Each jar is burnt separately.[1]

The general color effect of Costa Rican ware is red or terra cotta, the paste burning rather evenly. In No. 3060, a bowl from Aguacaliente, from which the slip has been partially removed, the paste shows white granules, most probably ashes, which was very commonly incorporated with the clay in Central and South America as a dégraissant. The ash from bark or climbing plants yielding most silica was preferred.[2] In the common Nicoya ware the paste is coarse with broken rock, while the finer ware has a homogeneous paste, the size and purpose of the vessel determining the matter.

Coiling was practiced by the ancient Costa Rican potter, as by the present Indians of the country. This is evident from the large burial jars. The multitude of small funerary cups, spoons, etc., do not show coiling, and it is a question in the writer's mind whether coiling was practiced or necessary in very small objects. The hemispherical pots, Nos. 6986 to 7217, from Nicoya (?), apparently bear wheel marks. No molds were used, and the modeling is generally rough. Stamps of baked clay were used. The grotesques were not molded or stamped.

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[1] Wm. M. Gabb, Indian Tribes and Languages of Costa Rica. Trans. Amer. Philos. Soc. Phila., Aug. 20, 1875, p. 512.

[2] C. F. Hartt., Pottery among Savage Races. Amer. Nat., Feb., 1879, p. 81.

In many cases the Costa Rican pottery is not burnished, but in objects of taste it was invariably practiced either upon the slip or the body. The occasional pieces of black lustrous ware were finely burnished. Many polishing stones were exhibited. As a rule vessels are finished as well on the inside as on the outside.

As in Nicaragua, cream-colored slip is common in Costa Rica. In the Nicoya vases the slip was evidently put on with a brush; this was perhaps the method used everywhere, as no evidence has been procured of a vessel plunged in slip pursuant to modern methods. The slip must primarily be regarded as paint, and later as a means of getting a background for relief of colored ornamentation as well as a fine smooth surface over the inequalities produced by shrinkage in baking.

There is no evidence of resin or varnish in connection with the finish. A small image, No. 5483, has every appearance of having been glazed.

Quite a variety of methods of ornamentation are found on the pottery of Costa Rica. The familiar methods of incised, punched, scratched, and applied ornament are common on the Nicoya ware. The crude ware of the Guetares has punched ornamentation. In modeled portions of the Aguacaliente ware the eyes, teeth, ears, etc., have been punched with a stick.

There is scarcely any evidence of the use of stamps, though many stamps have been found.

The fine ware is painted in red and black over a cream ground. This is the method pursued in the splendid vase No. 3202 (see Pls. III and IV), from the peninsula of Nicoya.

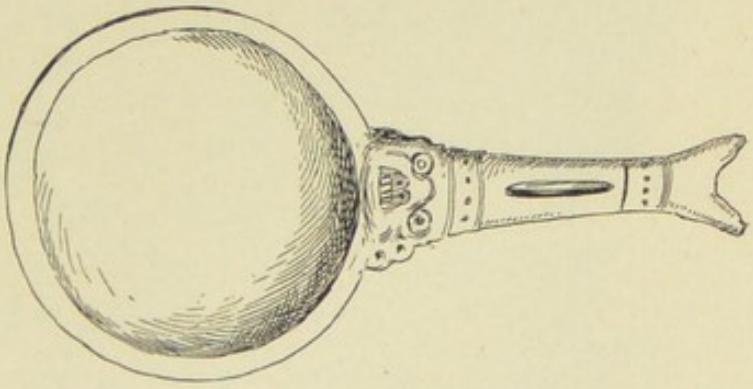


Fig. 18.

"INCENSE BURNER."

Huacas of the Guetaro Indians, Costa Rica. Arellano collection.

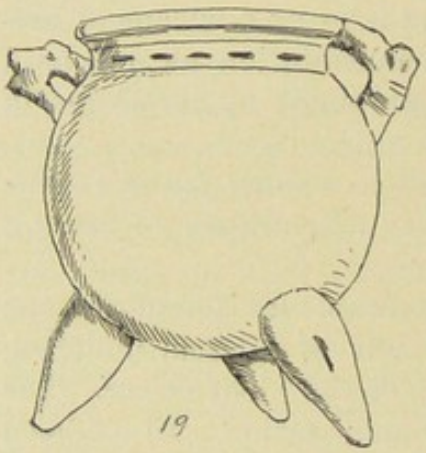
Notably in a few instances red vases have been ornamented by the application of thick slip in definite patterns. This, when burnished, gives a pretty, slightly raised or embossed surface, as in the Hindu lacquers. This method applied to pottery is unique and shows great originality.

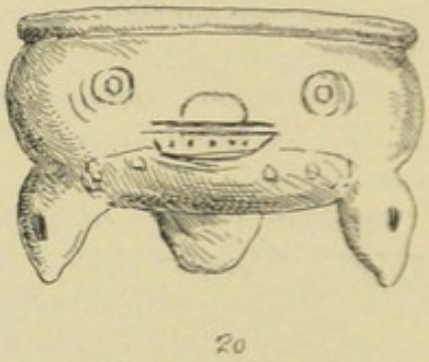
Animal heads, more or less easy of determination, are applied to vessels, and the "apple pie," or scalloped border, is common.

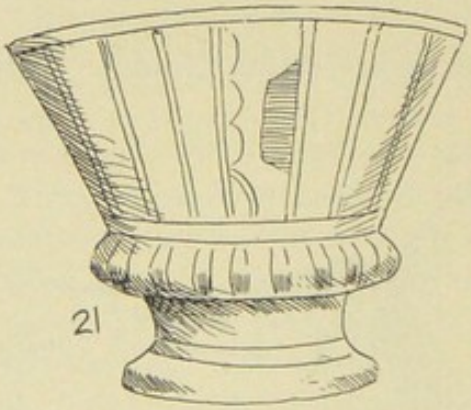
The most common forms observed in Costa Rica are small hemispherical bowls and small ladles called incensarios[1] (fig. 18), but in

[1] See p. 345.

only one of the latter has any trace of fire been found. The small objects were funerary. A list of the forms has already been given, which shows quite a variety (figs. 19, 20, 21, and 22). There is a number of remarkable globular pottery whistles, or flutes (ocarina), in form of animals; one about 6 inches long by 4 inches in diameter, with four holes and mouthpiece, gives note C closed and then D, E, F, and F sharp (fig. 23), specimen No. 32, Arellano collection. Another small ocarina has the form of a bird (fig. 24).







Figs. 19-21.

TRIPOD AND MORTAR-FORM VESSELS OF THE GUETAROS. Fig. 22. PAINTED JAR OF THE CHOROTEGOS.

Costa Rica. Arellano Collection.

The finest object of Costa Rican pottery is the vase No. 3202. It is of fine paste, with cream-colored slip painted red and black. It has the figure of a salamander on one side. (Figs. 25 and 26, Pls. III and IV.)

The vase merits description. The shape, it will be observed from the figure, is that of the jicara mounted upon three almost hemispherical feet, which are hollow and contain sounders. The body of the salamander is in low relief, while the head projects from the side, being entirely in the round. The artist has applied the salamander in a




Fig. 25.

DECORATED VASE. (FRONT VIEW.)

From the Huacas of the Chorotego Indians, Peninsula of Nicoya, Costa Rica. National collection.

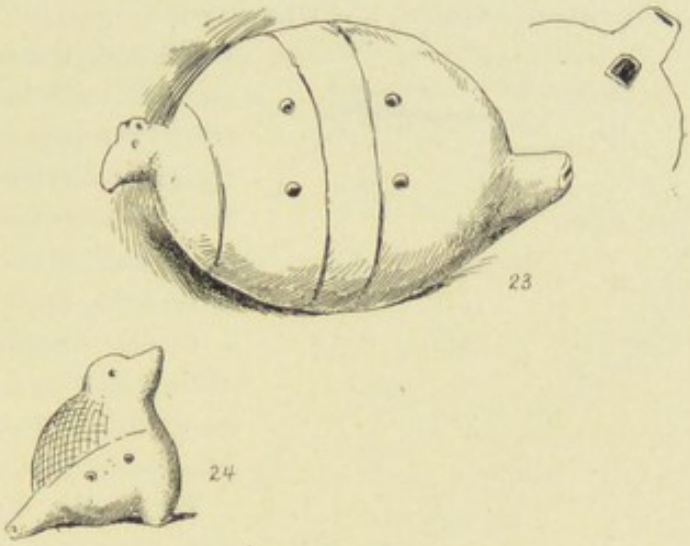


Fig. 26.

DECORATED VASE. (REAR VIEW.)

From the Huacas of the Chorotego Indians, Peninsula of Nicoya, Costa Rica. National collection.

very spirited way, with due observance of perspective. The ornamentation is applied in bands around the upper third of the vase, which is 25 cm. high, 20 cm. in greatest diameter, and 11½ cm. at the mouth.




Figs. 23 and 24.

POTTERY WHISTLES. (a) DETAIL OF MOUTHPIECE OF FIG. 23.

Costa Rica. Arellano Collection.

Though this vase is from the peninsula of Nicoya it was probably made in the neighboring island of Chira, whose caciqia or galpon was vassal of Nicoya, and where, according to Oviedo in his Historia general de las Indias, Tome IV, page 105, "se hacia muy hermosa loza de platos y escudillas e cantaras e jarros e otras vasijas muy bun labradas, e tan negras como un fino terciopelo negro, e con un lustre de un muy pulido azabache; y yo truxe algunas piezas de esa loza hasta esta ciudad de Santo Domingo de la isla Espanola, que se podian dar a un principe por su lindeza, e del tallo e forma que se les pide o se las mandan haeer a los indios asi las hacen."[1]

The hourglass supports for round-bottomed jars are curious. There are great numbers of these from Nicoya (fig. 27).

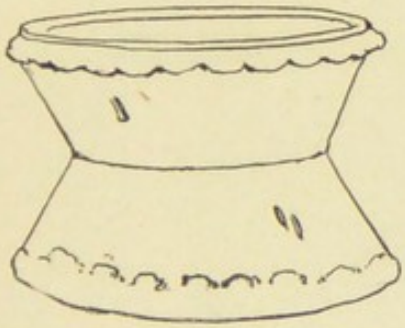


Fig. 27.

REST FOR ROUND-BOTTOMED JARS.

Nicoya, Costa Rica.

## THE POTTERY OF NICARAGUA.

In examining the pottery of Nicaragua it is found that the paste is usually mixed with a dégraissant of sand, or broken fragments of crystalline rock, burning to a light-red color. In the common, heavy ware the admixture of sand renders the body stone-like. The dark gray and black ware seems to have been produced by smothering the fire in burning, as is practiced in Santa Clara and some other Pueblos of New Mexico, in making black, lustrous ware.

There is very little to show the methods pursued in building up the Nicaraguan pottery. From the small size and comparatively simple character of the 1,000 pieces displayed, it may be presumed that they were constructed entire by hand from lumps of clay rather than by coiling.

Considerable skill in modeling is evidenced in Nicaraguan pottery; the handles of animal heads and the grotesque supports to the tazzas

[1] Peralta y Alfaro, Catalogo de Costa Rica. Madrid, 1893, p. 78.

are well executed. A kneeling figure of a woman (No. 355) is noticeably well modeled.

There is no evidence that molds were used, and the collection does not contain stamps, nor was any stamped pottery shown from Nicaragua.

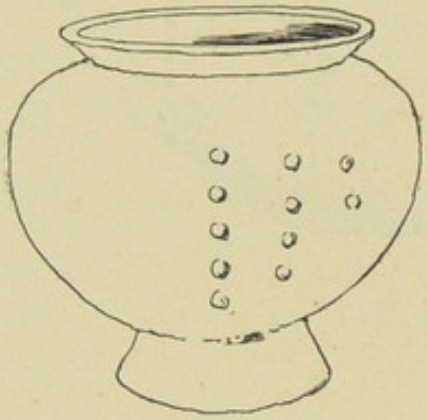


Fig. 28.

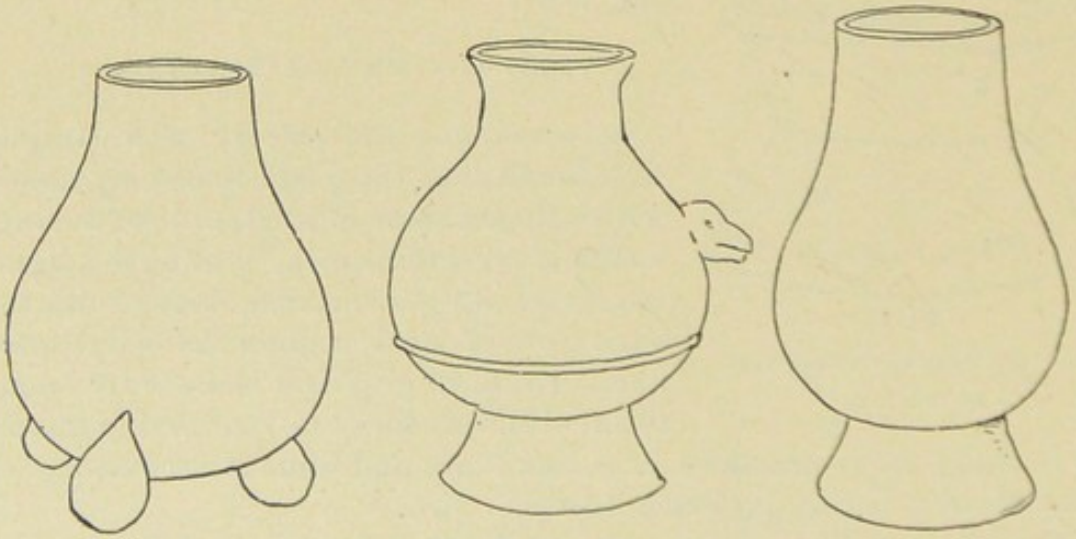
VASE WITH APPLIQUE BOSSES.

Nicaragua.

The ware was finished by smoothing the surface with stones, etc. The burial jars from Ometepec and other places have been roughly curried with the finishing tool. Some pieces received no further treatment, and most of the ware after baking was prepared for decoration by the application of a thick, cream-colored slip of pipe clay. When dry this was polished, presenting a good background for the red and black pigments used for decoration.

Tazza No. 69, with a bright-red ground, has the appearance of being glazed by firing. It is from Alta Gracia.

The ornamentation in or upon the body of the ware is either painted, incised, or modeled. No. 379, a bowl of common ware, has a border of pairs of double-radiating incisions, like the arms of the letter V, around the rim. Some bowls have the design inside incised through the white slip, resembling the ornamentation of the jicaras or bowls made from the gourd tree.



Figs. 29, 30, and 31.

JICARA-FORM VASES.

Nicaragua.

In a few cases the body of the vessels is ornamented by indenting the paste, as in the modern pottery of Cartajena, Mexico, and sometimes an "apple-pie" fluting is worked around the edge by the fingers. A number of specimens are ornamented by bosses of clay upon the exterior (Barbotine) (fig. 28).

Modeled heads of birds and animals, rather true to life, are luted to the sides of the pottery. A few tazzas upon a rather high, cylindrical, flaring foot have the latter lightened and ornamented by triangular openings.

Nicaraguan polychrome ware is cleverly painted in conventional or geometric designs with fine frets and borders. These designs are perhaps reduced from animal forms, like those which Mr. Holmes has admirably traced out on the Chiriqui pottery.[1]

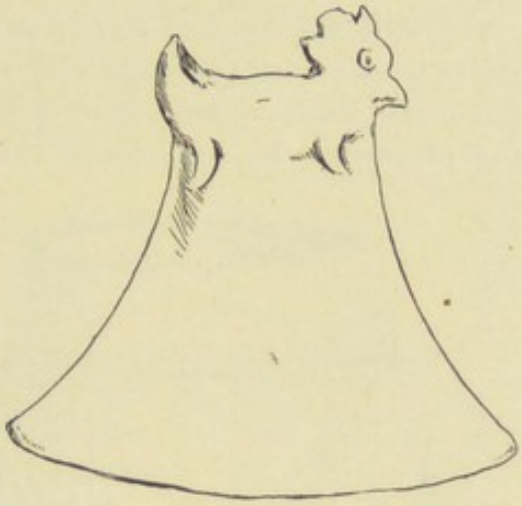


Fig. 32.

BELL-SHAPED OBJECT.

Nicaragua.

The preponderance of animal and the absence of plant forms in all the Central and South American pottery is remarkable. The colors are a lively red, black, and cream, laid on very accurately, and were mineral earths mixed with water. The artist has lavished his highest skill upon the painting of the tripod tazzas, as he had in giving the form and modeling, and the result is superior.

The almost universal globose and hemispherical bowl, which seems to have been the effort of the earliest potter, is common in Nicaragua. The bowl, mounted upon a bell-shaped base, forms a piece having the appearance of the Korean and early Japanese tazzas. The type of vase is pear-shaped (jicara form), mounted on a flaring base, or sometimes on three short feet (figs. 29, 30, and 31). The shallow plates, with rim mounted upon the grotesque legs, are the best of the Nicaraguan ware. The curious sock-shaped burial jars are also found in Nicaragua.

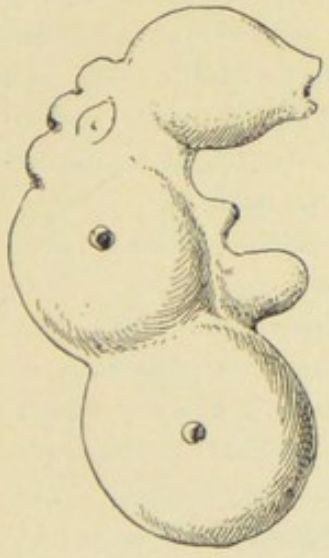


Fig. 32. a

POTTERY WHISTLE.

Nicaragua.

Perhaps the most remarkable pieces of pottery from Nicaragua are the bell-shaped objects. They are always in red, unslipped ware, decorated with applique bosses closely imitating the old-fashioned bells. Their use is unknown. Dr. Carlos Bovallius exhibited one of these curious bells, which was found during his explorations in Nicaragua in 1890. No. 182 (fig. 32) is a bell-shaped tapadera or cover of black pottery. On the apex is a figure of some animal, well modeled. In general appearance it resembles a miniature Alaskan hat. Fig. 32a is a neatly made pottery whistle.

[1] Sixth Annual Report Bureau of Ethnology, 1884–85, p. 171.

The localities for Nicaraguan pottery are as follows: Solentiname, Alta Gracia, Moyogalpa, Huaeas de Rivas, Costa del Pacifico, Zapatera, Ometepe. Alta Gracia seems to be the most prolific.

## THE POTTERY OF GUATEMALA.

It is obvious upon examination of the Guatemalan pottery that the paste varies with the intention of the vessel, so that the potter must have exercised considerable skill in the selection, mixing, and tempering of clays. It is no doubt the handling of the materials, as well as the availability of good clay that have determined the centers of superior pottery.

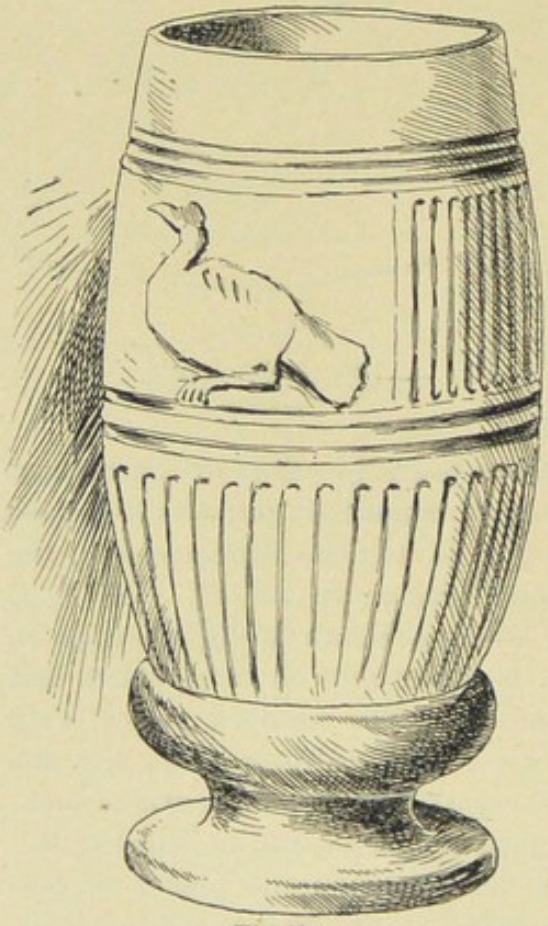


Fig. 33.

MODERN CARVED JICARA MOUNTED IN A WOODEN REST.

Guatemala.

The best ware in Guatemala, which is attributed to the Quichés, evinces care in the selection of the clay. In the grotesques the paste has burned gray, dark brown, and almost black, like those of Mexico. The vases and bowls are of the finest terra cotta, sometimes burning to reddish brown with copper hues, as in No. 177. In a few pieces the paste contains small white particles which are probably ashes or broken shell. The "incense burners," or vessels in which resin has been burned, are of very coarse crucible paste, evidently prepared for resistance to heat.

The examination of over three hundred pieces of pottery from Guatemala does not bring out whether coiling was practiced or not. The specimens were small, however, and the careful finish obliterates traces of coiling. The Quichés knew the use of molds and were good modelers. It is apparent that molds were used in Mexico, Central and South America, thus giving them an extensive range.

Most of the ware was tooled and burnished; the natural smooth surface was left on the "incense burners" and upon stamped vases. No polishing stones were exhibited. A very fine cylindrical stamp of stone, 3 inches long, pierced axially and well cut into frets was found in the Province of Quiché. There are a number of evidences on the ware of the application of stamps, some of them of extreme beauty.

Some of the Quiché idols bear fine striations, which lead one to suspect that the surface has been finished with a coarse brush.

Several vases have been covered with a creamy or red enamel-like slip. Slipping was practiced usually on the finer wares intended for decoration in color. The tripod fluted vase of Quiché ware, No. 5, has a gray, lustrous enamel, which causes it to resemble stoneware. The paste could not be examined but the ware rings. It is probably one of the few examples in which accident rather than design conspires to fuse the slip.

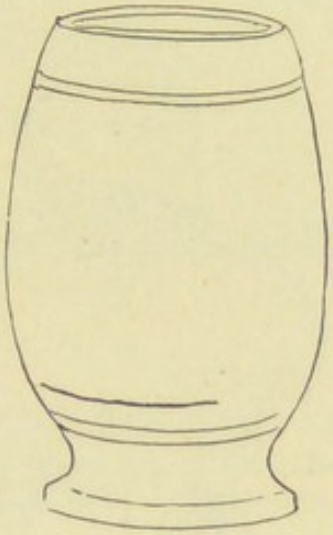


Fig. 34.

JICARA FORM IN POTTERY.

Guatemala.

The coarse ware is often incised with a crude ornamentation of short furrows and numerous projecting spines and broadly modeled faces (masks).

The fine ware is very well painted in red and black on creamy ground. The subjects are human figures, geometries and the cartouch-like Maya hieroglyphics called katuns. One splendid Quiché jar (No. 23), 7 inches high and 5 inches in diameter, is of fine red paste covered with cream enamel-like slip, painted with human figures and katuns in lively red, outlined in black. The jar sits in a similarly painted shallow dish supported on three tubular legs. Vase No. 75, of jicara form, is decorated with two rolled-out impressions of a complex stamp which was about 4 inches in width. The subject is two human figures, and the stamp as represented in the impression is the finest piece of ancient fictile work with which the author is acquainted. This vase is now in possession of the museum of the University of Pennsylvania and will be figured.



Fig. 35.

INCISED FIGURE AND CARTOUCHE CONTAINING KATUNS.

From a Quiché-Maya vase. Guatemala.

The finer vases in Guatemala take the globular form of the jicara, which are familiar objects from Mexico and Central America at present, where they are worked into chocolate cups, carved or etched on the outside (fig. 33). In the region of the "gourd tree" these cups have been used from time immemorial, and it is interesting to observe that the chocolaterias of Spain preserve this form, and that the old stone metates are used in that country still for grinding cacao in chocolate making.

Specimen No. 75 (fig. 34) represents a jicara sitting in a discoidal holder or foot like those used in Guatemala.

A few urn-like forms with handles and grotesque Quiché jars showing the marks of potters' tools are found. The gem of the collection is a large jicara vase painted in red and white, with figures of katuns or hieroglyphics. Dr. Brinton pronounces this the finest vase in existence, and the most southerly occurrence of the Quiché-Maya katuns. Another fine piece of dark-brown ware has a rectangular bas relief apparently cut out, representing a human figure with headdress, necklace, cincture, etc., kneeling on a stool. In one corner is a cartouch containing three katuns (fig. 35).

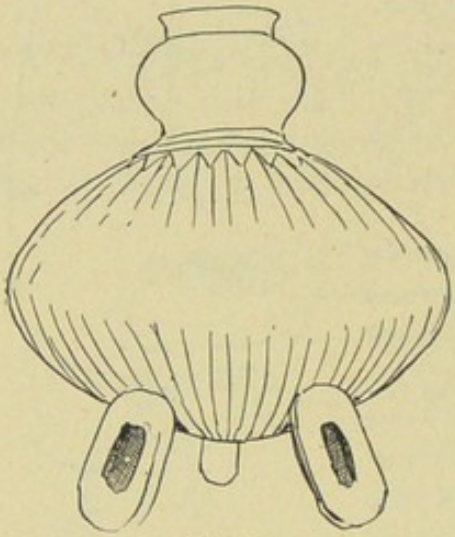


Fig. 36.

FLUTED VASE OF GRAY WARE.

Quichés, Guatemala.

Another jicara katun vase bears two horizontal bands with katuns. It is 5 inches high; from Escuintla.

There is a pretty globose fluted vase of gray ware, mounted on three feet (fig. 36). The feet are hollow, with an oval slit; each contains a small ball. It is Quiché work.

The incensarios are basins of equal height and diameter, bearing a human face on one edge. The exterior is regularly covered with long spines, giving them a curious appearance. All bear evidence of burning resin. Some of them have lids—a unique occurrence, as far as the writer knows, in ancient American pottery. No tazzas with perforated feet like those of Ecuador, Colombia, etc., are found in Guatemala.

The Guatemalan potter modeled idols more or less rudely by the aid of stamps and molds. Two trumpets of terra cotta, which look like Quiché work, are noteworthy. They consist of four tubes, each having a slit and all blown by one mouthpiece, having a septum, which conducts the air on either side to a pair of tubes. The sound is made by the air moving across the slit in front like some organ pipes (fig. 37).

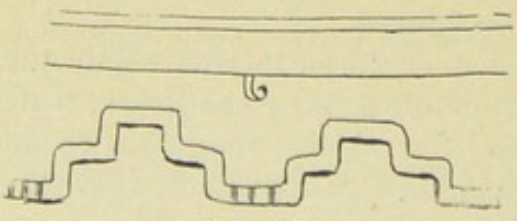


Fig. 38.

ORNAMENTED BORDER OF STAND.

Huehuetenango, Guatemala.

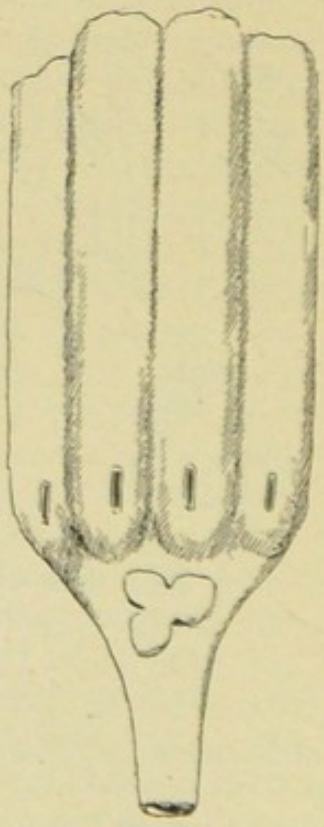


Fig. 37.

TRUMPET WITH FOUR TUBES.

Guatemala.

From Huehuetenango there is a flat, circular stand supported upon three legs. It is bordered with a stepped band like the Zuñi cloud ornaments (fig. 38). A finely modeled head is fastened to the edge.

### LOCALITIES OF GUATEMALAN POTTERY IN THIS COLLECTION.

*Center.*—Guatemala, Sacatepegue, La Majada, La Antigua.
*South.*—Escuinta, Amatitlan, Santa Lucia.
*North.*—Peten, Alta Verapaz, Quiche, Coban.
*West.*—Huehuetenango, Quetzaltenango, cities of Chiapa and Almolonga.

### THE POTTERY OF COLOMBIA.

The richness of the exhibit of Colombia in gold was paralleled by its richness in pottery. The commissioners secured loans of all private collections possible and exhibited superb photographs of other collections in Colombia.

The pottery is from the rich areas of the artistic tribes of the Chibchas, Quimbayas, Chiriquis, and from the provinces of Antioquia, Cauca, and Tolima.

Similar grades are observed in the pottery of Colombia as in the other countries treated of in this work, the paste being mixed or tempered to suit the intention of the ware. The paste in the commoner vessels of the Quimbayas is coarse, red, filled with broken rock and shell, or ashes, and the ware is heavy, dark, and smoky in appearance. All of the Colombian ware which was seen on broken edges, or on the natural surface, is tempered with broken rock or sand.

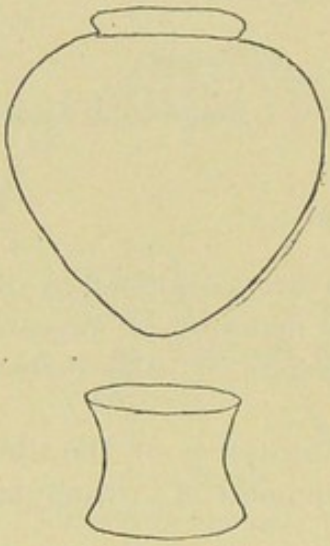
The finer ware has a smooth, apparently unmixed paste, varying in color from reddish brown to fine yellow.

The writer could not find undoubted evidence of coiling or molds in the construction of Colombian pottery. There is a tendency in such collections to pass over rude or broken specimens, which give an insight into the pottery art, and to exhibit the striking and perfect pieces. There is a strong presumption in favor of the coiling and molds, which were undoubtedly used in the gold objects and might well have been used in the seated figures and certain maskettes. Luting on of handles and other parts was practiced.

It would be interesting to come upon the site of an ancient pottery and excavate it, as Mr. Holmes has the quarries, or as the mounds have been explored. A reason stands in the way of finding such a site, for the manufacture of aboriginal pottery was an individual craft, usually followed by the women, who performed all the operations from digging the clay to decorating the baked ware. The prevalence of defined forms and ornamentation, as well as certain qualities of ware in defined areas, would show unanimity of tribal or areal custom or practice;

intercourse would bring in other forms. In countries with a settled civilization, like Mexico, for instance, we might expect to meet with division of labor, and perhaps the site of an ancient pottery could be discovered.

The same procedure as to surface finish of pottery obtained in Colombia as in other localities. Polishing before baking, smothering some objects in order to get a black surface, and the smooth ware as it came from the hand of the potter are all observed in Colombia. The tool marks are sometimes seen, but usually are obscured by subsequent decoration, but in the ordinary Quimbaya ware the surface has been very roughly dressed down. No polishing stones were shown.



Figs. 39 and 40.

JAR AND CONICAL BASE AND REST FOR SAME.

Chibchas, Colombia.

The buff slip so common in American pottery, both modern and ancient, is found in Colombia. In this respect some of the Chiriqui pottery resembles that of Nicaragua. The light buff color of the Chiriqui and other ware often did away with the necessity of employing a wash of pipe-clay slip as a ground for decoration. In a very few cases the slip was red.

As a rule the ornamentation of Colombian pottery, like that of Ecuador, is in straight lines, entirely conventional, whether the ware is incised or painted.

A common method of ornamentation was by scratching the paste with a sharp instrument, these objects being unpainted. Sometimes short rows of dots form a network design.

The Polynesian pattern, which is a network of equilateral triangles, either stamped or incised, is common, and, as far as can be ascertained, is peculiar to Colombia.

Strings, bosses, or bits of clay were applied sometimes in an elaborate manner.

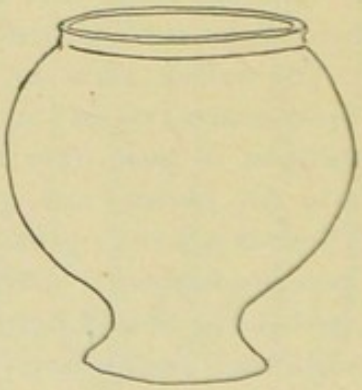


Fig. 41.

VASE WITH FOOT.

Colombia.

Raised lines of slip is a rare form of ornamentation here. The human face and body, frogs, birds, and other animals, enter with great profusion into the ornamentation of Colombian pottery, usually in relief. Triangular openings are cut out in the feet of some vessels or punched through. Rarely the walls of vessels were pressed out into low bosses, and the impress of geometric stamps is not noticed, however, on the Quimbaya or Chiriqui wares. Many very well cut stamps are found; most of those shown resembled the Assyrian cylindrical seals, though commonly larger. Others

were rectangular and a few had handles. Most of them were from Antioquia.

The painting is always in three colors—red, white, and black. Yellow appears in the paste, and the light slip has often tint varying from cream to gray. Many vessels are in simple white and black.



Fig. 42.
TAZZA, WITH PIERCED FOOT.
Colombia.

One is agreeably struck with the variety of ideas and composition of the antique Colombian potter, who has quite as good claim to taste as the potter of any other age or country. The great variety of form of Colombian ware makes it difficult to do anything more than to hint at the groups.

The imitation of natural forms, which appears to culminate in Peru, begins to be practiced sparingly in Colombia, where gourds and melons were exactly represented, as well as shells, birds, etc. The globose bowl, which is a gourd form, is not very common. There were a number of these from Chibchas, often with conical base (fig. 39). Supports for vessels of this character are found (fig. 40).

The bowls with a foot seem to grow out of this rest (fig. 41). One rather shallow decorated bowl of this kind from the Museo de Zea, in Medellin, is a beautiful specimen of elegant form, with small legs at the rim and the flaring foot with a double tier of cuneiform openings like the Korean (fig. 42).

There were many small elliptic cups from the Quimbayas. A number of small gravy-bowl vessels of dark incised ware, apparently soaked in oil, with traces of burning, might be called lamps. If so, they are unique.

Vases are very numerous and of great variety of form and ornamentation. Some are of human form, like those of Peru, with or without support. One jarlike vase, with two pairs of lugs and flat bottom from Antigua, is of perfect Hispano-Moresque form (fig. 43). It is engraved, and the height is 12 centimeters.

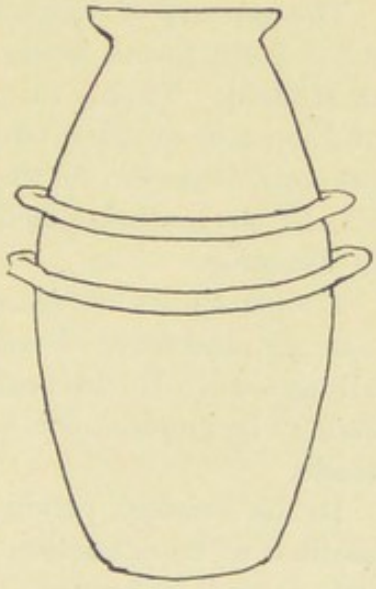


Fig. 43.
JAR OF HISPANO-MORESQUE FORM.
Antigua, Colombia.

A very pretty vase has the form of a bird, with whistle in the tail; a handle springs up from the head. It is Quimbaya. The device of putting small balls of clay in the feet of vessels to form a rattle is found in Colombia.

A curious hemispherical pottery vessel of the Chibchas has two lugs

and a bail, apparently imitating an iron pot (fig. 44). Another similar one from the department of Tolma has two lugs and the upper surface covered over, except a small circular opening (fig. 45).

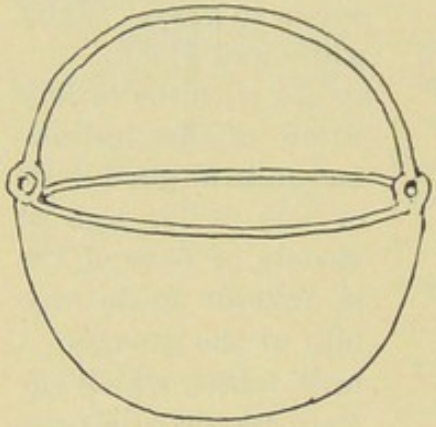


Fig. 44.

VESSEL WITH BAIL.

Chibchas, Colombia.

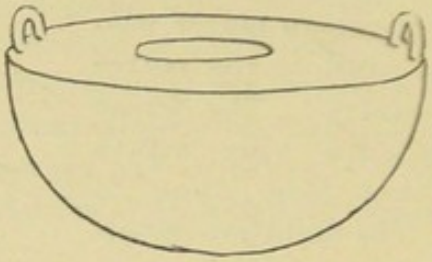


Fig. 45.

COVERED VESSEL, WITH LUGS.

Tolima, Colombia.

Double bottles and other forms resembling the Peruvian whistling jars are found in Colombia.

## THE POTTERY OF ECUADOR.

The pottery of Ecuador shows a great variety of remarkably graceful æsthetic forms, being superior to that of any other country exhibiting in Madrid. This is in harmony with what is known of the civilization of Ecuador at the Conquest and previously, the culture status being perhaps superior to that of any South American country. Antonio Flores, the historian, believes that the civilization of Peru had its origin in Ecuador.

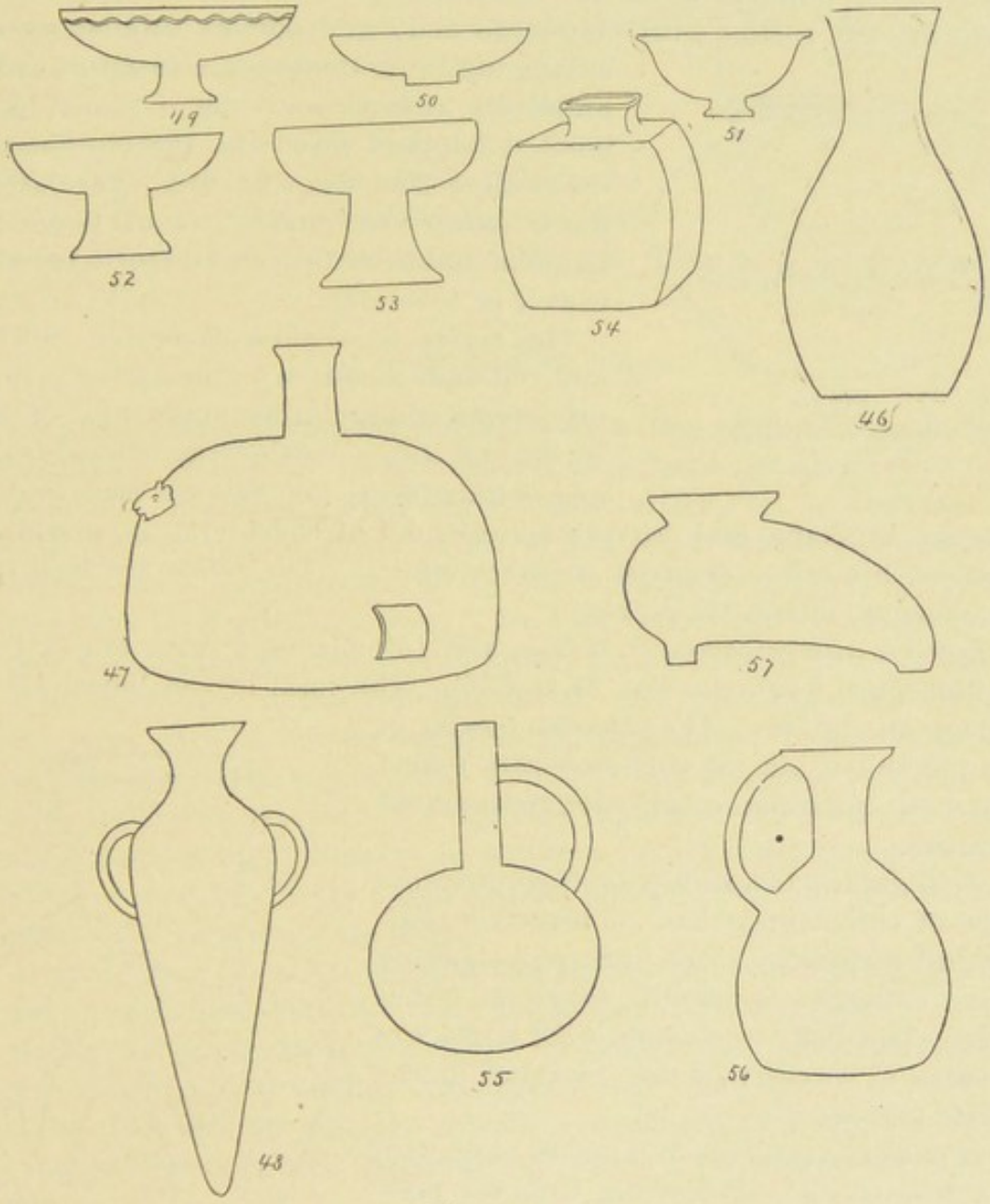
The paste in the common forms of Ecuador pottery is tempered with a large admixture of coarse sand, the ware on the broken edges resembling stone. In the better ware the paste is mixed with fine, micaceous sand. In general, the ware is dark brown or black, very thin, and well made.

In the finished product there is slight opportunity to ascertain the method of construction. There is little doubt that the method of coiling, so widely known in North and South America, was pursued in making the larger vessels. Some of the images show distinctly the marks of the molds like those of Peru, and the heads were made separately and luted upon the body, as were the handles and relief ornaments of the vessels.

In the main, Ecuador pottery has the dark lustrous finish, due to smoothing stones passed over the surface after the ware has become partially dry. A number of pieces, however, have a natural biscuit surface and remarkably thin. The Ibarra ware has a rich Samian red and is smoothly burnished.

Slipping was not practiced to the extent observed in Nicaragua or Costa Rica. Cream-colored slip was in some localities spread over the surface.

There were no stamps exhibited, nor does Ecuador pottery show the use of stamps. There were two carved cylindrical objects like Assyr-




Figs. 46–57.

FORMS OF EQUADOR WARE.

ian seals, which resembled stamps, but they were small, and were no doubt beads.

The common decoration is thin horizontal lines in red and white painted on the surface. The large pretentious vases are laid off in a diamond pattern, the lozenges alternately filled with vertical and horizontal lining, which is very pretty. A few of the pieces are decorated with small bosses of clay.

A series of remarkable cream-colored bowls from the province of Pichincha have the inner surface painted with conventional designs in black and red.

Sometimes well-modeled heads of animals are placed on the body of the large bottle-shaped vessels.

The most graceful forms are vases of good outline sometimes 2 feet high (fig. 46), bottles with very large body and narrow tubular neck, having lugs near the base; also one or more projecting animal heads (fig. 47), and long pointed amphora vases with two handles on the swell of the body (fig. 48). The latter piece seems very much out of place in Ecuador, but there is every reason to believe that it is American.

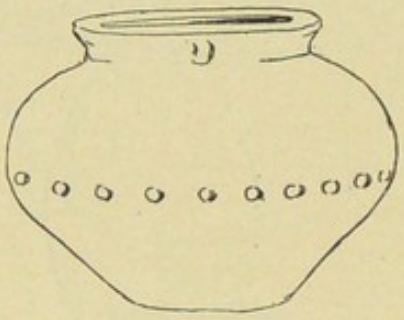


Fig. 58.

BOWL, WITH BOSSES.

Ibarra, Ecuador.

The series of shallow decorated bowls, and the same mounted on the flaring pedestal, having triangular openings (figs. 49, 50, 51, 52, and 53); a bottle with cubical body and flaring neck (fig. 54), are remarkably Korean in shape, and, leaving material out of consideration, would be without hesitation referred to that country. The bowls are from the province of Pichincha, Yaruqui.

Bottles with spheroidal bodies and tubular neck, with one or two handles, are frequent (figs. 55 and 56). The form of the burial jar is shown in fig. 57. The Ibarra bowls, of simple shape but of very smoothly tooled red ware of Samian color, were represented (fig. 58).

A singularly beautiful vase from the province of Chimborazo has an inverted pear-shaped body from which springs a tapering neck having two pierced loops on either side. The body is covered with a series of crescentic waves modeled in relief in the paste (fig. 59).

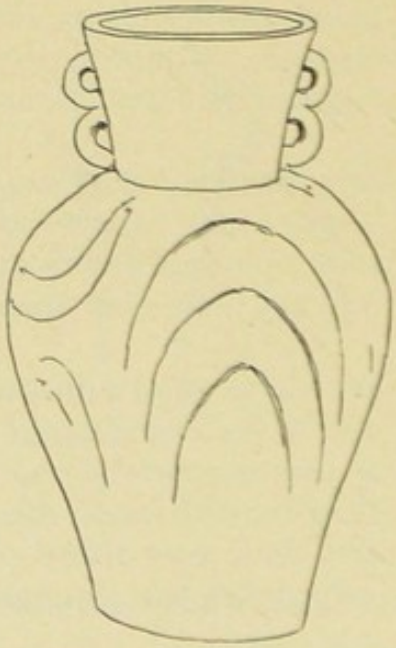


Fig. 59.

VASE.

Chimborazo, Ecuador.

A pottery vessel about 7 inches high, with slanting sides, is interesting from the presence of a tube leading down the side to the bottom and projecting about one-half inch above the rim. The tube communicates with the interior of the vessel, which was used for drinking purposes (fig. 60). There is a superb gold vessel of this description in the Peruvian collection belonging to the Spanish Government and a pottery one in the Guatemalan exhibit. The idea is that of the European "puzzle jugs," which had their origin in

India. The same device is employed by the Eskimo of the east coast of Greenland in their water buckets, where a stave is pierced vertically and a bone mouthpiece is inserted.

On the whole, Ecuadorian pottery rather tends to elegance of form than to the portrait or grotesque series and genre forms of Peru. It forms a distinct group within the boundaries of the ancient Kingdom of Quito.

Localities in which antiquities are found in Ecuador: Pichincha, Manabi, Canar, Azoques, Oninte, Imbabura, Loja, Cochasqui, Cayambe, Yaruqui, Guano, province of Chimborazo, Latacunga, Chordelig, Chimborazo, Pujili, province of Leon.

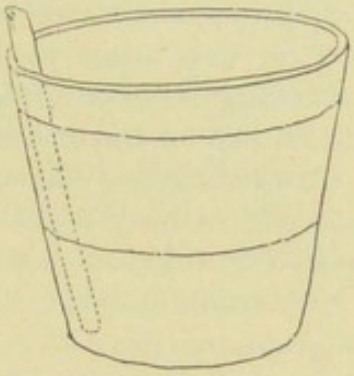


Fig. 60.
DRINKING VESSEL, WITH TUBE.
Ecuador.

## THE POTTERY OF PERU.

Peruvian pottery is among the most interesting relics of that ancient civilization. While the variety of form is perhaps not as great as that of Colombia or Ecuador, that which characterizes Peru is what may be called the portrait or genre series of bottles, of which thousands of examples have been perfectly preserved in the dry huacas of the coast. These have been called grotesques from our standpoint, but they seem rather to class themselves as portraiture, considering of course adaptation of the subject to the globular vessel, etc. This is brought out in those most curious bottles representing deformities arising from disease. Four of these objects from Chimbote and one from Trujillo represent Indian women with the alæ and septum of the nose and sometimes the upper lip obliterated by a disease which a Spanish physician assures me can be clearly diagnosed as lupus.[1] Another represents a woman with the feet eaten away.

A bottle from Chimbote shows a sick man with swollen belly. There is not the slightest doubt but that the modeling is intentional.

Bottle No. 42 is another instance of portraiture. It represents a figure of a Spaniard sitting crosslegged, with one hand on his knee and the other held up, with the index finger pointed as though speaking. He has a mustache and imperial and wears a coat ornamented with tigers.

The surprising variety of subjects and the appreciation of character shows that the Peruvian went to nature for his motives, and, like the cartoonist of the present day, but fixed in indestructible terra cotta, caught the salient features of his surroundings coming down

[1] See Habel, Archæological and Ethnological Investigation in Central and South America, Smithson, Contributions, XXII, 1880, p. 46, for a notice of the prevalence of lupus. Dr. Brinton tells me that it is much more likely to be syphilis than lupus, or perhaps leprosy. Lupus is a disease of the soft parts rather than of the bones. The specimen may be postcolumbian.

into the times of the Conquistadores and priests of the new God, leaving abundant material for the reconstruction of his remarkable history.

The high organization of society in Peru, as elsewhere, had a tendency to produce objects of luxury and to foster art.

They were adept modelers, and made molds of their subjects as well as taking casts for molds from gourds, fruit, and other natural forms which can be specifically identified.

According to Wiener (p. 632), the tradition is that the vessels were placed in a heap of tacquia, or llama dung, and the fire blown up by men with tubes of rush (cane?), as is practiced at the present time.

A section of the finer Peruvian ware shows a smooth paste without dégraissant, gray blue, with a thin exterior layer of red, due to burning. This is the character of paste in the bottle series and finer ware.

It has been stated that the Peruvians mixed with the clay graphite, charcoal, broken rock, and even wash gold as in Yucatan. No data has been had to verify these statements from the collection shown in Madrid, where little common ware was displayed.[1]

As already stated, the Peruvians were expert modelers, and used molds almost altogether. These molds may have been half sections, where the objects were alike on both sides, but were generally in two or more sections. The lines where the parts were luted together often show. In the Royal Archæological Museum at Madrid there are in some cases three casts from the same mold. Generally, each vessel was modified by a longer or shorter spout, the application of other features, or the skillful use of modeling tools to change the expression of faces, etc. Undercuts were necessarily avoided. Molds have not been discovered in Peru, to the best of the writer's knowledge, and it would be well for explorers to be on the alert for such relics. Perhaps in the huacas a potter's outfit may be found, as have those of the weavers and other crafts.

Coiling has not been observed. There is a suspicion in some minds that the Peruvians were familiar with the potter's wheel; indeed, some vessels are so symmetrical that they look as though they had been thrown.

Peruvian pottery divides itself pretty sharply into the terra cotta ware, with polychrome decoration, and the black, lustrous ware, which has been stamped or incised. The latter was probably blackened by smoke by the known method.

Nearly all the ware is finely burnished. At present the natives of the interior secure this polish by going over the surface of the ware with the thumb nail of the right hand.[2]

Cream-colored pipeclay slip was applied to the decorated ware. Sometimes the vessels were covered with the slip, but mainly it was used as a color. Spherical bowl No. 6 has cream slip on the upper

[1] See Wiener, Perou et Bolivie, p. 650.

[2] Wiener, Perou et Bolivie, p. 631.

portion and below a wide band of red, with the junction covered with a black line. The burnished slip often resembles a glaze. No. 1530 (Museo Arqueologico, Madrid) is an obscure yellow vase with a hard vitreous glaze (enamel?). This is the only glaze observed. The locality and period is not known.

The colors used in the ornamentation of Peruvian pottery are cream or white, black, and red. No other colors than these have ever been observed on American pottery outside of Mexico. The painted designs are quite often the human or animal figures, somewhat realistic, following the modeled ware and textiles. These designs have been further elaborated into grecques. The clothing, etc., of the relief ware is outlined and ornamented in colors.

The black ware is modeled, incised, and stamped, and has received no treatment with color. Some vases from near Cuzco are covered with lines of "rickrack," or Polynesian pattern, as though following the lines of coiling like the ancient Zuñi vessels. Many of the vessels are ornamented with short, straight lines like those of Ecuador. One finds fillets, lozenges, meanders, serpents, stars, the frog, the bat-headed serpent, etc., used for ornamentation.

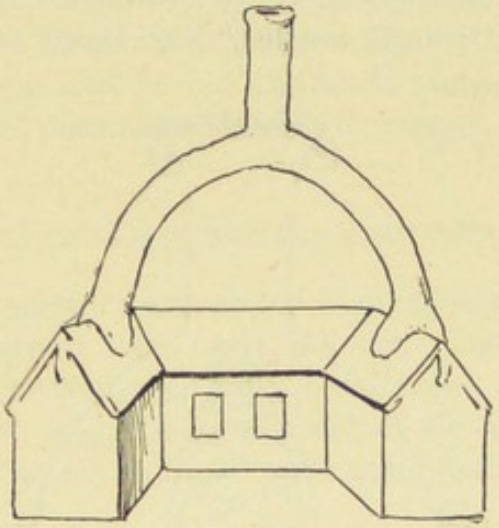


Fig. 61.

BOTTLE IN FORM OF A HOUSE.

Yuncas, Peru.

Common as well as fine pottery is found in the huacas of Peru, no doubt determined by the social condition of the dead. The common ware consists of round bowls or jars, undecorated and rudely finished, which can be duplicated anywhere.

There are many survivals from ancient times in modern Peru, and the comparative ethnologist has no difficulty in establishing connections with precolumbian times. Mr. Dorsey has lately made some studies on this point, which he presented before the International Congress for Anthropology at Chicago.

There has been some conjecture as to the intention of the portrait series of bottles. Mr. Wiener thinks that the ornamentation, or glorification, of the drinking vessel explains the matter. It would seem, also, that there was rivalry among the potters, as the Eskimo seeks the honor of producing the most elaborate and striking mask for the feast of the returning sun.

The subjects of the bottles are fruits and animals, of which the specific names can be ascertained; architecture (No. 728, Museo Arqueologico, Madrid) is an U-shaped house with high-pitched roof, with windows in the gables and court (fig. 61), prisoners with hands tied behind, like those hewn from wood; suppliants, deformed persons, priests, warriors, portrait groups, etc.

The whistling water bottles are most ingenious. One fine specimen, owned by the Government of Ecuador, has the form of a turkey and accurately imitates several cries of that fowl. Another form, called



Fig. 62.

POTTERY TRUMPET.

Yuncas, Peru.

the "weeping bottle," has the porous ware thin at the corners of the eyes of the figure so that the water exudes slowly and drops like tears. "Puzzle bottles," like those of India, have been found, formed of an interior arrangement of spiral tubes and from which the fluid can only be poured by inclining the bottle in a certain way.

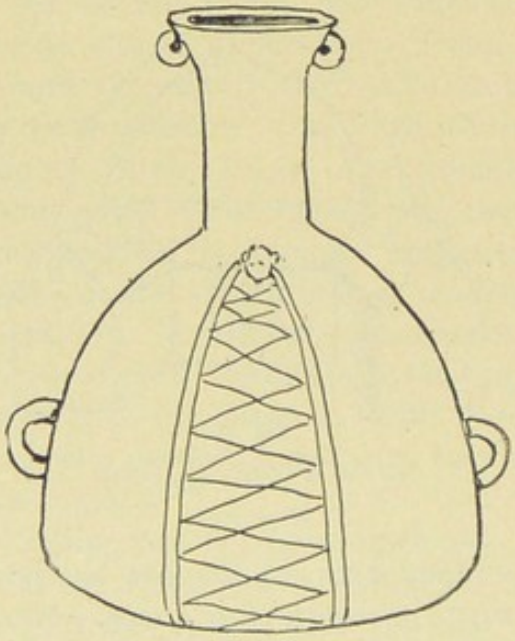


Fig. 63.

LARGE BOTTLE LIKE THOSE OF ECUADOR.

Peru.

Two trumpets of pottery on the principle of the cornet were exhibited. They were made by folding a pottery tube 40 inches long on itself (fig. 62), and they accurately give the fundamentals of the cord. Other figures play on the pan pipe.

A large, flat-bottomed bottle, with handles, and (fig. 63) a black vase with fluted body, like those of Ecuador, were exhibited.

Wide-mouthed vases, shaped like the cult vases of Egypt, in pottery and wood, are frequent. In the Spanish collection they were labeled "cult vases." They are figured in Wiener, page 626. Ladle-shaped "incensarios," with masks at the end of the handle, are also found.

## THE POTTERY OF SANTO DOMINGO

From the island of Santo Domingo were exhibited small idols or figures of pottery, some from the caves of Cotui and Samana, the last residence of the Indians, and the cave of Santa Anna. There was also a small pottery jar.

### THE POTTERY OF ARGENTINE.

The Argentine collection was represented by seventy-nine aquarelles of pottery, principally funerary urns, a large number containing remains of adults and children. In quality the pottery ranges from coarse bowls to higher painted and modeled forms. In the painted vases the conventional human face and body, and also the serpent, predominate. They are all from the province of Catamarca.

### THE POTTERY OF URUGUAY.

In the archæological collection from Uruguay there were some fragments of pottery and one large broken jar. The ware has a coarse paste consisting of clay mixed with sand and shell and is imperfectly baked. The surface is rough and has a rude ornamentation of dots and straight lines scratched in the paste. In a few cases painted vessels are ornamented in the mounds of Vizcanio and Soriano, showing different combinations of curved and right lines in red and white paint.

The usual form is globular and conical, pierced at the rim for suspension. Funerary urns occur.

### PERUVIAN AND MEXICAN POTTERY FROM THE GERMAN COLLECTIONS.

In the German section there were numerous water colors from objects collected by Herman Strebel in the State of Vera Cruz, Mexico. The ancient civilization in that State is of the Totonacs and Chichimecs.

Many chromolithographic plates taken from the great work of Reiss and Stübel entitled "The Necropolis of Ancon in Peru" were exhibited.

# CHIPPED STONE IMPLEMENTS AT THE COLUMBIAN HISTORICAL EXPOSITION AT MADRID, IN JANUARY, 1893.

By HENRY C. MERCER,

Curator of the Museum of American and Prehistoric Archæology at the University of Pennsylvania.

That portion of the Exposicion Historico-Americana in Madrid which aimed to illustrate the condition of aboriginal man in North and South America at the time of the coming of Columbus offered a valuable opportunity to the student.

Easy walks from one room to another showed a series of objects collected without concerted purpose from many regions in both continents, which series as it stretched in perspective from Bering Strait to Patagonia confronted us with important suggestions.

Again we speculated upon the origin of the red-skinned people found by the discoverer. Passing by the builder of mounds and the Cliff Dweller, the Aztec and the Maya, the Inca and the Carib, we were reminded of the River Drift man of Trenton, while the dispute waged as to the evidence of his existence, and of the inhabitant of Table Mountain, who has upset archæological theories by polishing his stone implements, it is said, in Tertiary times.

In the series of human relics so gathered and arranged, we met disappointing gaps and realized too often the lack of that intelligent gleaning which seizes every fragment of the lost tale; for which the chip, the broken hammer, the neglected potsherd, and charcoal have their full meaning and every stone tells its story.

But making the most of what we saw and turning to the special question which confined our attention, we asked no more of the specimens than what they might tell of that craft which so much concerned mankind in the ages of its infancy, the chipping of stone tools. What might these primitive implements unfold to us of the secrets of that ancient apprenticeship which all humanity has served? What clues did they offer to the lost story of our ancestry?

How were these knives, awls, celts, and scrapers made? Whence came the varied material? How was it discovered, quarried, and transported? Shall the finished forms tell us of the culture of their maker, and shall we discover in flaked stones evidence in America of a time when the art of Stone Age humanity was in its infancy, when man, as in Europe, only chipped and had not learned to polish the hardened material; when pot making, skin dressing, cord twisting,

and fishing with nets were unknown arts; when the early American, like the modern Australian or Andamanese, was yet ignorant of the use of the bow?

We must think that even the art of chipping stone had its beginning; that at some time in the past, man, once ignorant of it, learned it; that somewhere upon the earth lie fractured rocks to tell us, did we know their secret, of that moment when an ancestor chipped one for the first time. To pick up two bowlders and knock with one a piece from the other is to force the thought upon ourselves, as we feel the sharp edge of the fragment, that this makeshift knife, this tool of many uses, fashioned anywhere at a blow, was man's first implement of stone.[1]

## THE CHIP.

The chip, as a knife or other implement, is probably too simple to have been preceded by any other stone form, too handy ever to have been laid aside by humanity in its age of stone.

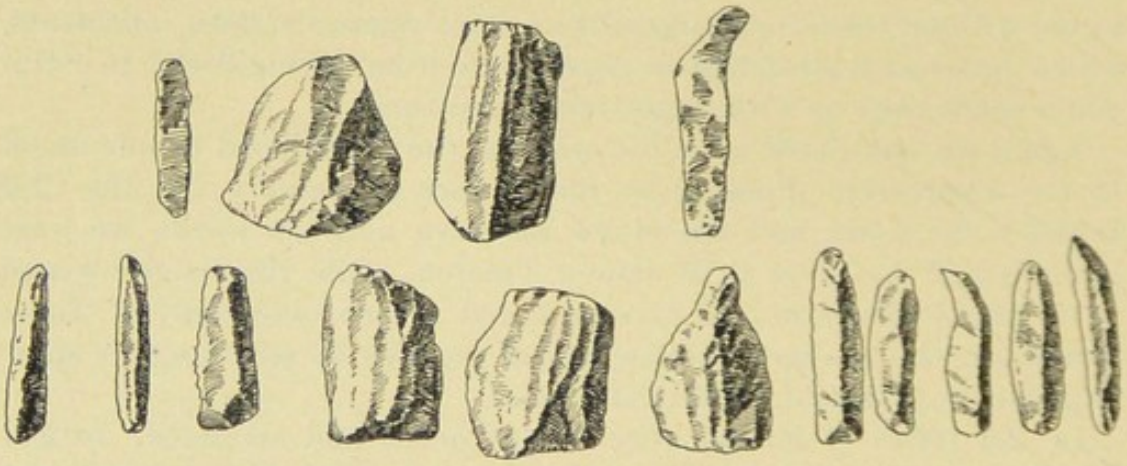


Fig. 1.

JASPER NUCLEI AND FLAKES.

Made by ancient stone workers, gathered about the edges of the old diggings at the aboriginal jasper quarry and blade workshop at Flint Ridge, Licking County, Ohio.

Anyone would recognize as of human make the thin, narrow, flakes of jasper collected by Mr. Gerard Fowke from Flint Ridge, Ohio, and the attractive nuclei from which they have been worked, as exhibited by the Smithsonian Institution (fig. 1), and in the cases of the University of Pennsylvania, and be inclined to assign for them an ancient use. No doubt many of them were bound in handles with thongs, like the mounted bits of hoop iron from Alaska, or set in with glue like that made of boiled fish and bones and wild cherry gum mentioned by Peter Kalm. So with the similar chips of obsidian and flint in the Nicaraguan exhibit, while it would be easier still to label as human relics the

[1] See for an argument that man was a stone batterer and polisher (Neolithic) before he became a stone chipper, and that the so-called Palæolithic status of culture never existed, Mr. J. D. McGuire's paper in the American Anthropologist for July, 1893.

exquisite cores and flakes of obsidian from Mexico (fig. 2, from Mexican exhibit), which Torquemada and Hernandez say were pressed off by

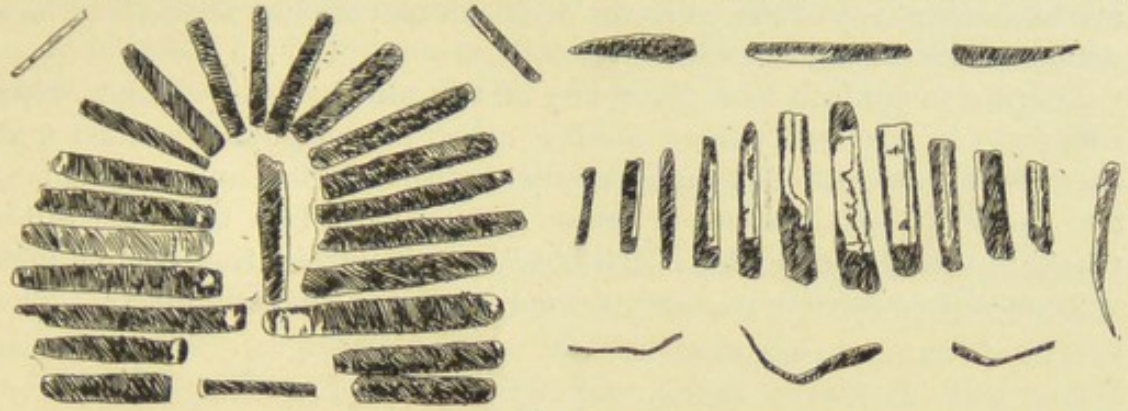


Fig. 2.

FLAKES OF VOLCANIC GLASS OR OBSIDIAN.

Gathered at surface sites in Mexico, such flakes as Torquemada saw ancient Mexicans producing by pressure with long punches. Their razor-like edges were sometimes used for shaving. Three specimens in the cut have been twisted by heat.

wooden punches held against the breast, and sometimes used by certain Spaniards for shaving their beards.[1]

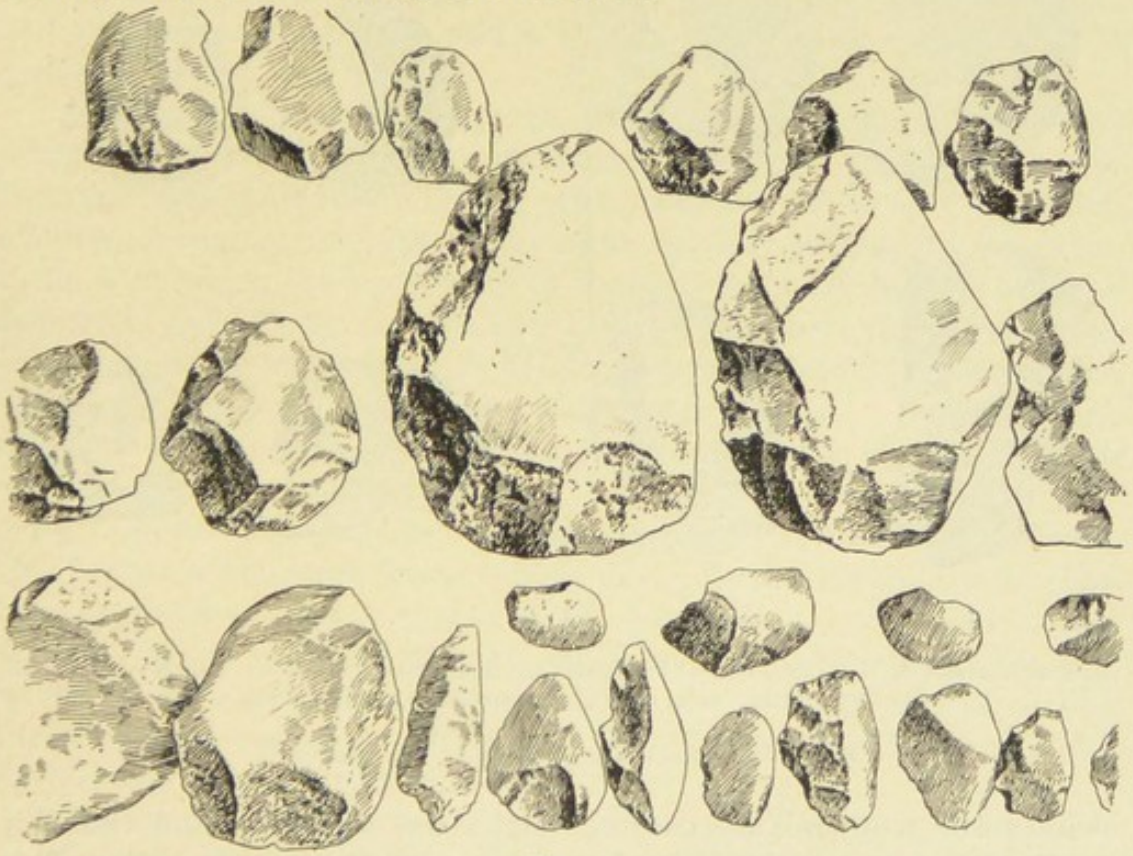


Fig. 3.

CHIPPED RIVER PEBBLES AND PEBBLE CHIPS, PROBABLY USED BY INDIANS AS IMPLEMENTS.

Found at surface village sites in the Delaware and Susquehanna Valleys.

Those ruder chips of argillite, sandstone, quartzite, or slate (fig. 3), so familiar to the American student, which we believe would have

[1]Some of these (see fig. 2, Mexican Museum, Nos. 1635, 1636, 1637) seem altogether too contorted to have been flaked in their present shape, though passing them through a hot fire, it is thought, would account for the twists.

taken the place of the finer material in the hands of the man who had not yet discovered it, are far less easy to identify as knives and as they are less attractive to the collector it is not surprising that there are none of them in the exhibit.

Fearing to confuse with them any of the multitude of similar chips cast away in the process of making other implements, we must find them closely associated, as has been done, with charcoal, animal remains, and shells, at fire sites and in caves; or mounted, like the Australian chips, in their handles of "Black-boy" gum, to prove that such stones were used by man to cut meat, scrape bones, or open mollusks. The

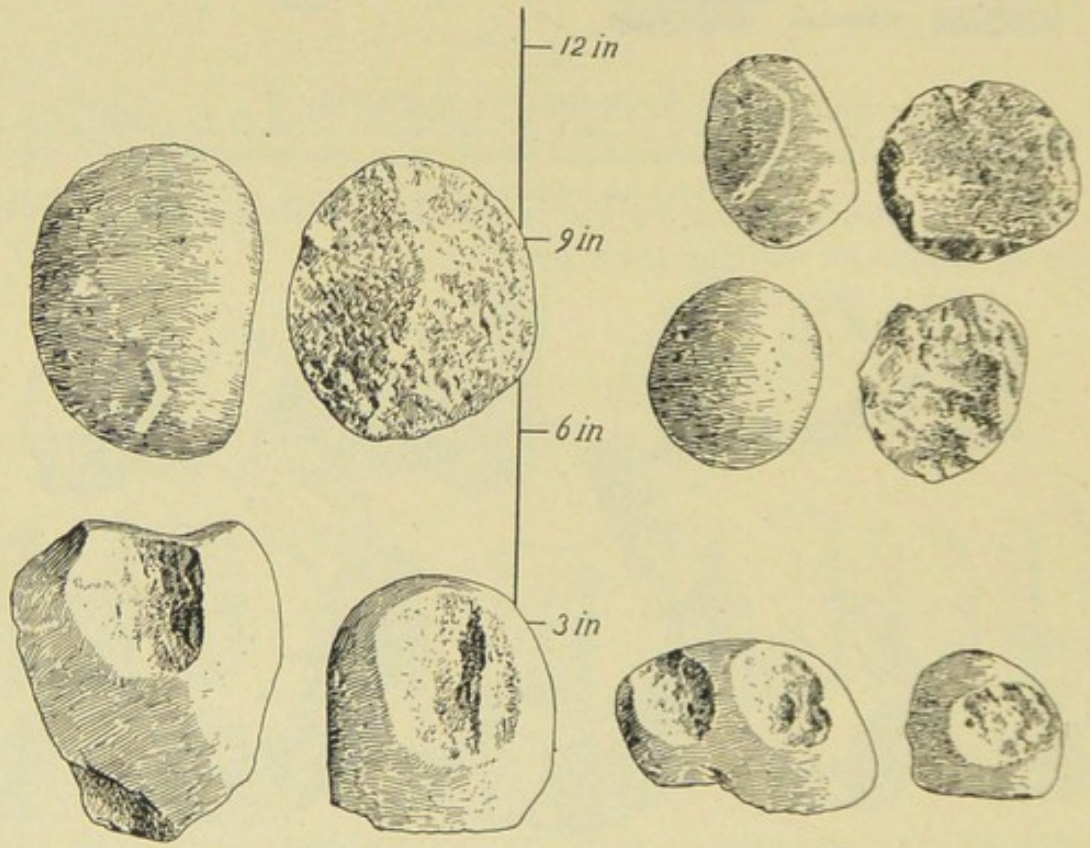



Fig. 4.

TESHOAS (discoidal implements produced by Indians at a single blow on the convex surface of a pebble) AND PEBBLES FROM WHICH TESHOAS HAVE BEEN CHIPPED

Found at surface village sites in the Delaware and Susquehanna Valleys.

coarser the material the coarser might we expect to find the chip knife. While the tools shown in figs. 1 and 2, if we are to believe Torquemada, were made by direct pressure, others, as the bulb of percussion would indicate, must have been produced by blows.

Dr. Joseph Leidy, in 1870, saw the Shoshones knocking off the smooth sides of water-worn pebbles to make "teshoas" or hide scrapers (see Hayden's United States Geological Report for 1870), and many of the ancient camp sites in the Delaware and Susquehanna valleys are scattered with the pebbles from which these disks, it seems, have been

knocked, and the disks themselves (see fig. 4), so excellently adapted for cutting that we wonder how or why any other knife was used.[1]

The pebble nucleus would take another form when these knives were knocked off in greater number, and from the sides rather than the middle of the stone. (See fig. 3.)

## ARROW AND SPEAR HEADS.

A first glance at the arrow and spear heads (see fig. 5) (including scrapers, perforators, small leaf-shaped blades, etc.) continually duplicated from many parts of the New World would almost persuade us that nothing original or distinctive had been found anywhere; that to mix a score of the obsidian, chert, or flint points of the Shoshones, Sioux, or Eskimo with similar weapons from Uruguay, Ecuador, or Central America would be, save for the clue from the origin of their materials, to hopelessly lose trace of their parentage.

There is great variety in the kind of stone used, which I had no means of having lithologically described (though the forms of jasper and obsidian predominate), and in the size, the average being about 1½ inches in length.

The large spears, as, for instance, the fourteen specimens of whitish hornstone from Pike County, Arkansas (of shape 18, fig. 5), in the National Museum exhibit, one of which was 12 inches long; a similar one from Uruguay, and one of the same shape from New Jersey, measuring 6 inches, in the University of Pennsylvania exhibit; an obsidian dagger (of form 75, fig. 5), 7½ inches long, and a large saw-toothed spear of hornstone, 3¼ inches long, in the Mexican exhibit, will be considered separately under the head of large leaf-shaped blades. But after careful sorting it will be seen that even arrow and spear heads have their characteristics.

Fig. 5 speaks for itself, but we notice specially the dull, blunted form (No. 5) with which most farmers' boys in the United States are familiar, having a sharp edge, a specimen of which (No. 11) from Alexander County, North Carolina, is exemplified in the Austrian exhibit, and which might have been mounted for use as a scraper, or as a dull arrowhead for stunning animals. It is also found in Mexico (No. 91), though not represented elsewhere.

Whoever has seen the small French blades of Mousterian pattern, so easily made where good flakes were at hand by chipping one side only, must have wondered why the form is not more common among North American specimens, but here it is at last, No. 14, from Maine (National Museum, No. 98478), and common enough in Mexico (see No. 90 of

[1]See paper "River pebbles chipped by modern Indians as a clue to the study of Trenton gravel implements," Proceedings of the American Association for the Advancement of Science, Vol. XLI, 1892.

obsidian from Mexico), with Nos. 32, 33, and 34 of obsidian from Nicaragua (see Nicaraguan, Nos. 1187–1189).

The jasper form (No. 29), from the United States (mounted in the National Museum exhibit, we find again in the United States of Colombia (No. 63), and in Mexico, somewhat modified, in Nos. 70, 72, 74, 81, and 82 of obsidian.

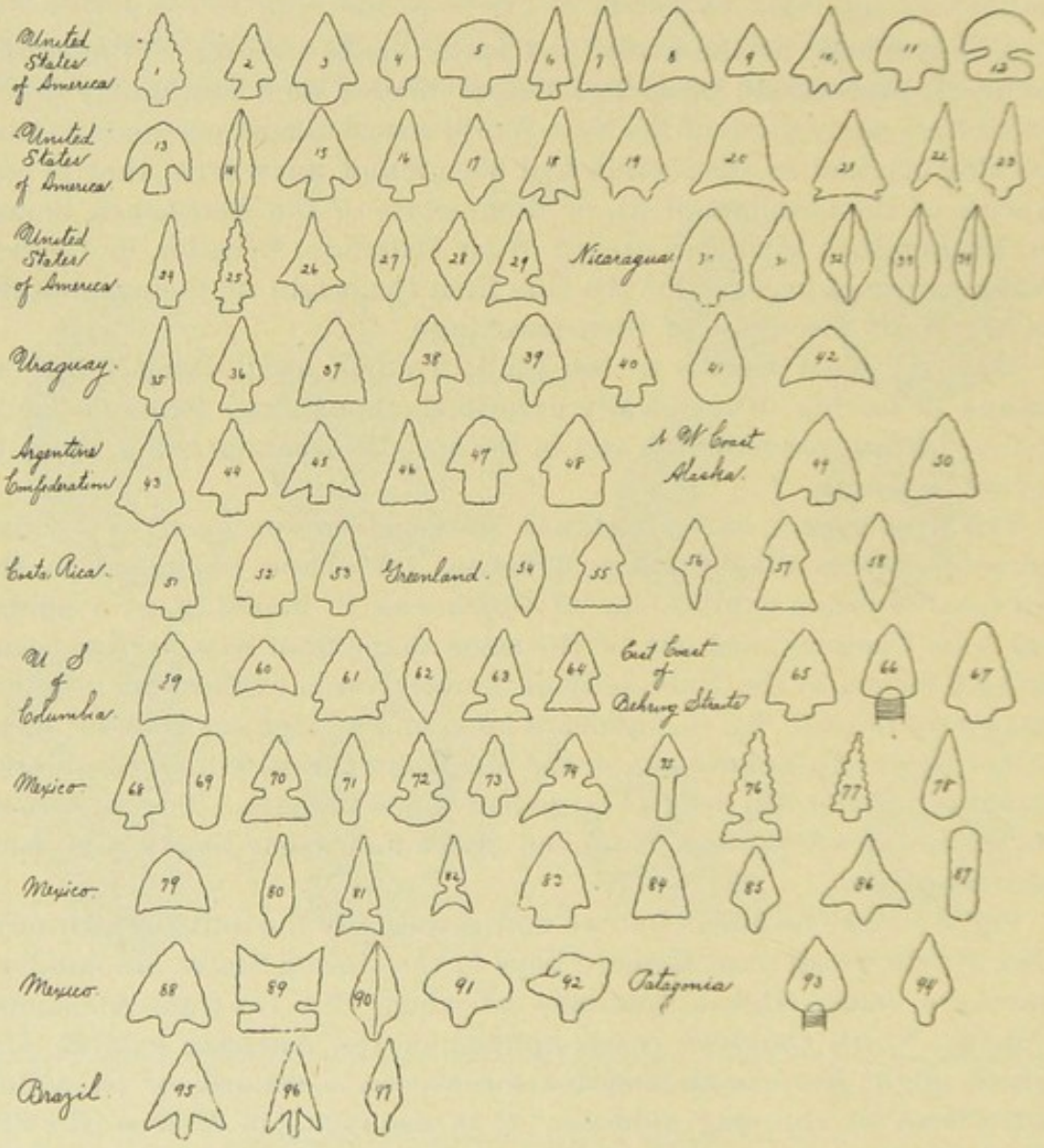



Fig. 5.

OUTLINES OF ALL THE FORMS OF ARROW HEADS AND SMALLER BLADES, FROM NORTH AND SOUTH AMERICA.

Exhibited at Madrid Exposition.

The narrow, elongated form sometimes referred to as of possible Eskimo origin, common in argillite in the Delaware Valley (see Nos. 23 and 24), we see in Uruguay (No. 35), and in Mexico (No. 80). The forms more common in the United States, it would seem, than in South America, and vulgarly called "war arrows" (see Nos. 8, 9, 20, and 22),

easily run into the shapes from Uruguay (Nos. 37 and 42), northwest coast (No. 50), United States of Colombia (Nos. 59 and 60), and Mexico (Nos. 79 and 84).

No. 89, the double-pointed arrowhead from Mexico, is unique, as is the double-based one, No. 10, and the curious No. 19 from North Carolina; so is the eccentric unsymmetrical No. 26 of white hornstone from Santa Barbara, Cal.

The saw-edged arrowhead in the United States series (Nos. 1 and 25) occurs in Mexico in Nos. 76 and 77, but there is nothing anywhere shown

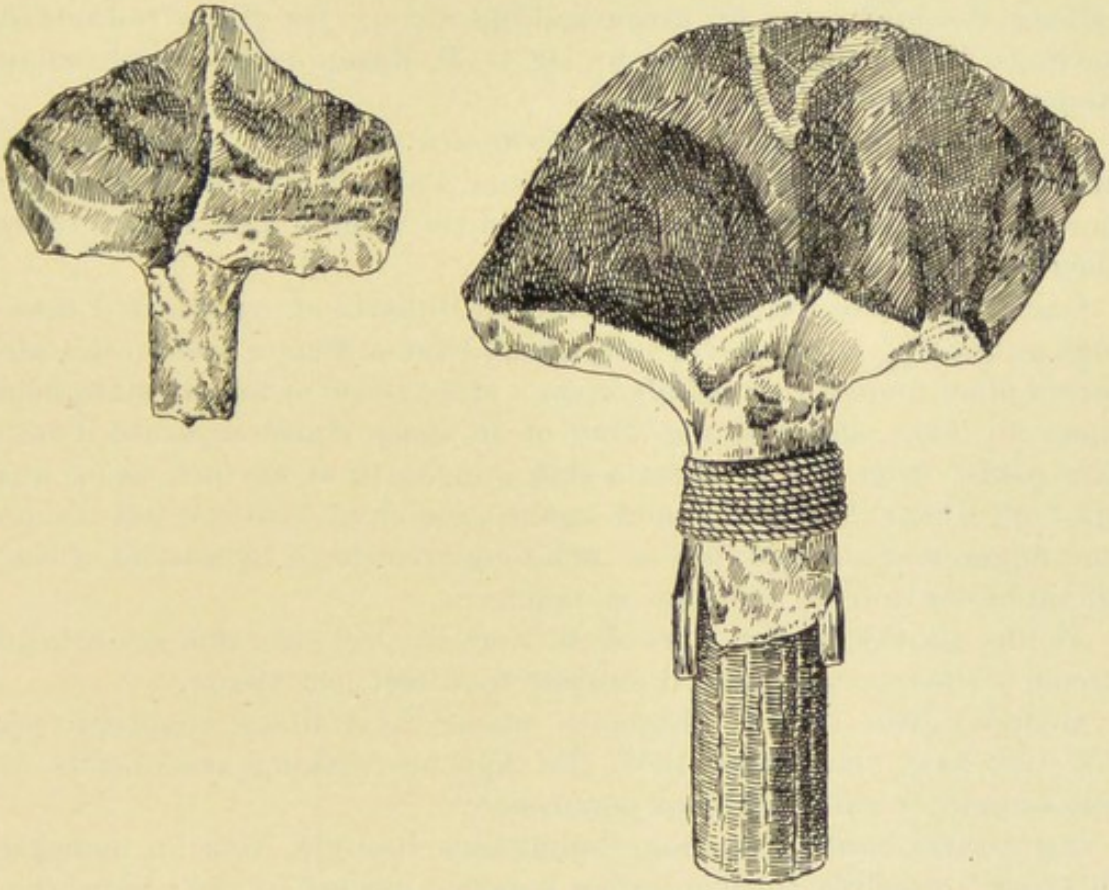


Fig. 6. (¾)

CHIPS OF OBSIDIAN, WORKED ONLY AT THE BASE AND MOUNTED AS BLADES, by the now extinct natives of Easter Island. (British Museum.)

(By the kind permission of Mr. Charles H. Read.)

like the Mexican form of obsidian (No. 92), of which the only point specialized is the base, the rest being left to the chance of natural cleavage, however unsymmetrical, and while we wonder that arrowheads and knives were not more often made in this way, and ask whether future research will not prove the pattern to have been one of the primitive and original forms of the arrowhead, we must rest content to compare it with the larger shapes of obsidian, sometimes 8 inches in breadth, but of the same unspecialized character, made and used by the Easter Islanders. (See two mounted specimens, fig. 6, from the British Museum.)[1]

[1] Compare National Museum Report for 1889, article by W. J. Thomson.

Moreover, not all the smaller blades in the above series are chipped. Nos. 16 and 17, representing the specimens from Maine, New York, and Alaska, are of polished slate (National Museum, Nos. 6375, 6548, 30758, and 62097), and these are almost duplicated by the Alaskan and Cuban examples of polished slate in the Spanish exhibit, No. 49.

It would have been of much help to the student of archæology had early American travelers noticed more exactly the methods employed by Indians in finding or quarrying their material for chipped implements, transporting it, and fashioning it into weapons and tools.

The National Museum exhibits an interesting case (see Plate I) containing the apparatus for arrow making among the Hupa Indians in northern California, described by Dr. O. T. Mason in the Smithsonian Report, 1886, part 1.

Capt. John Smith (sixth voyage, 1606) saw a Virginia Indian quickly making his arrowhead "with a little bone which he ever weareth at his bracept of a splint of a stone or glasse in the form of a heart, and these they glue to the end of their arrows."

Caleb Lyon (see extract from letter in Bulletin of American Ethnological Society, vol. 1, p. 39) saw, about 1860, a Shasta Indian in California place an obsidian pebble upon a stone anvil of talcose slate held upon the knee, and with one blow of an agate chisel separate it into two parts; from one of these a slab one-fourth of an inch thick was split off, which slab, being held against the anvil with the left thumb and finger, was chipped into an inch-long arrowhead by a series of continual blows in little less than an hour.

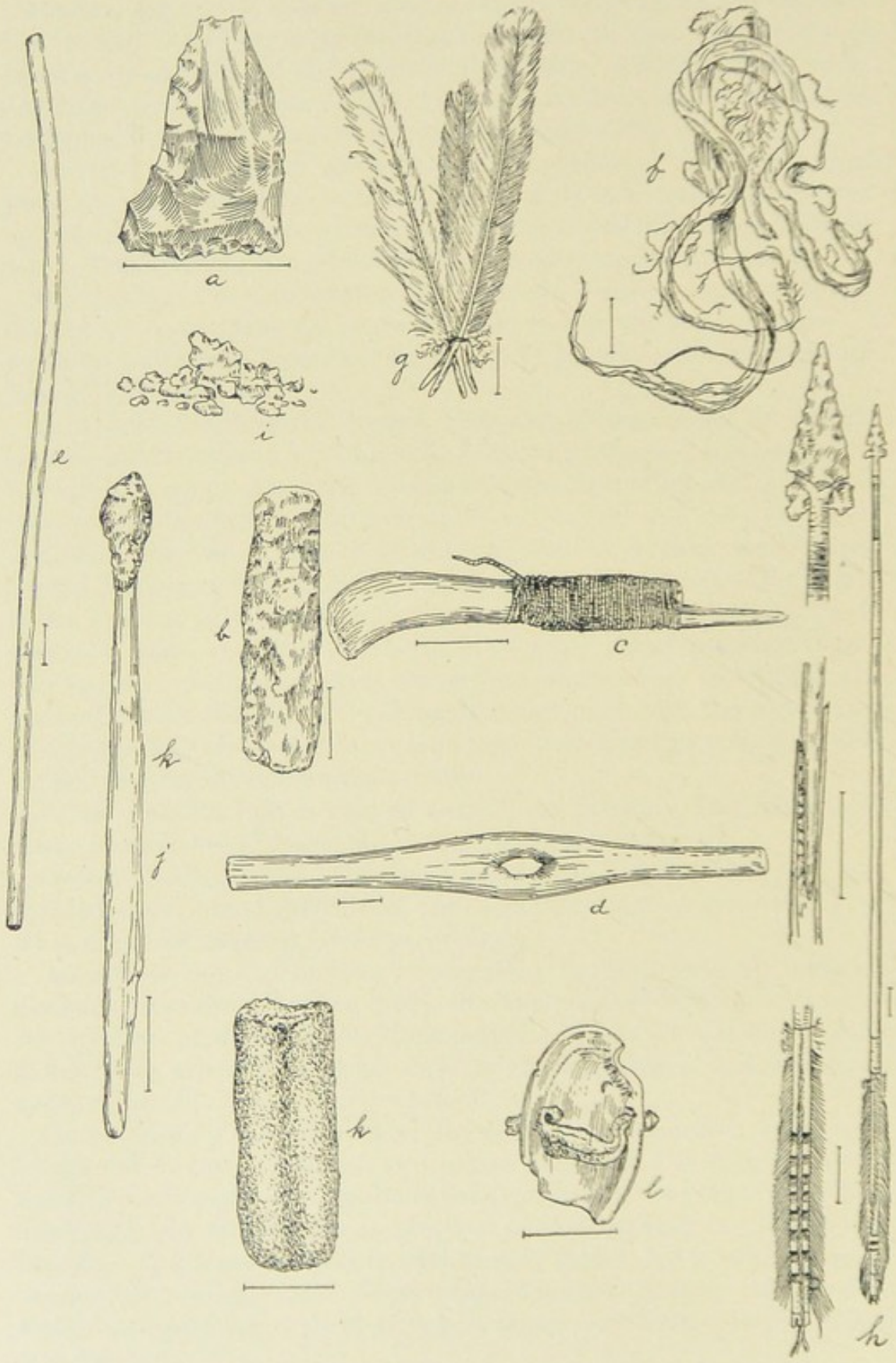
While Smith's Indian worked entirely by pressure, this arrowhead seems to have been produced entirely by direct percussion.

George Catlin (see Last Rambles among the Indians, chapter 5, pp. 187–190) saw, about 1860–1868, the Apaches making arrowheads by what might be called indirect percussion.

An erratic bowlder of flint, "sometimes brought from an immense distance," was first "broken into a hundred pieces" by the "indiscriminate" blows of a hafted hornstone pebble. From these splinters such flakes were selected as from their angle of fracture and thickness answered as the bases of arrowheads.

On one laid on the lett palm of the master workman and held down by his left fingers, a punch 6 or 7 inches long and 1 inch in diameter, made of the incisor of a sperm whale, and with its point presenting one acute and two obtuse angles, was rested against the part to be broken. This punch was then continually struck by a cooperator, to the time of a song, with a heavy wooden mallet, flaking off the flint under each projecting point struck at every blow until the arrowhead was finished.

Nice judgment was used in selecting a flake with two opposite parallel or nearly parallel planes, and of the thickness required for the




ARROW-MAKER'S OUTFIT, HUPA INDIANS, CALIFORNIA.

DESCRIPTION OF PLATE I.—*a*, The piece of jasper or obsidian from which the arrowhead is chipped; *b*, the chisel of hard antler struck by a cooperator as in Catlin's description; *c*, finer punch for pressure chipping; *d*, wooden tool used for straightening the stick for a shaft; *e*, chosen for shaft, by running it through the holes and prying it against the bends; *f*, sinew used for lashing the arrowhead to the shaft; *g*, feather, and *h*, complete arrow and dissections, showing stone point, feathering, and method of inserting foreshafting; *i*, glue made of boiled lower jaw bone of the sturgeon; *j*, glue stick; *k*, rasp; *l*, scraper.

From specimens in the U. S. National Museum.

center of the arrow point. The first chipping reached near to the center of these planes, but without quite breaking it away, and each chipping was shorter and shorter until the shape and edge of the arrowhead were formed.

Admiral Sir Edward Belcher (see Transactions of Ethnological Society of London, vol. 1, n. s., part 2, 1861, p. 138) saw, about 1858–1860, the western Eskimos at Cape Lisburne at a chert outcrop (evidently a quarry) making blades from flakes knocked off the ledge with jadite hammers. The flake, whether in the form of a "turtleback" or not does not appear, was laid over a spoonshaped cavity in a log and pressed gently (here is direct pressure again) along its margin vertically on one side and the other, with a punch made of fossil ivory set with a tip of reindeer antler until the work was done.[1]

Stephen Powers saw the Hupas in northern California in about 1872 flaking pieces of jasper by heating them in the fire and then letting them cool slowly; striking one of these flakes with a rough hammer gave it an approximately right shape. It was then held on a pad of buckskin placed on the left hand and chipped or pinched into shape (unknown process to the other observers) by a pair of buckhorn pinchers tied together at the point with a thong. (See Contributions to North American Ethnology, Vol. III.)

Mr. William A. Adams, a miner of Denver, Colo., told me in September, 1893, at New Galena, Bucks County, Pa., that he had seen in about 1864, Pendorielles in Crow Creek Valley, Montana, Crows in Yellowstone Valley, and Flatheads in Montana, chipping arrowheads by blows with porphyry and quartz pebbles, and iron hatchets, upon splinters shivered with pebbles or iron hatchets from masses of obsidian about 6 inches in diameter.

Lieut. E. J. Beckwith (Pacific Railroad Survey, vol. 2, p. 43), in June, 1854, saw Indians on the Sacramento River, in California, making arrowheads from quartz fragments by direct pressure with bone punches creased or grooved on their ends.

B. B. Redding (American Naturalist, November, 1879, p. 667) saw a McCloud River Indian near Mount Shasta send off an obsidian flake by a blow on a bone chisel, from which he made an arrowhead by direct pressure with an antler punch.

Edwin A. Cheever (American Naturalist, May, 1870) saw California Indians, about 1840–1860, nipping arrowheads of obsidian with notched bones.

Paul Schumacher (Archiv. für Anthropologie, 7, 1874, p. 264), about 1860–1870, saw Klamath Indians of northern California by direct pressure with bone-tipped punches making arrowheads from chips splintered from fire-heated masses of flint obsidian or jasper.

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[1] See for above accounts in full, Stephens' Flint Chips, p. 77.

S. P. Leland (Smithsonian Report, 1887, part 1), about 1850, saw Indians, unnamed, flaking hornstone by pressing down on it with pebbles about 5 inches broad and 6 long, heated in the fire.

Discussion of the above interesting accounts seems out of place until we have more satisfactorily verified them by experiment. Suffice it here to note, that all, with two exceptions, refer to flaking with a bone punch either by directly pressing on it or by hammering it while held against the stone.

As all seem to refer to the making of comparatively small arrow-heads, and hence to the producing of flakes none of which probably

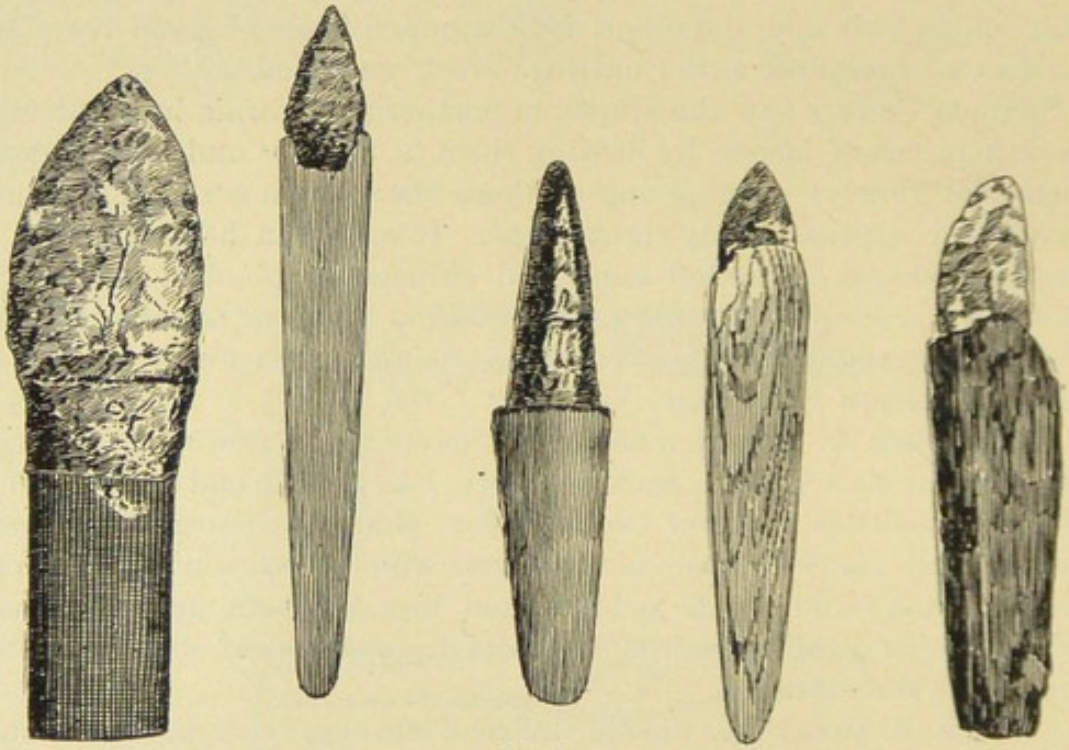


Fig. 7.

CHIPPED BLADES GLUED IN WOODEN HANDLES BY INDIANS OF THE WEST COAST OF THE UNITED STATES.

Found preserved in the dry burial places and caves of California. Collection of the National Museum.

needed to be over half an inch long, we must turn elsewhere for suggestions as to the formidable flakes from Mexico and the large, thin, leaf-shaped blade.

## THE LARGE THIN LEAF-SHAPED BLADE.

We find these large blades (see fig. 9) beautifully chipped of obsidian and flint in the Mexican exhibit, in the Hemenway collection, and in the exhibits of the Argentine Republic, Guatemala, Nicaragua, and Costa Rica.

They are found throughout the United States, as the Smithsonian and University of Pennsylvania specimens show. Case 13 of the National Museum exhibits an interesting series of them (fig. 7, National Museum

Nos. 2406, 20504, 20501, and others), glued in wooden handles, from California, with which it is interesting to compare the flint blades found in

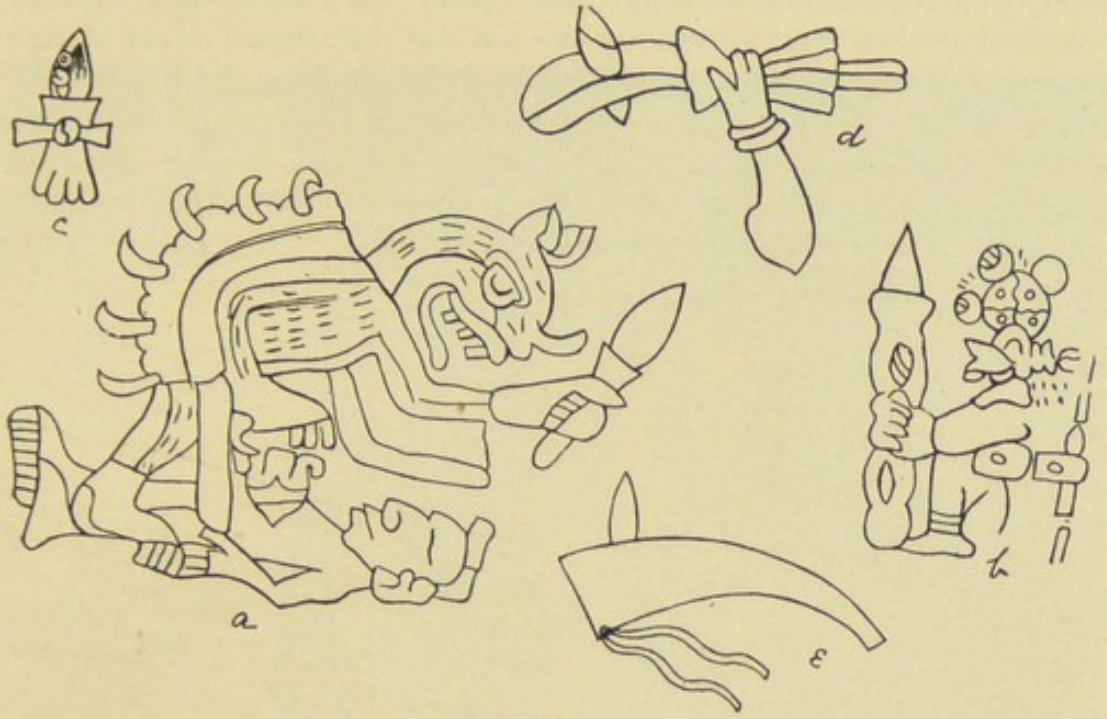



Fig. 8.

TRACINGS FROM MANUSCRIPTS DRAWN BY INDIANS IN ANCIENT YUCATAN AND MEXICO, SHOWING HOW LARGE FLINT BLADES WERE MOUNTED.

(*a*) Codex Porfirio Diaz (Mexico); (*b*) Codex Cortesianus (Yucatan); (*c*, *d*) Mexican MSS., Florence; (*e*) Sioux war club set with iron blade.

a grave near Nashville, Tenn. (see Thurston's Antiquities of Tennessee, pp. 228, 229), by Mr. Blunkall, near its deer-horn handle, and another

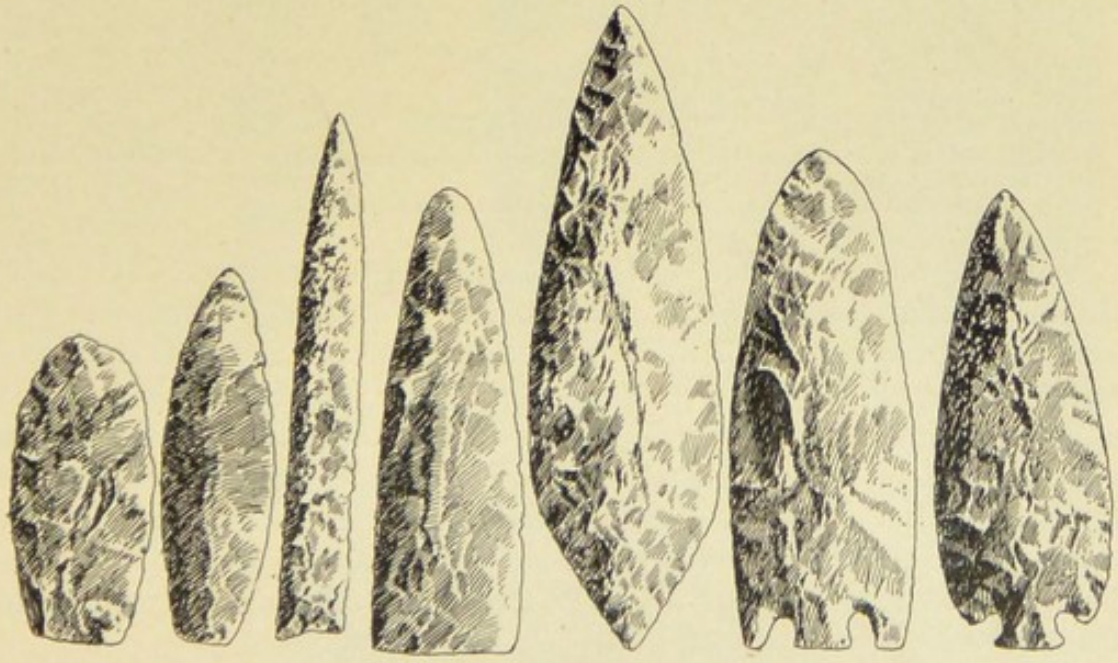


Fig. 9.

LARGE CHIPPED BLADES FROM THE UNITED STATES AND MEXICO.

flint blade with traces of glue on its once socketed end, from a stone cist in the same Indian cemetery.

Fig. 8, presenting designs from (*a*) the Codex Porfirio Diaz (Mexico), (*c*) and (*d*) the Mexican manuscript lately discovered in Florence by Mrs. Zelia Nuttall, shows that these forms were sometimes similarly mounted as sacrificial knives by the ancient Mexicans, or set at right angles in curved handles (*d*) as the iron blade is mounted in the Sioux war club (*e*). The figure (*b*) from the Codex Cortesianus (Yucatan), the ancient Maya manuscript supposed to have been brought from Central America to Spain by Cortez shows another interesting method of mounting practiced by the Central Americans.

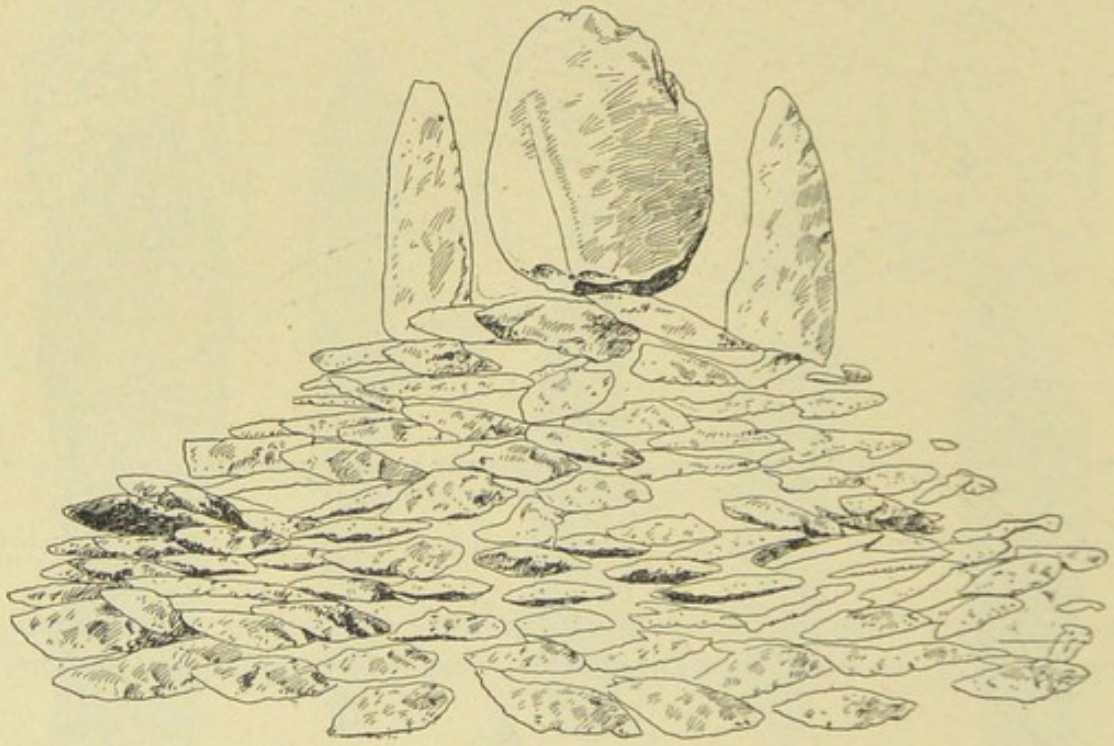


Fig. 10.

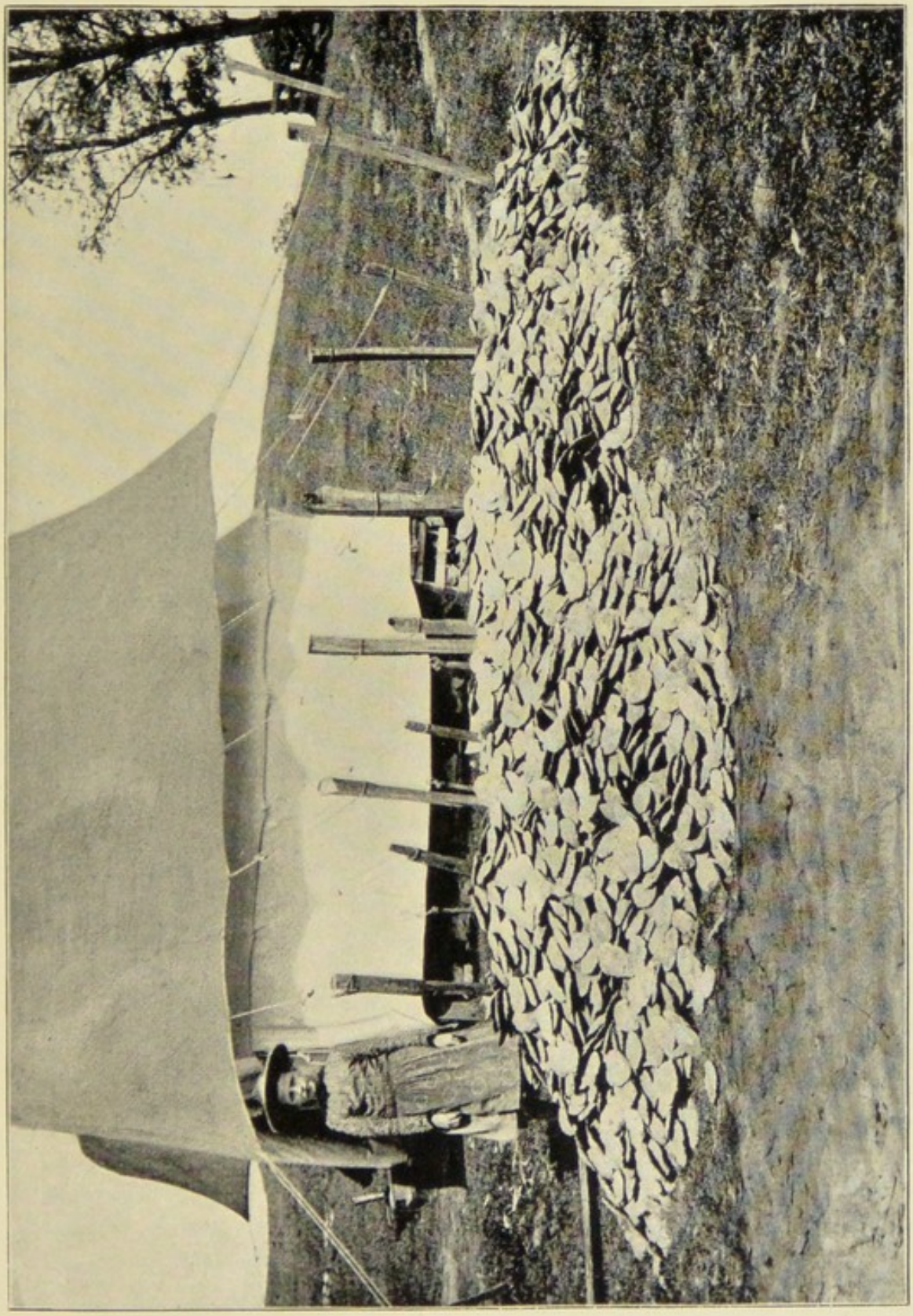
CACHE OF 116 ARGILLITE BLADES.

Probably buried by an Indian blade worker to dig up for final shaping to order on sale or barter.

Found accompanied by a hammer stone 1 foot beneath the surface at Ridges Island, Delaware River, June, 1891.

Well-specialized blades of this general character, made of various grades of flint, jasper, slate, quartzite, and argillite, vary greatly in size, from 1 inch to 14 in length, and in shape run through the forms numbered 7, 31, 43, 50, 18 (in fig. 5), and many other leaf-shaped and almost triangular patterns (see fig. 9). With them may be classed the specimens unearthed in hoards or caches, as, for example, the largest known series, of about 8,185 specimens, found and partially removed by Squier and Davis, and finally completely exhumed by Mr. W. K. Moorehead in 1891 from Mound No. 2, in the Hopewell group of mounds in Paint Creek Valley, Ohio. Plate II.

Fig. 10 shows the cache of 117 argillite blades, exhibited in the University of Pennsylvania case, found by me resting upon a flat pebble hammer 7 inches below the surface, and arranged in layers on their sides.



DEPOSIT OF 7,232 FLINT BLADES REMAINING OUT OF AN ORIGINAL CACHE OF ABOUT 8,185 SPECIMENS.
Removed in 1891 by W. K. Moorehead from No. 2 of the Hopewell Mound Group. Paint Creek Valley, Ross County, Ohio.

at an Indian village site at Ridges Island, on the Delaware, in June, 1891.[1]

There was no reason for supposing that this cache of mine hidden without sign of ceremony or mark of mound was anything but the buried stock in trade of a blade chipper ready for nipping or flaking to order on sale.

But Dr. J. F. Snyder (see Archæologist, March and April, 1895) found a hoard of 6,199 ill-worked leaf-shaped blades of black hornstone aver-

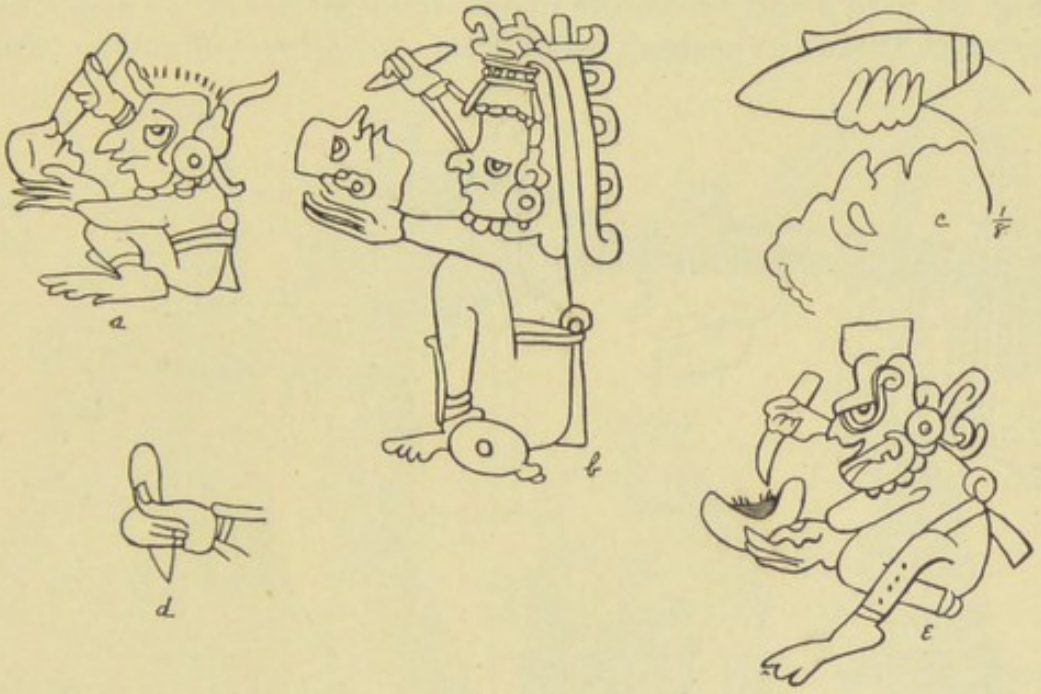


Fig. 11.

TRACINGS FROM ORIGINAL DRAWINGS MADE BY THE ANCIENT PEOPLE OF YUCATAN AND MEXICO, SHOWING HOW LARGE LEAF SHAPED STONE BLADES WERE SOMETIMES USED.

(*a*) Codex Troano (Yucatan); (*b*) Codex Cortisianus (Yucatan); (*c*) Sculpture of St. Lucia Cozumahualpa, Mexico; (*d*) Codex Cortesianus, and (*e*) Codex Troano (Yucatan).

aging 7 inches long by 4 wide, in a mound on the west Illinois river bank opposite Indian creek, and I agree with him in supposing that his discovery and mine represent two distinct kinds of blade deposits. Dr. Snyder's hoard lay in small batches in a sand layer—covered by a clay layer—then a hearth with cremated skeletons and trinkets, then more clay, then a boxing of logs, and then 22 feet of clay, and it is unreasonable to suppose that the deposit like my cache, was intended to be dug up, worked down, or sold. His cache evidently pertained to ceremony and religion, mine to daily use and trade, and the two classes of cache should be kept distinct since it may modify our notion of the material, the grain and the edge needed by the old blade worker, if we learn that many blades were made in the first place not to use but to bury under funeral fires in mounds.

[1] I found a cache of 9 chert blades at Halls Island, on the Susquehanna, in June, 1892, and on the following July obtained a deposit of 107 argillite blades in Bucks County, Pa., now in the University of Pennsylvania museum.

That many of the larger and more delicate ones were used unmounted as knives by the ancient Central Americans and Mexicans is proved by the tracings in fig. 11, showing (*a*) priest holding a human head from the Codex Troano (Yucatan); (*b*) priest holding a human head from the Codex Cortesianus (Yucatan); (*c*) priest holding a human head from the relief of S. Lucia Cozumahualpa (Mexico); (*d*) priest holding a human head from the Codex Cortesianus, and (*e*) priest holding human a head from the Codex Troano.

Fig. 12, with *a* and *b* from the Codex Dehesa (Mexico), *c* and *f* from the Codex Troano (Yucatan), and *e* from the Codex Columbino (Yucatan), would suggest that some of these blades, as *a*, *b*, *e*, and *f*, even without the notched base as in *g*, a specimen of one of the large spears common in the United States (see fig. 9), were mounted on poles as spears as in *a* and *b*, and (fig. 12) the shaft seems to extend along the delicate blade to protect it, while a wrapping of thong is suggested in *c*. The diamond-shaped spear (*d*) from the Codex Lienzo de Tlascala (Mexico) is only found in designs that suggest European contact, and, as Señor Troncoso supposes, may have been a stone copy of the iron weapon of the Spaniards.

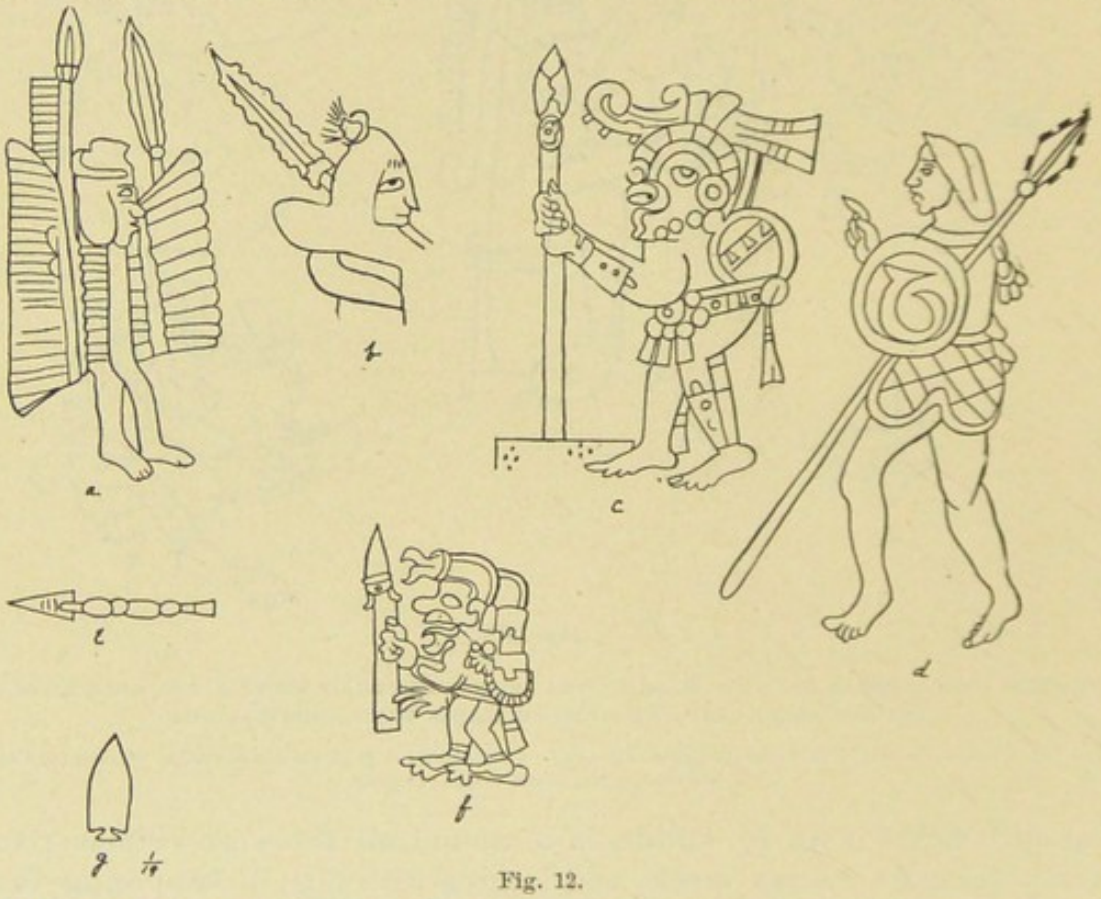


Fig. 12.

TRACINGS FROM ORIGINAL DRAWINGS MADE BY THE ANCIENT PEOPLE OF YUCATAN AND MEXICO, SHOWING HOW LARGE LEAF-SHAPED STONE BLADES WERE SOMETIMES MOUNTED AS SPEARS.

(*a*,*b*) Codex Dehesa (Mexico); (*c*) Codex Troano (Yucatan); (*d*) Codex Lienzo do Tlascala (Mexico); (*e*) Codex Columbino; (*f*) Codex Troano (Yucatan), and (*g*) Spearhead from Pike County, Arkansas. (National Museum Collection).

The so-called digging implements from Missouri, Indiana, Illinois, Tennessee, Kentucky, Ohio, and Louisiana are very striking, and have

no counterpart in the other exhibits. Generally of coarse chert or hard horn stone, they are sometimes 18 inches long and polished at the broad end (fig. 13, *a* and *b*), but the others, from Mississippi, Illinois, and Arkansas (sometimes perforated), from Tennessee, Kentucky, Arkansas, and North Carolina, strongly resemble the stone forms (fig. 13, *c*, *d*, and *e*) from Chile and Peru and the copper and polished stone specimens from Ecuador and the Argentine Republic.

In connection with these and the whole above-mentioned class of larger blades occur two of the most interesting of all the inquiries presented

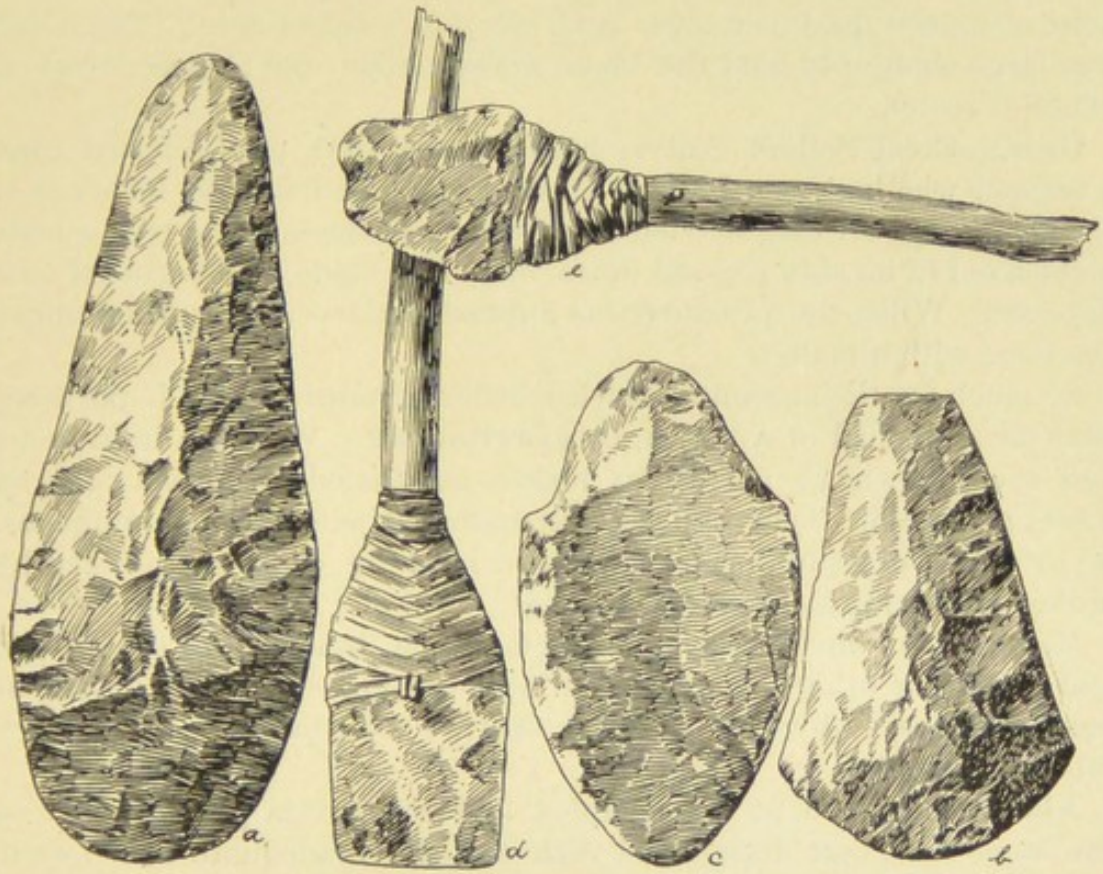



Fig. 13.

DIGGING IMPLEMENTS.

(*a* and *b*) United States; (*c*, *d*, *e*) mounted in their original handles, collected in Peru.

to the prehistoric anthropologist. How were they made? How was the material obtained and transported?

At the start our arrowhead experience does us little good, for we continually find that single flakes longer and broader, though not thicker, than entire arrowheads have been sent off these specimens. The following accounts offer some suggestions:

Torquemada (Monarquia Indiana, Seville, 1615) in the beginning of the seventeenth century saw ancient Mexicans sending off obsidian flakes 6 and 7 inches long with wooden-mounted bone punches, set against their breasts, from cores held between their feet. But I know that flakes nearly as long and thin can be sent off English flint by direct

percussion, for I saw the knappers at Brandon knocking them from similar cores with steel hammers.[1]

Catlin (Smithsonian Report, 1885, p. 870) told George Ercol Sellers that he had seen Indians flaking jasper and agate with long wooden punches set with bone points, weighted with hanging stones, and held against their breasts. When the pressure was applied a cooperator struck a fork in the punch a blow with a club.

Dr. Knapp (Smithsonian Report, part 1) saw Indians on Twelve Mile Island in the Mississippi River, near Guttenburg, Iowa, making arrowheads by pressing down on the stone with the side of the leg bone of a deer used as a lever and set in a notched tree. The notch was large enough to hold the blade worked upon and a basal stone on which it rested.

George Ercol Sellers (Smithsonian Report, 1885, p. 870) heard from a trapper who had seen Indians sending off large flakes by leverage of the same sort. A long wooden lever was set in the notched tree, a bone point fixed in its side pressed down upon the blade, which rested on a flat root. When the pressure was applied the lever was struck above the bone with a mallet.

So much for the accounts, which I believe comprise all of importance thus far published in America, by eyewitnesses. We learn from them, and the arrowhead narratives above mentioned, of flaking (*a*) by direct percussion, (*b*) by indirect percussion, or hammering on punches, (*c*) by direct pressure, (*d*) by impulsive pressure, or pressure aided by a blow, and (*e*) pressure aided by heat.

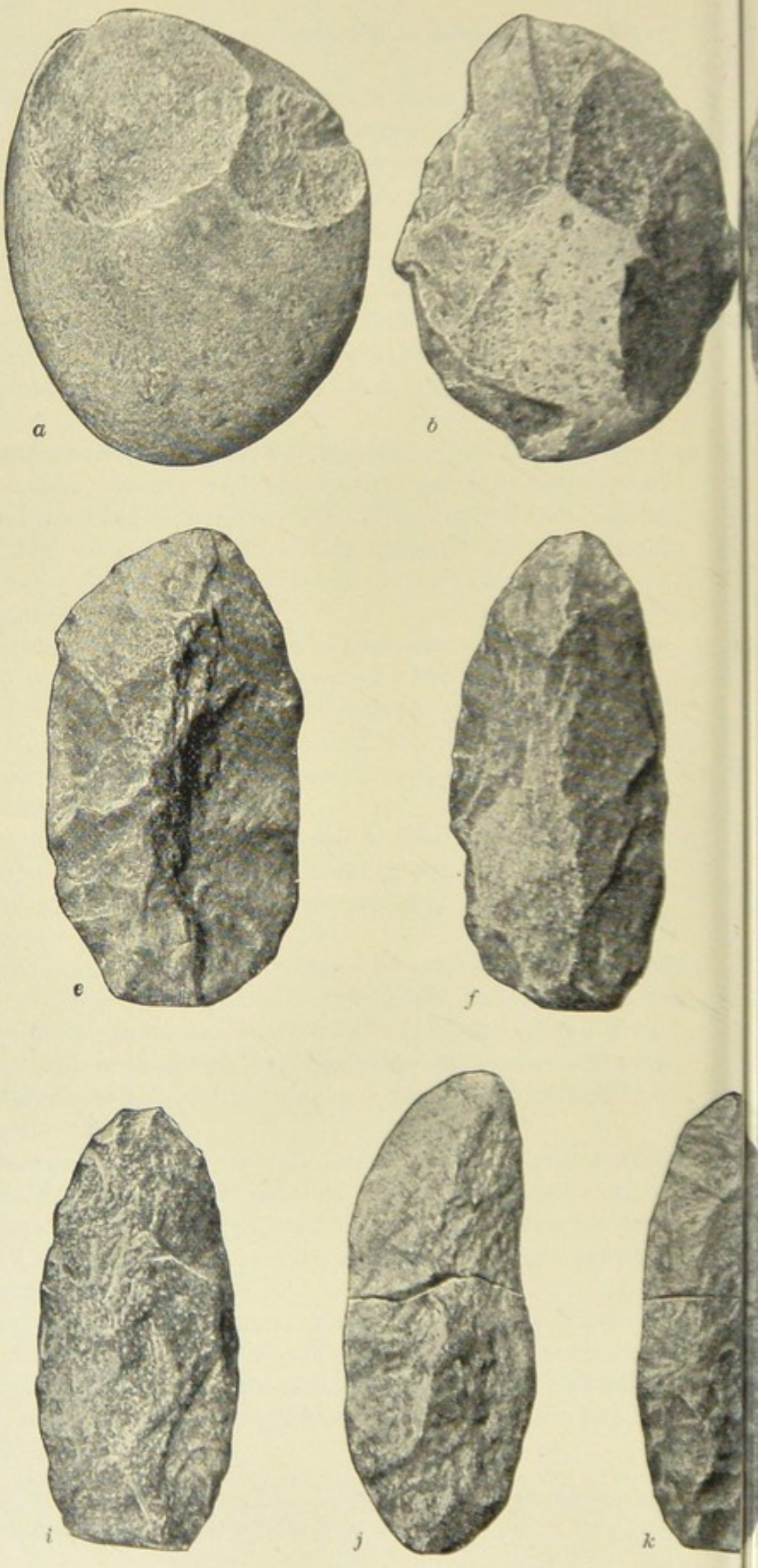
Moreover, we have hints as to digging some stones out of the ground and gathering others from the surface, wetting some, and drying or baking others, and we fully realize that we are grappling with a very intricate question.

Almost dismayed at the complex features of this greatest craft of the Stone Age, and dissatisfied with our own inadequate attempts to master it, we can well appreciate the remark of Catlin that "great skill was required and a thorough knowledge of the nature of each stone, a slight difference in quality necessitating a totally different manner of treatment."

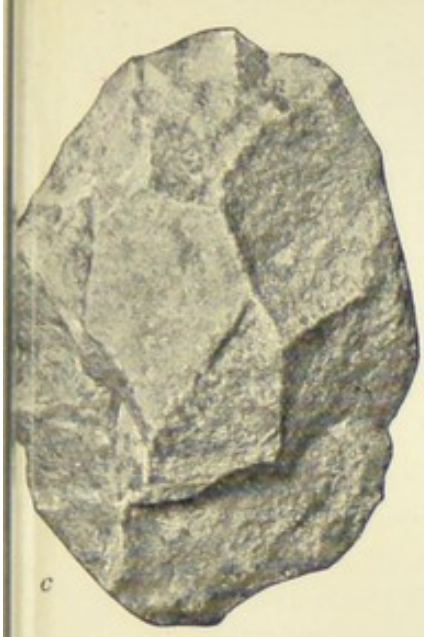
But our experiments soon show us that not any chance fragment of jasper or workable stone can be flaked into one of the larger shapes. The jasper and chert pebbles so often used by riverside tribes for their smaller blades will no longer serve, and we are brought to the question of the whereabouts of the material.

Here the exhibit of Mr. W. H. Holmes (Plate III) in the Smithsonian cases shows us a valuable analysis of the chipped refuse found at certain localities in the United States (Piny Branch, in the District of Columbia, Garland County, Arkansas, and the Indian Territory), where the following facts have been explained:

[1] Three of these sets of flint flakes with their cores I have placed in the Archæological Museum of the University of Pennsylvania.




SERIES OF QUARRY WORKSHOP REJECTS, BEGINNIN



c



d



n



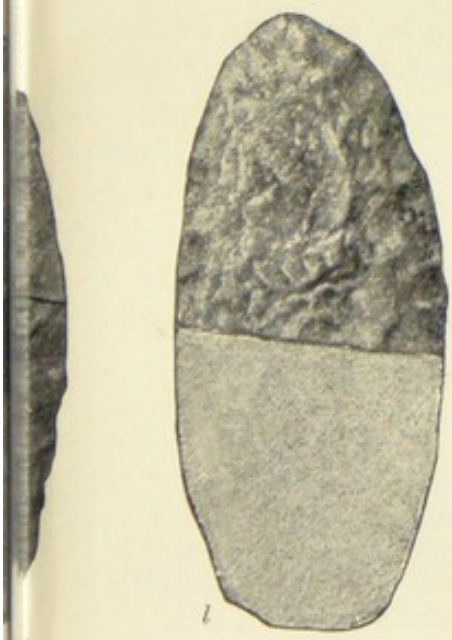
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ITH THE BOWLDER AND ENDING WITH THE THIN BLADE.

(*a*) That sometimes ledges (of novaculite) showing evidence of the use of fire in splitting the rock were worked to the depth of 25 feet.

(*b*) That the fragments so excavated were chipped in many cases into rude leaf-shaped blades or blanks.

(*c*) That a small minority of these, nearly always broken, showed a thickness and specialization equal to the cache forms (fig. 10), while the greater majority strewn about with hammer stones and chips seemed to have been cast aside as failures in the attempt to specialize them to the thinness and edge of the broken specimens found with them. (See Plate III.)[1]

(*d*) That these failures or blocked-out forms often resembled in size and shape the forms of argillite from the Trenton Gravels (see figs. 14 and 15), and in many cases, I may add, the specimens (see fig. 17 A) found in the Quaternary Gravels of the Somme Marne Valleys.[2]

At these quarries the form *c* (Pl. III), the end and aim of the quarry chipper's effort, valuable as it was to him, and never left behind with the refuse unless lost, is exceedingly rare, and has never, I believe, been found save in fragments. Forms *a* and *b*, however, are not uncommon, and in one refuse pile examined by me averaged about one to a bushel of chips.

From discoveries made at Weiders Creek, Lehigh County, and at upper Blacks Eddy in Bucks County, Pa., I have reason to think it probable that blocks of jasper weighing 10 to 15 pounds were carried to a distance of several miles from the quarry and sometimes buried in the mud of swamps as if to keep them wet for flaking, for in one instance of this character blocks had been placed under a heap of earth close to an arrowhead workshop. On the other hand, the Brandon (England) flint knappers, working altogether by percussion, dry the nodules in the air or by a stove before chipping it—saying that otherwise the iron hammer does not "take hold."

An excavation made in an ancient pit at Macungie, Lehigh County, Pennsylvania, showed that fires were built there to shiver large blocks of jasper built over the flames in the shape of ovens, and there, at the bottom of a mass of disturbed earth 18½ feet thick, we found two sharpened billets of wood and a large chipped disk of blue limestone.

But there is yet much to learn as to the details of the stone-chipping process, as to the size and manner of working the pits, possible tunnels, the reducing and transporting of blocks, the use of the hammer stone upon variable materials, the bone punches, and the application of pressure, direct and indirect, much that Indians now living—certainly many of those in Alaska and Brazil—could definitely tell us.

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[1] Points *a*, *b*, and *c* had been established by Mr. Gerard Fowke in 1884 in his investigation of the ancient pits and quarry refuse at Flint Ridge, Ohio. (A sketch of Flint Ridge, Licking County, Ohio, by Charles M. Smith (Gerard Fowke), of New Madison, Ohio, Smithsonian Report, 1884, p. 13.)

[2] A work in which I have had the pleasure of following Mr. Holmes and confirming the above conclusions in several newly discovered quarries in eastern Pennsylvania.

It is certain that quartzite bowlders like those at Piney Branch work differently from jasper blocks; that some jasper specimens are coarser or tougher than others; that novaculite from Arkansas fractures differently from the material quarried at Flint Ridge; that the latter is finer than that from the Lehigh Hills, and that all the North American jasper so far noted is ill tempered and crossgrained as compared with the silex of France and England, and no one has yet investigated fairly what may prove a different process in the method of quarrying and working obsidian. It is such considerations that make us realize that much study is still needed to establish the fact that this process of proceeding from the rough "turtle back," through a series of finer and thinner "blanks" until the specialized spear, knife, scraper, or hoe was finally reached, was everywhere the same in an age of stone.

Catlin, quoted above, distinctly says that the Apaches made arrowheads from selected chips shivered by indiscriminate blows of a pebble hammer, a process which save for the first-splintering began at the stage of flaking by pressure, while the true "turtle back" or "waster" is supposed to have been produced entirely by percussion. Certainly no "turtle back" process preceded the implements from Easter Island (fig. 6) or the Admiralty Island spears, the Australian gum hafted blades, or indeed the "teshoas" above mentioned (fig. 4), though in each case the unspecialized chip was a finished implement. On the other hand, we may hardly hesitate to believe that the sacrificial knife of Mexico and its characteristic Solutreen duplicate from the French caves, the great hoes of Tennessee, Arkansas, and the Ohio Valley, the hoarded blades of the Delaware Islands, the Hopewell Mounds, and Mississippi, were evolved through a series of rejects which all look much alike, and somewhere lie upon the earth to attest the fact.

But if we say no more than that this rude "turtle back" (Pl. III*a*) was incessantly produced by the "modern" Indian contemporaneously with arrowheads, pottery, and polished stone weapons, we have stated a very important fact, one that forbids us henceforth to assign an age to these objects judged by their forms alone. This brings us to the celebrated Trenton Gravel specimens, as exhibited in the University of Pennsylvania and National Museum cases.

Figs. 14 and 16 show specimens of these "turtle backs" from the Abbott collection in the Peabody Museum at Cambridge, Massachusetts, labeled as having been found at recorded depths in the Trenton Gravel. There were no Trenton specimens shown at Madrid alleged to have been found geologically in place, and none of those found at the site by Dr. C. C. Abbott, Prof. H. W. Haynes, Prof. Boyd Dawkins, Professors Morse and Putnam have ever been photographed in place. Opinion in America is divided between those who are willing to take the word and experience of these gentlemen and those who are not.

The former declare that the implements have been found at various depths in undisturbed gravel, disassociated with any trace of jasper arrowheads, pottery, or polished implements, and denoting, a man in

a "Paleolithic" stage of culture, who lived during the deposition of the gravels in Post-Glacial times.

Their opponents fear that the finders of these "Paleoliths" have been deceived. Having visited the Pennsylvania Railroad cuts and certain ditches in the gravels at Trenton and failed to find specimens, they suppose that the specimens were really found by the others in deceptive beds of talus, where the stratified layers had been readjusted; that the seeming ancient stratification is the comparatively modern work of freshets in Stony Branch Creek near the cuts; that the objects, even if actually in Glacial gravel, had slipped down through holes made by roots or animals or the cavities of uprooted trees.

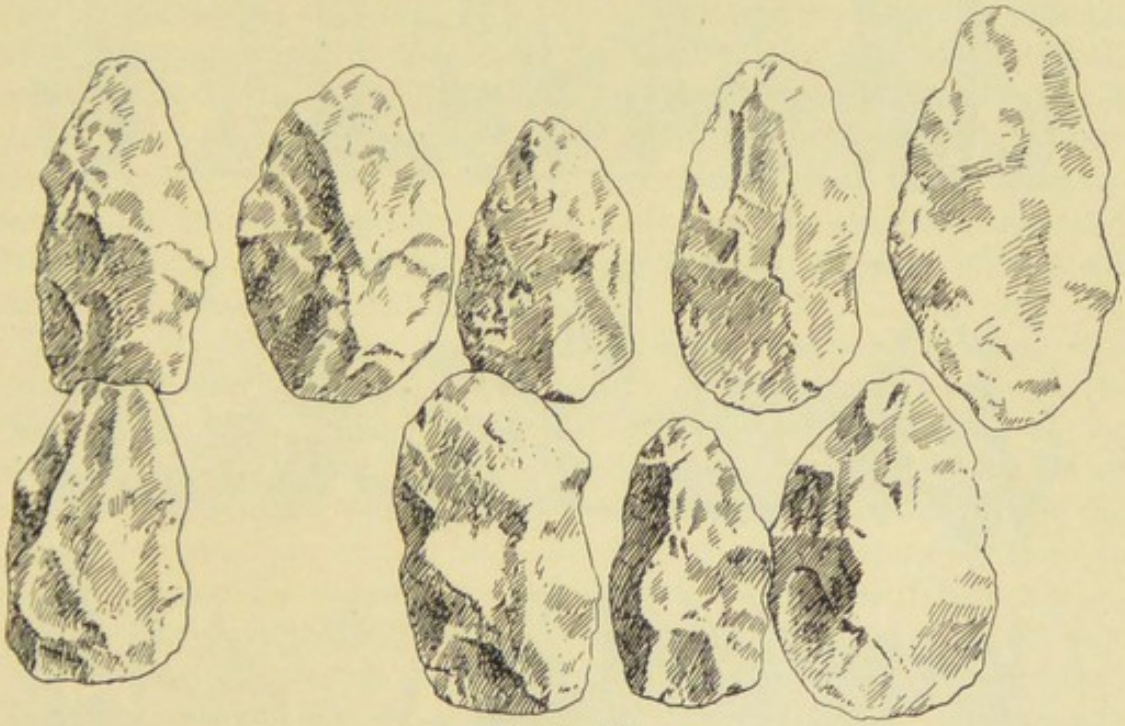


Fig. 14. (⅓)

TRENTON SPECIMENS OF ARGILLITE FROM THE ABBOTT COLLECTION, PEABODY MUSEUM, CAMBRIDGE, MASSACHUSETTS.

Alleged to have been found in situ in the gravels.

(Photographed by kind permission of Professor Putnam and Dr. C. C. Abbott in September, 1893.)

They insist further that the chipped objects, however found, exactly resemble the forms of jasper and hornstone recently discovered in the refuse heaps of the modern Indian quarries (above described) and classified as "rejects," "wasters," or blocked-out implements, that these chipped objects, therefore, are not to be considered finished tools, and if found in place do not prove that the man who made them was in a Paleolithic state or differed in culture from the modern Indian.

Like the quarryman of Piney Branch he may have lived, they say, on the hillsides at a distance from the cold flood, only descending there at moments to find on the beaches material for chipped implements, when having of necessity left his "wasters" and "failures" by the waters, he would have carried back the available blanks to his hilltop camp to be finished into knives, scrapers, or spears.

All this is rendered more forcible by the continued finding of other

argillite specimens of the same size and form as the Trenton objects upon the surface at most of the Delaware river village sites. I have found duplicates of the Tenton forms with pottery and net sinkers at Lower Blacks Eddy, Ridges Island, Gilmers Island, Gallows Run, Frys Run, and Upper Blacks Eddy and on the hilltop at Hickory Run—fifteen of them at a workshop site strewn with hammer stones, argillite chips, jasper flakes, three thinned down blade fragments, and a spear head of argillite.

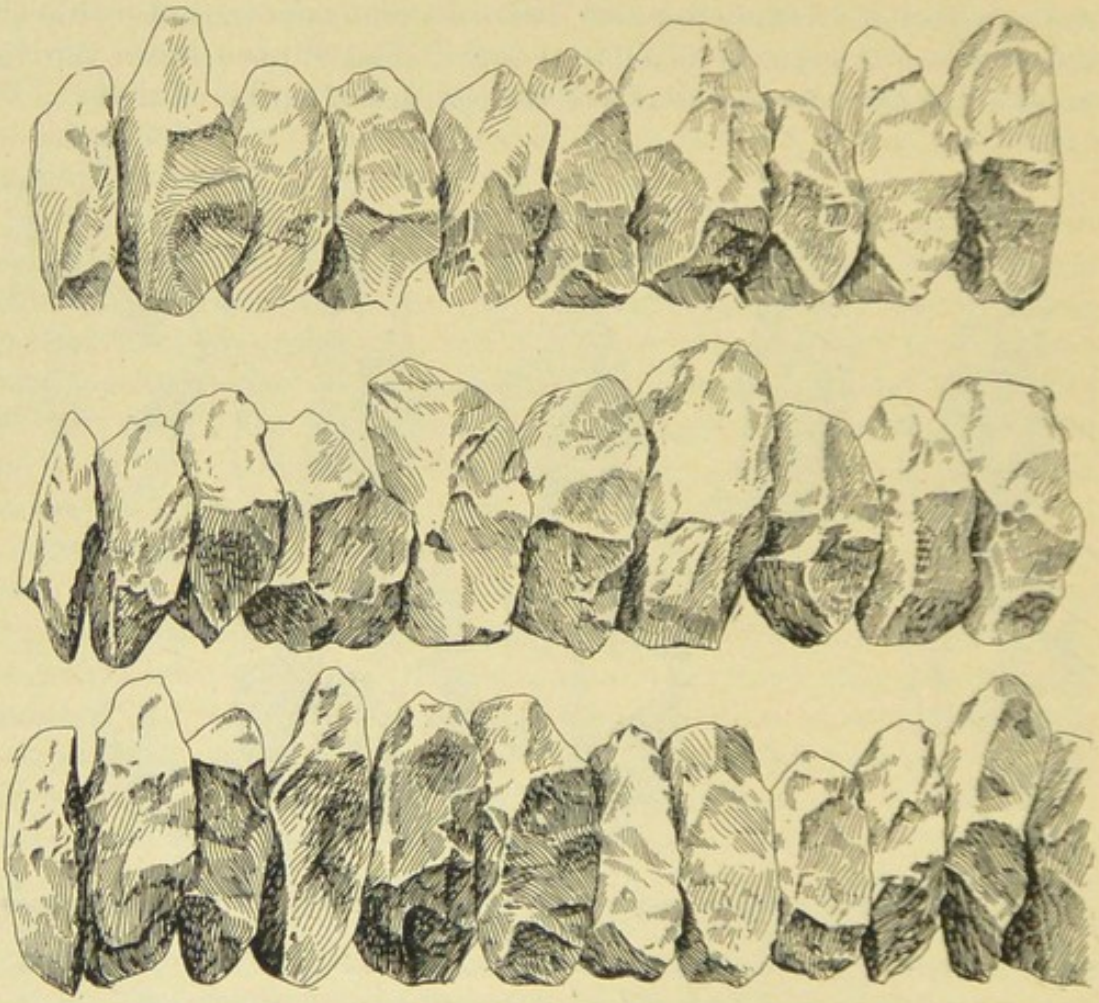


Fig. 15.

RUDELY CHIPPED FORMS OF ARGILLITE.

Quarried and blocked out by Indians inhabiting the Delaware Valley in comparatively recent times. Thirty-two of 110 found in shaft "A" in Indian argillite quarries, Gaddis Run, May, 1893.

This last site is close to the chief outcrop of argillite on the right bank of the Delaware above Trenton. While this paper was preparing, the writer discovered, May 22, 1893, close by the mouth of Gaddis Run, and one-fourth of a mile from the river, nineteen ancient pits surrounded by heaps of argillite refuse. There were at least twelve workshops where "turtle backs" were found with the chips and pebble hammers. A trench 25 feet by 12, and 7 feet deep across one of the heaps and pits yielded 111 "turtle backs" and 77 hammer stones. Another about 15 feet by 10 and 2 deep, 60 "turtle backs" and 13 hammer stones (fig. 15). All the work had been done by comparatively modern Indians.

Moreover, there are fire sites and traces of an Indian camp on the surface directly above the celebrated railroad cuts at Trenton, and one of the largest Indian villages in the Delaware region occupied the whole area of the modern city, extending several miles below. Added to which the fossil bones, which above all else assure us as to the age of the French gravels are almost entirely wanting at Trenton. To this Dr. C. C. Abbott, admitting the fact of the quarry blocking-out process, would reply that while some of the surface specimens may be modern wasters, others like the many European "turtlebacks" of drift type gathered on the surface may be as ancient as the specimens declared to be found in place. But apart from surface specimens, he and the gentlemen above named urge that those found in situ have proved a Glacial man, while the complete disassociation therewith of pottery or polished implements, has argued a Paleolithic argillite chipper who could not polish stone or make pottery. Minus any such association they contend against the plausibility of supposing an ancient river shore so forbidding and inhospitable, that the drift man who chipped blades and left "wasters" by the water would have dropped all other relics of his higher culture at some inland site.[1]

In the writer's opinion much further work is required to settle this vexed and important point in America. Led by facts whithersoever they may direct, unbiased by what has been said and written on the subject, the investigator may be pardoned for asking a revision of every fact alleged on either side. When once it is demonstrated to the general satisfaction, viz, (1) that the chipped objects are really there in place; (2) that the gravels are Glacial gravels; (3) that no arrowhead, potsherd, or polished stone fragment can be associated with the discoveries, it still remains to learn from surrounding evidence whether, because the Trenton objects resemble rejected implements, thousands of years younger, they are therefore also "rejects" and not finished tools; whether, in a word, the man who made them, though still a Glacial inhabitant, was really a Paleolithic man at all, and not like his red successor, a polisher of stone, a fisher, and a potter.

When we compare these chipped forms from Trenton with those from the gravels of the Ouse at Thetford, the Marne at Chelles, and the Somme at Abbeville and St. Acheul, we are struck with the fact that the common European form (see fig. 17 *c*), but little worked at the blunt end and well pointed and specialized at the other, as if adapted for grasping in the hand, does not occur save with three rude exceptions (fig. 16) at Trenton (see the Abbott collection of specimens in the Pea-

[1]The argument sometimes advanced that at a river-shore quarry such as the gravel sites are held to be, just as at an island quarry we need look for no trace of the quarryman's stage of culture, may be based upon the absence of such traces at Piney Branch. But I found arrowheads, fragments of polished celts, and a piece of worked shell among the refuse at Macungie; also a small pestle at Durham, and three pitted hammerstones at Gaddis Run. M. Cornet found pottery at Speinnes and Canon Greenwell a polished celt in the prehistoric quarry at Grimes Graves.

body Museum at Cambridge, Massachusetts), nor indeed does the more highly specialized leaf-shaped form (see form *b*, fig. 17) from Europe, which may be said to exactly duplicate many of the thicker and heavier cache specimens from the United States appear in the Trenton set. But the less specialized form A, common at St. Acheul, Abbeville, Chelles, Thetford, San Isidro, etc., is a fair enough counterpart of the Trenton relics.

On examining the Quaternary relic-bearing gravel pits in France, England, and Spain the American student learns that a very small percentage of the specimens in the public and private collections have been found by scientific observers in place, nearly all having been bought from workmen; that many "axes," or "coups de poing," as Boucher de Perthes called them, exactly like those from the gravels, have been found lying on the surface, mixed with Neolithic remains, and that these, owing to their form, have been classed as "Paleoliths" in the museums.

Still it would be hard indeed to leave the classic sites on the Somme after a careful examination unconvinced that the chipped forms (fig. 17) are really found in situ in all parts of the gravels continually associated with bones of the Elephas antiquus and primogenius, Hippopotamus major, Rhinoceros merkii and tichorinus, Equus caballus, cave bear, hyena, and reindeer.[1]

---

[1]The surface about the quarries at Abbeville is a series of open meadows, edged by a parade ground and several vegetable gardens, where fossils could no more rest undisturbed on the surface than they could upon Boston Common. A gravel digger at work at the Champs de Mars quarry sold me several specimens of a badly decayed elephant's tooth. Another at the Chemin de Poste quarry, several patinated "haches" of fig. 16 *a* type. At St. Acheul another had a box full of chips, fossils, and broken "axes," well patinated, while at Chelles the table in the foreman's shed was piled with flint specimens, together with elephant, rhinoceros, and reindeer fossils.

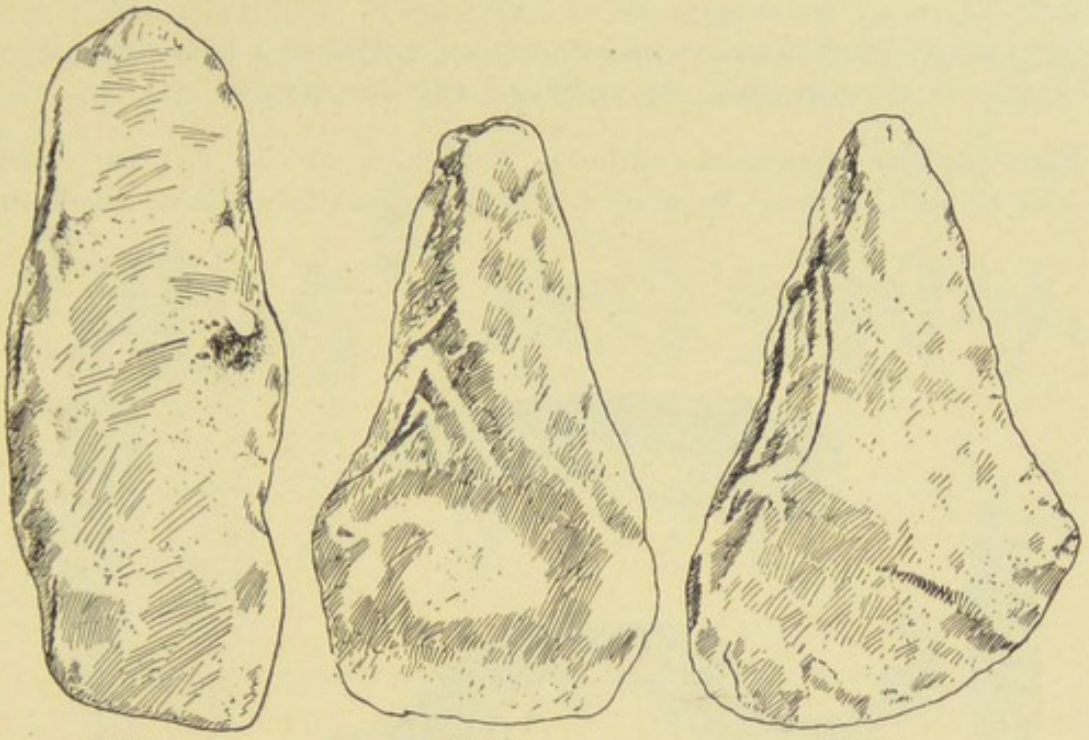
There are many important differences to be observed between the conditions of the French River gravels and those at Trenton.

(1) All the French implements are of flint, while nearly all the Trenton ones are of argillite. Nearly every pebble or nodule in the French deposits was of flint, available for chipping, while in the Trenton Gravels argillite pebbles are not common.

(2) Fortunately for the European student the French gravels, largely composed of chalky material, adapted to the preservation of bones, are well scattered with the fossil remains of Quaternary mammals, which alone serve to define the geological age of the stratum, while from the Trenton Gravels the discovery of only one Mammoth's tusk, by Professor Haynes, and two human skulls (unfortunately not described by Dr. Virchow in his Crania) and a unio shell by Dr. Abbott have been noted. The French gravels, however, have yielded no human bones—the famous Moulin Quignon jawbone discovered by Boucher de Perthes having been derived from a Neolithic interment.

(3) M. du Mesuil, of Abbeville, says he has found many hammer stones and several flakes at Abbeville in situ, but none have been alleged to have been discovered at Trenton.

(4) We learn, moreover, that the French gravels had nothing to do with the European Glacial period, while those at Trenton are believed to have been laid down by freshets caused by the melting of American glaciers.



No. 16161.
4 feet from surface.
R. R. cut, 1878.

No. 11752.
Gravel of Trenton
bluff, 7 feet.

No. 45913.
R. R. cut, 7 feet.
May, 1888.

Fig. 16. (½)

Three Trenton specimens (Abbott collection, Peabody Museum, Cambridge, Massachusetts), rude at base and worked to points, resembling (though lacking the specialization of the latter) the rough-base pointed forms from Europe (see Fig. 17, *a*). The labels on the margin give the Museum record.

By the kind permission of Dr. C. C. Abbott and Prof. F. W. Putnam.

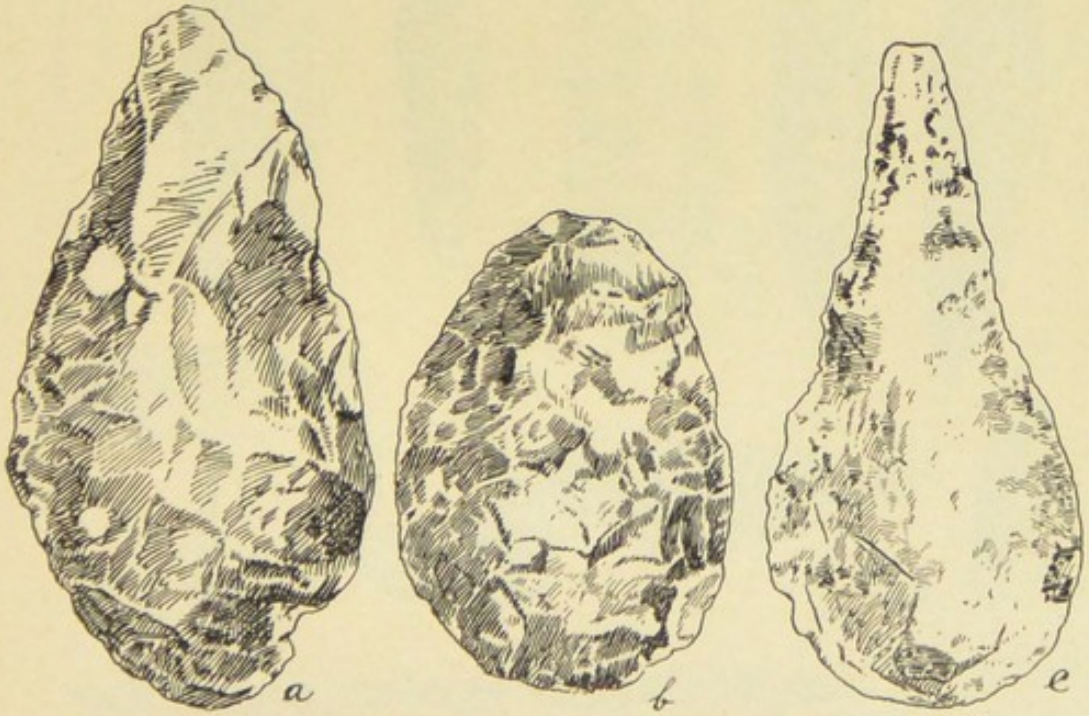



Fig. 17. (½)

THE THREE CHIEF TYPES FROM THE ENGLISH AND FRENCH RIVER DRIFT.

(*a*) Unspecialized, resembling usual Trenton forms; (*b*) specialized all round, leaf shaped; (*c*) specialized at point, unworked at base.

By the kind permission of M. G. d'Ault du Mesnil, Abbeville.

## KNIVES OF PECULIAR FORM, DAGGERS, DRILLS, AND ECCENTRIC PIERCING OR CUTTING IMPLEMENTS.

The exquisite specimens exhibited by Mexico (fig. 18, Mexican cases G and L, and National Museum case 13) are mostly made of obsidian,

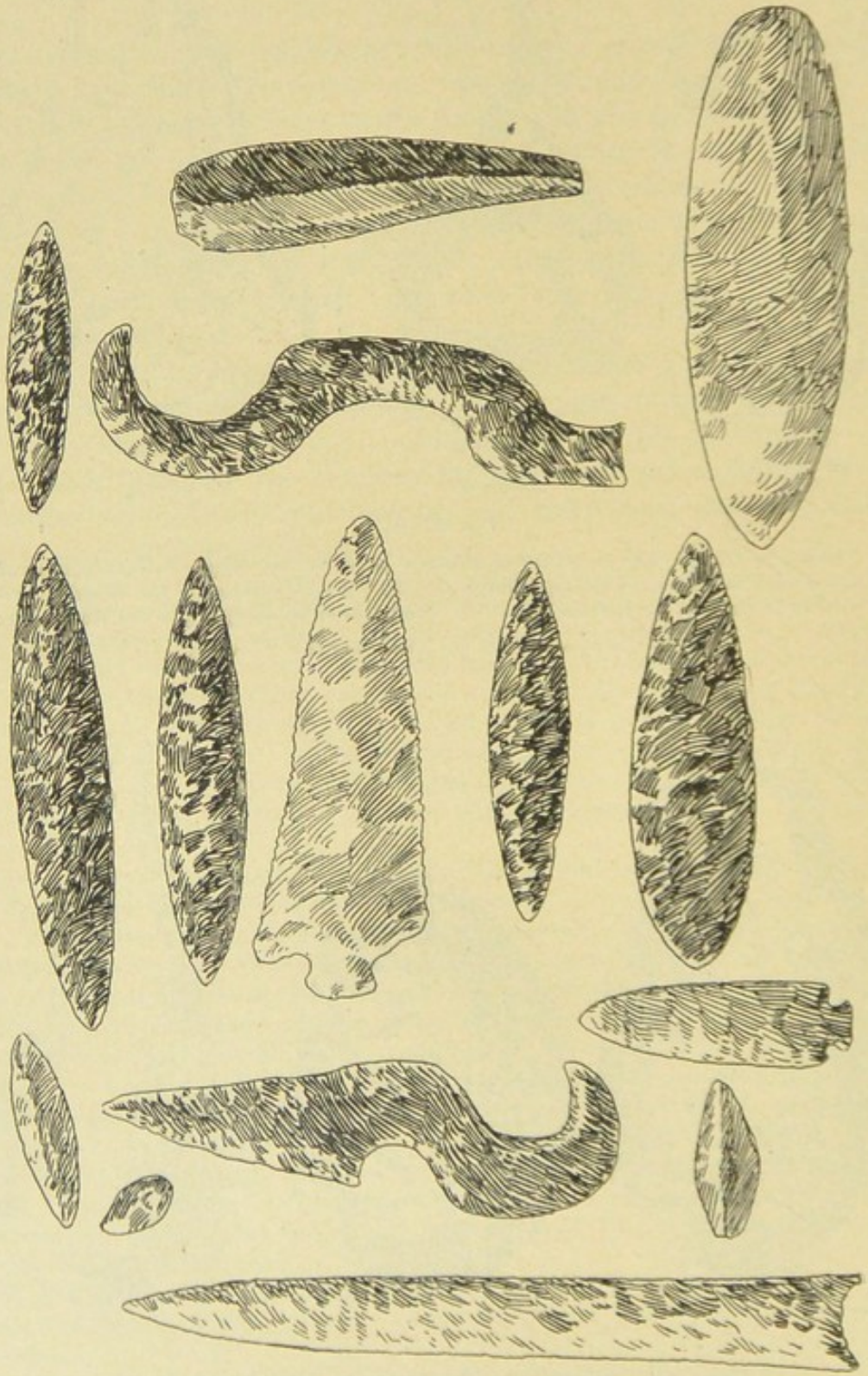


Fig. 18.

KNIVES AND ECCENTRIC CHIPPED FORMS.

United States and Mexico.

and nothing like them is exhibited in any department save the interesting collection of small eccentric forms of jasper from various parts of the United States exhibited in National Museum case 14 (fig. 19),

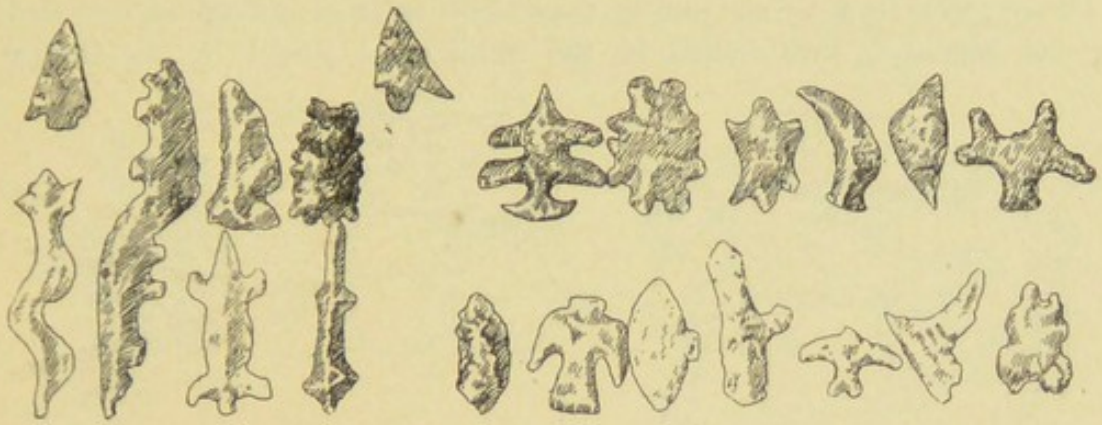


Fig. 19.

ECCENTRIC FORMS IN CHERT AND JASPER FOUND IN THE UNITED STATES.

Collection of the U. S. National Museum.

and the two polished slate daggers from the Tlingit Indians, Alaska (see p. 284, National Museum Report for 1888), resembling the obsidian forms, handle and blade of one piece, from Mexico. We know, how-

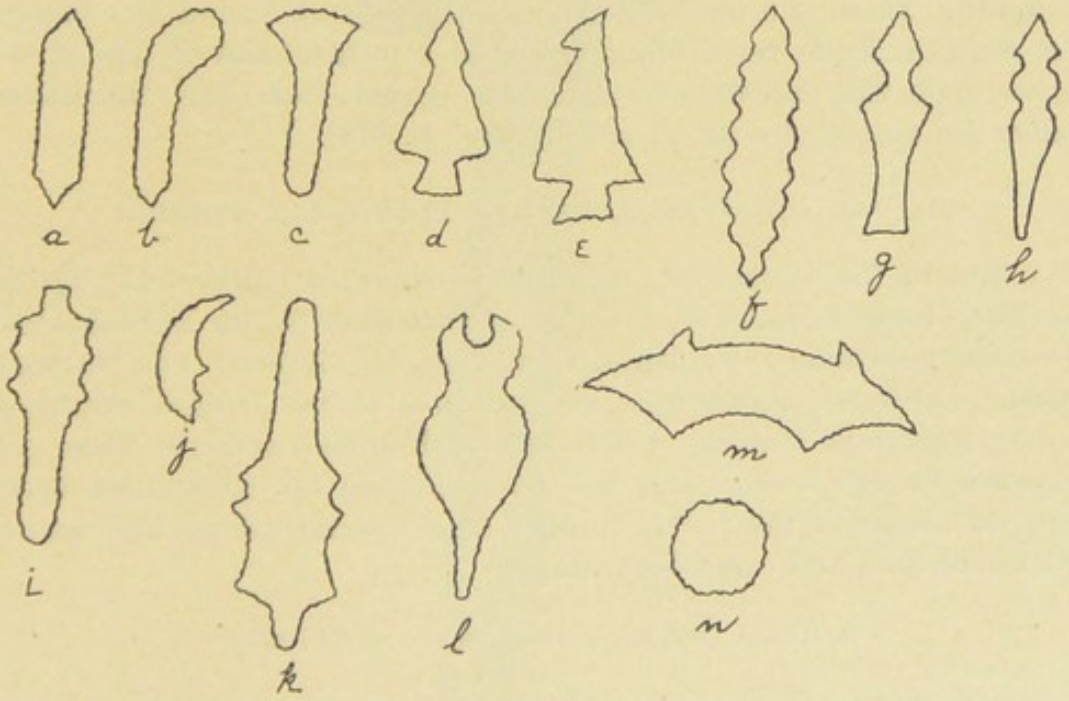



Fig. 20.

CHIPPED FORMS FOUND IN MOUNDS AND AT INDIAN GRAVES AND VILLAGE SITES IN TENNESSEE AND OHIO.

ever, that the Tennessee work in jasper as figured in Thruston's Antiquities of Tennessee, pp. 218–222 (fig. 20), might well be compared with the finest Mexican examples, and that the California blades in

obsidian and jasper, in the Terry collection of the New York Museum of Natural History, are fully equal to them, as are also the two knives of hornestone resembling form *b*, fig. 20, found by W. K. Moorehead in Ohio mounds, (see Primitive Man in Ohio).

It is interesting to see one of these knives (resembling at one end fig. 20, perhaps,) brandished in the hand of a priest in the Codex

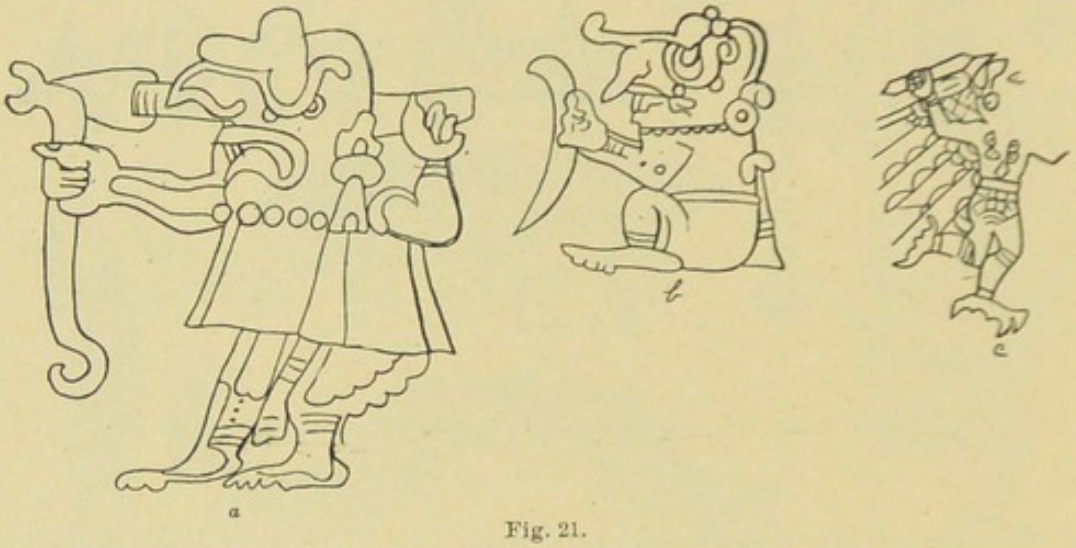



Fig. 21.

TRACINGS FROM ORIGINAL DRAWINGS MADE BY THE ANCIENT INHABITANTS OF YUCATAN AND TENNESSEE, SHOWING HOW LARGE ECCENTRIC FORMS OF CHIPPED STONE WERE USED.

(*a* and *b*) Codex Troano (Yucatan); (*c*) engraved shell gorget, MacMahon Mound, Tennessee

Troano (fig. 21 *a*), another similarly grasped (fig. 21 *b*), and to compare them with the knife resembling figure 20 *a* in the hand of one of the figures upon the famous carved shell gorget from the Macmahon Mound, Tennessee (see fig. 21 *c*, Thruston, p. 338).

## CHIPPED GROOVED AXES AND IRREGULAR FORMS.

We find in the Hemenway collection a mounted chipped ax (fig. 23) from the Moqui Indians of Arizona, and another in the Nordenskjold expedition collection (Swedish exhibit) from the Zuñis. The National Museum exhibits a series from several sites in the United States, of various materials, and the University of Pennsylvania two from the Delaware Valley; and it may not be going too far to connect these forms with some of the rudely chipped slate specimens (fig. 22, *a* and *b*) from Costa Rica and other localities.

## CHIPPED CELTS, ADZES, AND SCRAPERS.

Some of these (see fig. 24 *a*), often doubtless only blocked out forms to be afterwards polished into shape are exhibited in the cases of Costa Rica, United States, and Nicaragua (Peru, Cuba, Guatemala, Ecuador, Mexico, British Columbia, and Alaska, exhibit only the polished pattern), and are not to be distinguished in form from the specimens from England, France, Italy, Spain, and the Lake Dwellings, where they are often found socketed in deer-horn handles (fig. 24 (*c*) ).

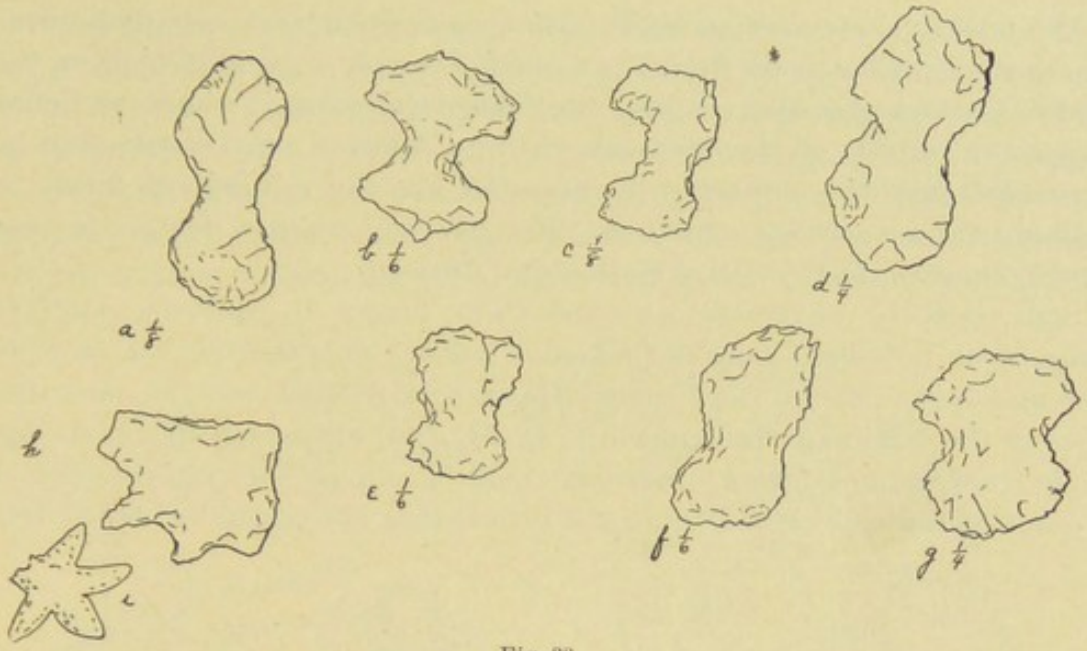


Fig. 22.

RUDELY CHIPPED SLATE SPECIMENS.

(*a*, *b*, *c*) Costa Rica; (*d*) Wyoming; (*e*) Massachusetts; (*f*) North Carolina; (*g*) Alabama; (*h* and *i*) Uruguay.

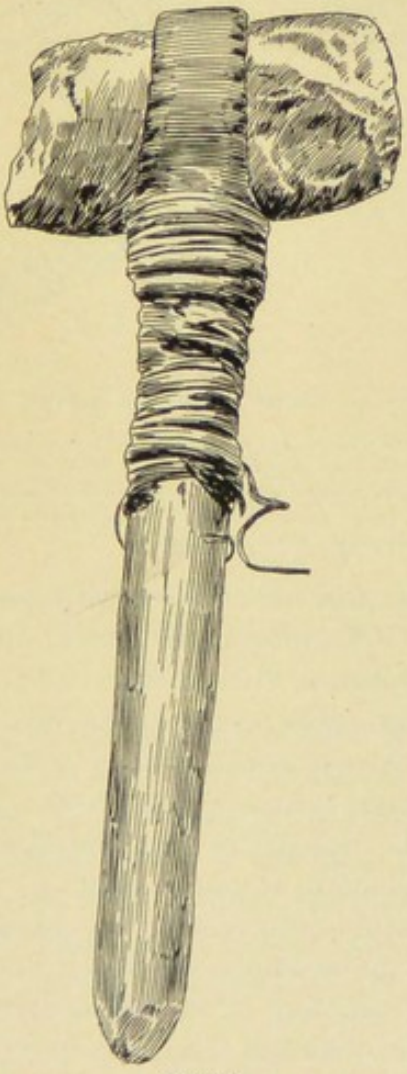


Fig. 23.

CHIPPED GROOVED AXE, MOUNTED IN ORIGINAL HANDLE. RECENTLY OBTAINED FROM MOKI INDIANS IN ARIZONA.

Collection of the U. S. National Museum.

We notice in connection with both the chipped and polished forms the designs in figure 25 from the Codex Troano, (*a*, *b*, and *d*) from the Codex Cortesianus, and (*c*) from the Codex Columbino, where, as Señor Troncoso, curator of the Mexican exhibit, informs us, it must often be supposed that the implements intended are the equivalent forms of copper, since a certain attendant hieroglyph is held to designate that metal, common in Central America and Mexico.

Still there is no reason why the stone forms in question, whether chipped or polished, were not so mounted in Central America, as were the polished celts in the United States and Alaska (see the mounted celts in the National Museum case (fig. 24, *d*), the Spanish specimen (fig. 24, *g*) from the northwest American coast, a relic of the Atrivida cruise of Captain Malespina in 1791, or the interesting specimen (fig. 24, *f*), 185.

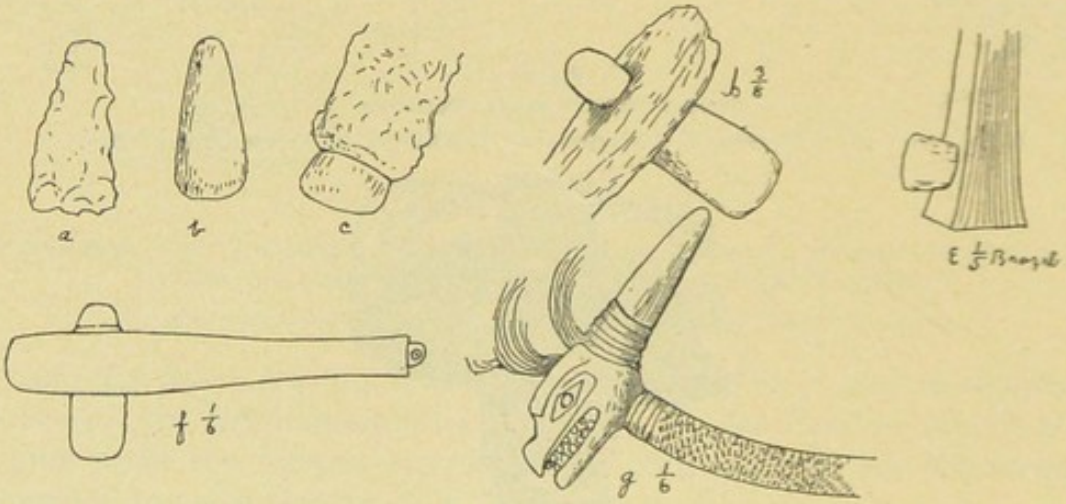


Fig. 24.

HAFTED CELTS FROM NORTH AND SOUTH AMERICA AND EUROPE.

(*a*) Celt chipped but unpolished, Europe and America; (*b*) celt polished, Europe and America; (*c*) polished celt, mounted in handle of deer antler, found preserved in the mud at the Swiss Lake dwellings; (*d*) polished celt, mounted in original wooden handle, found, handle and all, in a bog in New York; (*e*) partly polished celt with wooden handle, as recently made and used by Indians in Brazil; (*f*) polished celt, made, handle and all, of one piece of chlorite, found in an Indian grave on the Tennessee River; (*g*) polished celt or adz, found in use among the Indians of the northwest American coast in 1791.

inches, long made, handle and all, of one highly polished piece of chlorite found in a mound on the Cumberland River, opposite Nashville, Tennessee, and figured in Jones's Antiquities of Tennessee (p. 46).

The National Museum also exhibits several interesting mounted scrapers from the northwest coast and Alaska, where the mounting of chipped and polished scrapers has been amply illustrated and explained by Dr. O. T. Mason in his pamphlet on Aboriginal Skin Dressing (National Museum Report, 1889, p. 553), (fig. 26). With these mounted scrapers it is interesting to compare the similar forms chipped or polished, large or small, scattered about the village sites in the United States and common in the museums of Europe, and from them to turn again to the obsidian flake knives of the Admiralty Islands and the angular unworked chips set in masses of gum still used by Australian savages, and the uncouth blades (see fig. 6) from Easter Island.

What shall we say of the stage of culture represented by unworked chips on the one hand and by specimens with well-specialized edges on the other without the testimony of their handles to give us a hint of their use, whether as hide dressers (O. T. Mason's Aboriginal Skin Dressing), wood chisels (Niblack's Southern Alaska and Northern British Columbia Indians), slave killers (Ray Expedition, National Museum Reports), wedges, planes, adzes, sacrificial axes, and even "tomahawks," and to

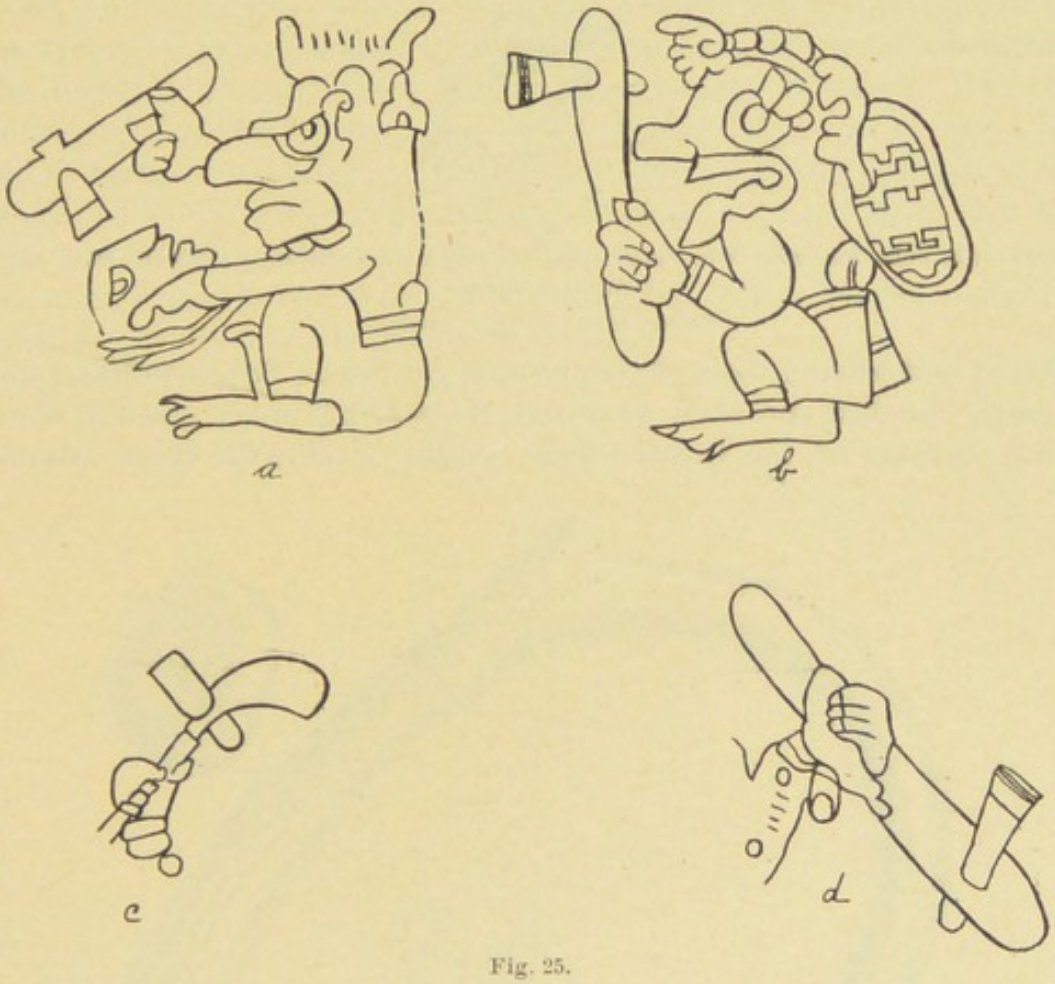



Fig. 25.

TRACINGS FROM ORIGINAL DRAWINGS MADE BY THE ANCIENT PEOPLE OF MEXICO AND YUCATAN, SHOWING HOW THEY MOUNTED POLISHED STONE CELTS.

(a) Codex Troano (Yucatan); (b) Codex Cortesianus; (c) Codex Columbino; (d) Codex Cortesianus (Yucatan).

what tool shall we look for an explanation of the puzzling problem of the methods of carving the elaborate metates and obsidian masks from Mexico, the figurines of volcanic rock from Costa Rica, or, most wonderful of all, the stone collars from Porto Rico (fig. 27). While it may be admitted that any hard stone implement would carve the comparatively soft monoliths of Yucatan, it is less easy, with Mr. McGuire, to imagine pitted hammer stones and pointed fragments doing the work in the other cases.[1]

[1] See "The stone hammer and its various uses," by J. D. McGuire. American Anthropologist, vol. 4, No. 4, 1891.

If thin copper or stone chisels were used for some parts or corners of the pattern, certain ancient workshops should be littered with

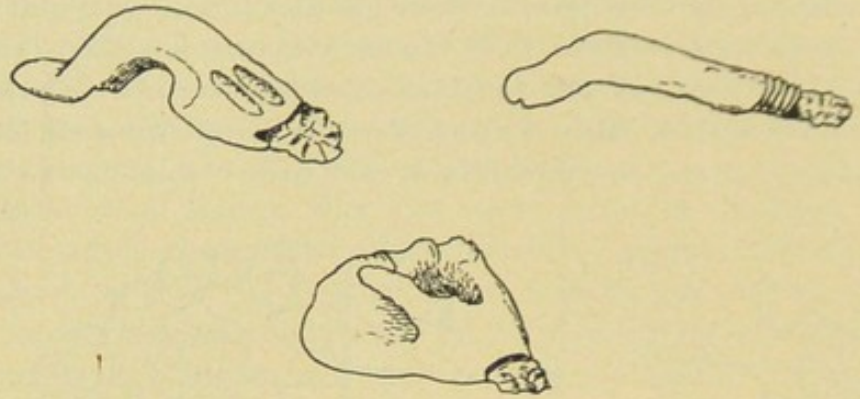


Fig. 26.

CHIPPED SCRAPERS, MOUNTED IN ORIGINAL BONE AND WOOD HANDLES, FOUND IN USE AMONG THE ESKIMO OF ALASKA.

Collection of the U. S. National Museum.

battered and broken tools of this nature, yet Señor Troncoso has found no partly finished specimen with used tools lying near; nor did Señor Alfaro, curator of the Costa Rican exhibit, meet with these missing

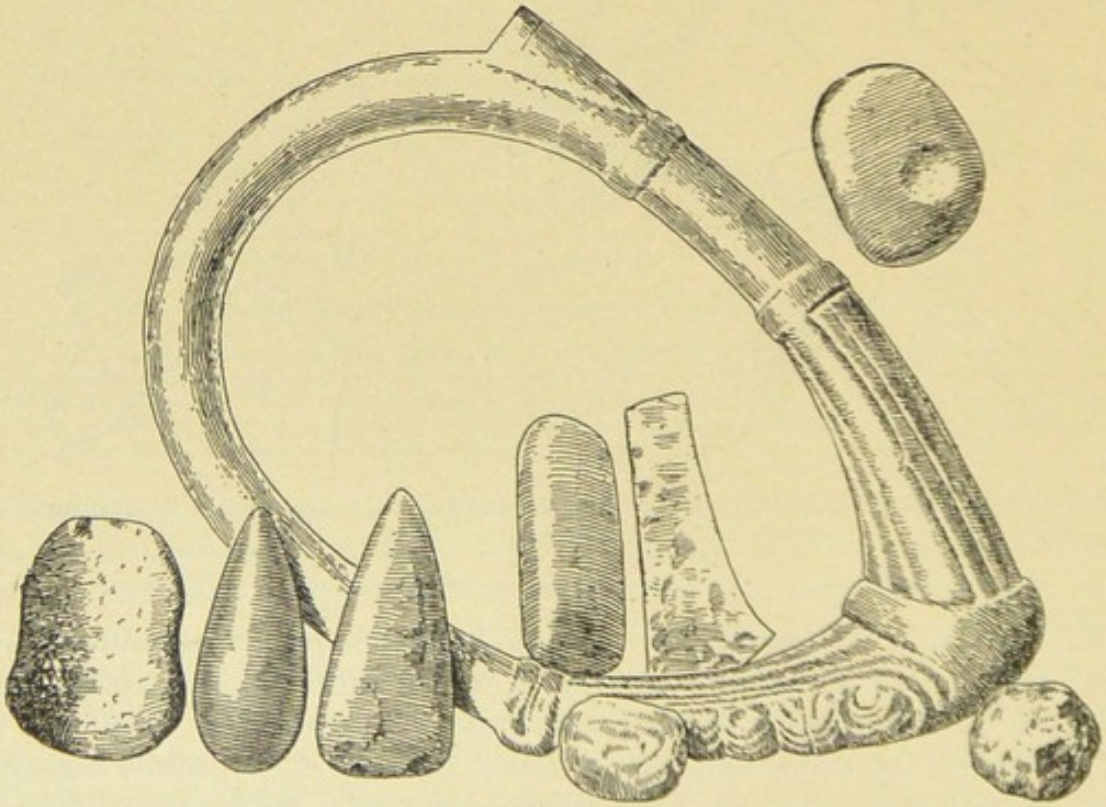


Fig. 27.

STONE COLLAR, PORTO RICO; HAMMER STONES AND ADZES, UNITED STATES AND PORTO RICO AND COPPER ADZ, MEXICO.

A marvel of aboriginal work. One of the "collars" from Porto Rico carved from very hard stone by the ancient inhabitants of the island. The process of manufacture has not been proved. Theories of round hammer stones, hafted hammers, stone and metal celts (see cut), and fragments of stone have been advanced to explain the work, but no specimens have been found in positions to demonstrate what kind of carving tools were used.

links of evidence at the partly quarried metates discovered by him recently in Costa Rica.

Señor Troncoso has never heard of an ancient Mexican cast-copper chisel hardened by alloy, and it is difficult to conceive of so soft a metal doing effective work on the stones in question.

In here ending this notice it is needless to say that but few of the thousands who visited the Madrid Exposition realized the relation of these chipped objects of stone to the whole display.

The eye was dazzled by brighter tokens of human handiwork, and the story of the New World was forgotten before the manifold marvels of art and craft that proclaimed what Europe was at the time of the discovery. To many it sufficed that rude stone tools were not beautiful. The deeper meaning of the primitive shapes was overlooked. Yet they alone spoke of the mystery of a "New World" that was not new, and told of races who, though separated from their fellows, had moved and developed as parts of one humanity. Fraught with problems that concern man's being, they reminded him not of art or beauty, but of his own childhood; not of a day of dawning greatness, but of a night in the unknown past out of which he emerged.

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