A Handbook for the Bishop Museum.

THIS Museum was founded in 1889 by Charles Reed Bishop in memory of his wife Pauahi, whose honored name it bears. The Princess Pauahi was great-granddaughter of Kalaniopuu, the Moi of Hawaii at the time of Cook's visit, and was also descended from Kamehameha the Great, the remarkable Hawaiian who extended his conquests to the entire group and consolidated these islands into one Kingdom. Bernice Pauahi was educated at the Royal School, established by the American Mission at the request of Kamehameha III and his chiefs, and at an early age was married to Charles Reed Bishop of the State of New York. Her long and happy life was conspicuous for its usefulness, its singleness of character, and the love and devotion of her people. Mrs. Bishop died October 16, 1884, and left her entire estate to found schools for the youth of her race. Five years later Mr. Bishop founded the BERNICE PAUAHI BISHOP MUSEUM OF POLYNESIAN ETHNOLOGY AND NATURAL HISTORY, which occupies a prominent position in the centre of the Kamehameha School grounds at Kalihi, a western suburb of Honolulu. The original building consisted of a handsome entrance hall and three large rooms. In 1894 the growth of the Museum necessitated additional accommodation, and the first wing, Polynesian Hall (Fig. 1), was built by Mr. Bishop to afford commodious offices and an exhibition hall for the rapidly increasing collection of southern and western Pacific specimens; but soon again space was inadequate, and in 1898 the foundation of another wing was laid, in which to display the entire Hawaiian exhibit, with the exception of the important Feather work, to which one of the original rooms has always been devoted.

The original endowment consisted of the valley of Waipio on Hawaii, the home of Kamehameha, which then yielded an income of $4000, to which was added soon after $1800 interest from government bonds. The original staff consisted solely of the Curator for nearly eight years. Mr. Bishop's repeated gifts now permit of ample assistance in the Museum work.

The illustrations (Figs. 2 and 3) show the first building and the extension at the present date (1903). The material is gray basalt quarried in the neighborhood, and the interior wood work is chiefly of koa, an Hawaiian wood remarkable alike for its utility and hardness and the variety and richness of its color. Special precaution has been directed to rendering the Museum fire-proof, and heavy sliding doors of copper packed with asbestos separate the principal departments, while the school buildings in the neighborhood have been moved to a suitable distance.

The nucleus of the collections of this Museum was the invaluable store of kapa, mats, calabashes, feather work, ornaments and relics which were bequeathed to Mrs. Bishop as the last of the Kamehamehas. To this have been added many treasures from the collection of the late Queen Emma; and by purchase the J. S. Emerson, G. H. Dole, Eric Craig and other collections of Ethnological specimens: the fine Garrett collection of more than nine thousand species of shells: the Mann and Brigham collection of Hawaiian plants: and the remarkable series of Pacific region specimens which were formerly in the cabinet of the American Board of Commissioners for Foreign Missions at Boston. Many Hawaiian insects and some birds and shells have been added by the labors of Mr. R. C. L. Perkins, employed jointly by the Royal Society, the British Association for the Advancement of Science, and this Museum; and many valuable specimens of Polynesian Natural History and Ethnology by the Museum's collector in the southern Pacific. The Hawaiian Government gave by Act of Legislation all the collection formerly known as the Government Museum, together with certain relics of royalty including the crown, thrones and sceptre. Mr. J. L. Young has lately presented to the Museum a remarkable collection of ethnological and other specimens from Easter Island and Tahiti.

FIG. 1. BERNICE PAUAHI BISHOP MUSEUM IN 1897.

The Trustees of Oahu College and the Hawaiian Board of Missions generously gave their collections to this Museum, and it is probable that in the future the smaller collections of private individuals will be here deposited as a fitting place for use and preservation.

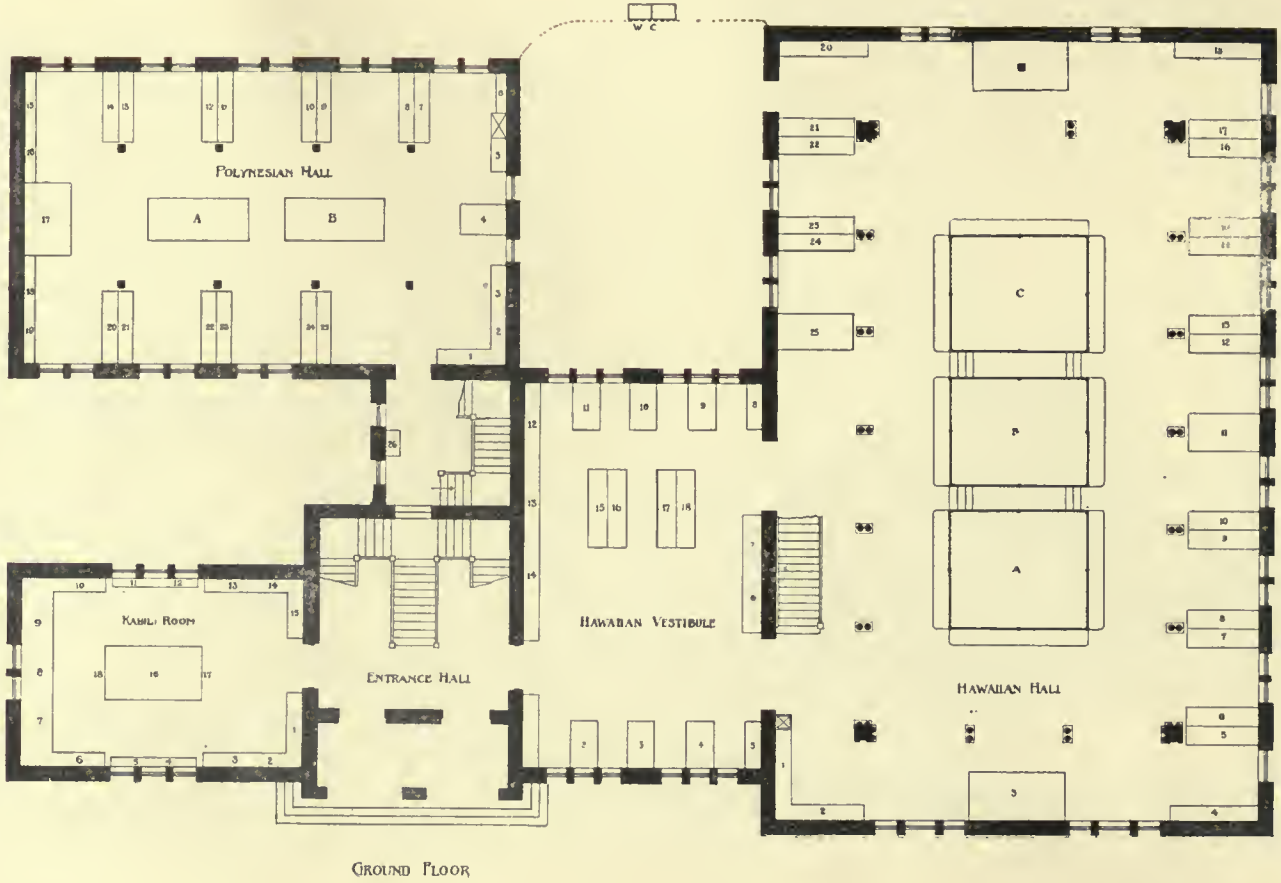
The first catalogue of the Bishop Museum, now long out of print, was issued in 1892, and described nearly six thousand articles then in the Museum, but as this number soon doubled and is constantly increasing, and as the arrangement also has entirely changed owing to the enlarged case room, it has been decided to issue a con-

FIG. 2. MUSEUM IN 1890.

densed catalogue in form of an illustrated handbook containing most of the information of the former publication corrected by the experience of the past ten years, and enlarged by the requirements of the present time. No catalogue of a live and growing museum can long serve the purpose of a guide, but the present attempt it is hoped may to some extent fill the want which has often been expressed by visitors. As the Museum became of some importance it was felt that the remote position deprived many students of any opportunity of examining its treasures, and the Curator prepared a small edition (seven copies) of the original catalogue with some sixty plates illustrating by photography many hundred specimens, and these copies were distributed to the great museums or libraries of the

FIG. 3. MUSEUM IN 1903.

world so far as possible; but the great cost and considerable time of preparing the permanent prints precluded the extension of this method. A press had been procured for the necessary work of printing labels, which can always best be done under the direct supervision of the museum officials, and this proved so advantageous that the Trustees decided to allow the Director to purchase suitable type and other matters of a printing establishment and in 1898 a series of publications was begun. As developed this consists of Memoirs in quarto form in which are published the more important essays of the Museum workers, or those papers requiring



GROUND FLOOR

FIG. 4.

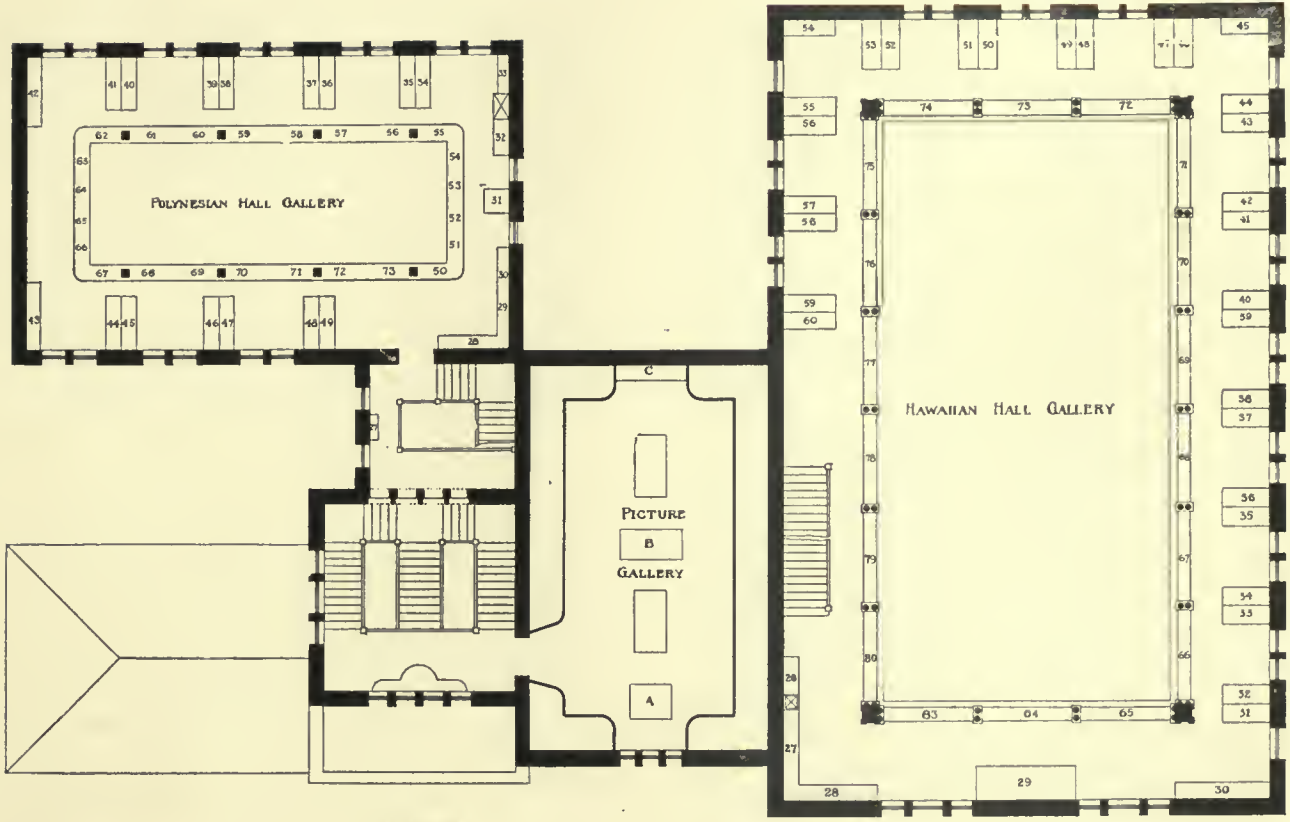

POLYNESIAN HALL GALLERY
HAWAIIAN HALL GALLERY
PICTURE
B
GALLERY
A
C
FIRST FLOOR

FIG. 5.

larger illustrations: the Occasional Papers, of which are the Director's Annual Report and any publications where the octavo form is more convenient. One volume of each series has been already issued, and the aim in both has been to present a comprehensive history of the Ethnology and Natural History of first, the Hawaiian Islands, then of the other portions of the Pacific region. The separate essays composing these volumes are for sale and priced lists may be seen at the Attendant's desk or on the bulletin board at the entrance. Usually one part or number of each series is published annually, and some of the Memoirs are intended to illustrate the contents of the Museum as well as the ancient customs of the Polynesians. With these publications this Museum has established exchanges with the principal kindred societies and museums of the world. It should be stated that the region that the Bishop Museum endeavors to illustrate by collections and publications embraces the islands of the Pacific ocean from Rapanui on the extreme east to and including Australia and New Guinea on the west, and a carefully prepared chart of this region has been placed on the wall of Polynesian Hall, and an Index published in the quarto Memoirs, Vol. I., No. 2.

The collections in the Bishop Museum are (1903) distributed through the building as follows, using the plans of the Museum given herewith: In the Kahili Room, on the left of the entrance, are the specimens of feather work and the mats, mostly Hawaiian; a few extraneous specimens are included as the room can be darkened when not open to the public. Turning to the right the Hawaiian Vestibule contains skeletons and crania of Pacific races; mounted specimens of Pacific marine animals; fossil corals; modern Hawaiian straw manufactures and volcanic products. Through this room one enters Hawaiian Hall, devoted especially to Hawaiian matters, although for convenience whales even from beyond Hawaiian waters are included. The ground floor is appropriated to Ethnology, but has in its midst a model of the crater of Kilauea; the first gallery contains the specimens of Natural History and the relics of old Hawaii. The upper gallery is used for the Museum library, store cases, instruments for investigation, etc., and is not open to the public. Returning to the entrance hall, the stairway leads to the Picture Gallery, over the Hawaiian Vestibule, where will be found paintings and photographs of people and scenery; a case of silver relics of the alii, and certain furniture interesting for the same connection. Midway on the stairway opens the passage to Polynesian Hall where, on the first floor, are the non-Hawaiian ethnological collections arranged in alcoves, and in the gallery will be found the Natural History collections from the Pacific, and the large chart showing the region the Museum endeavors to illustrate. These rooms are opened free to the public on Friday and Saturday from 10 A.M. to 5 P.M. from May 1 to November 1; and from 10 A.M. to 4 P.M. the other half of the year, subject to the following rules:

Visitors will deposit all sticks and umbrellas in the rack provided near the entrance. Gentlemen will remove their hats while in the building. Japanese must leave their wooden shoes in the porch.

Young children will not be admitted unless accompanied by older persons who shall be responsible for accidental damage to building or collections.

No smoking or spitting is permitted; nor are dogs allowed in the buildings.

No eatables may be carried into the Museum, and visitors spending the day there must arrange for any food required outside the building.

The rooms in the basement of Polynesian Hall contain the administrative offices, and with the Printing and Taxidermy departments are not open to the public.

For convenience the following abbreviations are used in this handbook: E., Entrance Hall; K., Kahili Room; P.G., Picture Gallery; P., Polynesian Hall; V., Hawaiian Vestibule; H., Hawaiian Hall; H.G., Gallery of Hawaiian Hall. The cases in each room are numbered independently as will be seen on the plans. Whatever arrangement is adopted at the time of the publication of this handbook, as the Museum is a living institution suitably endowed, must change with its natural growth, but the numbers on the specimens remain the same, and they will be found without difficulty by studying the case labels. Printed labels will be found on all important objects or groups.

Entrance Hall.—In the porch is a large roll cut from Hongkong granite for a sugar mill, and so used in the early days of Hawaiian sugar manufacture. Its axis was placed horizontally, and by spokes whose sockets are deeply cut in the cylinder was connected to an overshot water wheel. Two immense surfboards of koa, formerly belonging to Paki, are also on the porch. Their use will be described below. Passing through the outer doors the visitor finds on the wall at either side of the stairway a good specimen of the carved gable end of a Maori *pataka* or storehouse. These structures are raised on posts and entered by means of a ladder. The elaborately carved planks of the front are bound to plain logs which support a thatched roof projecting about two feet over the carved portion and ornamented by carved barge boards. Note the curious three-fingered hands on most of the figures which represent chiefs or distinguished friends of the owner or builder. At the gable peak are raised *tiki* or images (of which several specimens are on the walls) to act as guardians of the pataka and its contents. As the style of carving is sometimes likened by uncritical visitors to the well known totem posts of the Haida Indians, a model of one of the latter is placed near by to show the great difference, even of form. The two large idols, of which one is shown in Fig. 6, were, at the time of the destruction of the idols previous to the coming of the American missionaries in 1820, apparently charred and then thrown into a fish pond where the subject of our illustration became in time a portion of the wall or dam. The water was not sufficiently dammed by the discarded idol and the fish escaped, causing investigations by the owner which led to the resurrection of the long-buried and quaintly carved god. The wood seems to be black ohia (*Metrosideros polymorpha*), a common wood for such purpose as it is heavy and durable. The Russian cannon is mounted for convenience on an ancient carriage. It bears the date 1807, and was found half buried in the Palace grounds. How these guns came to the islands may be learned from Alexander's History.

FIG. 6.

The wood of which the stairway (Fig. 7) is constructed will attract the visitor's attention, and as it has been generally used for the cases and interior finish it should be stated that it is the native *Koa* (*Acacia Koa*), a large tree common in the upper regions of the larger islands. The wood used in this hall came from Maui, that in Polynesian Hall from eastern Hawaii, that in the newer cases from the Kona district of the same island. It is very hard and durable but is unfortunately subject to the ravages of the termites, hence the interior of the cases is constructed of cedar and the exposed parts creosoted. A fine specimen of the wood of the koa roots may be seen on this stairway wall in H.; a table top once belonging to Konia, the mother of Mrs. Bishop.

FIG. 7.

While most of the portraits of Hawaiian alii belonging to this Museum are upon the walls of the Entrance Hall a few are in the Picture Gallery, and for convenience all will be noticed here. They bear numbers in the lower left-hand corner of the canvas.

1–2. Kamehameha the Great, 1737–1819. The artist attached to Kotzebue's Expedition in 1816 made the only known portrait of the Conqueror, and from the colored lithograph in the account of this voyage the two copies in this Museum have been made by some unskilled hand. They differ greatly both from each other and from the original.

3. Kamehameha II, Liholiho. Born at Hilo, Hawaii, in 1797, of Keopuolani, he succeeded his father in 1819, and died in England July 14, 1824. A small lithographed portrait by John Hayter. P.G.

4. Kamamalu or Kamehamalu. Half-sister and favorite wife of Liholiho. She accompanied her husband to England and died there July 8, 1824. Her mother was Kalakua. Portrait by Hayter. P.G.

5. Boki and his wife Liliha. Boki was the brother of Kalanimoku; was governor of Oahu 1819–1829; went with Liliha to England in Liholiho's suite; sailed December 2, 1829, on a sandalwood expedition from which he never returned. Liliha was governess of Oahu 1829–1830. A colored lithograph by Hayter. This copy was given by the Bishop of Rochester to Queen Emma as a memento of her visit to him in 1865. P.G.

6. Kamehameha III, Kauikeaouli, was born at Keauhou, Kona, Hawaii, August 11, 1813, of Keopuolani. He was proclaimed king June 6, 1825, and died December 15, 1854. This portrait was painted in Boston from a daguerreotype.

7. Kamehameha IV, Alexander Liholiho, was born February 9, 1834, of Kinau (daughter of Kamehameha I by Kalakua) and Kekuanaoa; was adopted by Kauikeaouli, and on his death in 1854 came to the throne. He married Emma Rooke, grand-daughter

of John Young, June 19, 1856, and died November 9, 1863. A lithograph by Grozelier of Boston.

8. Kamehameha IV. A life size painting from a photograph by Chase.

9. Emma Kaleleonalani, wife of Alexander Liholiho; died April 25, 1885. Painting from a photograph.

10. Emma, Queen. A photograph.

11. The Prince of Hawaii, son of Alexander and Emma; born at Honolulu, May 20, 1858; died August 19, 1862. Painted in his uniform as fireman.

12. The Prince of Hawaii. Painting by Perry.

13. Kamehameha V. Lot Kamehameha was born December 30, 1830, of Kinau and Kekuanaoa. He came to the throne in 1863, and died December 11, 1872. Life size painting from a photograph.

14. Kamehameha V. Small full length colored photograph.

15. Kamehameha V. Photograph by Weed in 1865.

16. Victoria Kamamalu, sister of Alexander and Lot; died May 29, 1866.

17. Ruta Keelikolani, daughter of Pauahi and Kekuanaoa, was born in Honolulu, February 9, 1826, and died at Kailua, Hawaii, May 24, 1883. Enlarged photograph.

18. Ruta Keelikolani. Full length photograph.

19. Ruta Keelikolani. Full length photograph by Weed in 1865.

20. William Pitt Kinau, son of Keelikolani and Leleiohoku; died September 9, 1850.

21. Mateo Kekuanaoa, Superintendent of sandalwood for Kamehameha I, and Governor of Oahu for many years; died in Honolulu, November 24, 1858. Enlarged photograph.

22. Bernice Pauahi Bishop, daughter of Konia and Paki; born in Honolulu, December 19, 1831; died October 16, 1884. Photograph by Weed, 1865.

23. Berniee Pauahi Bishop. A painting by the Spanish artist F. de Madrazo, 1887, from a photograph. Presented by Hon. S. M. Damon.

24. Charles R. Bishop. A pastel by Clifford.

25. Abner Paki; died June 13, 1855. A photograph.

26. Konia, wife of Paki; died July 2, 1857. A photograph.

27. William Charles Lunalilo, sixth King of the Hawaiian Islands; born in Honolulu, January 31, 1835, of Kekauluohi and Charles Kanaina; elected King January 1, 1873; died February 3, 1874. Painting by a Chinese artist.

28. Lunalilo. Photograph.

29. Lunalilo, as a boy at the Royal School. A water color drawing by one of the artists of the U. S. Exploring Expedition.

30. Lydia Kamakaeha Liliuokalani; born September 2, 1838, of Kapaakea and Keohokalole; adopted by Paki; ascended the throne of Hawaii January 29, 1891; removed from the throne by the people January 17, 1893. Photograph by Weed, 1865.

31. David Laamea Kamanakapuu Mahinulani Naloiaehuokalani Lumialani Kalakaua, seventh King of Hawaii, was born November 16, 1836, of Kapaakea and Keohokalole; elected to the throne February 12, 1874; died in San Francisco January 29, 1891.

32. Kapiolani, widow of Kalakaua; married in 1862; died at Waikiki June 24, 1899. Photograph.

33. Victoria Kawekiu Kaiulani Lunalilo Kalaninuiahilapalapa, daughter of Likelike and nieee of Kalakaua and Liliuokalani; born October 16, 1875; died May 24, 1899.

36. Kamehameha IV. A photograph, and a most satisfactory likeness.

45. Thomas Hoopu, George Tamoree, William Tenooe and

John Honoree. An engraving by Jocelyn, from a painting by Samuel F. B. Morse. It is inscribed: "The profits arising from the sale of this print of four Owhyhean Youths will be applied to the Sandwich Islands Missions. New Haven, 1822."

49. A Daguerreotype group of Kauikeaouli, Kalama, Lot, Alexander and Victoria.

50. Lot Kamehameha. Daguerreotype.

51. Victoria Kamamalu. Daguerreotype.

52. Abner Paki. Daguerreotype.

53. Bernice Pauahi Bishop. Daguerreotype.

54. Abner Paki. Daguerreotype.

55. Keoniana and Emma Rooke (Queen Emma). Daguerreotype.

56. William P. Kiuau. Daguerreotype.

57. Kekuanaoa and his daughter Victoria. Daguerreotype.

58. T. C. B. Rooke and Emma. Daguerreotype.

59. William C. Lunalilo.

190. Lydia Makaeha Liliuokalani, as Queen of Hawaii, 1892.

192. George Vancouver. Copied by Philip L. Hale from the portrait in the National Portrait Gallery, London.

202. Princess Likelike, sister of Kalakaua; died February 2, 1887.

193-200. Eight bas-reliefs of Hawaiian Types by Allen Hutchinson, formerly of Honolulu.

The cabinet at the head of the stairs was made of Hawaiian woods in Berlin for Queen Emma, and until the death of Kamehameha IV was in the palace. After the Queen's death it was in Mr. Bishop's drawing room until removed to this Museum. The contents are mementos of Mrs. Bishop, including some of her paintings on China. The koa cabinet near by formerly belonged to King Lunalilo.

On the wall by the front window are ancient Hawaiian kauila spears, which, owing to their size, are separated from the other Hawaiian weapons exhibited in Hawaiian Hall. The *pololu* was a very long stick, with the butt carved in various patterns, the shaft often not smoothed, and the point hardly sharpened. It was also sometimes made of great length (No. 800 is 17 ft. 3 in. long) and very heavy, to set up before a chief's house as a mark of his rank; in such case the butt was usually squared to fit a socket sunk in the ground. Two very fine ones, carried in processions with kahilis, are to be seen in the Kahili Room, and in the same place are a number used as kahili handles. Some of these old weapons have a history. The *petites histoires* of several of these spears have been preserved, and the following may interest the visitor. No. 804: The tree grew at Puukapele, Kauai, from which this spear was made for Kamehameha I, who gave it to his *aikane* Hema just before the battle of Mokuohai against Kiwalaó. Hema also used it in six other important battles—at Laupahoehoe against Keoua Kuahuula; in a sea fight in the Moana o Alanuihaha against Kahekili and his brother Kaeo (1791); at Iao against Kalanikupule, the son of Kahekili; at the battle of Kaipalaoa in Hilo against Namakeha; at Keaau, Puna; at Kaunakakai, Molokai. In the peaceful time after Kamehameha had subdued his rivals the old spear was trimmed into an *auamo aipuupuu* and used to carry the food calabashes of the chiefs. No. 817: Originally from Kauai, this spear was in the same family for seven generations. Some of the men were *iwikuamoo* of the kings of Maui and used the spear against Kamehameha in the battles of Kulaokamaomao and Iao or Kapaniwai. No. 821: The tree from which this spear was fashioned was

cut with a stone axe by Kanapua about the time of Cook's arrival. It was used in the battle of Kapaniwai on Kamehameha's side. Kanapua died in 1843 leaving the weapon to his son Kaneakua, who took it to Waialua, Oahu, in 1846, and after thirty years brought it to Honolulu. From the upper landing one enters the

Picture Gallery.—Making no claim to be an art gallery, this room contains very interesting views of the volcanic outbreaks on these Islands in recent years, pictures of which the accuracy has not been surpassed. Beginning on the left of the entrance there is a view of the raised lava lake of 1893, of which the position in the crater of Kilauea can best be understood by the painting of the entire crater which hangs on the opposite wall of the gallery. In 1896 the bottom dropped (a common way with this crater) and the molten contents escaped by some subterranean channel, leaving a chasm half a mile across and perhaps 600 ft. deep. The week after the emptying there was neither fire nor smoke in the conical pit, nor any signs of an opening by which the lava had vanished. After some months the lava again began to rise in the well to a height of several hundred feet, in which state Howard Hitchcock, the artist of the two previous paintings, made the view which hangs on the same wall with the comprehensive picture of Kilauea.

Next is to be noticed a water-color sketch of Waimea, Kauai, a facsimile of that (now in the British Museum) made by Wäber, Cook's artist at the time of the rediscovery of these Islands. Cook anchored off the mouth of the Waimea river January 20, 1778. Another important painting near by is Charles Furneaux' view of the eruption of Mauna Loa in 1881 seen from the sea off Kawaihae. While the summits of the giants of Hawaii were snow-clad, fountains of lava spouted from the flank of Loa and flowed in several streams toward Hilo, stopping at last within half a mile of the town. In the foreground is seen the ground on which Kamehameha built the heiau or temple Puukohola to Kukailimoku (1791) as a help to the conquest of the group. Nearby hangs a picture of Haleakala, the house built by Paki, in which Mr. and Mrs. Bishop long had their hospitable home: now destroyed. On the end wall is Hitchcock's remarkable painting of the eruption in 1896 of Mokuoweoweo the summit crater of Loa. The contrast of snow and earth-fire at an elevation of nearly 14,000 ft. is noteworthy: the crater walls in the background are 800 ft. high: Mauna Kea is seen through a break in the wall.

In the corner niches in this end of the gallery are: on the left a clock given by Louis Philippe to Kamehameha III (the case was replaced in Honolulu), and on the right a bust of Lapérouse from the monument to this unfortunate navigator in the Musée de Marine, Louvre, Paris. A bust of Bougainville is in the third niche. A bronze bust of Kalakaua, by Allen Hutchinson, stands near the entrance, and a small bust of King Lunalilo, by the same sculptor, is also in the gallery.

The cradle was presented to the Prince of Hawaii, the child of Kamehameha IV and Emma: it was made in Honolulu. The spinning wheel was made in the early days of the American Mission when an attempt was made to teach the Hawaiians spinning and weaving, of which some of the results are shown in the relic case (H.G.). The rude chair, a *manele*, was used to carry people in difficult paths before the advent of horses. This and the wheel were given by Dr. A. B. Lyons.

Beneath the front window is a large lithographic view of Honolulu in 1855, a drawing by Paul Emmert from the tower of the Romanist cathedral. A view of the town in 1837, drawn by Edward Bailey of the American Mission and engraved at Lahainaluna, is also shown. Other smaller views and photographs show the town

at various times. In a border extending around the gallery are shown photographs of Pacific Islanders, beginning with the Maori on the left of the entrance: as these are labeled and liable to substitution from time to time no farther description is required. A small waxen bust of Liholiho, who died in England, given to the Museum by Mrs. E. K. Pratt, a schoolmate of Mrs. Bishop in the Chiefs' School, was brought home with the royal remains by Lord Byron in 1824 as a present to one of the late King's widows, and it is said that when Kalaimoku and the other chiefs saw it they wept as they recognized their beloved King.

In the cabinet of silver near the window are: A silver teapot sent by King George IV of England to the regent Kaahumanu, and another given by him to Liliha, the wife of Boki. A full tea set was given in each case, but it is the Hawaiian custom to divide such property among the heirs of a decedent, and so these teapots are left solitary. A pitcher, salver and six goblets inscribed "Presented by the Insurers of the ship California, of the City of Boston, United States of America, to Mateo Kekuanaoa, Governor of the Island of Oahu, Sandwich Islands. 1842." A cup presented by Queen Victoria to her godson the Prince of Hawaii; it was greatly valued by Queen Emma. Specimens of old jewelry belonging to Mrs. Bishop and the other members of the Kamehameha family. The koa table in the midst of the gallery belonged to Mrs. Bishop. A silver speaking-trumpet belonging formerly to one of the missionary packets, Morning Star, was given by Rev. Henry H. Parker.

Kahili Room.—At the left of the entrance is a room cased with white cedar (*Chamæcyparis Lawsoniana*) and containing some of the most remarkable specimens in the Museum. Perhaps of all the native Hawaiian work that in feathers is most generally interesting and most widely known. The avifauna of these Islands is limited and not at all remarkable for plumage of bright or varied coloring. The birds furnishing the ornamental feathers to the old Hawaiians were:—

Mamo,	*Drepanis pacifica*,	Orange and black;
Oo,	*Moho nobilis*,	Yellow and black;
Iiwi,	*Vestiaria coccinea*,	Scarlet;
Apapane,	*Himatione sanguinea*,	Crimson;
Ou,	*Psittacirostra psittacea*,	Green;
Koae,	*Phaëthon rubricauda*,	White and red;
Iwa,	*Fregata aquila*,	Black with greenish sheen;

and specimens of all these may be seen in Case 16, and also in more extensive series in H.G.

In more recent times the advent of foreigners has added to this meagre list peacock, parrot, pheasant, ostrich, mina, duck and barnyard fowl of many strains. But for value no modern feathers compare with the ancient and indigenous product. The mamo and oo formed a kind of golden currency with which taxes might be paid, the gods propitiated, or chiefs mollified, and with the red feathers of the iiwi formed the most treasured property of the Hawaiians. Feather hunting was a distinct vocation, and as most of the birds whose feathers were sought are only found inland and high on the mountains, courage, patience and industry were necessary to the *poe hahae manu*. Sometime a net (No. 138, c. 8) was used, at other times a snare, but oftener the hunter smeared on the twigs birdlime made of the gum of the breadfruit or the viscid milksap of the tree lobeliads; and, to excite the birds' curiosity, even transplanted strange trees to the midst of the region frequented by them. To obtain the pair of tail feathers of the koae or tropic bird, the hunter climbed steep precipices where these birds nest, or

made difficult voyages to Nihoa or Necker, bird islands of the Hawaiian group. As brought in by the hunter the feathers of the land birds were attached to slender fibres as shown in Nos. 139, 140, c. 8. *Kapu* protected the birds to some extent, but the customs of the hunters were a more complete protection, for although the oo was very good eating, it was generally spared to renew at the next moulting the small tuft of axillary feathers which was plucked. It is a popular delusion that there are but two feathers taken from each bird that some of the many unknowing writers on things Hawaiian are responsible for: each tuft contains more than a dozen feathers. Kamehameha I strictly forbade the killing of the feather producers. The arrangement of feathers on neck or head bands (lei), on kahili, on the capes and cloaks (ahuula), on helmets (mahiole), or on the wicker gods (Kukailimoku, No. 7855, c. 16), was a favorite occupation of noble women. Feathers for a lei were strung on fibre of oloná (*Touchardia latifolia*) of which the preparation is shown in c. 25, H., and the cloaks were made of a net of this oloná (Nos. 2840, 2841, c. 8) to which feathers were carefully attached. In the large kahili the feathers were bound to stems of various kinds, and clusters of these were bound to the main pole or handle. When not in active use all feather ornaments were packed in calabashes (No. 00, c. 9, and others in c. 7, H.).

FIG. 8. SMALL KAHILIS.

Kahili, meaning a plaited or twisted thing, also a broom, seems to have been originally like a fly-flap, and later to have attained the huge dimensions affected by the kings and high chiefs. The Rev. C. F. Stewart saw, in the early days of Kamehameha II, some with poles near thirty feet high, the *hulumanu* or feathered portion forming cylinders 15 to 18 inches in diameter, and 12 to 14 feet long; but the largest hulumanu in this Museum is 2.5 feet in diameter and 4 feet high, while the poles are often 15 to 18 feet long. These sticks were sometimes made of a kauila wood spear (Nos. 2, 4, 11), or of disks of tortoise shell strung on a central rod, and sometimes alternating with cylinders of whale ivory or human bone. Two specimens of the second kind of handle, begun by the high chief Paki but never finished, may be seen in c. 8. In more modern times ashwood handles and those of inlaid native woods turned and polished have been generally used. Formerly the base of the hulumanu was an inverted cone of feathers, and silks and ribbons shown on so many specimens are due to a perverted taste for foreign things. In the present series the oldest dates from the reign of Kamehameha I; others have been used at

all the funerals of his descendants of royal rank. Note especially: No. 9 in c. 6, which has a peculiar metal pole and was given by half-castes to the young Prince of Hawaii. No. 21, c. 8, made of pure white feathers for Mrs. Bishop's funeral, and No. 15, c. 7, a similar but smaller one made by Liliuokalani for the same occasion. No. 24, c. 9, is interesting from the handle of tortoise shell and human bone where portions of the arm and leg bones of some of Hawaii's most distinguished kings and chiefs are preserved. The *kumu* or principal bone is the right shin-bone of Kaneoneo, a noted chief of Kauai who fell in the battle of Nuuanu (1795). Kaiana, a chief who visited China with Captain Meares, and Kalanikupule, King of Oahu, were also victims of this battle, and their bodies were sacrificed to the victorious Kamehameha's war-god Kukailimoku (No. 7855, c. 16), and their bones honor the handle. Every bit of bone represents a different chief, and old natives forty years ago could tell every name, but they are lost now.

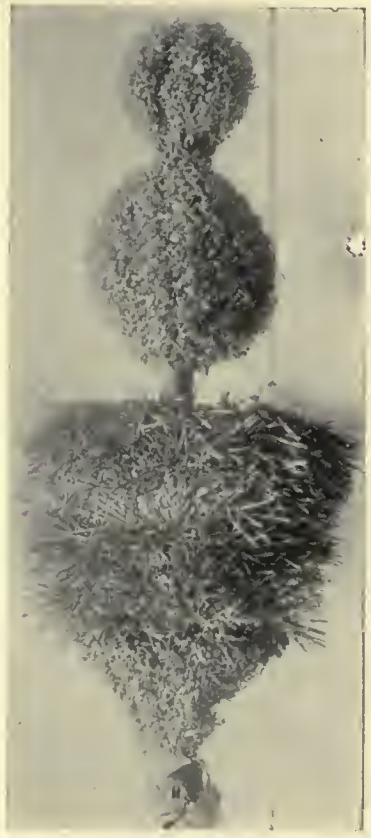


FIG. 9. KAHILI OF SUGAR CANE.

No. 117 is a similar handle, and there are others in existence. This use of human bones was considered honorable, while to use parts of the human framework for fish hooks, spear points, or to inlay spittoons was a deep injury to the dead, and examples of such base use will be noticed in c. 30, H.G. The four kahili on the corners of the central case (16) are of feathers dyed red, and are noteworthy as used at the funeral of Fannie, the daughter of John Young, and they were also placed about the coffin of her daughter, Queen Emma while in state in Kawaiahao church. The smaller kahili are used both as insignia of chieftainship and more practically as flyflaps (Fig. 8).

Lei. Of the feather lei in the collection the most valuable are: No. 2800, c. 17, of mamo, a bird nearly extinct, and composed from three ancient lei of the Kamehameha family. No. 2801, a fine oo lei from the Hawaiian Government collection. Other lei are in cc. 19–22, and many kahili and lei, loaned to the Museum, are in c. 16: in this case also is the finest helmet or mahiole in existence, at one time the property of Kaumualii, the last king of Kauai, who gave it to Rev. Samuel Whitney, one of the pioneer American missionaries; and after the death of his widow it was purchased by Mr. Bishop and given to the Government, and came to this Museum with the other material of the Government museum. Another helmet in the same case is from Vancouver's collection (Fig. 10), given in exchange by the Trustees of the British Museum.

Ahuula. By far the most precious product of Hawaiian feather work in this or any other Museum is the famous robe of Kamehameha I in case 4. It is entirely of mamo feathers, except a narrow band at the neck, and the gathering of the feathers lasted a hundred years, while its cost has been estimated as high as a million dollars. In case 5 is the cloak of Kiwalaó, made of oo and iiwi, and the richness of color in the mamo cloak is well shown by

contrast with the more common oo. Since the days of Liholiho these two cloaks have not been worn, but on state occasions have been placed over the thrones. On the opposite side of the room (cc. 11–12) hangs the *pa'u* or native dress of Nahienaena, sister of Kamehameha III. When Byron brought the remains of Liholiho and Kamamalu home to Hawaii, in the entertainments given the distinguished visitors the Princess was urged to put on this pa'u which was the female equivalent of the ahuula described, but this girl of thirteen long refused to put on anything so old-fashioned, and when she yielded she must have been nearly concealed in its voluminous coils. At some period unknown to the writer this feathered strip was cut in halves and sewed together lengthwise to be used as a pall on the bier of Kamehameha III in 1855. It has covered the coffins of the succeeding monarchs, including Kalakaua. Of the three cloaks in the same case, that on the left belonged to Kalanikauikalaneo, and was afterwards the property of Kanaina, the father of King Lunalilo; of the other two cloaks the ancient history is unknown.

FIG. 10. VANCOUVER HELMET.

In case 6 are feather ornaments from New Guinea placed here as showing the richer feathers and less artificial ordering of the western Pacific islanders. In case 9 is a Maori cloak of kiwi feathers.

Next in value to the feather work (of which a fuller illustrated description may be found in Vol. I of the Museum Memoirs) came the fine mats of the grass called makaloa (*Cyperus lævigatus*), a manufacture fast passing away, and the middle classes who could not attain to the feather garments treasured these mats as no inconsiderable part of their wealth. The finest of these known belonged to Kamehameha I, and was of great size, unfigured, but very carefully woven (case 9, No. 2588, 10.5×20 ft.). The largest in this Museum hangs in case 2–3 (No. 2574, 14.5×30.5 ft.). The makaloa mats were made mostly on Niihau, although the makaloa grows on Oahu and other islands as well, and those with colored patterns, *moena pawehe*, were seldom, if ever, made elsewhere. The fine mats can only be plaited while the sedge is young, hence the time of working is limited to a few months each year, and it is certain that the largest mats in this collection must have been in the makers' hands seven to ten years. The red portion is from the lower stem and does not show on the reverse. These mats are still made, but the old makers are fast dying out and the younger generation of females does not take kindly to such continuous work.

The most used mats were made of hala (*Pandanus odoratissimus*) of which the leaves are carefully selected, scraped and split into strips of suitable width which are dried in the shade for the lighter tints, and in the full sunlight for the tanned effects, then rolled up and kept for the weaver. The width of the strip varies from 1.2 in. for the coarse floor mats to 0.2 in. for those placed on the top of the bed or *hikiee* (see the furnishings of the grass house in H.). Hala mats were used for tables (No. 2553, c. 15), also for canoe sails. These hala mats are still made and used, but the Pandanus tree is far less common than formerly on these Islands. In cc. 22–23 H. may be seen the patterns of weave and also the partly made mats. A fuller account of both Mats and Baskets will be found in Vol. II of the Museum Memoirs. A full series of both makaloa and hala mats is shown in this room and in cc. 2–3 are the fine pandanus mats of the Marshall Islanders (Fig. 12). The decorative borders are of hau strips. The smaller are used as dress. Mats of akaakai (*Scirpus lacustris*, Nos. 2584, 2585, c. 9) are coarse and not so durable as those of makaloa.

FIG. 11. FEATHER CAPES AND LEI.

The Coat of Arms above c. 8 was formerly on the front gate of the Palace wall, and the wooden umeke on the tripod above this was formerly the property of the high chief Paki. With a few exceptions the kapa formerly in this room are in cc. 18 and 20 H. The Hawaiian birds formerly in c. 16 are in various cases HG.

Polynesian Hall.—From the first landing on the stairway entrance is had to the Hall devoted to the non-Hawaiian collections. The Hall measures 42.7×65.5 ft. and was the first addition to the original building. The central cases have been built since the illustration (Fig. 13) was made. The floor is devoted to the ethnology of the Polynesian groups and, until another hall can be added, of the Papuan and Micronesian as well. The gallery contains the collection of shells, corals, birds, and general Natural History of the Pacific. On the farther wall of the gallery is the large chart of the region from which the collections of this Museum come. It has been prepared with considerable care, and to facilitate its use an Index has been published in the Museum Memoirs, Vol. I. The cases on the first floor contain usually the implements of but one group, although the central cases are an exception, as the first contains general Micronesian matters, while the second is filled with models of canoes. The groups will be described in order, beginning with that most distant from our centre.

New Zealand.—The extreme group of Polynesia on the southwest was discovered by Tasman in 1642, but as the natives killed four of his crew when a landing was attempted he passed on by the northern end without farther attempts to explore. Cook in 1769

reached the group and took formal possession for George III. He spent nearly a year in this region and gave the first sufficient information of the Maori. This race, according to their traditions, came here from Hawaiki in the fifteenth century, but there have been at least two distinct immigrations, probably of the same or an allied tribe. When first discovered they were cannibals and very fierce. No other Polynesian tribe has given such determined resistance to the incoming whites. The wisdom of the British Government segregated the conquered Maori in the "King Country," and they have been measurably saved from the fatal effect of social intercourse with a superior race. The Maori is still manly and vigorous.

New Zealand is nearly the antipodes of Great Britain, and the area nearly equals that of the British islands. The flora comprises about one thousand species of flowering plants, and the timber trees are abundant and valuable, more so than on any other group. The fauna is peculiar in the presence of the wingless birds, both living (*kiwi*) and extinct (*moa*), c. 32. There are no snakes, and a dog introduced by the Maori immigrants is now extinct.

The Maori were in full bondage to the tapu (kapu) system, but they had no temples like the heiau or morai of the eastern Polynesians, and the idols were few and insignificant. The dead were exposed on platforms until reduced to bones, which were then hidden in caves. The heads of enemies were dried and smoked for preservation as trophies. Lands were held by the tribe and portions were cultivated, the *kumara* or sweet potato being the principal crop. In cultivating this they use the curious *ko* or digging stick (No. 1473, c. 2–3, is 12 ft. long; the projecting foot rest can be adjusted) and to propitiate Ihenga, god of the kumara, a slave was killed and his blood poured over the image, No. 1521, c. 2.

Maori manufactures were creditable and their carvings are famous. A love of ornament is shown on all their work, even their fire-sticks, No. 1478, c. 5. Their frequent wars gave them much experience, especially in the defensive arts, and many of their *pa* or fortified villages would be creditable to a more civilized people. The coolness and moisture of the climate caused the substitution of garments of flax (*Phormium*) for the Polynesian bark-cloth, and the temperature made clothing more necessary than on most of the other Pacific groups. Case 26, in the passageway, contains a number of capes of this material worn by both sexes; while in c. 23 are more elaborate specimens of cloaks worn by chiefs. While Polynesia had no loom the Maori came near it in the rude appliances for hold-

FIG. 12. MARSHALL ISLANDS MATS.

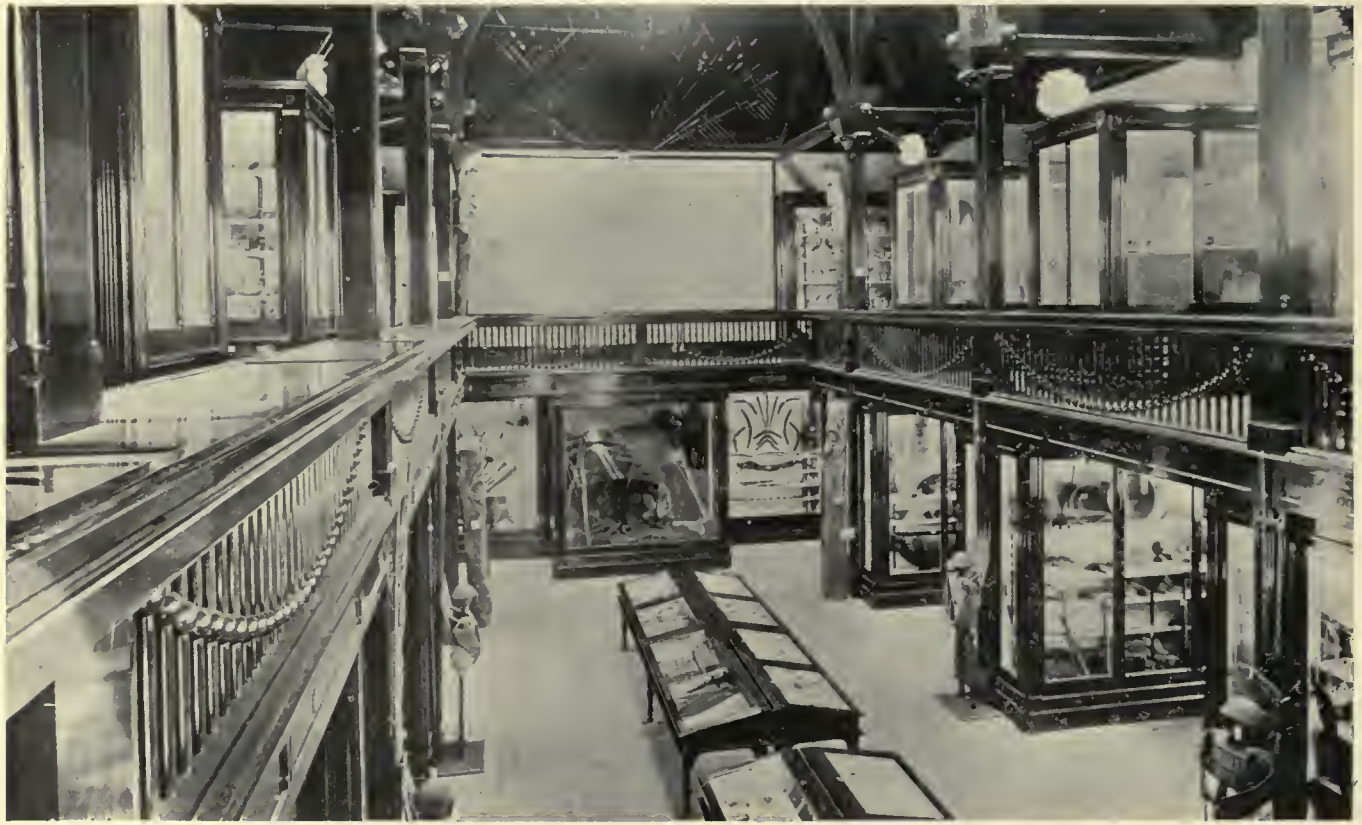


FIG. 13. POLYNESIAN HALL, SEEN FROM THE GALLERY AT THE ENTRANCE END.

ing the web of the webster; two of the carved pegs used for this are in c. 5. Many of the capes were waterproof, resembling a thatched roof.

Entering the hall aud turning to the right, large carved planks are seen in c. 1; these were formerly in the council house (*whare-kura*) in the pa at Maketu, destroyed by the British. The houses of the commoners were frail sheds destitute of architectural adornment, while the dwellings of the chiefs aud public buildings were more substautial and much decorated with carving. The gable ends of two pataka or store houses are ou either side of the stairway in E. Near by are the *koruru* or figures for the peak of the gable, and in the passageway is another form; but the most striking is in c. 4, shown in Fig. 14. This last is also a good example of the *moko* or line carving on the human face, once the pride of Maori chiefs. The carved figures in c. 1 stood at intervals around the interior, the spaces between being closed by matting. The *korupe* or *pare*, a carved lintel, was found in important buildings, and a fine example is seen iu c. 2 (Fig. 15). The posts supporting such lintels were also carved with care, and not infrequently were of a nature obscene to a European eye, although not uecessarily so to a Polynesian. The beautiiul spirals (*pitau*) in No. 1416 are characteristic of Maori art and are often repeated on the prows of war canoes. The roof of all houses was thatched; the rafters often decorated in color designs.

Those interested in the subject should consult Hamilton's Maori Art, published by the New Zealand Institute. Note also the exquisite carved paddle, No. 1343, iu c. 4, and the carved adze handle, No. 1477, in the same case. Here too are several prows of war canoes called *tete* or *tanihu;* one is shown in Fig. 16. No. 1424 was carved by Tamati Raru, father of the chief Teira Manaku of Waitara; the canoe formerly made trips in Cook's Strait between Waitara and Otaki; painted with kokowai or native red ochre. No. 1426, tete of a war canoe; note the tongue thrust out in defiance. No. 1425, tete of a small canoe formerly used on Lakes Rotuma and Rotoehu to carry the dead, hence considered very sacred. No. 1429, rapa or stern of a war canoe from Kaituna River. No. 1428, the carved seat or *taumanu* of an Arawa canoe. No. 1472, *tata* or canoe-bailer. No. 1430, *ranawa* or side-piece of a war canoe, c. 2. The sails of a Maori canoe were usually made of *raupo*, a kind of rush. The paddles are narrow, pointed and have a bend between the blade and loom; examples are on the ceiling between cc. 3 and 4. A fine carved and inlaid *urunga* or steering paddle is on the pier between cc. 7–8. No. 1422 is a *pakahokaho* or skirting board from a pataka at Maketu.

FIG. 14. KORURU FROM MAORI HOUSE.

In c. 2 are some of the weapons, and among these the *tewhatewha* (Fig. 17), an axe-like club, No. 1443, was used iu the battle of Ranganui, at Gata Pa and in Hone Heka's war. No. 1444 is a bone tewhatewha from NGutimara, and was long buried in the grave of its former owner. Another weapon made of stone, bone or wood was the patu or hand club; a form like a fiddle, No. 1454, c. 2, was also called *kotiati* = liver

cutter (Fig. 18). Another club, not very different, was called *mere*. An example of this is shown in the same case (Fig. 18), No. 1458, the tribal mere of the Taranaki tribe. The last holder was the well

Among the most valued, next to the mere, was the *heitiki*, a figure shown in No. 1540, c. 3. This particular one was called whakarewa (to exalt, to set up on high) and belonged to the ancestor of Rangi-

FIG. 15. KORUPE OR LINTEL OF A MAORI DOORWAY.

known Ropata NGarongomaka, whose parents represented the highest rank of NGatiawa and Taranaki. In c. 3 is a mere of fine jade of great value. Like the Chinese the Maori attached great value to this beautiful stone and believed that it warded off evil influences. Although it is very hard, patience fashioned it into various forms,

hewea, a chief of the Tohurangi section of the great Arawa tribe. It is frequently mentioned in their songs and traditions. Its *isnad*, as the Muslim would term it, is this: about seventy years ago it was in the possession of NGauraukawa at Otaki, from whom it went to Mokua, thence to NGatiahua in Waikato, thence to Rotuma as a

dowry for the wife of Tiapo, to Waiatua, the great *tohunga* or priest of the NGati Whatua tribe, from a descendant of whom it was obtained for this collection.

In c. 3 are also a *kapu* or mussel dredge made of carved bar with teeth and a net of raupo or bulrush. A collar, No. 1519, of dog skin highly valued formerly. Ball, decorated with dog hair, nsed in the game of *poi*. No. 1533, tatuing tools; the iron for marking the pattern, the bone for finishing. Ear ornament of the tooth of the tiger shark, a powerful amulet. Whale tooth ear ornament. Kit or *kete* of flax decorated with a tribal tatn pattern. *Haihotaka* or carved whipping-top. No. 1436 is a *taiaha* or staff of a Maori chief; others of bone or wood are with this. In c. 5 are several *kumete*, the Hawaiian *umeke;* No. 1525 is not less than 200 years old, and was used for feathers and dog hair necklaces. In the corner, between cc. 1–2, is No. 1516, *ipuhuahua* or calabash, in which pigeons were preserved in fat, a favorite food of the Maori. Fish baskets are in c. 5; and a large fish or eel trap of fern stems is on top c. 32. A choice collection of implements of the Moriori, the predecessors of the Maori, now all but extinct, is temporarily in c. 15.

FIG. 16. TETE OF MAORI CANOE.

FIG. 17. TEWHATEWHA OR BATTLE AXES.

The work of the ancient Maori has been distributed through the musenms of the world, and so little is left in the land of its origin that the New Zealand government has prohibited the exportation of old native work. The museum at Auckland has the only remaining old war canoe, a magnificent specimen; and there also are many other fine relics. The government museum at Wellington also has many good things, bnt the Christianized Maori has only made commonplace work, and the ancient Maori art has passed.

Southeastern Polynesia.—The greater part of this region consists of low coral islets covered with coco palms and surrounded by reefs, and on all this portion life is uniform, and there is little in the habits or

manufactures to distiuguish one tribe from another. Another portion, and this the more important if smaller in extent, comprises the high volcanic islands of the Society, Marquesan, Tougan groups and detached islands, as Niuë, Rapanui, etc. On all these the inhabitants are rapidly dwindling and their work belongs to past generations. It is, iu nearly all cases, superior to that of the peoples inhabiting the low archipelagoes.

FIG. 18. PATU AND MERE.

Society Islands.—In the rapid conversion to Christianity, as they uuderstood it, most of the idols were consumed, and with them the choice feather work which was part of the paraphernalia of the ancient cult. From the fragments left in the British Museum we gather that the idols were curiously carved and the variety considerable. Case 6 contains most that this Museum possesses, although a few spears of fine workmanship are on the outside of cc. 9 and 10. The poi pounders, Nos. 7972-73, are distinguished by the peculiar handle (Fig. 19). Stone adzes were well made and of distinct form. The strings of land shells (*Partula bella* and *Helicina albinca*, *Helix* sp.) are of modern make but copies of ancient forms. Coconuts were often polished and served as water bottles, No. 7470. Fans made of the stem of the arrowroot show much beauty of design, but also the moderu influence of the French mission; when fresh they are silvery white, but soon show the effect of light. Tahiti, the principal island and the seat of the French government, rises iu the peak Orohena to 7329 ft.; the greatest length is 33 miles NW-SE.; the centre is iu Lat. 17° 38′ 30″ S., Loug. 149° 30′ W.

Hervey Group.—Mangaia, the principal island of this group, is in Lat. 21° 57′ S., Long. 151° 07′ W.; is 20 miles in circumference, and rises 300 ft. above the sea. Populatiou, in 1885, 4000. The fine carvings are to be seen in all museums, aud are especially well shown on the ceremonial adze, No. 5939, c. 6. Paddles (Fig. 20) and food scoops, on which attendants presented food to high chiefs, are in c. 6. In old times these beautiful carviugs were done with shark teeth. In this case is also a carved seat, *nohoranga*, No. 5993, from Anaa of the Paumotu Archipelago. Tahitian seats were similar, but with a curved top and lighter design. The manufacture of these seats seems never to have been extensive, if we may judge by the few specimens in the museums of the world, and it ceased long ago in Tahiti.

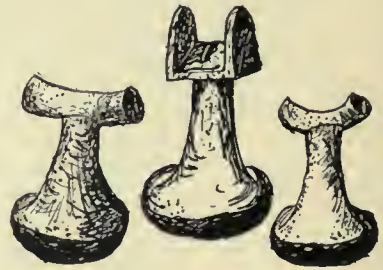


FIG 19. TAHITIAN POI POUNDERS.

Austral Islands.—Rurutu, discovered by Cook in 1769, is 1300 ft. high. The curious poi pounders, No. 6081, c. 7, made of coarse coral, are distinct. Many adzes are in c. 7.

Rapanui or Easter Island is in Lat. 27° 08′ S., Long. 109° 25′ W. The inhabitants are Polynesian from Rapa. In c. 7 are many of the curiously carved wooden images, both male and female. The emaciated long-eared form is supposed to represent the starved crew of a canoe drifted on shore. No. 5050 is a good specimen. A crooked branch has been utilized for an image of the sea eel, No. 5042. Obsidian is nsed for cutting pnrposes, dagger and spear heads, bnt is more rndely chipped than the Mexican knives of the same material. Casts of the hieroglyphs carved on wood from the originals in the U. S. National Museum, No. 6221. This language has not yet been very satisfactorily interpreted. Wreaths of cock's feathers, No. 5448, were used for head decoration.

FIG. 20. CEREMONIAL PADDLES.

FIG. 21. MARQUESAN DRUMS.

Marquesas.—In cc. 8–9 are many specimens from the group discovered by Mendaña in 1595. This consists of eleven high islands of volcanic origin, some rising to over 4000 ft. When discovered the inhabitants were supposed to number 75,000, bnt they now count less than 3500. They were of beautiful form, finely tatued and skilful in their manufactnres. Cannibals of unchecked appetite, and warlike to an extent nearly equalling the Maori. Their tatuing patterns surpassed the New Zealander, and this Mnseum has a good collection of patterns soon to be published; others may be seen on the wooden legs of No. 8682. Similar patterns are carved on paddles, No. 5918; on bowls, No. 5989; and on idols. Of the war implements the clubs, Nos. 7905–8604, are the most beantiful found in the Pacific. The beautiful polished paddle on the outside of c. 9, No. 5656, is of very heavy wood, and similar ones often

served as clubs. A war trumpet of kou wood with a bambu mouthpiece, No. 8003, gives a clear loud sound, as does also the ancient trumpet of triton shell, No. 6109. In c. 8 are the large round bowl, 36.7 in. in diameter, No. 6149, and the long dish, No. 6100; here too is an Awa dish, No. 6158, and a wooden seat used in coconut husking, No. 6156. The crowns, Nos. 8011-12, are of tortoise shell elaborately carved, alternating with white shell; the band was originally ornamented with bone carvings, but the desire for something foreign caused the pitiful substitution of the trade buttons! Note the stone axe head, No. 6138, like the European form. In c. 9 are the following: Staff of a chief, with a tuft of human hair at the top, No. 8692. Various bunches of human hair used for decoration much as the scalps of the Amerind. Ear ornaments, Nos. 8019-20, neatly carved from human bone, the relics of a cannibal feast. A coconut food dish ornamented with human bones, No. 8031. Drums (Fig. 21), in one of which an ox hide head has replaced the earlier shark skin. Stilt rests, carved, which, when in use, were bound to a stout pole. Poi pounders, of which the head was generally ornamented to some extent (Fig. 22). Idols were often of stone and of large size. In this case are a wooden idol, No. 5638; one of wood covered with painted kapa, No. 7768; a stone idol worn around the priest's neck, No. 5639; a twin stone idol, No. 7446. The canoes of the Marquesans were well made and ornamented with feathers, kapa and carving, as shown in the model in c. 9, and in the case of canoe models (A). The paddles are of peculiar pattern, with knobs to push against the coral reefs, No. 5918. One similar to this is found at Mangareva, No. 6034, c. 7.

FIG. 22. MARQUESAN POI POUNDERS.

Niuë or Savage Island is represented in c. 9. The wooden bucket, No. 2038, is well made but may be an imitation, in form, of a foreign bucket. The curved club, No. 2040, is allied to a similar weapon of the Solomon Islanders. The staff, No. 2054, a small model of which is used as a dance wand, has a more native character. Mats of pandanus were frequently decorated with figures in red, No. 3240. The beautiful orange shell (*Helicina brazieri*) was a favorite in making necklaces and other decorations. The sword armed with shark teeth, No. 2051, was an effective weapon on the naked antagonist. Canoes of the Niuë Islanders resembled those of Samoa, and were frequently decorated with ovulum shells. A spear, No. 961, whose curious horned extremity (Fig. 23) was intended to entangle the bushy hair of an enemy, is on the column

near the entrance to this hall. Slingstones of stalactite were thrown from the hand, No. 2027. A form of staff which could be used as a spear is on the ceiling of this alcove. The nose-flute of bambu, No. 2036, was also found on Niuë.

Tonga.—While the clubs of Tonga closely resemble those of Samoa, they are usually distinguished by the presence of a small conventional human figure. A wooden pillow of curved form, made of breadfruit wood, No. 5698 (Fig. 24), is peculiar to this group, and is admirably adapted to keeping the person sleeping upon it in his proper place on the common mat. A comb, often of one piece of wood, and sometimes decorated with shells, No. 3482, was generally used. Mats of pandanus, often fine, were generally fringed. Baskets of fine weave were decorated with shells. Tongan drums were tall, cylindrical, and better carved than any in the Pacific. Aprons of small bird bones strung on fibre were once in fashion.

FIG. 23. HEAD OF NIUE WEAPON.

Samoan Group. — This group, which was partitioned between the United States and Germany in 1900, consists of thirteen islands; but only three, Savaii, Upolu and Tutuila, are of importance. The group ranges between the parallels 13° 30′–14° 30′ S. and the meridians 168°–173° W. Savaii covers 700 square miles, Upolu 550, while Tutuila is much smaller and deeply indented by Pangopango harbor, the only good one in the group, as Apia on Upolu is merely an open anchorage within the reef. All the islands, except Rosa, are volcanic, and vents have opened the present year (1903) on Savaii; near Olosenga there was a submarine eruption in 1866. The population does not exceed 30,000, and is slowly diminishing. Physically the Samoans are a fine-looking race of men, but are quarrelsome, lazy, and lack perseverance. Before the introduction of Christianity the only clothing was good tatuing and an apron of dracæna leaves, a little larger for the women than for the men.

FIG. 24. TONGAN PILLOW.

Kapa is made, but of a poor quality compared with that of Hawaii, and it was usually printed on a form of *upeti* (Nos. 2178, 8164). Mats were, however, well made both of hibiscus fibre and of pandanus (*fala*) leaves. Samoan houses were much better than the Hawaiian, usually round or elliptical in plan, open all around, but capable of being closed at night by mats (Model of house, No. 3585, in the Samoan alcove). Canoes were made of several patterns, c. A, often of planks sewed neatly together, and with outriggers. Triangular sails, formerly of matting, but with the base of the triangle uppermost, were used in all large canoes. Stone or shell adzes were like the ordinary Polynesian ones. Netting needles and the pump drill were like those of Hawaii. As in most Polynesian assemblies talk was the principal occupation, but the old men improved their time during the windy debates in braiding sennit from coconut fibre. The native manufactures, tools and weapons are perhaps the least interesting from any large group in the Pacific.

On the ceiling between cc. 10–11 are many Samoan war clubs which show well all the varieties (Fig. 25). Of these the toothed

form with a hook at the end, used to drag away the victims, and well called "the tooth of death," is most characteristic, Nos. 2100, 2102. The fan-like form decorated with designs incised and filled with white are also to be noted. Specimens of the carved spear (*tao*) are in both cases; No. 3577 has been used by the Chief Mauga, of Tutuila; the carved points were intended to entangle the thick coarse hair of the enemy (Fig. 26).

Amoug the important vessels in a Samoan household are the *tanoa* or ava bowls (Fig. 27), ava drinking being an important ceremony in Samoa. These tauoa are well carved, and have usually four legs, but sometimes as many as a dozen, No. 8186. A projection on the uuder side is provided to hang up the bowl when not iu use. The ava is strained by a wisp of hibiscus fibre (*to*), No. 2191, c. 10. In this connection should be noticed the water bottle, No. 3288, a coconut from Niufou, which holds 92 oz., or nearly three quarts. The cup or *ipu'ava* is

FIG. 25. SAMOAN WAR CLUBS.

shown in Nos. 2152–54. For noise making the wooden gong (*logo*) is used, generally of larger size, No. 2143. Bambu pillow (*'ali ofe*) may be single, as No. 2168, c. 9, obtained from Assi of Matafagatele, Upolu; or double, as No. 2170, also from Upolu. Fly-flaps (*fue*) were used not only to drive away the winged nuisance, but also to give force to the winged word, and so were used by the *tulafele* or public orators; No. 2158 belonged to Malietoa; No. 2161 belonged to Mataafa, King of Atua, Upolu. No. 2166 is a belt composed of 218 braided strands of human hair. Of ornaments one of the most highly prized was the *asoa* or necklace of whale's teeth and humau hair. No. 2155 was an heirloom in the family of Folua, a chief of Apia, Upolu. No. 2156 is made of teeth filed. Another favorite Samoan ornament is seen in No. 2195, c. 10, a frontlet of cut uautilus shells. Tatuing was general and men were beautifully decorated from navel to knee with patterns of symbolic meaning. The tools for

this are shown in c. 10, No. 2190. Fans (*ili*) were rather showy than useful, and were often of skeleton form; examples are shown in c. 10, Nos. 2134–67, 3561.

The making of baskets (*ato*) is at present an important industry, and the material is fala or pandanns; Nos. 2172-77, c. 9, show common forms. Sennit was used in honse and canoe building, and was braided of *pulutane*, the onter fibre of the coconut, by the old men at their *faletele* or assembly house. Mats were made of pandanns as the sleeping mats, *falamoe*, No. 2188, c. 9; but the most prized were made of han (*jau*) fibre, and nsed generally for presents, and indeed as cnrrency; these *ie sina* were white, No. 2185, c. 9, or unbleached, No. 2186. For marking the bark cloth (*siapo*) a stamp (*upeti*) of leaf and fibre, No. 2128, or carved on wood, No. 8168, was nsed. Specimens of siapo are on the back of c. 9. A stone adze (*to'u*), No. 2181, is in c. 10; also a shell adze, No. 2183. No. 3560 is a long narrow mat of fala for the game of *lafoga;* the mat is 17.5 ft. long, and on this are tossed the *tupe* or ronnd pieces of coconut shell. No. 3558, c. A, is a model of a Samoan canoe; the original is more than 100 years old, and was used in 1880; it is kept at Manono, a small island off Upoln; it is abont 90 ft. long, and carries 200–300 warriors; on board are two old twelve-pound guns, said to have been brought from Oahu by the Chief Boki about the year 1825. A Samoan paddle, No. 6733, c. 10, shows the pointed form common to most of the southern islanders.

Solomon Islands. — The Solomon Islands form a double chain of seven large and many small islands extending for more than 600 miles with nearly the trend of the Hawaiian and other Pacific groups. They are situated between 5° and 10° 54′ S. Lat., 154° 40′ and 162° 30′ E. Long. The larger islands are in size between Hawaii and Maui, and like the Hawaiian Islands are mostly volcanic, although some are calcareous, and some both. There are several active as well as solfateric craters. Both fauna and flora are little known, but appear Papuan in character. The natives are Papuan, bnt show traces of Melanesian, Polynesian and Malay. They are of medinm height, generally well proportioned, bnt do not have attractive features. Although cannibals of pronounced type, excitable and passionate, they are certainly amenable to kind treatment, and make good servants when they find decent masters. The scantiest clothing is worn, but ornaments are much in nse, such as bracelets, anklets, nosepins, etc. These are often admirably made and appeal to European taste. Tatuing is little practiced, but they dye the hair and practice epilation.

FIG. 26. SAMOAN TAO.

Their carvings are numerou and good, and their arrows are the most elaborate in the Pacific, if not in the world. Their canoes are built with high bows and stern, and are usually of planks sewed together, and without outrigger or sail. Their stone adzes are well made, of form very different from the Polynesian. Very little is known of their religion or social customs, and some of the islands have never been explored. The climate is very debilitating, owing to the heat and excessive rainfall. By recent agreement between Germany and England the latter power now owns the most important part of this group.

A good representative collection of the work of this cannibal group is in cc. 12–13. On the ceiling of the hall are placed two common canoes with the sword-shaped paddles. On the opposite ceiling is a trophy of 100 arrows, all different. One of the elaborate arrow heads is in c. 12, with 35 points of sharpened bones of the flying fox neatly bound to a carved shaft; another one of carved bone is near this.

FIG. 27. TANOA OR AVA BOWLS.

In the same case are bows of a dark tough wood, a fathom long, like those of our English ancestors. To protect the forearm from the recoil of such a bow spiral lengths of lianas were used, as shown in Nos. 1564, 5914, c. 12. Of other weapons, the clubs of a hard tough wood bound with a neat plaiting of red and yellow strips of fern stem are very characteristic, Nos. 1276, 7492, c. 12. A curious and very effective curved club is also used, Nos. 1880-82, c. 13. A small hand club, No. 1858, beautifully inlaid with pearl shell, headed with a stone ball covered with a neat plaiting of some strong fibre, is in c. 12; a string with a perforated shell button serves as guard. The paddle clubs of fine workmanship are on the ceiling of this alcove. Spears were also elaborately decorated, as shown in Nos. 989, 5931, on the outside of the cases (Fig. 29). Both pearl inlaying and fern stem plaiting are used more than in any other group. To meet this array of offensive weapons the Solomonites had shields which, while

artistic, do not seem much protection. One of braided grass profusely ornamented with shell beads and feathers, No. 1859, c. 13, is of the choicest kind from Ulava; another, No. 1860, is plainly formed of reeds; a third, No. 1861, is carved from some light colored wood. These mark the eastern limit of the shield. While the rude Australian has this protection no Polynesian had a shield, nor did the Melanesian groups east of the Solomons. In connection with the clubs which decorate the ceiling in the alcoves it may be noticed that each group of islands has a distinct and characteristic set of clubs not easily mistaken, if we except the Tongan and Samoan.

FIG. 28. SOLOMON ISLAND WOODEN BOWLS.

To many there is a weird attraction to cannibalism, and one naturally looks for the peculiar tokens of anthropophagic practices in this group, which is among the most actively cannibalistic of the present day. In Fig. 28 are seen two bowls, Nos. 1855, 1854, which had an important part in the strange feast. Both are carved from some soft wood, and the larger is inlaid with the halved ends of white cone shells, and decorated with baboon-like figures carved at either end; this was the cooking dish into which the "long pig" was put with sufficient water and boiled by dropping in hot stones. Rude as this stone boiling seems it was effective, and the present bowl is thoroughly saturated with the humau fat of many boilings. The smaller tureen was more beautifully inlaid with pearl shell, one end carved in bird form with a fish in the bird's bill; this was a family bowl into which the owner's share of the chowder, cooked in the larger bowl, was transferred. The long handles were used in suspending these bowls from the roof timbers when not in use. A photograph in c. 12 shows three well built cannibals who were captured while dining. In the same case, No. 1844, is a carved nut, for ear ornament, from which are suspended twenty-five human teeth, a tally of as many feasts.

FIG. 29. SOLOMON ISLAND SPEARS.

Among the curious wooden bowls in c. 13 are: No. 1858, two figures, male and female, supporting a bowl, the whole inlaid with triangular pieces of pearl shell (Fig. 30). An arm holding an oval bowl from San Cristobal, No. 1853. A heavy oval oil bowl, No. 1961. A wooden food bowl, No. 1852, with carved baboon-headed supports. Coconuts were used here as elsewhere for bottles, either plain or inlaid with beads in gum, No. 1850; with shell, No. 1851; where the human head is outlined, No. 1894; or carved, as No. 7061. By the addition of a bambu neck and a coating of gum a well shaped bottle is formed, No. 1887 (Fig. 30). A cup, of coconut shell daintily inlaid with pearl shell

FIG. 30. WOODEN BOWL.

is No. 1857, c. 13. Before leaving the wood carvings notice should be taken of the *totoisha* or image placed on the prow of a canoe as a charm, Nos. 1871, 5811. The model of a canoe, No. 7068, c. A, shows carved figures on bow and stern.

Two carved fishing floats from Ulava are Nos. 1867-68, c. 13. These are representations of birds, are inlaid with shell and provided with a sinker to keep them upright (Fig. 31). No. 7060, c. 12, is a series of minute fish hooks carved from shell to imitate fish. Other fish hooks are in the same case, and all are destitute of barbs. No. 1254, c. 13, is a fine inlaid paddle, the blade a fish swallowing the handle.

The paucity of clothing has been noticed, and it was not for want of material, for the Solomonites made kapa of sufficient strength, No. 6983, c. 12, and dyed it a durable blue, among other hues, even decorating it with figures. The wet climate would, however, confine its use to the shelter of the houses. Kapa beaters are shown in the same case, Nos. 1899, 6988, and are of the usual form, although thicker and shorter than those of Hawaii. A woman's dress of fibre is shown, No. 1869, c. 12, a simple and convenient form. Neither tatuing nor scarification were used, but personal adornments were abundant and of most varied material. A woven head band with a flat white shell disk, No. 1943, c. 12, plain or ornamented by incised or superimposed figures was a favorite ornament. So were the shell belts shown in Fig. 32, but as these represented money they were the property of the richer chiefs. No. 1886, c. 12 (15, Fig. 32), is entirely of shell fragments drilled, strung on tough sticks and rolled between flat stones until round. So late as 1900 the strands represented $20, making the beautiful belt worth $440. Another of different type is shown in No. 1891. The shell beads in single strings as money are shown in No. 6769, which is about 10 ft. long. A bracelet of the teeth of the flying-fox (*Pteropus*) is No. 1845, c. 12; one of the *opercula* of a species of Natica is No. 1842; one of ray-fish palates, No. 1843; and the more common armlets of braided red and yellow grass, No. 6777. In dancing a belt, No. 1848, c. 12, made with rattles of some very resonant pods, was used. Decorated paddles, also part of the dance paraphernalia, are in c. 13, Nos. 1839, 1904, etc. Among the musical instruments were the pandean pipes, No. 1847, c. 12 (Fig. 33), in this example composed of twenty double bambus, one set open, the other closed; large single bambu pipes are also used in orchestras, one pipe to a man. A comb of most exquisite design and make is No. 1841, a delicately woven cover of red, yellow and black fern stem; another inlaid with pearl shell of a greenish tinge, No. 1890, is near this.

FIG. 31. FISHING FLOATS.

Of the gods little is yet known, but a sacred emblem called *tindalo* or ring god is represented in No. 1883, c. 12. This was greatly venerated, and the priest who parted with it in a thoughtless

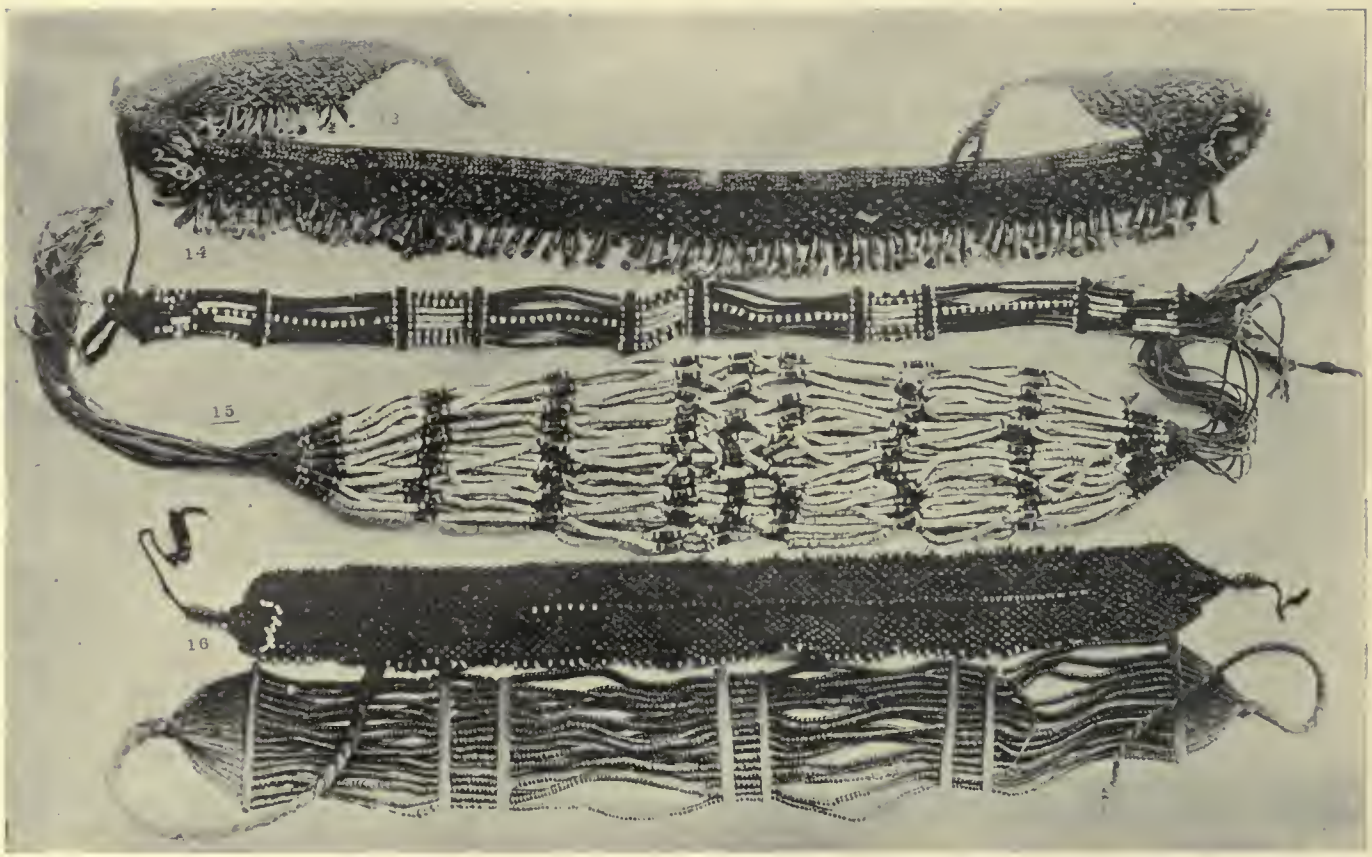


FIG. 32. SHELL BELTS.

moment offered many times its price to regain it. The ring is cut from a very heavy calcareous formation, is 9.4 in. in diameter, and 1.5 in. thick; it is suspended from the priest's neck on liturgical occasions. A smaller and better finished tiudalo is No. 1883, c. 12.

Betel chewing in vogue, lime boxes of various forms are shown in c. 12. The small wooden mortars used by old men to crush the hard betel nut are in c. 13, Nos. 1809, 1849. Stone adzes of flat and cylindrical form, well polished, are in the same case; two are shown in Fig. 34. Inspection of the canoes on the opposite ceiling will show that the planks of which these are formed are cut down from a thickness of several inches, leaving lugs to which the curved thwarts are bound, and the several planks are sewed together, with a calking of parinarium gum between.

FIG. 33. PANDEAN PIPES AND JEW'S HARPS.

New Hebrides and **Santa Cruz** Islands form a long chain, of volcanic origin, extending from the Solomon Islands on the northwest to New Caledonia on the southwest. The largest was named by Quirós Australia del Espiritu Santo, and measures about 75×40 miles. Vanikoro, where the voyage of La Pérouse ended so tragically, and Niteudi or Santa Cruz, where Meudaña died, are other important members of this group. The population is of the black Papuan or Melanesian stock, but is far from homogeneous. Polynesian settlements exist throughout the group, and more than a score of languages are noted. The people are below the medium height (see the skeleton of Malekulan male, c. 14, V) and are not beautiful in form or feature. They wear nose and ear rings, and generally dispense with other clothing. They are great fighters, and their bows and arrows, spears and clubs are very well made. They weave, on looms, mats from hibiscus and banana fibre, and make quite as good pottery as the Vitians or the New Caledonians. Among the trees that are abundant are the casuarina and cycas, both objects of veneration. There are two species of snakes, not poisonous, and two of turtles. By the efforts of the martyred Bishop Patterson and his successors many of the people have been mollified, and trade is extending; agricultural companies, both English and French, have been established, and the old times are rapidly passing.

Among the objects in c. 14, illustrating the life of these islanders are, from Santa Cruz, a loom, No. 1973, of an almost universal pattern and easily worked; a smaller one, No. 1979, for the narrow scarfs once a noted product of the native weaving. Belt of pandanus stained with magenta, No. 1846. Fishing nets, No. 1945, of fine mesh. Shell adze well polished, No. 1950. Wooden image, No. 6989. A coil of the rare feather money (see Memoirs of this Museum, vol. i, p. 452). Nose ring of tortoise shell carved, No.

1949; the points clasp the septum without piercing it. Pillow, No. 1953, with the red and white coloring so common here, and shown also on the club, No. 1397. Kalo dish, No. 1964. A large oval food bowl, No. 6988, and oil dish, No. 1962, show the usual form of wooden containers; No. 1963 is a rectangular variation. A shallow circular basket, No. 1966. In fishing the natives of Santa Cruz use a float of light wood with a stone sinker bound to one end, and with a curious tortoise shell toggle shown in Fig. 31, p. 31.

FIG. 34. SOLOMON ISLAND STONE ADZES.

From the New Hebrides proper are, in c. 14, a belt of shell money carefully wrought, with pendants of human teeth stained with betel chewing; there are 135 teeth, in tally of as many cannibal feasts enjoyed by the owner (Fig. 32, upper figure). Other trophies of this sort, but of white men, are Nos. 3477-79. Four remarkably carved combs shown in Fig. 36; the Semitic heads on the third one, No. 7001, are remarkable. Specimens of hard burned pottery, Nos. 2076, 2077. Images with human skulls, Nos. 8133, 8134 (Fig. 35), the face modelled with grotesque noses; these are carried in festivals, and are then decorated with fern leaves and flowers; when the supply of skulls fails, cotton takes the place, No. 8135. A fly-flap from Ambrym resembling a kahili, No. 2085. Masks of wood painted red, used in dances, Nos. 8137-39. Fishing spear with two prongs carved, No. 1003, c. 19, outside. Wooden sword, the handle bound with the wool of the warrior's sweetheart, No. 7052. War club with the end knob deeply grooved, No. 1381, on ceiling of alcove; old club handles often have trade hatchets substituted for the knob; examples are with the last. Forehead plate quite like those described from the Solomon Islands, No. 1878, etc. Against the mullion of the windows in this and the opposite alcove are two tree drums (Fig. 37) from Malekula; these are often of great size, carefully hollowed, and are beaten with stones wrapped in kapa. Vokololo stick for mixing a pudding of yams and cocoanut, No. 2087. Knife of wood for cutting yams, No. 4016. Bambu sticks finely engraved, No. 4027. Ambrym mat dress for women, No. 2082; this is 14 ft. long, 18 in. wide. On the column above c. 14 is a fern tree idol from Malekula; to this pigs are offered, and their bones are often piled as high as the chin; a similar one is on the opposite column.

New Caledonia.—This long narrow island belongs to France and is used as a penal settlement, hence, in spite of great mineral wealth, not likely to thrive as a colony, and leading to the rapid

deterioration of the natives, who are not very different from the people of the other Papuan groups near by; but there are two marked types, one inclining strongly to the Polynesian. The island is about 216×30 miles, and its highest mountain is 5570 ft. The houses were generally cylindrical, with high conical roofs, as shown in the photograph in c. 15.

Two very prominent objects in c. 15 are the curious funeral masks of feathers worn by the attendants at the grave of a deceased chief; the wool is human, the feathers hens (Fig. 39). Two light javelins with a human head carved about the middle in high relief, Nos. 963, 979, cc. 18–19, outside. Slingstones and scrip; stones a double cone, figured and described in Museum Memoirs, vol. i, p. 343. Another stone implement peculiar to New Caledonia is the disk club, No. 5882, c. 15; these clubs are often made of jade and sometimes of considerable size and value; jade was also used for beads and other ornaments. Another peculiar club is made of wood with the head fashioned into the likeness of a bird's bill, Nos. 1338, 1339 (Fig. 38). A netted calabash used for water, No. 1931, the net permanently attached. In throwing their spears the New Caledonians increased the force by a sling. A short round club of some heavy wood, No. 1387. Still another club with a bud-like head, No. 1937 (Fig. 38). The braided flat cords, No. 1936, are the principal covering of a man. The long *kabala* or apron at the top of this case is from the Duke of York Islands.

FIG. 35. IMAGES WITH HUMAN SKULLS.

Australia.—The many well managed museums of Australia and their valuable publications have made the aboriginal implements and customs better known than those of most parts of the region that falls within the view of this Museum, and we have here a fair series illustrating Australian antiquities. From New South Wales are many rude stone axes, Nos. 6748, 7408, etc. Grinding stone, No. 7419, c. 16. A grinder shaped like an Hawaiian maika stone, No. 7417. A cane used for climbing trees, and also a photograph of its use, No. 7431. From Queensland two message

sticks, Nos. 7012, 7013; the first is from members of the Worki tribe when on a visit to Brisbane to those at home; translated:

> Weather cold, plenty food, busy making spears, boomerangs. White fellows' camp (Brisbane) very big, many little camps around. White fellow good here, no kill black fellow. Some time before we return home.

The other is of similar import. No. 7442 is a *buccan* or club from Darling Downs. No. 7444, a clumsy wooden sword with a small handle. Throwing clubs or *nulla nulla*, Nos. 7432, 7433, 7445. Carved boomerangs, Nos. 1367, 7030. A sword-shaped *wummera* or spear-thrower, No. 1911; near this an elliptical one from West Australia, No. 1910. West Australia contributes also a knife of quartz crystals set in black gum, No. 1914, a common method of forming cutting tools, seen also in the spears Nos. 7889, 7890. *Chung*, a tool for cleaning skins, consisting of a bit of quartz set in the end of a stick, No. 1917. Stick for throwing at birds, No. 1920. *Waddy* or club, No. 1919. Axes or hammers of rough stone set in black gum, Nos. 1921, 1922. Boomerang, No. 1372, with the arms forming an angle of 95°; another, No. 1369, with an angle of 135°. Note that not all the boomerangs are made to return to the thrower; those from the west seem to have the greatest bend, while those from Queensland are nearly straight. From South Australia is a shield, No. 1918, which, although exposing a very small surface, is a very practical weapon of defence in the quick hand of a black fellow. *Myponga* or bent club, No. 1923, similar to the longiel of the Solomon Islands. The Australian baskets are of various forms, some of most beautiful workmanship, others of peculiar form, as the dilly basket, No. 7430, or the flat basket, No. 5829; a coiled form is in c. 17. There is in this Museum no specimen of the curious memorial carvings on the trunks of trees, but in this case may be seen photographs of part of the splendid series in the Australian Museum at Sydney. The skin of the carpet snake (*Morelia variegata*), No. 7707, is the natural covering of a favorite article of food. On the ceiling in front of c. 16 is a serrated spear marked with white paint. In c. 17 is a group from

FIG. 36. COMBS FROM NEW HEBRIDES.

Queensland showing the native camp. A few rough poles support a leanto roof of the thick bark of a gum tree, a simple shelter from wind and rain. Clothes are absent except when the natives visit

a village. A kangaroo lies uear awaiting the fire which the child is trying to kindle, wheu a very slight toasting will suffice for the not very particular palates of the blacks. Charcoal is a favorite cosmetic, enhancing the uatural blackness of the skin. Although the native Australian has beeu long regarded as among the lowest of the animals crowded into the genus homo, recent researches have unfolded many facts which render this belief one to be amended. Strange rites of initiation, astonishing surgical operations, a regard for law amoug themselves, are certainly not the characteristics of a very low and stupid race. See also photographs in P.G.

New Guinea and the Bismarck Archipelago. — The great island of New Guinea and the many islands to the northeast comprising the Bismarck Archipelago offer perhaps the richest region for ethnological research in the whole Pacific. It is exceedingly rich in manufactured articles, and its fauna and flora are most abundant, varied aud interesting. All along its shores and scattered among its islands are Polynesian colonies, and no study of the origin of Polynesian implements can be made without reference to those of this group, through which either the earliest immigrants to the central Pacific or their immediate successors seem to have pursued their way. The form of Hawaiian helmets, so often called Greek, is found in many parts of New Guiuea; and the rotary or pump drill aud the kupaaikee adze are both Papuau inventions now spread through the Pacific ocean. The New Guinea collection in this Museum, although small in comparison with what it might be made, is very valuable: chiefly from that portiou of the great island uow under the control of Germauy, or the northeast coast and adjacent islands.

Of the localities from which our collections come, Astrolabe Bay is on the east coast in Lat. 5° 10′ S.; Vulcan Island is a little north of this; Huon Gulf is on the same coast but south of the cape that projects toward New Britaiu; Cretin Islands are on the northern edge of Huon Gulf; Siassi or Low Islands are in Dampier's Strait; Paraponpon Island is in the Louisiade Archipelago; Poom, Kai, Kela, Jabin and Bukaua are internal divisions of New Guinea bordering on this coast. At present the population of this region can only be guessed at, for the iuterior, especially the mountain region, is not fully explored, although iu British New Guinea the Goverument has made good progress. A more complete knowledge of the customs, manufactures and languages of Papua will throw additional light ou Polynesian ways and origin which is greatly needed. Besides the three cases that contaiu the greater part of the New Guinea collections, 18–20, specimens are

FIG. 37. MALEKULA TREE DRUMS.

among the spears over the chart in the gallery, on other parts of the ceiling, besides many photographs in P.G. It may be more convenient to the visitor to describe the specimens case by case without reference to any other classification. Beginning with c. 18, shown in Fig. 40, where, as in the other cases devoted to this group, the productions of New Britain, New Ireland and other portions of the Bismarck Archipelago are displayed together, we have the stone-headed clubs peculiar to this region: these are, the plain disk, Nos. 6999, 7000, 10,014; star, Nos. 1013, 6998; knobbed, No. 10,015; *golegole*, No. 1571 (Fig., third from left); and the ball, Nos. 1384-86 (Fig., right-hand club); these all show considerable care in the making, and are effective weapons. Another dangerous weapon is the man-catcher, No. 7048, in the centre of the case; this is a loop of rattan with the ends bound together to form a stiff handle and clasping within the loop a sharp spike of palm wood. Pig-catchers are similar but stouter, and provided with a net to capture rather than kill the game. Sharper if not more dangerous are the obsidian-headed darts, Nos. 1574, 1575, and the obsidian dagger, No. 1562, all from the Purdy Islands. A wooden weapon between a club and sword from the Langhlan Islands, Nos. 7049, 7050, some slings, No. 1624, from New Britain, and a club with two conical ends, No. 1380 (Fig. 38, left-hand), complete the offensive weapons in this case; and against them may be ranged the rattan-covered wooden shield, No. 6997. In the next case are two bows, one with a rattan string, the other of a light colored wood neatly made, and provided with very sharp, plain pointed arrows, No. 2071. Here are two shields, No. 7996, of curved wood admirably decorated with clean cut designs in red and black on a white ground, and No. 7997, of reeds bound firmly together. Two round shields of very heavy wood and rudely carved (*lautu*), Nos. 1560, 1561, are on the ceiling of the gallery above.

FIG. 38. CLUBS FROM NEW CALEDONIA, ETC.

FIG. 39. FUNERAL MASK.

A war-like decoration, No. 7011, made of wood and ornamented with abrus seeds, was worn below the chin, as shown in the photograph nearby. On the shelf are characteristic personal ornaments, some of boar tusks in pairs, Nos. 1707 (*jabo*) from Jabin, and 1708 (*beggi*) from Poom; these were worn on the breast and only by chiefs. An imitation of the tusks in sections of trochus shell, No. 1705, from Astrolabe Bay. No. 1712, a pair of ovulum shells (*kapoa*) from Jabin is worn in the same way. No. 1713 is a flat disk of shell to which is loosely attached a smaller disk of tortoise shell most delicately cut out and dentate on the circumference (Fig. 41, 2); this from the Purdy Islands, and other similar but less artistic, Nos. 1730, 1736, from Jabin and Bukaua. No. 1714 (Fig. 41, 1) has suspended from its centre a cluster of bells made of cut shells, with tongues of dog's teeth, and emitting a peculiarly clear sound. No. 1798 is an engraved ovulum shell used as the sole covering of males on the Purdy Islands. No. 1761 is a belt of fish vertebræ and dentalium shells, to which is attached the matrimonial nut signal from Astrolabe Bay; another of these nuts is No. 1678. Bangles of sliced trochus shell dexterously cut, Nos. 1720, 1721, from the northwest coast of New Ireland. Nos. 1722-24 are arm rings of tridacna shell bored out by the bambu drill shown in this case, No. 2795. The flat distorted wood mask, No. 1666, can hardly be classed with ornaments. In the upper part of this case hangs a finely meshed net with shell sinkers and neat wood floats, No. 6995; this is 24 ft. long; in c. 19 is a similar net 42 ft. long; these are used for surface fishing. The carved wood heads, Nos. 5697, 6211, are said to be regarded as household divinities, and to one are attached offerings, among them an inlaid disk from the Solomon Islands, perhaps a trophy. No. 1830 is an idol in lizard form, and the grotesque human face, No. 1831, serves also for worship. The nature of the stout figure standing on a crescent, No. 7054, is unknown. No. 1649 (Fig. 42) is a festival drum of long hour-glass form, hollow, and covered with lizard skin. No. 1799 is a similar drum with the addition of seed rattles. No. 1059 is a cylindrical drum from Dutch New Guinea; near this is the smallest carved drum in the collection, No. 7995. Behind these drums hangs a woman's dress of fibre from British New Guinea, No. 1783. No. 1653 is a *kuludu* or chief's hat, from Bukaua, of bark, decorated with shell eyes, dog tusks and nassa shells. Here also is a coiled basket of rattau from New Britain, No. 1619. From Duau of the D'Entrecasteaux Islands comes the axe of jadeite, No. 1551, used only on ceremonial occasions; and another of similar material and use but smaller from Huon Gulf,

FIG. 40. CASE 18, NEW GUINEA.

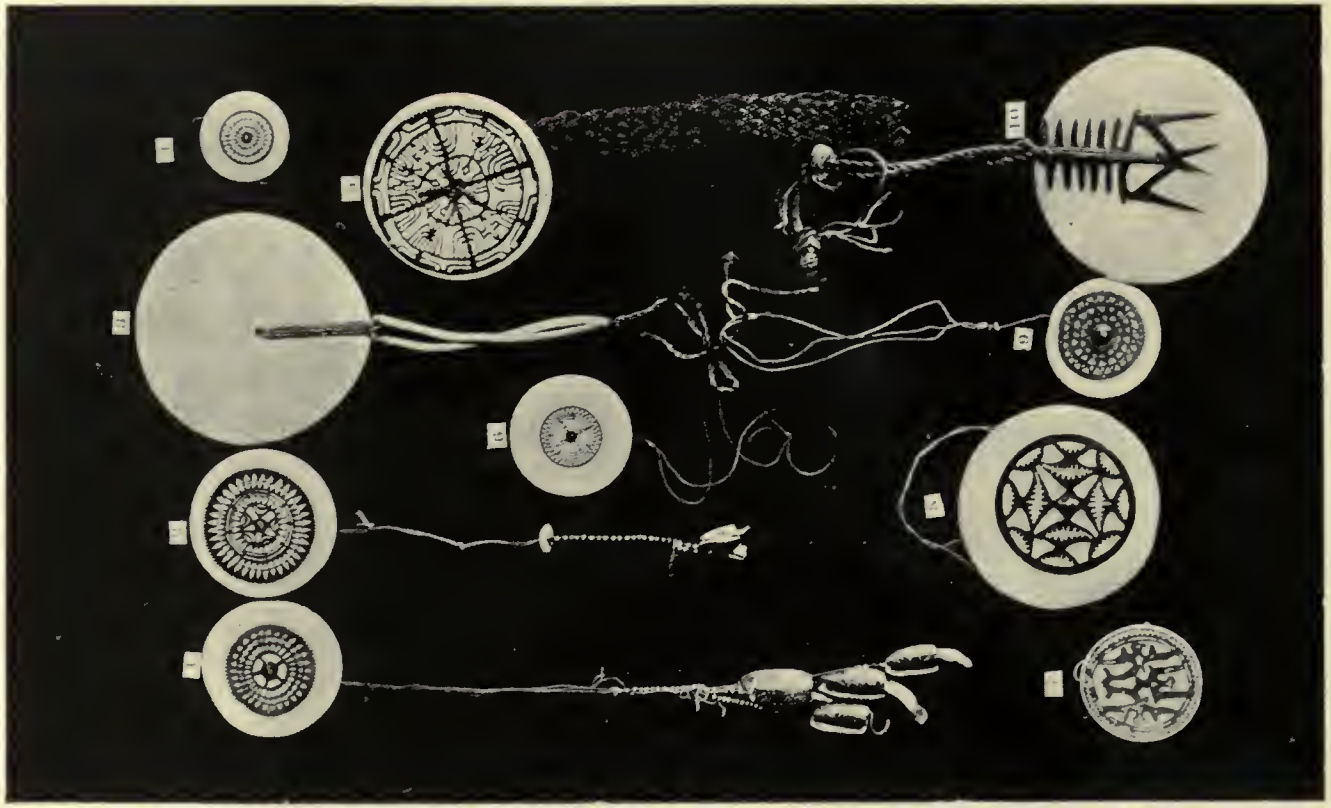


FIG. 41. SHELL DISK ORNAMENTS, NEW GUINEA AND SOLOMON ISLANDS.

New Guinea. Carved wooden spoons or spatulæ for lime or other uses are on the back of the case.

In c. 19 is an extensive assortment of bags, usually of loose network and dyed red, black or green, which serve for many purposes, from carrying the babes (see photograph) of a family to a receptacle for the smoked heads (see Nos. 2792-94, c. 13, V) of the vanquished enemy. Some large browu ones, No. 1771, serve as a distinguishing garb for widows. Nos. 1650, 1650a are sacred figures from New Ireland representing a bird devouring a serpent; these are carved from a light brittle wood and painted red, black and white. Nos. 1658-60 are *gwam*, a sort of penates from Bukaua, or they may merely represent the ancestors; two larger ones are in c. 20, Nos. 1668, 1668a, from Jabin. No. 7067 is a carved receptacle for pnbic hairs, which have a mystic value among these people. In the corner is an idol or mask from New Britain, No. 1652. Another carved figure, No. 7055, may be an idol, and the carving near by, No. 7056, suggests a crozier. Among the shell decorated bags shonld be noticed No. 1748, from Astrolabe Bay. No. 1770 is an *atim* or woman's festal dress. As will be seen by the labels many of the bags in this case have special uames and uses. No. 1776 are grass tails attached to the women in certain dances.

In c. 20 we may note the well carved food bowls, No. 1617, etc.; this form is common to this regiou; another pattern shows a carved and whitened edge, No. 7033. A round bowl with four knobs on the bottom, suggesting the legs of a Samoan awa bowl, and other sigillate carvings, No. 1618, comes from Kela and is called *su*. No. 7032 is another round dish with decorated edge. Nos. 1620, 1810, 7053, are carved wood spoons used for sago; the first comes from Jabin and is called *labing*. Much simpler, although not less usefnl, are the shell spoons, No. 1632, from Poom; those of coconut, No. 1631, from Bukaua. No. 1629 is a combination knife and spoon of tortoise shell, and No. 1630, of pearl shell, from Jabin. No. 1655 is a food hook from a temple, Kela; here it was preserved as a sacred thing, but its use to hang containers of food on is well known in the Solomon and neighboring islands, whence it was probably captured in battle and consecrated as a trophy, its real use being unknown to the captors. The carved coconut bowls, Nos. 1599-1601, were used either for food or as boxes for shell money; in Jabin they were called *lalu*, in Poom *essi*, iu Bnkana *jalum*, a diverse uomeuclature that will give an idea of the variety of language in these neighboring localities.

FIG. 42. FESTIVAL DRUMS.

For tools the tribes of New Guinea had the pump drill and adzes of greenstone, with knives and scrapers of obsidian. The adzes in this collection are polished but not very well shaped; rattan is almost always used to bind the stone to the handle. No. 5881 is nearly straight and was fitted for chipping away the interior of the long cylindrical drums. No. 1553 has a carved handle and comes from Jabin with the name *ki*. No. 1556 comes from Poom, is called *wamme*, and has a close-fitting jacket of woven rattan. No. 1800 has the stone fitted to an independent socket, which is attached to the handle by a sleeve of braided rattan, permitting the tool to be used as a right- or left-hand cutter. No. 1557 is fastened directly to the rather slender black handle without a socket.

Betel chewing is practiced by perhaps a tenth of the human race and deserves a word of explanation, as the collections of this Museum are rich in implements used for this habit. Betel nut is the fruit of the palm well known here in cultivation, *Areca catechu* and shown in c. 77, H.G. The hard and curiously mottled nut is gathered before it is quite ripe, boiled and cut in thin slices which are dried and preserved for use. The betel pepper, *Chavica betel*, is a vine allied to the plant that produces black pepper, and is cultivated by the Chinese in Honolulu. The third important ingredient is powdered shell or coral lime (chunam). A leaf of the pepper serves as a wrapper to contain the sliced betel and a pinch of lime, and the compound is leisurely chewed. This is provocative of a copious secretion of saliva, which is of a brick-red color and quite repulsive when seen for the first time; a blackening of the teeth also results, but the teeth do not seem to be otherwise injured, as may be seen on the teeth in the "cannibal belt" in the collection from New Hebrides, c. 14. Nos. 1641, 1642 are carved wooden mortars in which to grind the betel nut with a cassowary bone pestle; only old men used this help. Nos. 1634-40 and 1811 are specimens more or less decorated of gourd bottles to contain the lime with the carved spoons. For smoking, joints of bambu open at one end and with a small aperture near the partition at the other, the whole decorated with incised or burned lines, serve as receptacles for a lighted cigar, the smoke being inhaled from the small lateral opening, Nos. 1643, 1805; these are called *bobo* in British New Guinea. After these narcotics or stimulants we may suppose that the grotesque pillows here arranged might be used. No. 1818 is carved from a piece of light wood and decorated with feathers; others are carved to represent animals, and some are composite, the legs being of bambu. As among these people the hair is suffered to grow to a great extent and curiously decorated, these neck pillows are convenient. No. 1808 is a sleeping mat; these are frequently made of thin rattan strips and are cool and cleanly.

FIG. 43. NEW IRELAND DANCING MASK.

Little is known of the methods used in fishing, but the hooks from this region are of such curious shape that one wishes to know

more of their use. Of the fish lines we have specimens from Jabin, No. 1832, called *seling*, made of a round harsh-feeling fibre (coir) firmly twisted. From the Siassi group come odd-shaped hooks of tortoise shell bent and with a bit of white shell bound to one side of the shank, No. 1633. A more elaborate form, *ifan*, comes from Jabin, No. 1628, a cylindrical shank of shell, 5 in. long, to which is bound by two ligatures a scimetar-shaped and very sharp arm. No. 1621, small hand nets for work on the reef or in shallow streams. Fish spears from this region are in most collections, and often consist of a number of bambu splints bound to a light pole; in other cases the points are carved from hard wood, a fine example being in the centre of the trophy of spears over the chart on the gallery wall; another is on the outside of c. 18, No. 993, and others are attached to the various columns in this hall. From the ceiling of this alcove hang carved paddles, as No. 1802, from Paraponpon Island, a large one from Jabin called *no*, No. 1563, and a small double one, No. 1803. Smaller paddles are used here as elsewhere for dance wands. With the paddles are many swords of hard dark wood, carved, Nos. 1390, 1391, 1565-69. In the same group is a war club from New Britain, No. 1383, of dark red wood.

Of the spears from the New Guinea region it may be said that their variety is great, their construction complicated, and their exact locality generally unknown. As they were captured in skirmishes and laid by as trophies, spears from very different tribes are often collected in one place, and our knowledge of their true origin is very inexact. Among the noteworthy specimens outside the cases are those tipped with human bone not in any way sharpened, No. 1022, c. 18; or with seven prongs of human bone, No. 985, c. 20; a similar one with the bone of a cassowary is between cc. 18–19. The spine of the sting ray is often used, No. 8120, c. 20, and other spines arranged in several ranks, Nos. 8147, 8148. Feathers were an usual decoration.

The bows and arrows have already been referred to, and here it may be noted that from Bukaua comes a bow of dark heavy wood, 6 ft. 2 in. long, with rattan string, No. 579, c. 18, called *mago;* from Jabin a similar one, No. 1578, called *talam;* from Poom, No. 1580, called *lehe;* from Kai, No. 1581, called *tepe;* and from Siassi Islands, No. 1582, called *paneng*.

Several idols have been noticed, and in c. 20 are two fetish, No. 1656, a carved piece of palm wood 8.5 in. long, to which are bound by a bark string two dried bird's legs, some fine roots, and a small paddle-shaped piece of wood: this from Bukaua. No. 1657, from Astrolabe Bay, is composed of five flat pieces of palm wood carved and decorated with white paint on one side, the longest 15.6 in., wrapped together with two stems of grass with bark cloth and rattan dyed red. What these were supposed to be good for is unknown. Among the prominent objects in c. 20 are the grotesque masks carved from light wood and variously decorated, used in the dances both convivial and funereal. From the many volcanoes in New Britain plenty of obsidian is obtained, making the supply of cutting implements abundant, and the elaborate carvings so common in museums seem to have been made in profusion, but the images are often obscene and in other ways incomprehensible to a European. At present the manufacture is suffering, like most other native work in the Pacific, from contact with foreigners, and this Museum possesses two of these masks decorated with red cloth and Turkish towels! No. 1664 (Fig. 43), in form of a helmet, is from the north end of New Ireland; another from the west coast has white hair of the pith of some rush, cap of nautilus shell, large ears of painted kapa, eyes of the opercula of some species of trochus, and human hair whiskers. No. 1665 is from Blanche Bay. The

huge mask, No. 1662, is called a funeral mask and is from Jabiu; certainly it could not be comfortable in a merry dance. Another carving from the east coast of New Ireland is No. 1667, a temple ornament apparently intended to represent a pair of eyes. Following the New Ireland carving iu this case, we have the rude chalk images Nos. 1833, a female, and 6985, a male; these are often made of considerable size. They seem to be chiefly iutended for the foreign market. A curious form of idol is made here of strips of vegetable matter covered with palm fibre and painted, Nos. 1834, 1835. Figures made in this way of small human size are often called artificial mummies, but are uot represented in this collection.

There are here but two specimens of the playthings of these volatile Papuans, the *kalingwan* or Jew's harps of bambu, No. 1698, from Jabiu, shown in the upper part of Fig. 33, p. 33, and tops or teetotems made of entada beans, No. 1689.

Bark cloth was made throughout this region, but not of fine quality. The material is strong and sometimes decorated with colors and curved stripes. In Kela and Bukaua this kapa is called *po;* in Kai, *gbola;* in Jabiu, *obo;* in Poom, *gi;* and in the Siassi Islauds the narrow strips used for waist cloth are called *mal*, a vocable so closely resembling the Hawaiian *malo*, a similar garment. Bark cloth occurs iu many specimeus used as cloth, and more definitely in No. 1769, the figured cloak, *nakwin*, of a chief. No. 1559 is a *bunda* or shield of bark cloth from Poom. Most of the feather decorations from this region are in c. 6, K., and consist of the plumes of the birds of paradise mingled with parrot feathers. In c. 20, however, is a chief's cap of emu skin from French Island; and in c. 18, No. 1820, a band of feathers for a coronet. Usually hats were not worn, but in No. 1762, c. 20, we have a cap of palm leaf from the east coast of New Irelaud. Forehead bauds are very popular and are represeuted in c. 20 in considerable number. The favorite decoration was the uassa shell and dog teeth; but braids, not unlike those used in the Solomon Islands, were also used, as in Nos. 1751-53, which remind one of the conventional halo of a saint. Combs were certainly needed for the dense wooly hair, and we have them made of bambu, No. 1700, from Jabiu, of hard wood from Kela, and of palm from Bukaua. For ornament, No. 1828, cousisting of three prongs with shell pendants, was taken from a chief's head. As the people of New Guiuea cut and bind their hair in many grotesque fashions wooden hairpins are much used. To understaud how the ornaments for head arms, etc., are worn one should consult the collection of photographs

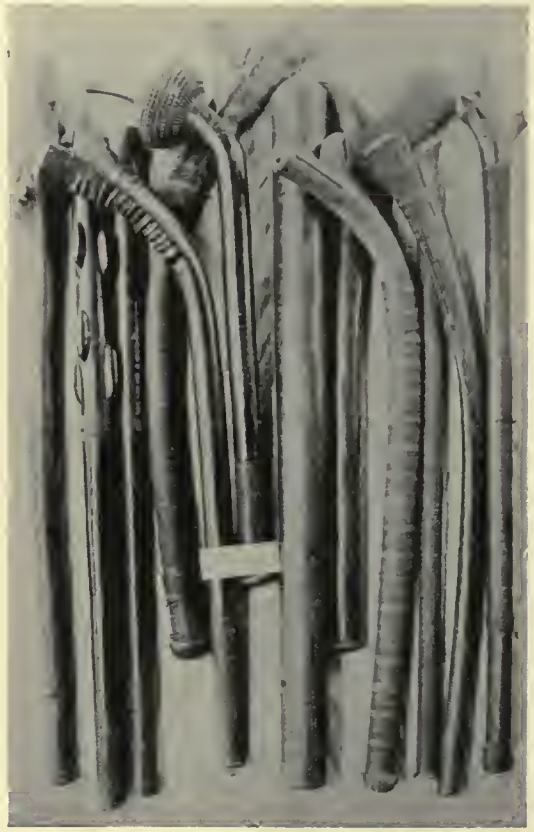


FIG. 44. FIJIAN LONG CLUBS.

of New Guinea people to be found in the P.G. As their costume does not admit of buttonholes they wear their *boutonière* in an arm band of woven fibre. No. 1685 is a parcel of *pin* or shell rods 4.5 in. long worn through the septum of the nose. No. 1686 are shell hooks of varied form to be worn in the same prominent position. No. 1684, an ear ring of several circles of tortoise shell 4 in. in diameter. No. 1677 is a most remarkable chain, about 125 ft. long, composed of shell money carefully made and representing great local value. No. 1676 is a chain of tortoise shell links carefully joined. No. 1681 is a good type of the engraved tortoise shell arm rings, and other patterns are near by; even the common coconut is enlisted in the number of decorative rings, No. 1726, from Kai. More shell rings have been noticed in c. 18. Shell money from this region is well made and in great variety, and specimens may be seen in c. 46 in the gallery with the manufactures of shell. A rather ghastly relic of some cannibal feast is No. 1838, a mask built upon a human frontal bone with some plastic gum and decorated with the wool (perhaps) of the victim: this from New Britain, where this countenance is fashionable for dances. A collection to properly illustrate the aboriginal life of the New Guinea region, such as can be obtained even at the present day, would fill a room larger than this hall, and the Natural History of this prolific region would require as much more space. We have no specimen of the curious *korowaa*, of which the Leiden museum possesses such a fine series, nor have we the odd wood "fiddle" from New Ireland.

FIG. 45. FIJIAN THROWING CLUBS.

Fiji or Viti is an important group of the central Pacific comprising 155 islands, two-thirds of them inhabited, and as many more islets and reefs. Area not less than 7500 square miles, extending in longitude from 175° E. to 177° W., and in latitude from 15° S. to 22° S. The formation is both coral and volcanic, although there are no active volcanoes. In 1889 the native population was 122,012, a fine race, all nominally Christian, although but a few decades removed from cannibalism. Fiji is but 300 miles from Samoa, and rather nearer Tonga. As it is on the eastern limit of Melanesia, the inhabitants present a problem in ethnological classification, for while they are dark skinned and have wooly hair, they have the finer features of the Polynesian. The language is a branch of the same stock whence the Polynesian languages have been derived. While the Melanesians have many languages, Fiji has but one of several dialects. Tonga has greatly influenced its Melanesian neighbor in many things beside the adoption of Christian missions; for example, circumcision (*tefe*) is the rule among

Polynesians, but the exception among Melanesians, and it obtains here: again, tapu is the law of the land. Cannibalism has prevailed until recent days, and many are the relics. The manufacture of pottery enabled the Fijians to have greater variety in their cooked food, and even omitting the *pièce de rèsistance* their feasts were very abundant and varied. There are many valuable timber trees, hence the excellent quality of their clubs and bowls. The vesi (*Afzelia bijuga*), dakua (*Agathis vitiensis*), vaivai (*Serianthes* sp.) and casuarina furnish much of the wood. In 1875 Fiji was proclaimed a British colony.

In the olden time war was the normal state among the Vitians, and the population was kept down in a way that would have delighted Malthus; indeed it has been suggested that the practice of anthropophagy was invented to save the greater trouble of burial in the case of the fallen warriors. Weapons are abundant and often exhibit astonishing labor in carving. In the Musée de Marine at the Louvre, Paris, is a magnificent spear 15 ft. long, carved and banded with sennit, the lowest rank of barbs being 6 in. in diameter, so the weapon must have been cut down from a log of more than that diameter. On the outside of c. 22 are similar spears, Nos. 6980, 6981, although not so large; and in c. 21 is a spear bound with sennit, No. 7822; others are in the spear trophy over the chart of the Pacific.

The clubs were the favorite weapon, however, and a chief seldom went abroad without his favorite long club and one or more throwing clubs. Many of the clubs are arranged on the ceiling of the Vitian alcove, but others are in c. 21, and many are clearly shown in Figs. 44 and 45. The long clubs have been classified into round, knotted, pineapple, lotus and musket from their shape. Of these the pineapple, Nos. 1027, 8696, c. 21, are among the most prized, and the lotus, No. 7493, often is most elaborately carved. No. 1033, c. 21, is a huge round club weighing 12.5 lbs. No. 7823 is a good musket club, and Nos. 1028, 1037, 1038 on the ceiling are examples of the knotted club. Nos. 1030, 1036, musket clubs, bear the native name *kea kava*, and are bound with sennit. No. 1029, knotted club, is a *thiba drassa*, and Nos. 1032, 1039 are the rare *nukanuka* of a chief. Often the knotted form is inlaid with human teeth. The throwing clubs (Fig. 45) are often skilfully carved, and a practised hand will throw with great accuracy. As the group forms an archipelago, paddles were important, and were often made half paddle, half club, as a weapon was generally needed on landing; No. 1253, c. 22, is one of these; the notches (51) denote the number of skirmishes in which it had been used. No. 1984, c. 21, is a *tanoa* or *yaqona* bowl, an heirloom of King Thakom-

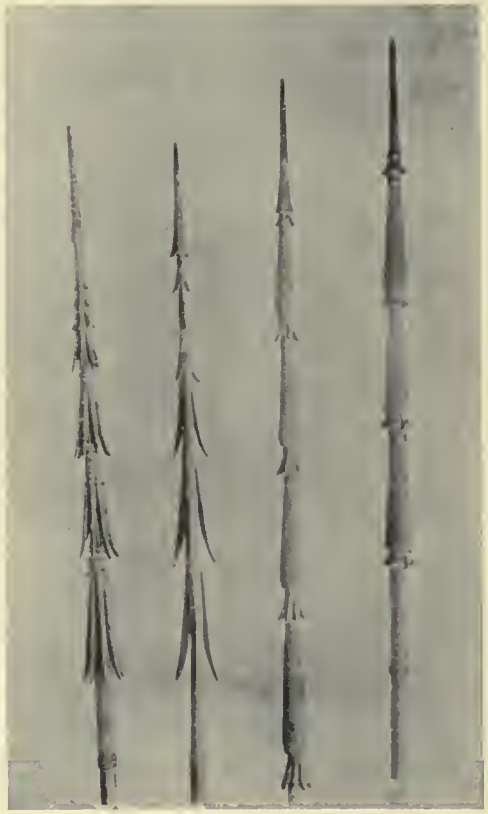


FIG 46. FIJIAN SPEAR HEADS.

bau, used on all solemn occasions. Awa drinking was a more important ceremony in Samoa and Fiji than in the northern groups. No. 1994, c. 22, is a wooden yaqona strainer. No. 1992 is a cocoanut yaqona cup with the peculiar stain of the yaqona still visible. No. 6979, c. 22, is a yaqona bowl in form of a tortoise, a form peculiar to the priesthood. Nos. 1990, 1991 are cannibal dishes, and as the dish was tapu from its use, and not to be touched by a slave, the curious handle is provided. Nos. 1989, 1989a, c. 22, are cannibal forks, implements which were kept with the greatest care. No. 1995, mortar for crushing betel nuts; the pointed end was planted in the ground. No. 1993, pestle for *madrai* (Fijian poi of yams). No. 1988 is a *kitu* or oil bottle of coconut; oil took the place of butter at their feasts. Nos. 2013, 2014 are oil dishes. Nos. 2016-21 are food dishes or bowls, which often show considerable variety in design as well as care in execution. Near these are No. 2022, a spoon or scoop of turtle bone; Nos. 2023, 2024, similar implements of palm wood, the latter carved. The pottery in this case is made with care, although not so large and hard baked as the immense cooking jars, the largest of which could contain a human body; the designs are often curious and not suggestive of any particular use; the glaze is obtained by rubbing the hot biscuit with the gum of the damar tree (*Agathis vitiensis*), of which a specimen is No. 6972. This is a closely allied species to that of New Zealand. No. 2026 is a specimen that must attract attention from its intimate connection with the cannibal dishes and forks in the same case; it is a wig of human wool, the person to which it originally belonged having been eaten in 1862, and his host wishing to remember the pleasant event had the wig made, not an uncommon thing. Wool of this dense character would naturally require stout combs or "ticklers," and these are provided in Nos. 7980, 7981; a lighter form in No. 7982, c. 21. To cover this enormous head of wool the Vitian used no hat, but a turban of fine white kapa (*masi* or *malo*), Nos. 2027, 2028, c. 22. To beat this kapa a beater, *ai iki*, of form

FIG. 47. FIJIAN POTTERY.

resembling the Hawaiian but tapering from the handle to the head, No. 1998, c. 22. The dresses of kapa, of which Nos. 7969, 7990, 7991 are fine examples, were stamped much as the kapas of Samoa but with more artistic feeling. A curious roll of bambu groved for lining kapa is No. 2006, c. 22. Other dresses of fibre, Nos. 7501, 7502, are in c. 21, and were for the use of women only. Fans of pandanus leaf, No. 2029, c. 22, were stout but not beautiful.

Pillows, *kali*, were of the neck-bearing class, and either a round rod with legs more or less carved, No. 1986, c. 22, or a more massive carving from a single block, No. 1987, c. 22. For the noise that delights the heart of a Pacific islander drums were hollowed from some hard wood, No. 1985, c. 22, but generally much larger than the specimen exhibited, and the universal triton shell horn, No. 2005, was used, the latter especially in war. While the wool was considered the chief ornament other matters were not disdained, and the teeth of whales were much esteemed, either strung carefully into necklaces, No. 2031, c. 22, or a single large polished tooth, No. 2032, c. 21, the latter a most appropriate gift for a person from whom a favor is to be asked. A stone adze is shown, No. 2030, c. 21, and another with the handle, No. 7992, in the same case. A cup, of coconut, with a braided wiper, of coir, attached is No. 2000, c. 22. A beautifully woven basket coffin is No. 1997, c. 22. In c. A is a model of a full rigged canoe; note the mat sail and the crescent mast head. Many photographs of Fijians are in P.G.

Micronesia.—"The little islands" is a term applied to the whole region of the Pacific north of the large Melanesian islands, bounded by the Marshall and Gilbert Islands on the east, the Marianas on the west, between the parallels 13° N. and 3° S. The islands Guam (and others of the Marianas), Kusaie, Ponape, Ebon, and a few others are high, volcanic islands, but the far greater part are low coral atolls, coral reef and sand. The Caroline Islands consist of nearly fifty groups with between 400 and 500 islands. They cover an area of 360 square miles. With the exception of Guam they belong to Germany, as does also the Marshall group. The Ruk group, composed of ten high, basaltic islands in an immense lagoon, with perhaps 60 islets on the bounding reef, has an estimated population of 15,000, of two distinct races, not always friendly. The Mortlock group includes Satoan, Lukunor and Etal, with a population of 3400, of Samoan origin. The Marshall Islands are disposed in two parallel lines of atolls, at no point nearer to each other than 200 miles. The western range is called Ralic and the eastern Ratack. The population is less than 10,000. The Gilbert Islands belong to Great Britain and consist of some sixteen atolls, with 50,000 inhabitants. The area is not more than 150 square miles. The inhabitants are dark, resembling

FIG. 48. RUK EAR ORNAMENT.

the Hawaiians, and have been Christianized by the missionaries of the American and Hawaiian Boards, and the Bible has been translated into the language of the group by Rev. Hiram Bingham, D.D. The people of Micronesia have been divided into four groups, the Chamorrosofthe Marianas, who were nearly exterminated by their Spanish conquerors in the seventeenth century, but who were lighter colored and more civilized than their eastern neighbors; the Caroline Islanders, who are rather slight in build but well proportioned, darker than the Polynesians and with a Mongolian trace in features; the Marshall Islanders, who are darker and more vigorous; and last, the Gilbert Islanders, who are darkest of all. For farther geographical information the visitor is referred to the large map on the gallery wall, and to the Index to the Islands of the Pacific Ocean, Memoirs of the Museum, vol. i, No. 2. The collections from Micronesia are in cases 23 (Caroline Ids.), 24 (Marshall Ids.), 25 (Gilbert Ids.), and in the central case B; also on the ceiling above the entrance end of the hall are many of the shark teeth spears. We may begin with the most advanced group of the Carolines where we find the loom, No. 2064, used for weaving fine mats from hibiscus and banana fibre, to serve as dress for women, and the smaller loom for weaving the *tol* or belt worn by the men above their loin cloth. Two of these

FIG. 49. CORAL PESTLES FROM RUK.

looms or frames of slightly differing patterns are in c. B, Nos. 7798, 6801. The products of these hang above them, and the old ones, Nos. 4876, 8789, c. B, are far more artistic than the modern product where foreign-dyed worsteds are introduced, Nos. 3355, 3362, c. 23. The ancient work has a flavor of Java and the best work of Siam about it. The mats or dresses for women, made on the larger loom, of banana fibre, Nos. 3242, 3356-59, and of hau fibre, Nos. 3243-46, are shown on the back of c. 23. The end patterns are often very attractive and show both taste and skill in weaving. A simpler dress for men is No. 3363, c. 23, a chief's dress from Ponape, pandanus leaves crimped. Conical hats from Ruk, Nos. 3513, 3514, on the alcove ceiling, No. 3515, c. 23, made of pandanus leaves, are worn when reef-fishing; the same form obtains at Guam, No. 8959, c. B, and elsewhere in the archipelago.

Of the ornaments few strike a stranger more than the immense ear ornament, No. 8064, c. 23 (Fig. 48). It is the custom at Ruk and elsewhere to perforate the lobe of the ear, much as women do in more civilized countries; but the islanders stretch this hole by means of quadrangular prisms of breadfruit wood painted and decorated, Nos. 3327-30, c. 23, until the mutilated lobe would admit the passage of a man's arm.

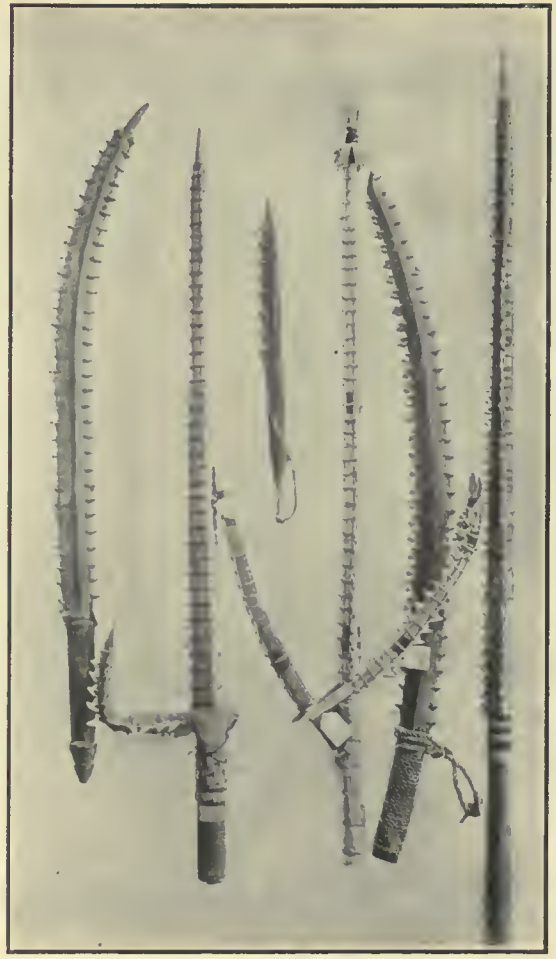


FIG. 50. SHARK TEETH SWORDS.

A red cord in the specimen serves to show the size (6 in.) of the distended lobe, and at the same time to hold the 58 coconut shell split rings which hold the ornament in place. When the former owner sold this, his only decoration, he felt so unbalanced (it weighs 8.2 oz.) that he took off his shirt, rolled it up and passed it through the emptied lobe and so went ashore. Nos. 3425, 3426 are similar but smaller ear ornaments from Ruk and Lukunor. Nos. 3425-30 are strings of coconut beads used for the same purpose. Nos. 3319-24, 7459 are necklaces formed of transverse sections of a small variety of coconut, graduated so as to be smaller at either end and very neatly fastened together by a flexible braid. The whole nut shells are No. 3325, and these are often attached to the necklace to contain *taik* or tobacco, as in Nos. 3318, 3323. No. 3412 is a belt of coconut beads, 2.5×24 in., from Ruk (see Fig. 32, No. 16). Other belts peculiar to this region are composed of strands of beads of coconut or shell, varying in width from five to sixteen strands, kept apart at regular intervals by perforated wood strips, as shown in Fig. 32, p. 32, Nos. 14, 17; No. 8064 is a belt of these coconut beads used as a head band in conjunction with a hairpin of wood capped with a terebra and meleagrina shell; Nos. 3384, 3385 are for the same use with

smaller pins; Nos. 3377, 3378, 3382, 3383 are hairpins without the band. Nos. 8804, 8805 are necklaces of the shell *Engina mendicaria*. No. 8803, a necklace of red spondylus beads, which are highly valued in this region. Similar ones are No. 3417 with bone pendants, and No. 3418 with black and white beads. No. 3408 is a stiff head band of brown *Melampus* and white *Columbella* shells. As might be inferred from the insular situation shell money was made here in quantity and used to purchase commodities from other places. No. 5637, c. 23, is a string of shell money from the Mortlock group, and No. 3409 are bracelets made of this currency. In the Carolines there was perhaps the largest representative of money simply ever known,—the huge shell rings as big as a millstone, but this Museum has not yet obtained this. As in New Guinea so here tortoise shell was used for rings or bracelets worn singly by men, Nos. 2472-75. Before leaving the personal ornaments we must notice one of woman's greatest ornaments,—a work basket, No. 7082; this is of common form but the contents are quite different to those that fill a similar basket for a white woman: two shells take the place of scissors, a lobster claw serves to smooth the work and act as thimble, while fibre of various colors beautifully wound on bambu and rolled up in banana leaf takes the place of thread. A woman who could work well with such rude tools, and many can, deserves the scarf or dress of honor. Nos. 3356-59, c. 23, woven in the loom from black banana fibre brightened with the colored thread of the work basket. No. 3451 is red ochre used as paint on Ruk; but the pigment most prized on Ruk was *taik* or *tike*, Nos. 3294-96, c. 23. It is said to be prepared from a species of ginger and is used for rouge. Usually made in January the paste is cast in small coconut cups, No. 3299, and when dry wrapped in strips of vegetable fibre. This is sold in large quantities to Mortlock people, three taik being equal in value to a musket.

For pounding poi or grinding taik a pestle of coral resembling in general form the Hawaiian poi pounders, but made of coral rock (Fig. 49); the top is furnished with one or two knobs or points, Nos. 3290-92, 8982, c. 23. A wooden pounder, No. 7075, and one of stone well finished from Kusaie, No. 7076, are also from the Carolines. Bowls of breadfruit wood, from Ruk, of oblong shape, Nos. 3277-79, are in c. B. Nos. 3267, 3268, a spoon and saucer moulded from tortoise shell bear the marks of foreign influence. No. 4017, c. B, is a wooden box and cover of a form common here but not more so than in Malaysia. No. 3547 is a quadrangular bowl for food. Nos. 3281-84 are specimens of the most important agricultural tool in use among the people of Ruk, a hoe of turtle bone attached to a short handle, used for digging

FIG. 51. GILBERT ISLANDS ARMOR.

taro, etc. No. 3306 is a shuttle for fish nets, oblong, with a tongue in the middle. No. 3305 is a net partly made from a fibre said to be seaweed. Nos. 3444-47, c. 24, are hand nets used by Ruk women on the reef. Nos. 4013, 4014 are adzes of the shell of *Tridacna gigas*. No. 3480, c. A, is a model of a common canoe at Nukuor; usual length 12 to 18 ft.; made of breadfruit wood and carrying six men; they are fitted with mast and sail of mat. No. 5442, c. A, is a model of a canoe from Ruk. No. 5443 is a model of a chief's canoe from Lukunor, Mortlock Ids.; usual length, 30 ft.; made of breadfruit wood bound together with sennit; chief sits on a projection opposite the outrigger. Nos. 3301, 3302 are carved end pieces for a canoe; others are on the ceiling. No. 3493 is a sleeping mat of pandanus leaves curiously joined; its structure permits it to be readily rolled up, and the portion unrolled serves as a cool elastic bed, while the remainder is a good pillow; these mats are of various widths and lengths. No. 3343, c. 23, is a fan of palm leaf from Ponape. No. 5631 is the rudest form of a palm leaf basket. Nos. 3348, 7796 are baskets of coconut fibre closely woven and closed at top by two straight, stiff edges. No. 3346, a round basket, of pandanus; a common form.

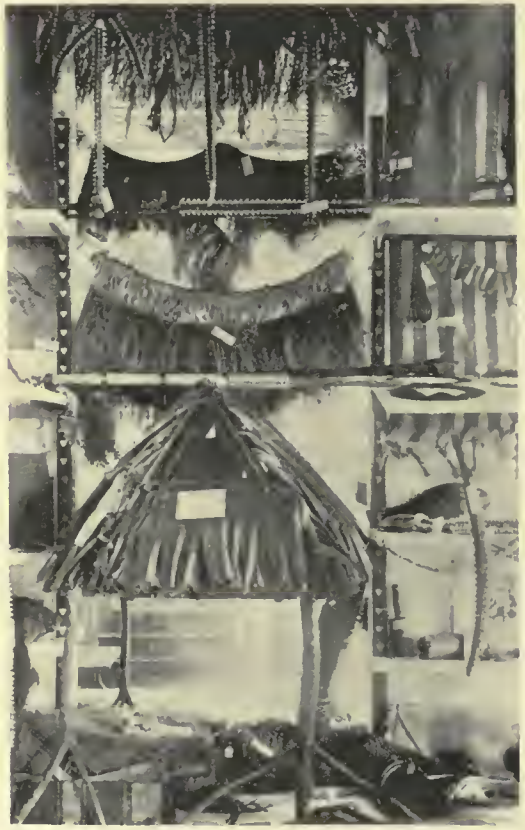


FIG. 52. PART OF CASE 25, GILBERT ISLANDS.

A rough coral rock hardly detached from the reef where it was formed, and with shells still clinging to its crevices, is a fair specimen of the idols of this region. NGatic is responsible for this ugly thing, but all other groups were equally guilty, No. 7116. When the Carolineans attempted to represent the human figure they had little better success. Apparently they had a certain canon to which all were carved; the bodies were long, the limbs short, and the faces did not exist, but the frontal region terminated in a blank point where the chin should be, Nos. 7814, 8151, c. 23. In the museum at Hamburg are many of these images of considerable size, but all of one family; one from Nukuor was 66 in. high. No. 7079 is a wooden box for the ring money; No. 7081, from Kusaie; No. 7112, from NGatic. No. 7073 is a breadfruit splitter from Kusaie, and No. 7074 a similar one from Ruk. No. 7805 is a tatuing tool from Ponape.

For games there was considerable variety. Nos. 3442, 3443 are cubes of plaited pandanus leaves used in playing ball. No. 3452 is a dance paddle; these were common, and Nos. 3549-55 are dancing wands, about five or six feet long, slightly enlarged at the ends, and used to beat time; several are on the ceiling of the alcove. Nos. 5633, 5634 are wooden masks of large size from Ponape, painted white, with black trimmings, used in dances; on the wall over c. 31 in the gallery. Nos. 3448-50 are reed nose-

flutes from Ruk. No. 3511, c. 23, is a model of a chief's house, and No. 3512 on the top of c. 31 is larger: both from Kusaie.

The Caroline Islanders certainly had weapons, although they are not much in evidence here. Nos. 837-41 are spears of palm wood with stings of ray (*Trygon pastinaca*) set in clay or gum; one is on the outside of the case, others are over the chart. No. 3437 is a hand weapon of shark teeth, sting ray pricks, etc.; and No. 3438 is a similar ugly but inefficient weapon. Nos. 3308-17 are slings of coconut fibre, well made, used to kill chickens, and also by men to fasten their back hair which they suffer to grow long; some of these are thick and rather clumsy. The crown of painted wood, No. 3476, c. 23, was worn by the women of Mokil on the arrival of the missionary vessel Morning Star.

Going eastward we find the Marshall Islanders one of the most remarkable seafaring people of the Pacific. Not only are their canoes elaborate and seaworthy, but they alone of all the islanders had charts and a compass. They also knew how so preserve their food in very portable form for long voyages. The chart or *mede*, now no longer made or used, hardly understood by the present generation, No. 7520, has been thoroughly studied by my friend Dr. Schick, of Hamburg. Models of the canoes are in c. A, Nos. 7550, 7799. A canoe bailer, No. 8787, reminds one in form, although not in execution, of those in New Zealand. The compass is No. 3481. The gum used to calk a canoe is shown in No. 7825, c. 24. The food taken in the canoes was mainly of pandanus (*Jen quin*), and was carefully rolled up, Nos. 7819, 7820, 7089, c. 24. In later years tobacco was packed in the same way for a voyage, No. 5330. A pair of coconut bottles, No. 3289, and fish hooks of shell, strong and well made, Nos. 3453-59, 4019-22, were to be found in every canoe. No. 7808, c. 24, is a well carved shark hook from Ebon. The absence of stone from the Marshall and Gilbert Islands brings into use the stone-like shell of the tridacna, and we have in Nos. 3285-87 shell adzes of rather clumsy appearance but efficient. A manufacture formerly exported to these Hawaiian Islands is shown in Nos. 3303, 3304, 7809, c. 24, a coconut cord covered with a neat braid of pandanus in two colors. The plain coconut cord, No. 3307, c. 24, is rolled in a way common

FIG. 53. GILBERT ISLANDS SHELL ADZES.

in the Pacific, and found by American inventors the best way to hold the cord together; much modern cord is wound in this way by machinery. Another winding is shown in the ball, No. 8704, c. 24, used as a buffer or fender. No. 3385 is a fan of tortoise shell from Ebon. No. 3347 is a basket, of pandanus, decorated with yellow and brown zigzag bands, from Calvert's Id. No. 3349,

a basket or satchel from Jaluit. Nos. 3379-81, c. 24, are two-pronged hairpins from Arno.

The Gilbert Islanders have been noted in time past for their weapons of shark teeth, and their curious armor of coconut fibre; so utterly has this last withdrawn before firearms that the present generation cannot tell how the tough, close-woven armor was made. In c. B may be seen a number of the cuirasses, skull caps and more flexible jackets and trousers, which are, however, of such harshness that a white man's skin would have a hard time wearing such protection. Another piece of defensive armor was the war belt of sunfish skin, Nos. 3544-46, c. B. This is soaked in sea water a long time until flexible, and when put on soon hardens to the shape of the body; the surface is very sharp. The spears are often 17 ft. long, of coconut wood, with the teeth of several kinds of shark fastened into grooves with coconut cord; most of these are on the ceiling at this end of the hall, but enough for inspection are on the ontside of c. 25. Swords were both curved and straight (Fig. 50), and were a formidable weapon. A knife made in the same manner but much smaller is shown in various forms in c. 25, Nos. 3274, 5108, 7091-93. Clubs of whale rib, No. 8972, c. B; of coconut wood, Nos, 3376, 5647, c. B, of short thick form, and the more artistic and longer pinnate palm clubs, No. 8086, c. B, and others on the alcove ceiling, completed the offensive weapons.

All through Micronesia idols were scarce and of the rudest form. A sea-worn mass of coral hardly shaped by the hand of man, was the highest aim. No. 3293, c. 25, is Taopuñan, a family god who cures diseases and helps in danger on the sea: this from Apaiang. War was more important than religion, and we find no temples; the few shapeless idols, if not kept in private residences, remained on the reef. But the Gilbert Islanders were not without good implements. Their hooks were of various kinds. Nos. 3461, 5813, c. B, shark hooks from Bonabe or Ocean Id. Others from the same island are curious hooks with cylindrical shanks of stalactite to which is bound a bone hook, Nos. 3463-69. The adzes were of shell, as shown in Fig. 53, heavily handled but not remarkable, Nos. 8792, 8793. A wooden breadfruit splitter is No. 7626, c. B. A heavy club made both of wood and of shell or coral rock, Nos. 5650, 7109, c. B, of wood from Kusaie, No. 7832 of coral rock from Ponape, were used throughout Micronesia to flatten the pandanus leaves used for mats. Mats were a very important part of the house furnishing and were well made and very durable; examples are in c. B. Baskets and satchels of pandanus are in considerable variety in c. 25. Nos. 3352, 3353, c. 25, were made by the women of Tapitenea for trade. A loom-woven mat dress, No. 3372, c. 25, is from Makin. Shell money was made as usual of disks of white shell and black coconut, Nos. 3432-35. No. 3275, bracelets of shell money, are worthy of notice as made with almost machine-like accuracy. Other ornaments were abundant but consisted largely of shell and coconut. The flat heads of cone shells were very popular, No. 3407. Nos. 3386, 3387 are fillets worn by little girls at Apaiang. No. 3391, necklace of white bivalves. No. 3405, necklace of 25 teeth filed. No. 3406, necklace of white cypræa shells. Nos. 3422-24, necklaces for men, coconut beads with various pendants. Nos. 3419-21, collar of coconut beads. Nos. 3439-41, sticks strung with shells, used in dances. Among the manufactures of coir are the fine rope, No. 7845, c. B, and the cord, No. 7837, rolled and used as a boat fender. At Majuro was made a cord plaited with pandanus, No. 4018, c. 25, similar to that made on the Marshall Ids.

Canoes of the Gilbert Ids. were like those of the neighboring groups, and a fisher's canoe made of small pieces of wood sewed

FIG. 54. INTERIOR OF POLYNESIAN HALL, FROM THE CHART END.

together, with outrigger and mat sail, No. 7111, a gift of Rev. W. N. Lono, is over the entrauce to the gallery.

Gallery in Polynesian Hall.—A very brief description of the contents of the gallery cases must be given here, and it will be more in the nature of a table of coutents than au index. This is not that the Natural History collections are deemed of minor importance, for if there was case room in the building it would be the desire of the Staff to fill it all with such specimens of biological importance as could be gathered from the still unstudied portion of the Pacific, but because it is hoped that in the near future special handbooks to the different zoological collections may be prepared.

The collection of madreporarian and other corals is a good one, but we cannot forget that if specimens of all corals that grow in this region were included this entire gallery would be filled. Cases 28-31, 48 and 49 are devoted to this department; c. 49 contains fine madrepores from Fiji which extend also into c. 48 where are specimens of blue coral (*Heliopora cærulea*), and corals from the Waikiki reef. In c. 28 are large brain corals (*Diploria*), *Seriatopora*, *Mussa*, *Euphyllia*, etc. In c. 29 are the black corals (*Dendrophyllia*), from Fiji and the Gilbert Ids., *Pavonia*, *Turbinaria*, *Merulina*, *Hydnophora*, *Tridacophyllia*, etc. In c. 30 are the red corals from Micronesia and a good series of mushroom corals (*Fungia*). In c. 31 are the cup corals (*Halomitra*), No. 2723, the red organ coral (*Tubipora*), No. 2704, *Pachyseris*, *Podobacia*, etc. Here also are sea fans (*Rhipidogorgia*) aud a Neptune's goblet (*Poterion*), No. 8045. A section of c. 49 is shown in Fig. 55, also one of the shell drawers partly open.

The collectiou of shells belonging to the Museum is one of the most important, containing nearly 10,000 species. It was originally gathered by Andrew Garrett, aud has been largely increased. In the rail cases is au index collection showing generally several species of each genus, and with references to the numbered and easily accessible drawers which contain the bulk of the collectiou. These shells have just been rearranged by Mr. Stokes on the most modern system according to Dr. W. H. Dall. Large univalves are in c. 47; so are the cephalopods in spirits, and a large Triton with the technical names of various parts clearly designated. In c. 46 are the large bivalves (the huge Tridacnas are on top of the gallery cases), and the manufactures of shell include shell money. A bivalve in this case is marked as was the Tritou among the univalves. The Hawaiian land shells are in H.G., but specimens are in the regular series here. A cast of the gigantic *Octopus punctatus* hangs over c. B.

FIG. 55. SECTION OF CORAL CASE 49.

FIG. 56. THE KIWI OF NEW_ZEALAND.

The non-Hawaiian birds are in various cases. In c. 32 are specimens of the kiwi (*Apteryx*) of New Zealand, including a skeleton and egg, the latter enormous in proportion to the bird (Fig. 56). With these are photographs of the Dinornis or Moa, showing the great size to which this family of wingless birds attained. In c. 33 are other New Zealand birds including the Kea parrot, No. 7291 (skeleton in c. 38), so destructive to sheep by devouring the kidney fat; the Huia from which feather capes were made, Nos. 7537 ♂, 7538 ♀: note the difference of bill in the sexes; the Tui, Nos. 7282 ♂, 7283 ♀. In c. 34 is a fine pigeon, No. 7297, and other New Zealand birds, together with woods, kauri gum, and "vegetable caterpillars" from the same group.

Case 35 is devoted to marine zoology and has a fair representation of genera of star-fish and sea-urchins found in the Pacific. Among the spouges, *Hyalonema*, No. 7970, etc., *Euplectella*, No. 8997; also specimens of the noted Pacific product bêche de mer, No. 5775. Case 36 has a very large male Kaempferia, the giant among crabs, with a stretch of 12.5 ft.; and among other crustaceans *Echidnocerus*, Nos. 7883-85. Case 37 contains Australian reptiles, the large python, the deadly black snake, many strange lizards, and a wonderfully realistic cast of an Arizona rattlesnake to show how Art can supplement Nature. In cc. 38–39 are skeletons of an "old man" kangaroo, emu, seal, lace lizard, albatross, kea, lyre bird, penguin, etc. In c. 40–41 are mounted specimens of marsupials, including the Thylaciue of Tasmauia, Cuscus of Solomon Ids., Ornithorhyncus, Echidna, Petaurus, Myrmecobius, Koala, Notoryctes typhlops, and a series of fœtal kangaroos covering the period of attachment to the nipple in the pouch.

Case 42 contains Australian birds and nests. The bower bird, laughing jackass, magpie, rifle bird, parrots and other well known Australian types are well represented. In central c. C are the emu, penguin, lyre bird, pelican, and black swan of Australia. Iu c. 43 are birds from New Guinea, Fiji, Samoa, and other parts of the Pacific. The birds of paradise in their curious plumage, the brilliant colors of the kingfishers and pigeons will always attract attention. Among the pigeons none is more remarkable than the *Didunculus* of Samoa, the last surviving relic of the extinct Dodo of Mauritius. From Samoa also comes the heron, *Demiegretta sacra*, with its summer and winter plumage (white and black) in a country where there is neither summer nor winter. Case 44 contains a large southern albatross (*Diomedea exulans*), hornbills, mina, false mina, man-of-war hawk, and an emu egg half hatched. Case 45 contains a mounted specimen of *Sus papuensis*, Port Jackson shark, Ceratodus or lung fish, Hippocampus, porcupine fish, and flying foxes.

Besides these specimens of the Natural History of the Pacific there are the Hawaiian collections in H.G., of which a brief description will follow the account of that hall. There is also the Herbarium (not open to the public) comprising a large Hawaiian collectiou made by Mann and Brigham in 1864-65, ferns from New Zealand, and other collections.

Hawaiian Vestibule.—Returning to the entrance we find this room on the right, and in it we euter the peculiarly Hawaiian portion of the Museum. This intermediate room serves a purpose useful in all museums, for in it are placed certain collections not strictly Hawaiian, but which are needed to illustrate Hawaiian matters, while not easily fitting into the scheme of classification of Hawaiian work and products used in the main Hawaiian Hall. For instance, the fossil corals from the Hamilton and related groups in the Niagara region, cc. 3, 5, present many genera of which surviving species are fouud in Hawaiiau waters. The

palæolithic and neolithic flints from England in the table case 15, and the implements from the Swiss lake dwelling estimated to be 6000 years old, illustrate certain primitive forms found throughout the Pacific. Even the collection of Ameriind implements and products, a gift from Mrs. Mary D. Hendricks, the visitor who comes to study will find of great use in his comparisons, cc. 17–18. Another use of this room is to exhibit certain specimens or collections temporarily until accommodation can be had in a part of the Museum where they properly belong. Such are the fine collection of Australian woods given by the Government of New South Wales, and certain woods from the Philippine Ids., c. 16.

In cc. 12, 13, 14 it is intended to exhibit a series of skeletons and crania of Pacific islanders, but at present only two male skeletons are here, a Malekulan from the New Hebrides, and a native Australian. The Museum collection of crania is exhibited in these cases. Mainly, however, the exhibits in this vestibule are Hawaiian. In c. 1 are models of Hawaiian canoes and parts of canoes that can be more easily examined than in the grand canoe in H. Hawaiian canoes were cut from single logs, usually of koa, long and narrow, without keel, built up with side boards of breadfruit wood, and partly covered at each end, but especially at the bow.

FIG. 57. HAWAIIAN PADDLE.

A very necessary part of the canoe was the *ama* or outrigger, in the best canoes made of wiliwili wood (*Erythrina monosperma*), connected with the *moo* or gunwale by two curved sticks, *iako*, generally of hau wood (*Paritium tiliaceum*). Triangular sails of mat were attached to a short moveable mast, *kia*. As protection from water and weather canoes were usually painted, the hull black, the moo yellow, and when not in actual use were drawn ashore. Canoes varied greatly in size, from that capable of carrying one man to the gigantic double war canoes carrying fifty or more; the latter were generally made of pine drifted from the American coast. The canoe No. 407, H., is of the best model for speed known to the Hawaiians, and was the favorite deep-sea fishing canoe of Kamehameha V. Its dimensions are: length over all, 35.5 ft.; depth outside, 27 in.; inside, 23.5 in.; width outside, 23 in.; inside, 17.5 in.; centre of canoe to centre of outrigger, 10.7 ft. Paddles are usually of koa, rather heavy and tipped on one face with a slight projection called *io* or *upe*. This io was not always present. The average length of a paddle was 5.5 ft., but the size of the blade ranged from 17 to 26 inches in length, and from 8 to 15.5 in. in breadth. While the steering paddles were much larger than these, the paddle used by women was much smaller. Specimens of all these are arranged over the lefthand entrance to H., and a polished paddle, No. 308, is in c. 1. When another canoe was substituted for the ama a raised platform was built over the iako and a very steady craft resulted. All parts of a canoe were bound together with sennit or aha, and for convenience of fishermen notched racks, Nos. 3905, 3907-11, c. 1, were bound to each iako to hold fish poles or spears in place. Often the pious fisherman placed at the bow a two-headed god, of which specimens are in c. 10, H., Nos. 3906, 3907. Cross braces, *wae waa*, are shown in Nos. 3912-14, c. 1, and an anchor, which was either a perforated

stone, No. 8051, or a round stone enclosed in a net. The old Hawaiians beside making long voyages (to Tahiti) in their canoes were decidedly an aquatic people, and canoes were so abundant that Vancouver, at the end of the eighteenth century, counted 1000 in Kealakekua Bay.

Case 2 contains casts of the turtle found on these shores. Fossil corals are in cc. 3 and 5, while c. 4 contains minerals from various places. Although Hawaii, being wholly volcanic, cannot boast many fossils from her soil, yet in c. 5 is a portion of a fossil plant so charred by the hot lava which enclosed it that it can hardly be identified; also casts of a palm and banana found deep in an ancient lava stream. Cases 6–7 contain the usual products of our volcanoes, especially of Kilauea. Pele's hair and other peculiar forms are well represented, and all are labelled; but it is intended to prepare a special catalogue of these for the use of students, and they need not be dwelt upon here. Case 8 contains economic geology; building stoue; salt from Alia paakai; brimstone from Kilauea; clay, brick, sand and pumice, which is a drift product and not from the Hawaiian volcanoes. Iu c. 10 are hats of various material as indicated by the labels. The imitation of a silk hat is noteworthy as made of fern stems and horse hair, a fabric much more enduring in a tropical rain thau its prototype. The captains of whalers in the middle of the last century always wore a silk hat ashore on Sundays, to the admiration of the natives, who with ready ingenuity imitated the splendid decoratiou as nearly as the material at their disposal admitted. Among the very odd materials one hat is made from the shavings made iu building the present palace. Another is made of the pods of a native tree, *Acacia koa*. All these hats are the result of foreign teaching, and it was hoped at one time that straw braiding might be made a lucrative occupation for the native women. Many of these specimens before us were made to show proficiency and presented to Mrs. Bishop, who was greatly interested in all things tending to the improvement of her race.

While the old Hawaiians wore no other head covering than the ample hair nature provided, their feet were also protected by the toughening of constant exposure. Still when they had to cross lava streams, a frequent thing in Puna and Kau on Hawaii, the roughness of the *aa* (see the specimens in the volcauic collection, c. 6) was too great even for their feet, and they made themselves temporary sandals from any substance at hand that could be drafted into the service; hau, waoke, pandanus, ki, were all used as will be seen in c. 11. After the advent of cattle rawhide was frequently used.

The long-lived old Hawaiians needed a staff in extreme old age, and examples of their *kookoo* are in c. 11. Although they never equalled the Maori in the carving of their walking sticks, some show an attempt at this decoration. Combs, *kahi lauoho*, were cut from bone, No. 1300, or made of reeds bound together, No. 4680, ruder, but like the combs of Maori and Chinese. In c. 12 are placed temporarily specimens of the *koko puupuu* or knotted nets for holding the umeke or wooden bowls for food when carried on the *auamo* or carrying pole. This more elaborate form was for the chief alone; the *makaainana* or common people must content themselves with coconut cord made in the simplest way. Of material there was oloná, waoke, coconut and hair; examples of all these are here.

In c. 19 may be seen a remarkably fiue specimen of Cook's walrus from the Pribylof Ids., prepared at Ward's Establishment, Rochester, N. Y. Near it is the skeleton of a dugong; also mounted specimens of the sea lion and of the fur seals. A man-of-war hawk (*Fregata aquila*) soars above the walrus. The antlers

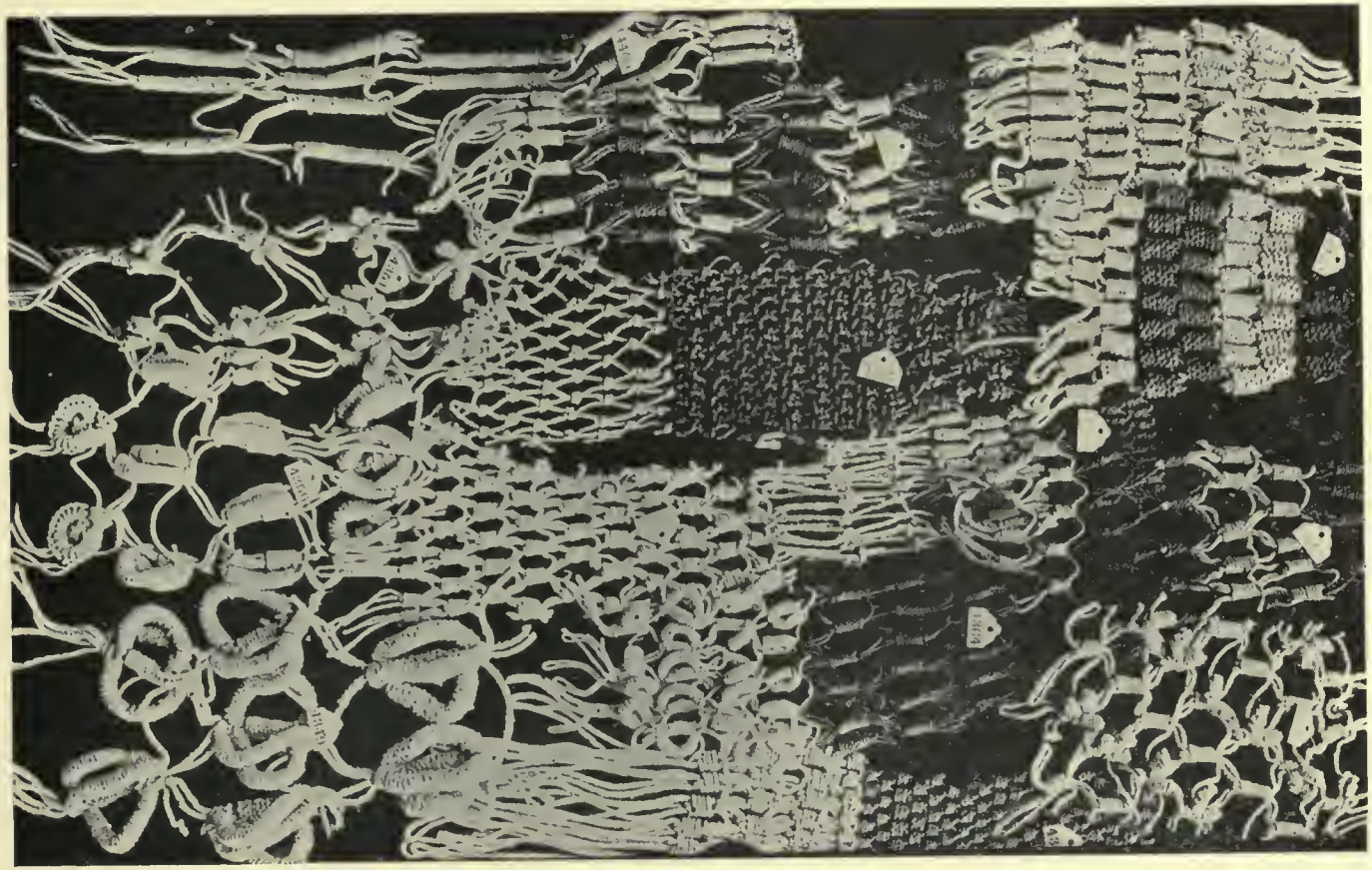


FIG. 58. KOKO PUUPUU: NETS FOR CALABASHES.

above entrance to Hawaiian Hall are from a red deer introduced some years ago and lately become a pest on Molokai. The cloaks of ki leaves above cc. 12–14 are relics of King Kalakaua's "Historical Procession," and are made to represent the old water-proof cloaks disused since the advent of foreign rubber.

Hawaiian Hall contains the most complete collection of specimens illustrating the ancient life of Hawaii that has ever been brought together, and while there are very few things in European museums, such as feather capes with green feathers, carved dishes and carving tools of shark teeth, of which this Museum has only models or inferior specimens, yet the great variety of implements and manufactures here brought together in systematic order, makes the Bishop Museum the one place in which to study the ancient economy of a most intelligent and interesting race. Hence this portion of the handbook will be treated with greater detail, in the belief that Hawaiian life will most interest the visitor to these islands. For the same reason the Trustees are publishing in a fully illustrated form treatises on various subdivisions of the Hawaiian collection, to which the visitor must be referred for more information than it is possible to offer in a pamphlet of this size.

Turning to the right, c. 1 contains stone mortars, cups, pestles and poi pounders; the first and last of forms peculiar to the group, while cups and pestles are in form quite like those used by most peoples in the stone period of development. A few of the mortars are of rude form, No. 1225 and others near the grass house; but the finely finished cylindrical mortar, of which No. 1222 is a good example, is most distinctly Hawaiian. These were used to grind nuts (*Aleurites moluccana*) for oil to burn in the stone lamps (Fig. 63), or to mix with ochre or charcoal in painting their canoes, etc. Coarser forms were used to grind noni (*Morinda citrifolia*) and other dyes and medicines. Pestles for these mortars are on the upper shelf, the shorter ones for shallow mortars. The rounded and grooved stone sinkers near the mortars are for squid hooks and may be better studied in c. 24. Stone cups were used for mixing dyes for printing kapa or for tatuing, and indeed for any convenient purpose.

The poi pounders, one of the most necessary of the Hawaiian implements, were chipped out from compact basalt or from consolidated coral rock by no more complicated instrument than a beach pebble. The process is figured and described in the Museum Memoirs, vol. i, p. 375; also see Fig. 62. On the island of Kauai were made the ring pounders (Fig. 61) and the stirrup form shown here in full series; but on the other islands the more common conical form with ball handle and convex base was preferred. A smaller size, *pohaku kui poi malu*, was carried on a journey, for persons of rank always carried their own food-making utensils, and was often used by the commoner to avoid betraying by a loud noise the preparation of food, lest a chief hearing should levy a contribution. Ring and stirrup pounders were also used for grinding drugs or pigments, although the small conical mullers, Nos. 4632-42, were generally used for such purposes. Note the implement used for splitting the tough breadfruit, No. 6019.

In c. 2 are great stones, Nos. 3212, 3213, hollowed on the top into shallow pans out of all proportion to the size of the stone, in which salt was made by solar evaporation. No. 4077 is a door stone, *pohaku pepehe kanaka*, used to protect the grass house from nocturnal invasion. No locks were known, and a bar could easily be pushed aside through the grass walls; as the doorways were always low and entered only on hands and knees, this heavy stone was suspended over the door so that any one entering after the trap was set would risk having his back broken. Several stone

FIG. 59. ENTRANCE TO HAWAIIAN HALL.

bowls and dishes are on the same shelf; these were not commonly used for domestic purposes, but to contain perishable offerings to the gods. Another important stone implement was the lamp, and from the number preserved it would seem that each house must have had at least one. The forms varied considerably (Fig. 63), but the essential part of all was the cup to contain the oil, which was burned by one or more wicks of kapa at the rim, a convenient form, for to increase the light it was only needful to add more wicks. A handy contrivance is found in many of these lamps, a small *poho* or well at the bottom to gather the last drop of oil for the thirsty wick, and also to hold the stem of the candle when that was substituted for the oil. These candles, c. E, No. 7745, were simply nuts of the candlenut tree roasted and shelled, then strung on a bit of cocoanut leaf midrib, and the odor given out in burning was strong but not disagreeable. As the nuts were of uniform size these primitive lights served as timekeepers in the same way that King Alfred's candles marked the hours. To make a lamp advantage was taken of any natural form, as in No. 1211, where a bubble in the lava was selected and the surrounding stone knocked away. The cups hollowed out by the sea urchins

FIG. 60. MORTAR AND PESTLE.

were also used, No. 1203. When a poi pounder broke, as was not uncommon, it could still be used as a lamp with little additional labor, as shown in Fig. 64. The wooden bowls on the upper shelves in this case are modern turned specimens once belonging to and used by the Kamehameha family; they are here temporarily and will again be referred to among the household utensils.

Window case D contains a collection of the stone axes and adzes. We have to do here simply with the adzes and axes as manufactures of stone; later we shall consider them as tools. The compact clinkstone from which these are made is not common, and

FIG. 61. RING POI POUNDERS.

usually occurs high on the volcanic mountains, the oldest and principal factory being some 12,900 ft. up the slopes of Mauna Kea, where for a part of the year the place is buried in snow. Another factory was in the lateral crater of the volcano Kilauea known as Keanakakoi, the workshop of the adzes, where the clinkstone was found at the bottom of the crater, but subsequent eruptions have partly filled the pit and covered both the quarry and all signs of the working. On Maui there was a factory high on the slopes of Haleakala; and on Kauai, above Waimea, the port where Cook first landed (seen in the background of c. 19), was another from which the chips and cores exhibited in c. D were obtained. The

making of adzes belonged to a peculiar guild, as did the canoe making, carving of idols, etc., and none but the initiated visited the remote places of manufacture. In this *anakakoi* there were not only houses for shelter and for food, but temples to the tutelar deity of the workmen, for the old Hawaiians were a very devout people and began no work without craving the assistance of the gods. Here the selected stones were heated to make sure that no air cells were present to cause flaws in the *koi*. The pebble hammer in the hand of the spalder separated the flakes or spalls from the core, and the proper spalls were first chipped into shape (see No. 3125, c. D) and then ground on the *hoana* or grindstone, an example of which is No. 4553, c. D, and a larger one, No. 5936, stands opposite the case. The largest adzes weighed a dozen pounds and were used to fell trees; the smallest less than an ounce and served for carving.

FIG. 62. MAKING POI POUNDERS.

In c. 3 is presented a group showing the process of poi pounding, the Hawaiian bread making. The figures, a fully developed man and a rather slim boy, are not modelled but were cast from life by the sculptor Allen Hutchinson, hence are exact representations of the people. The house represented in the background is from a photograph taken in Puna, Hawaii. The story of the group is told on the large label. Poi pounding was hard work allotted to the men, and in modern times these men have passed it on to the Chinese. The cultivation of the kalo (*Colocasia esculenta*) was by far the most laborious agricultural work of the Hawaiians, and while certain varieties were cultivated without ponds, the greater portion was grown in pools carefully prepared, to which water was furnished with considerable engineering skill, and the supply was regulated by wise laws. The *huli* or top sprout of the aroid was planted and in due time developed a bulbous root richly stocked with nutriment. This root was cooked and scraped, the scrapings being returned to manure the pond, and pounded as shown in the group. The hard firm pudding resulting was called *paiai*, and when bound up in ki leaves kept unchanged for some time, and in this state was transported. Poi was made by diluting this thick mass with water to

various grades, as "one-finger poi," "two-finger poi," etc. It was sometimes so thin as to admit of being sucked up in a tube, but this form was considered rather unmanly. The leaves of the kalo, also the fragrant yellow blossoms, were used as food.

FIG. 63. HAWAIIAN STONE LAMPS.

It was the pleasant custom of the old Hawaiians of the upper class to associate the birth of a child with a tree: either one was planted on the birthday, or the first fruits of some growing tree were plucked by the growing child. For this the coconut was often selected, and in c. 30 are several nuts thus associated with the Alii. Opposite c. E is a section of a tamarind tree cut down in 1902, which was planted December 19, 1831, the day of birth of Bernice Pauahi Bishop; its section measures roughly 3×4 ft.

Case E contains certain smaller implements of household use that were important to the ancient Hawaiians. The hard and durable shell of the coconut has been utilized for cups by all people living within the range of that most useful palm. On the Hawaii-

an Islands where the coco palm cannot be said to thrive, it is so near its northern limit, the fruit is small and not abundant. Of late years the larger nuts from the southern islands have been introduced, and very fine bowls made from the nuts, c. 7; these are mostly used at feasts to contain individual portions of poi. Coconut shells are the orthodox cups for drinking awa all through the Pacific. Here the priestly awa drinkers used nuts cut lengthwise

FIG. 64. LAMPS FROM BROKEN POI POUNDERS.

called *olo*. These shells were also used for spoons or ladles, No. 1234, *kiahi au loihi*, c. E. Fancifully cut shells, Nos. 4287-89, were used to contain *inamona*, the meat of the kukui nut roasted and pounded fine with salt. Small disks of the shell were used to contain salt. Coconuts with the eyes left open, *kanana pu niu*, Nos. 4231, 4232, were used to strain awa. Where kalo did not abound, as in Puna, Hawaii, sweet potato was used in its place to make poi, and as the viscidity of kalo poi is entirely wanting, this substitute could not easily be eaten with the fingers, and a spoon was required, simply a segment of shell.

The old Hawaiians had an excellent method for cooking birds by enclosing a hot stone in the carcass and wrapping this in ki leaves; No. 4490 is one of these stones; No. 4491 is another, used for the bird akekeke; each size of small bird had its appropriate stone in a well regulated household. Nos. 7745, 7941 are specimens of the kukui candle, the roasted nuts strung on coconut leaf midribs. A most ingenious device was the Hawaiian stone mirror; a thin disk of dense phonolite ground smooth and boiled in oil, but still presenting no reflecting surface, was placed in a shallow bowl of water, and if the person using this contrivance was good looking the result was no doubt satisfactory. In modern times the original use of these mirrors has been forgotten and they are used in *kahuna* practice as cooling applications to boils or similar sores. Another manufacture that has passed away, although probably not very ancient, is the tortoise shell industry. Combs and dishes were once made in Honolulu, and samples of the former are in c. 30; of the latter, No. 7526, c. E. No. 4233 is a *kahili* or broom, merely a bundle of coconut leaf midribs. As the Hawaiians squat down to sweep this makes a sufficiently handy tool. No. 4164 is a wooden hook on which, when tied to the interior frame of a grass house, umeke or other articles might be hung. No. 163 is a rude bow and arrow, *pana a me pua iole*, used for killing, or at least shooting, "rats and mice and such small deer" with which the land was and is infested. It is curious that knowing the principle of the bow the Hawaiians never developed it beyond the feeble instrument in this case. The arrow was the flower stalk of sugar cane tipped with kauila wood.

Although acquainted with the rotary drill for boring, the Hawaiians do not appear to have used the fire drill, but obtained fire

by the plow. This was so ancient a source of fire that tradition claims it was taught to man by the mud hen who alone in the world knew how to make a spark. A small stick of hard wood, the *aulima*, is held in the hand and rubbed in a groove in a larger stick, *aunaki*, usually of hau wood. In five seconds the wood is charred, and in about a minute the dust which collects at the bottom of the groove ignites and the flame is dexterously caught on a bit of tinder, or a *welu ahi*, No. 4247, composed of twisted kapa. No. 166 is a bambu, *ohe puhi ahi*, used to blow a fire, a primitive bellows. No. 4237 is a simple gourd funnel used to fill the narrow-mouthed water bottles; other forms are Nos. 1230, 1231, c. 7. The Hawaiians, like their kinsmen throughout Polynesia, did not make pottery. They had the clay but not the knowledge. The absence of pottery made recourse to the vegetable kingdom necessary, and the large umeke of wood, used for poi, were wonderfully well made and of good form; by far the best specimens of Hawaiian handicraft. The block, whether of kou (*Cordia subcordata*), kamani (*Calophyllum inophyllum*), or whatever wood, was carefully selected, roughly trimmed, and then soaked for months before working. The outside was finished first and smoothed, and then the core picked out, leaving walls sometimes an inch thick, but often reduced to an eighth. In c. 8 are the tools used for this work, and some partly made umeke, etc. In c. 4 are the choicest hand made (not turned) specimens of this wood work, most of them from the Kamehameha family. Among these Nos. 488, 523, 462, 469 and 481 are noteworthy examples of polyhedral, *opaka*, bowls of kou wood. Finger bowls, *na ipu holoi lima*, were used by the upper classes at meals, for the absence of fork or spoon and the sticky nature of the poi and the greasy nature of roast pig or dog rendered some washing needful after eating, and the community of dishes into which each guest dipped the hand, or at least the finger, made it a desirable custom before partaking of food. The form of these bowls is sometimes odd, as Nos. 624-26, 628;

FIG. 65. PILE OF ADZES.

but in all of this class is found a projection from the bottom or side with which to remove the sticky poi from between the fingers. Another kind, Nos. 610-11, was cut into several compartments, one to contain water, others for fragrant leaves on which to wipe the fingers. Awa bowls, *na konia awa*, were neatly but plainly made, neither the legs nor the carving of similar utensils in the southern islands, Nos. 555, 639. Slop basins, *na ipu aina*, were used to receive the refuse of a meal, for if belonging to a chief it was kapu and must not be eaten by others. These bowls were much thicker and heavier than the umeke poi, and those of high chiefs were often inlaid with teeth or bones of slain enemies, No. 4944, and others in c. 30, Fig. 92. While it was deemed honorable to have one's bones attached fo a kahili or a food bowl, it was a deep disgrace to the unfortunate man whose solid parts decorated what was looked upon as a vessel of dishonor. The large trough, No. 1217, in the midst of this case was used in dissecting the body of a chief to clean the bones, which were carefully hidden, while the softer parts were burned or thrown into the sea. Small poi boards are in this case, such as were carried for chiefs when travelling. Platters and dishes are shown in great number, the long ones used for fish, baked pig or dog; the round ones also serving as covers for the large umeke. The collection of spittoons, *na ipu kuha*, is very large. Of the five *Kahu alii* or personal attendants of an Hawaiian Moi the *Ipukuha* or Spittoon was the most trusted. The life of the king was endangered if he should prove remiss in duty and allow even the smallest portion of the royal spittle to fall into the hands of an enemy. The instrument he carried and from which he got his name was a small box or bowl carved from some choice wood from which he must empty the daily accumulations into the sea in the darkness of night, or, should the court be on a journey inland he must, with the utmost secrecy, bury the possible danger. The clippings of the royal fingernails and cuttings from the royal hair went the same way, for the sorcerer was ready to pray to death if he obtained these offerings to the infernal powers. The inanimate spittoons were held in great esteem, to which their ignoble use would not entitle them elsewhere, and hence those be-

FIG. 66. UMEKE OR BOWLS.

longing to Kamehameha I, No. 5009, c. 30, and other renowned chiefs have been carefully preserved and are in this Museum. Larger bowls of the same form, *ipu mimi*, were used for other excrementitious matter, and are on the lower shelf of this case.

FIG. 67. FINGER BOWLS.

In cc. 5–6 are the larger umeke, of which the largest, No. 409, is 89.5 in. in circumference, and 18.5 in. deep. Perhaps the finest in form, No. 410, comes very near this size, being 83.7 and 14 in. No. 1051 is made of Hawaiian sumac, and No. 422 of coconut wood. Nearly all in this case are old and hand carved; the modern turned articles, which are abundant, are shown on the upper shelves of c. 2. The large bowls with legs were used for roast pig. Few of the carved bowls remain on the Islands; many are in the British Museum and elsewhere, but two are in this collection. No. 408, a dish for baked pig, with carved figures of Kahahani and Kekuapoi his wife. The large open mouths of these figures served as salt cellars. No. 5181, a carved meat dish belong to King Lunalilo and his ancestors.

Chairs were not used by the Hawaiians, but the chiefs had a rudely carved seat or throne, none of which has been preserved. No. 4345 is a stool of ohia wood with four legs, carved from a single block. Against the wall, between this and the last case, are two poi troughs, *papa kui poi:* one very old, No. 7952, and the other, No. 4226, is a good modern specimen 65 in. long and 23.5 in. wide. Hawaiians had another substitute for pottery in the large fruit

FIG. 68. SPITTOONS.

of *Curcubita maxima*, a gourd not native to the Islands, but found cultivated here when the group was discovered: it was not found on the other groups nor is its native country known. The hard, woody rind of this gourd is durable and light, serving as containers for food or clothes. A pair of the gourds suspended from the

auamo or carrying stick (see Fig. 71) served as late as the early sixties for travellers' trunks, one containing food, the other clothing. They were dried and carefully cleaned, furnished with a cover, which also served as a dish, and a koko or net to hold this cover close and to form a handle. The bottle gourd (*Lagenaria vulgaris*) was found on this and other Polynesian groups; smaller specimens made good water bottles, while the largest were used for hula drums. On Niihau the art of decorating the surface of the gourd was much practiced. A waterproof glaze was put all

FIG. 69. CARVED DISH FOR BAKED PIG.

over the surface, and the portions of the gourd that were to be stained black were then scraped bare and the gourd buried for some time in the mud of a kalo patch. A large series of manufactures from both of these gourds is in c. 7. The large ones used as trunks, Nos. 1078, 1081, 1079, etc., are suspended from the ceiling in the position they are usually carried. Some of the large ones are very thick, as No. 1141, used for preserving choice kapa; others, long and contorted, Nos. 3673, 3674, were used to contain feathers. Gourd bottles, *huewai*, were in universal use, and some in this case show much beauty of form, Nos. 1132, 1133, 1093, 1094, 6843. Those with a long neck were usually for home use; the short-necked ones for travel or use in canoes; the hourglass shape, *huewai puco*, was very popular, as it could be suspended by a cord without a net. For stopple a terebra shell or a neatly folded palm or pandanus leaf was used.

There was no such thing as a meat safe in the economy of an ancient Hawaiian house, and to preserve food from dogs, pigs and other animals inmates of the house it was necessary to suspend the containers beyond their reach. Where the house had a *lanai* or porch vessels were hung from the rafters, but most houses had no such convenience, so a pole was fixed in the platform, as shown in front of the grass house in the central part of this hall, and a notched cross bar at the top took the place of hooks; the one at the grass house is very old; a smaller one is in c. 7, No. 671. The decorated gourds, *umeke pawehe*, are, next to the kapa, the best subjects for studying Hawaiian decoration, and this case contains a very complete series. Two gourds for filling water bottles are, No. 1230, hourglass-shaped, and No. 1231, a dark-colored cup with a convenient spout.

Tools.—Of all Hawaiian tools the stone adze is chief. The stone heads have already been described and are in c. D; their use only remains to be explained. The handles were generally of hau wood, and a bit of kapa, hala, or banana leaf was inserted between the wood and stone and the whole bound firmly together with olonâ or coconut cord; the result is well shown in No. 3101, c. 8. In a form much used for the inner cutting of a canoe the stone head is so mounted as to be turned into a right- or left-handed adze, No. 3116. This form is not peculiar to the Hawaiians (see No. 1800 in the New Guinea collection, c. 20, P.), although according to their tradition it was invented by Kupaaikee, one of the canoe gods, who gave not only his name but also his tongue, *elele*, to the adze.

For cutting soft wood the angle of the cutting edge was too blunt in a stone adze, and a blade of coconut shell, No. 3117, or of alahee wood, No. 3118, was used. The axe was not so common, but No. 3589, c. D, is a good specimen. Chisels of clinkstone, No. 7974, and gouges of the same material, Nos. 4555, 5853, and of shell, No. 4476, were much used, especially in carving the large idols; but for most carving the hard and sharp shark teeth set firmly in wood handles (see models) were preferred. The fine kapa mallets were often cut with such a tooth set in half of a pig's lower jaw. The pump drill, *hula pa*, No. 179, c. 8, was known here as in all the Pacific groups, and was pointed with a splint of clinkstone or a terebra shell; after the advent of white men a file end took the place. Tools of abrasion include the stone files, Nos. 4477-79, used to fashion and sharpen bone fish hooks; the scrapers, of turtle bone or paua shell, Nos. 4497, 4501, used to rub off the outer bark of olonâ or waoke in making cord or kapa; and not least in importance the many kinds of stone used in smoothing or polishing umeke and other articles. Of these polishing stones many are described and figured in the Museum Memoirs, vol. i. Fine coral or *puna* was the coarsest, pumice was of medium roughness, smooth stones were at the other end of the series, while the last polish was given by rubbing with dried breadfruit leaves, *lau ulu*. On the lower shelf are a number of specimens of umeke, spittoons, etc., partly made, which were discovered buried in the sand at Waikiki, the supposition

FIG. 70. GOURD WATER BOTTLES.

being that on the approach of the hostile fleet of Kamehameha the maker hid in the sand all his property, as was the custom, and, having lost his life in the skirmishes, his cache also was lost. However this may have beeu, these half wrought specimens are most important, for they show much of the use of simple tools. The *laau kahi oloná* are long strips of very hard wood against which the scrapers already meutioned acted, No. 731, etc.; others are on the ceiling of this alcove, and the manner of use is shown in c. 25. Iu the absence of nails cord was used to bind together, and fixed sizes were recognized for special purposes, as to bind the thatch to the cross sticks, rafters to posts, outrigger to a cauoe, stone adze to its handle; examples of all these twisted or braided from cocouut fibre, *aha* or sennit, will be found in this case.

The oo, No. 3589, was the principal agricultural tool in use among the Hawaiians, and an old time kanaka squatting down to his work would use it effectively as plow, hoe or spade. In carrying burdens the auamo was used, a round kauila stick with notches cut on the ends; some of these were very long, No. 145 is 97.5 in. and quite heavy, and as the section was generally circular, were not fitted to rest easily on the shoulder; hence a bearer was known by the callosity formed at the point of coutact. Some of the auamo were carved, others were only pointed at each end (these were used forty years ago to carry bundles of grass to market), and still others were old spears converted to the more desirable form and used to carry live pigs, etc. All of these forms are in c. 8. The general use of the auamo is showu in Fig. 71. For netting, the universal form of shuttle ueedle was used, and as the Hawaiians depended greatly on a fish diet the use of these netting tools was coustant. Mesh spacers were made of bone or tortoise shell. The results of the net making are shown in c. 25. For sewing attachments to the hull of a canoe clamps bearing various names (*kuamoo*, *kauli*, *wac waa*) but differing but little were used, Nos. 3590-94. The *paniani*, No. 169, was a comparatively modern inveution for twisting horsehair for ropes. With the stone hammer

FIG. 71. HAWAIIAN CARRYING UMEKE IN THE KOKO FROM AN AUAMO.

the tool box was complete, and considering the simplicity of the tools the results were surprising.

Weapons were the daily companions in the good old times. Warfare was the normal state, peace was the exception. And yet the arsenal was not of great variety. Hawaiians used no bow and no shield; indeed the proper armor for battle was absolute nakedness of body, although the higher chiefs wore their feather helmets and cloaks with the niho palaoa (see c. 15) about the neck. In full warfare there was a public declaration of war and the usual blare of trumpets, in this case, of shell. The rowers in the war canoes wore helmets of gourd decorated with fresh branches, as we learn from Cook, and there is a model of such a mask or helmet in c. 9. No doubt these were a protection in warding off the slingstones. Fortifications in the old days did not exist, at least in the development shown in New Zealand, and the forts at Honolulu and Kailua were built after white influence. The large kauila spears, *pololu*, have already been described as they are on the wall of the Entrance Hall. A shorter and more serviceable spear, *ihe*, with either plain points, No. 4874, or with arrow-like heads, Nos. 4881, 4893, or with several rows of barbs, No. 4883, are in c. 9. Others are attached to the corner piers of this hall between the pilasters. A weapon in common use was the *ihe pahee*, Nos. 3586, 3587, on pier near entrance, half spear, half dagger, and from the weight of wood a good club. From these the weapon dwindled into a sort of sword, No. 4801, usually attached to the body by a coconut cord, and finally the curious wooden daggers, *pahoa*, Nos. 4803-5. The weapons Nos. 4800, 4801 were little better than wood spikes, but were generally used. If the points of these thrusting weapons seem blunt, it must be remembered that they were driven against the bare skin by muscular arms. Clubs, *newa*, were of simple, undecorated form, the least showy of any in the Pacific, and made of stone, wood or bone. Specimens of each of these are in c. 9. The most peculiar form of hand club had a stone head with four wings, Nos. 4789, 4790 (see Fig. 72), bound by cords to a short kauila handle. One of the same general form but entirely of wood is No. 4782. A short, heavy club, *piikoi*, of wood, Nos. 4772, 4779, 4791, or stone, Nos. 4786, 4788, 4810, had a stout cord attached and was used as the bola of the Pampas to entangle the legs of an adversary. A heavy stone ball, Nos. 2975, 7945, was attached to a rope and swung with great force in naval warfare to break the opponent's canoe. Slingstones were often shaped with great care, pointed at each end, and smoothed; the sling was a braided pandanus leaf, not a very efficient weapon. In close conflicts a smoothed stone of convenient form, Nos. 4793, 4794 (see Fig. 72), was grasped in the hand to give it weight. There were knives of shark teeth, but this Museum has no authentic specimen: an implement fitted with one or two teeth, *leiomano*, Nos. 4807-9, was often used to murder by ripping open the abdomen in an unguarded moment; No. 4809 was arranged to be concealed in the hand (see Fig. 72).

The *mu* or executioner on the chief's staff was provided with strong cords, looped from ivory handles, used in strangling victims for human sacrifices, Nos. 4868-71 (Fig. 72). Executions for crime were usually by beating out the culprit's brains, or by breaking his back, a method in which many of the old natives were adepts. After a battle the prisoners of importance were often sacrificed to the tutelar deity of the conqueror. Thus Kamehameha sacrificed Kalanikupule and other chiefs to his war god Kukailimoku after the battle of Nuuanu.

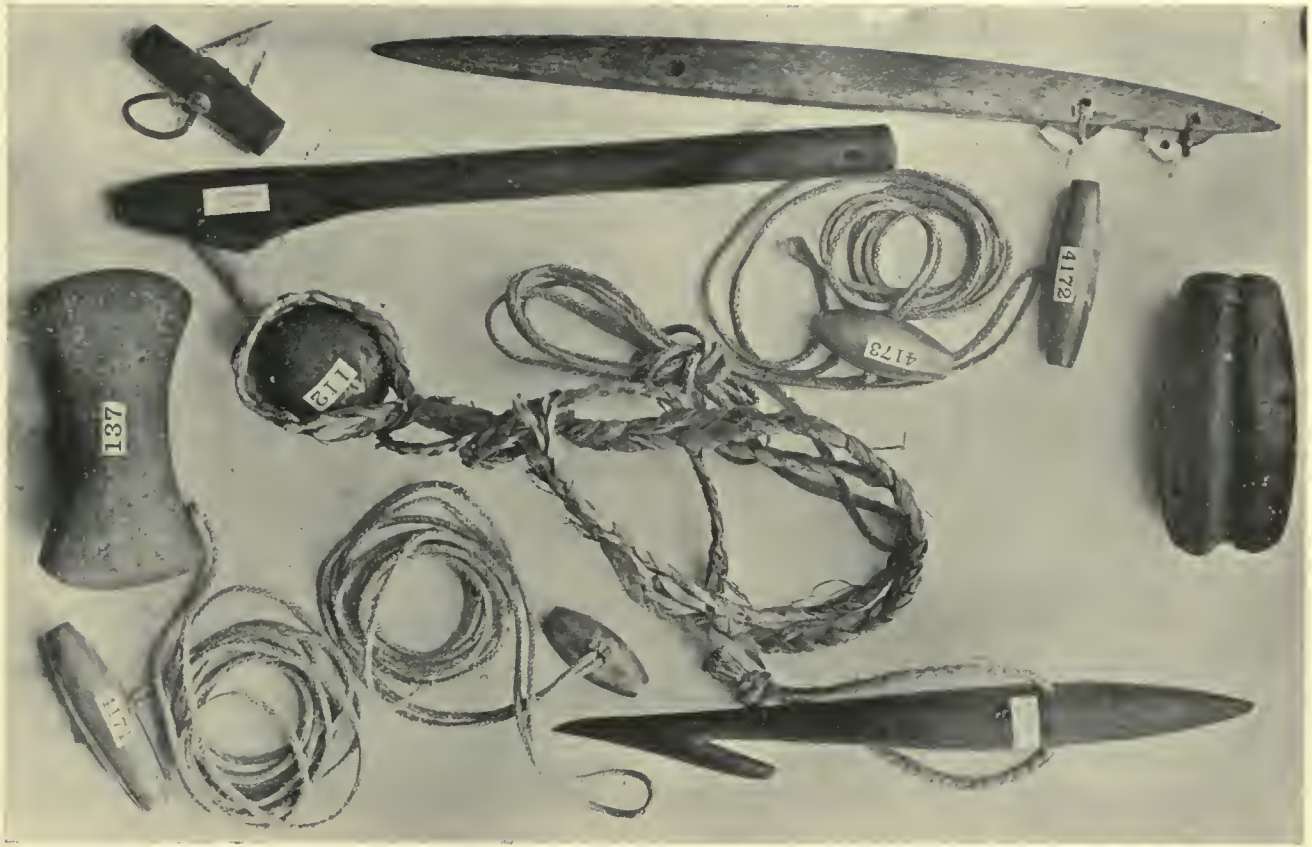


FIG. 72. HAWAIIAN WEAPONS.

Worship.—The ancient Hawaiian religion was an oppressive system of prohibitions. The law of kapu was extended to every act in life, and it even followed the unfortunate believer to the regions of Milu beyond the grave. It contained the elements of self-destruction by allowing too much power to the priesthood, and when at last the priestly oppression became quite unbearable, and King Liholiho and the chief priest joined hands, the state religion fell. Not without battles, however, and the faithful for a time continued the accustomed worship in the remote temples, or hid their deities in caves from the popular mob bent on destroying the images of their enslavers. So far as public worship went the Islands were in a state of atheism when the American missionaries arrived in 1820.

Before the general destruction of the idols their number was very great. *Heiau* or temples were so numerous in the thickly settled country near the shore that from the walls of one the next was plainly to be seen. Ellis tells us that from Kailua to Kealakekua on Hawaii there was at least one heiau to every half mile along the road. There were two general forms of heiau; the more ancient was a truncated pyramid of dry-laid rough stone, oblong in plan, and ascended by terraces; on the top stood the sacred grass house sheltering the special idols of the place, the altar of sacrifice, the tall, obelisk-like oracle, while around the edge was a sort of large and grotesquely carved images of wood. The later and most common form of heiau was the same in ground plan and contents, but the pyramid was hollow; that is, there were four walls from eight to ten feet high bristling with images always frightful, often obscene.

Not only were there these general heian dedicated to one or more of the chief gods, but also a multitude of fishermen's heiau marked every highland near the fishing grounds. These last were generally small walled enclosures, dedicated to the particular god of the builder, with due ceremony, into which an offering of the first fruits of the sea was cast after a successful fishing. The last heian built was dedicated at Kawaihae on Hawaii by Kamehameha to his war god Kukailimoku, and the last where the old worship was continued was that of Wahaula in Puna, Hawaii, a careful model of which is on the platform in the centre of this hall. The large labels give a sufficient account of this. As human and other animal sacrifices were an important part of the cult, there are pits or specially built enclosures to hold the bones after the flesh had dried away. Most of these pits were emptied in the reaction against human sacrifice in the early days of the Christian mission, but the writer has seen such pits filled to the brim with bones of men, pigs and fowls. At Wahaula, which was situated on a cliff near the sea, it was easy to empty the large enclosure into the ocean. Graves of priests or chiefs were often made in the inviolate precincts of the temple. In modern times most of the heiau have been wantonly destroyed, like that of Moiliili, near

FIG. 73. KALAIPAHOA.

Honolulu, where the walls, which were whole in 1880, have since been ground in the government rock crusher to make a street in the town! Others have been converted into cattle pens and the original plan much modified, as the great temple of Umi on the highlands of Hawaii.

Turning from the temple to the images, we have two of those used in the temple fence; one has been shown in Fig. 6, p. 7, the other is No. 4068, E. One of the three images from the interior of the heiau that are still extant has been returned from Boston, and is No. 7654, c. 11; it is 6 ft. 8 in. high. Of the gods proper it is difficult to identify the image and it is quite probable that the same log had to personify several deities in succession. Photographs of all the Hawaiian idols in the various museums of the world have been obtained and will be published in the Memoirs of the Museum to illustrate the chapter on Hawaiian Worship; of the fair number in this Museum those of wood are in c. 10, those of stone in c. 12.

In cutting the *Haku ohia*, as the idol was first called, many prayers were uttered and a human sacrifice was offered together with a hog. The latter was eaten and the former buried near the stump that had furnished the log. The long prayers and tedious ceremonies lasted days or even weeks if the omens were unpropitious, and ended with the installation of the new "Moi" on the *lananau* or stage in the grass house if the moi was one of the special gods of the place. While Ku, Kane, Lono and Kanaloa were the great gods, almost every man had his private deity, while his wives had others. The hula dancers worshipped Laka, robbers Kuailua, fishermen Kuula, their wives Hina. Laamaomao was god of the winds, the Hawaiian Æolus; Kahakuo of the mountains, Kaheholopali of precipices, Pele of the volcanoes, Keaokiai of the east, Keaohalo of the west, and so on through the forty thousand. Any peculiar stone or beach-worn pebble was sure to be sanctified as the earthly residence of some potent spirit or *aumakua*, and certain woods, as kauila, iliahi, lama, mapele and ohia were a favorite abode of these spirits. Many of these woods that have been the abode of spirits, that is, have had the spirit bewitched into them by the *kahuna*, are still regarded as potent medicine, hence are placed in c. 21. As in most other ethnic religions heroes in due time went through an apotheosis and became duly accredited gods. Here, as elsewhere, the early religion was distinctly phallic, the visible origin of life naturally preceding the invisible. The ancient gods interested themselves in the affairs of men in a very practical way, for they collected the taxes and surveyed the land in the days of makahiki; they marched to battle with the chiefs and by their terrible visages put the enemy to rout, unless indeed his gods were uglier; in fine all events of life saw their intervention, and from the conception of the child until his final dissolution, prayers to the gods were regularly made. These prayers have been to some extent preserved, but, if they ever meant anything, they are now mostly unintelligible and seem mainly "vain repetitions." In the early days of the Hawaiian Mission the natives were very loth to speak of the doings of the heathen cult, and seemed heartily ashamed of their *naaupo* or darkmindedness; of late years the repugnance to heathen customs has largely disappeared, but the knowledge of the former days has gone also. A modern illustration of heathen worship as now understood is shown in c. 10. In 1895 this modern stone god, *Lono nui a Ehu*, No. 7662, was placed on a mat covered with the sacred red cloth (kapa should have been used), two very modern bottles, one of whiskey the other of gin, with the regulation corkscrew in each cork, were offered to this stone; but, that a due amount of *mana* or divine power might be provided certain ancient things used in

the worship of olden times must be present, and as the supply of these was not within the reach of the kahuna officiating, he placed imitations of many of these things deeming the god would be stone-blind to the cheat. It may be added that the kahuna dropped dead in the midst of his work, and the people with him were so frightened that they sent the whole outfit to this Museum lest it cause the death of some other kahuna. Near this, No. 134, c. 10, is a modest red handkerchief containing an offering of awa to Pele the goddess of the volcano. This was found on the still warm lava of the flow of 1887, near the road, by Mr. J. S. Emerson of the Government Survey. In c. 12 the stone images on the upper shelf are all modern, and dozens have been offered for sale in Honolulu in recent years. The Hawaiians are not the only guilty ones in this matter, for the Portuguese and Japanese make many.

To return to the specimens in the cases. While all have labels, some deserve more notice than the small slip can give, especially No. 132, c. 10, Kalaipahoa, Fig. 73. This Poison God, perhaps the most dreaded in the whole Pantheon, is made of black ohia a yard tall and a foot wide. Dog teeth were inserted in his gums, and his head was covered with human hair fastened into round holes with flat pegs. Teeth and hair have gone through his great age or some unknown cause. He was found with a broken arm and leg in the year 1852 at Hauula, Oahu, at the foot of a cliff, having apparently endeavored, with the help of a goat, to get out of the cave in which he had long been hidden. The injured god was at once taken by the natives to their pastor, Rev. John S. Emerson. In his house the god remained some time, clothed indeed but not fed, and as his physical condition did not improve he was sent to Mr. Emerson's classmate Rev. Caleb Kimball, of Medway, Mass. After Mr. Kimball's death his heirs sold the god and he returned to his native shores in 1886. In the back of the image may be seen a cavity to which a cover was formerly fitted; in this receptacle small images could be placed to absorb a portion of divinity or *mana* through the worship offered to this marsupial god. No. 4044, c. 10, represents Kealoewa, goddess of rain. Curiously carved from kauila wood and carrying on its back a socket with two figures on the rim; dog teeth and human hair; red puakai malo. In the possession of Mrs. Whitney of Kauai for fifty years, and at the sale of her effects it went to W. T. Brigham of Boston, where it remained fifteen years.

No. 4897, c. 10, is a rudely carved image of unusual form, once in Queen Emma's collection. Advantage was taken of a very crooked stick. Another image of Kalaipahoa, with hollow back and the repulsive features which are carried to an extreme in this god, was for many years in Boston, and is now No. 7655, c. 10. Another god from the Boston collection hangs in c. 11; in some respects the most interesting in the collection. It is Lono, the god for whom Cook was mistaken, and while in commission was detailed to collect the taxes. The cunning priests marched to a village with a sufficient retinue of hungry followers, and camped there with this god until the entire tax was paid and then moved on to the next place to be squeezed. The long stick of kauila wood is carved to show the joints of a bambu, and is surmounted by a small head with open mouth, No. 7659. No. 6816, c. 11, is a curious idol of unknown name found in a kalo patch on Oahu. The head dress is the most unusual form, and the countenance has perhaps become indistinct by age. On the other side of the great image stands a plain log with rude features carved long subsequent to the cutting of the log, No. 159, c. 11. It was brought by Rev. J. M. Alexander from Anakii, a natural temple in Keauhou, Hawaii. This is a cave at the head of a ravine in an ancient lava stream. Its dimensions are about 30×35 ft., and 30 ft. high.

The neatly paved floor had in the middle a circular fireplace around which formerly stood perhaps twenty images, of which this was the last. No. 8048, c. 11, called Waianuenue, was once

FIG. 74. KAHUNA PULE ANAANA. PLASTER CAST.

the useful guardian of an ancient irrigation dam on Kauai, and with the stem planted in the ground was once twice its present height. The features are less repulsive than usual, but the eyes are large and distinct as befits a watchman. The little bundle of blue kapa, No. 7542, c. 10, was found hidden in a cave on Molokai, a region full of traditionary caches, and when the native who discovered it opened the bundle he found the small god wrapped with a few bits of awa and some red fish. These offerings he threw away as of no value, but preserved the rest for a price. Many were the pet gods thus hidden! No. 1358, c. 10, is a neatly carved akua or god found in the heiau at Kawaihae. This was a common form and size for a household god. No. 1362 illustrates the specialization of the gods; it served seasick people, and among the Hawaiians these are many. The larger wooden images on the upper shelf are nameless and not beautiful. Nos. 3906, 3907 are canoe gods. The turned boxes, Nos. 3211, 5851, etc., are relics of Kalakaua's Hale Naua, and contain old relics used in the ceremonies of that remarkable society. In c. 12 are the stone idols, but one of these of great antiquity, No. 133, is in c. 11. This is Kaoa paao, a large round stone said to have been brought by Paao, the famous kahuna, from Kahiki. This and its mate were called "Na Ulu a Paao" and have been regarded as powerful fish gods. Another fish god is Kuula, No. 316. He was placed on a stone altar, *papa kahuli*, No. 317,

with offerings of red fish, awa and five leaves of the grass called *puaa lau* or *kukaepueo* (*Panicum pruriens*), as a substitute for a live pig, that the fish might be drawn toward shore. No. 4056 was Kaakau, a female *akua oopu*. In the time of Kahekili, king of Maui, it was the akua Kuahini, the konohiki of Waihae, used to bring the oopu on to the *ha* or fish rack. The process consisted in anointing the stone with cocouut oil and muttering suitable prayers. It could also attract the nau birds to the net, Nos. 319, 325, 326, 4061 are also fish gods, once powerful.

No. 4047, c. 12, appears but a smooth beach pebble; it weighs 2 lbs. and is 9.7 in. in circumference; but this does not tell the whole story, which is too long and filled with very long names of victims to tell here, but it must be said that the kahuna who owned it breathed a prayer over it, then threw the stone at his intended victim. The obedient stone passed through the alimentary canal in a direction opposite to that followed by the food and returned to the kahuna, leaving the poor fellow at whom it was thrown, and through whom it passed, in a very disorganized condition. It is not mentioned whether the stone brought back the man's teeth on its return journey.

The stone images Nos. 7540, 7541, 7447, 7448 were found on Necker Island, a small rock in the Hawaiian group frequented in ancient times by hardy fishermen. They were in fragments with a number of others, and nothing certain is known of their history. The plaster cast is of a stone god that formerly stood at a gateway in Kahuku, Oahu, where the present writer has seen offerings made to it. The original is now in the great museum in Berlin and the cast was given by the German Government. The stone images on the upper shelf are all modern humbugs, many of which are made to attract the tourists. No. 155 hardly belongs to the class of idols, but from its creative powers may be included in this case. These breeding stones are worked as follows: one of each sex is placed in a common kapa, a prayer uttered over them and they are consigned to a dark place where, in the fulness of time they produce a family of gravel stones. The large drum in c. 11, No. 6926, was once kept in a heiau at Diamond Head and was only beaten on great occasions, as when a prince royal was born. It is 3 ft. 10 in. high and ornamented with human teeth inserted in the wood.

FIG. 75. SURF BOARD.

A darker form of Hawaiian sorcery which obtains to the present day is the *pule anaana* or praying to death. This terrible superstition cannot be fully discussed here, but the cast of a famous kahuna, one who boasted to the present writer that he had prayed to death more than fifty people, will tell its own story to any who care to study the hard face. In brief, he has placed in the calabash of water before him something from the body of his intended victim, hair, spittle, finger-parings, it matters not what; he has stripped himself, for the Hawaiian priest must approach his deity as free from the disguise of clothing as he was born; he is muttering the prayer (which is as long as a bull of excommunication in the Romish church), and when he has uttered the amen he takes care to have his victim informed; that is all. But the other fellow now does his expected part, takes to his mat, has no appetite, general lassitude

ensues and death comes within three days. That was the telepathic treatment of heathen science. Another method is shown in Nos. 940-44, finely made stone cups, *kapuahi kuni anaana*, in which hair, etc., of the person is burned with suitable prayers and the ashes scattered in the water he is accustomed to drink. In all these cases, unless the victim is notified the process is a failure. In early days the attempt was sometimes made to pray white men to death, but it always failed. The whole subject of Hawaiian religion is of the greatest interest, and it is hoped to treat it in an extensive memoir in the Museum publications.

In examining the model of the heiau constructed by Mr. Stokes the printed label should be studied.

FIG. 76. GOURD HULA DRUMS.

Amusements. — If the ancient Hawaiians were a priest-ridden people in the old times, and had small liberty under their alii or chiefs, they certainly had enough legitimate amusements to keep them lighthearted and happy. The most general relaxation was the *hula* or dance, and although in later days the hula became the handmaid of licentiousness, it was not always so. Many of the chief women took an active part in the exercise, and even the proud Kaahumanu was, in her youth, renowned as a hula dancer. This is not the place to enlarge upon the kinds of hula nor other games or sports except so far as is needful to explain the collections in the Museum. It may be said, however, that in the half century preceding the reign of Kamehameha I, coincident with a general decline in the strict observance of religious rites, came in the custom of betting to the utmost extent on the result of all games. It is not asserted that this practice was not at all in vogue before, for in the time of Umi a chief staked his very bones, but it certainly gathered great strength and exercised a malign influence on the Hawaiians at this period. So with the licentious adjuncts of many games so often deprecated by historians of this people. The bone and sinew of the Hawaiian race could not have been what it was in the time of Kalaniopuu if the practice of the early part of the last century had long existed.

The athletic games, as the *ulumaika*, *moku*, *nakookoo*, *kukini*, etc., fell largely into the hands of professionals owing to the betting which became an important preliminary to every contest, and which was carried to such a pitch of fury that a man would stake his goods, his wife, children, even his own body on

the uncertain result. With the introduction of letters and a new religion the interest in learning became so great that all public athletic games, as well as the worst of those merely lascivious, were generally given up, not so much because forbidden by the missionaries as because there was no time left for them; the fine and healthful games of the old Hawaiians passed away, and the present generation does not know even the names of the former playthings. They had contests of running, boxing, wrestling of many kinds, throwing the spear or stick, rolling maika, sliding on the holua, surf swimming, canoe racing; they had cock fights quite like those of Central America; they had fox and geese, cup and ball, tops, cat's cradle, tag, hide-the-button, kite flying, stilt walking, rockets; and they had as many "counting out" formulas as the children of Europe ever knew. Music they did not have. Its softening or irritating influence they never experienced. There were several instruments serving to make a noise or mark time for the dances, and that is all. Conch shells served for good trumpets, hollowed logs or gourds for drums, bambus for nose "flutes" and for clappers, even two stones were beaten together to increase the din, and pebbles were shaken in gourd rattles. Although they had the bambu they did not know the arrangement of Pandean pipes, an instrument quite common on the islands farther to the west. Such a thing as a tune had not been invented by the Hawaiians up to the time of the discovery by Europeans.

FIG. 77. COCONUT WOOD HULA DRUMS.

Surf Swimming: Hee Nalu. The surf board was usually of koa, nearly flat, with slightly convex surfaces, rounded at one end, slightly narrowing toward the stern, where it was cut square. Sometimes the papa hee nalu was made of the very light *wiliwili*, and then was narrow. In size they varied from three to eighteen feet in length, and from

eight to twenty inches in width, but some of the ancient boards are said to have been four fathoms long! The largest in this Museum stand in the porch, Nos. 297, 298, and are so heavy that they require two men to move them: the smallest for children are on the ceiling of this alcove. The finest model is No. 6809, on the ceiling, V. The surf riders swam out to sea as far as the *kulana* or place where the high rollers follow each other in quick succession, and there mounted a high wave and rode on it until near the beach in the *hua* where the water was smoother; the first one arriving at the hua won the race. Standing on the boards as they shot in was by no means uncommon. Men and women both took part in this delightful pastime, which is now almost a lost art.

Coasting: Hee Holua. A most dangerous but fascinating sport of sliding down hill over a prepared course on a sled made for the purpose. The holua or track was built with great care on some steep hill, sometimes six yards wide, made smooth and of even slope, and when covered with dry grass was very slippery. The sled was built of hard, tough wood, as shown in the rare specimen hanging at the entrance to this alcove, No. 320. This is said to have belonged to the hero Lonoikamakahiki and was found in a cave in Puna; it is the only complete one in existence. The long runners (11.2 ft.) are narrow like a Norwegian ski, were placed less than three inches apart and bound to a frame which the rider grasped and, running for an impetus, threw himself headlong down the hill. This was an eminently aristocratic game. Below this sled hang the runners of a longer one, said to have belonged to Kahekili, king of Maui. Another pair of runners is on the ceiling of V.

Maika or Bowls. There were three principal games played with the *ulu* or *olohu;* the first name was current on Hawaii and Kauai, while the latter was known on Maui and Oahu. A smooth alley or kahua was required and stone balls or disks. Various kinds of stone were used, but a heavy compact coral rock was the favorite; the ulu was sometimes spherical, No. 3588, c. 14, has a diameter of 7.5 in., and weighs 22 lbs., but more commonly a thin cylinder with slightly convex ends was used, and the largest here, No. 924, c. 14, is 5 in. in diameter and three in. thick, weighing 44 oz. Rough and unfinished ulu were used by children for practice. The average weight was little over one pound. Choice ones were carefully oiled and wrapped in kapa. The first game was a trial of strength in bowling to the greatest distance; the second required more skill to roll the ulu between two sticks at a definite distance from the player; in the third the ulu were on trial, for the two players rolled their stones

FIG. 78. ULIULI HULA: RATTLES.

against each other and the toughest won the game for its owner. There is a fine kahua near Kalae on Molokai where may be seen hundreds of broken uln. The players trained carefully and developed great strength and skill; it is unfortunate that the Hawaiian of the present day prefers the foreign and far inferior game of baseball. Ulumaika of many sizes and various material are in c. 14. Played on the same kahua were the games *pahee* and *moa;* the former was played with a pahee or slender club, much larger near one end where it terminates in a blunt point, being quite sharp at the other. It could be and was used as a weapon,—ihe pahee, as we have seen in the account of weapons. The material was always kauila or uhiuhi wood. The object was to throw or rather slide the pahee as far as possible in a straight line along the pahua. Each contestant had ten trials. The moa sticks were like the pahee but much shorter. The lengths and weights of some in the collection are as follows:

FIG. 79. DOG TEETH ANKLETS.

3586.	Ihe pahee,	57.5	in. long;	weighs	2 lbs.
3587.	" "	56.5	"	"	1.7 lbs.
945.	Moa stick,	14.2	"	"	24.5 oz.
946.	" "	13	"	"	17.5 "
947.	" "	15.2	"	"	8.2 "
948.	" "	16	"	"	22.5 "
3596.	" "	19.5	"	"	22.2 "
3597.	" "	14	"	"	13.5 "
3598.	" "	11.5	"	"	7.2 "
3599.	" "	10	"	"	6.5 "

Konane was played on a flat surface of stone or wood, and somewhat resembled "Fox and Geese" or Gobang. Positions on the *papamu* were marked by a slight depression on stone, and often by the insertion of bone, usually chicken, sometimes human, in wood. There seems no definite number or arrangement of places. Beach worn pebbles, coral for white, lava for black, completed the equipment.

866.	Papamu for Konane,	wood,	83	places.	
867.	" "	"	"	180	"
5313.	" "	"	stone,	112±	"

Palaie, the Hawaiian "Cup and Ball," is shown in Nos. 885, 886, c. 14. A loop of slender twigs and a ball of kapa so large and light that it is difficult to get through the loop.

Kilu. A game played by spinning a light gourd top, No. 896, c. 14, in such a way that it would alight on an upright stick placed for the purpose. The upper half of a huewai with a short neck made a good kilu.

Puhenehene was a game of guessing aided by very close observation. It was played in a house or lanai, the ten players sitting cross-legged in two opposite rows. Between them were five pieces of different colored kapa loosely crumpled up but with the edges overlapping. The player selected from one side must have his arm bare that his opponents might watch the play of his muscles as he passed his right hand containing the *noa* or stone to be left under one of the piles. When, after various feints, he withdraws his empty hand the guessing begins. Each player had a polished wand, *maile*, several feet long and armed at the end with a bit of dog skin or ki leaf, with which the one whose turn it is to guess strikes the selected pile; the kapa is lifted and if the noa is there his side wins that inuing. No. 881 was a noa used by Kalanikupule the last king of Oahu.

Hee or "Cat's Cradle" was a favorite guessing game, the company gathering around the performer who made a figure with the cord on his fingers and the rest guessed what was represented. The one who guessed right then sang the song appropriate to the figure. Specimens of several of these figures with the accompanying song are in c. 14, No. 4867.

Other games were kite flying, the *lupe* being long and narrow like that from the Gilbert Ids., in P., made of pandanus leaves or kapa. Chinese and other foreign kites have long since driven away the native form. No. 895 are clappers of hæmatite; two were held in each hand. No. 4854, c. 14, is a *niaukani* or Hawaiian Jew's harp. Nos. 4851-53 are *ohe keeke*, a closed joint of bambu which the player strikes on a large stone with the closed end; holding one in each hand he drops them on the stone alternately. Nos. 883, 884, c. 14, are used to beat time in the hula; these *ohe hula puili* were simply joints of bambu slit all around from the open end nearly to the closed end, and are used in pairs. Nos. 863-65 were *puniuhula* or coconut shell drumlets bound to the knee of the player. No. 890 is a pair of anklets made of corn husk for use in the modern hula, in place of the fine anklets of dog tusks, No. 887 (Fig. 79) used in olden times when dogs were eaten in sufficient quantity to furnish the 1900 tusks of which this pair is composed. Weighing 9.5 lbs. it is but little lighter than other similar *kupee niho ilio* in the collection.

Tops or teetotums were used both as playthings and to gamble with; No. 892 is one of the most common forms, a kukui nut through which is thrust the spindle. Another form which recalls the spindle whorls of Europe is No. 4681, of which the stone fly is well cut. For a rude game of ball the Hawaiians had, like other Pacific Islanders, cubes of hala leaves plaited, No. 6808. "Putting the shot" was not unknown, and the *pohaku ikaika* was certainly a test of strength, for No. 7508, in c. 14, weighs 87 lbs.

Some other things are here not actually used in games, but certainly for amusement, as the conch shells Nos. 876, 897, which produce a clear deep note used to call the people together for games, and in later days to church. No. 4973 is a *pu puhi* of cassis shell, from Olaa, Hawaii, where it was regarded as a very sacred object. Perhaps it was one of the trumpets the gods blew every night at Pueohulunui to bother King Liloa. Nos. 951-54, 4755, 4756, c. 13, are small gourds pierced with from two to five holes called *ipu hokiokio* or lover's whistles, used for nocturnal serenades by swinging on a cord. Nos. 4860-64, *ukeke*, the Hawaiian musical bow, a thin strip of wood on which were strung three or four strings. In playing one end was held in the teeth and the strings

fretted with a stiff grass for plectrum: like the last article it was most used by love-sick swains. No. 949, etc., are resonant kauila sticks, of varying length, that give musical tones when struck, if properly suspended, a distant approach to the Central American Marimba. The nose "flute", *ohe hano ihu*, was a joint of bamboo played by closing one nostril and blowing through the other. Nos. 877-80.

Ornaments.—Flowers have always been a favorite ornament of the Hawaiians of both sexes, and although the supply of beautiful flowers, before foreign importations, was very limited, still attractive *lei* or garlands were woven of the ohia, lehua, maile, mokihana and other native blossoms, leaves and fruits; not least among the last were the keys of the pandanus fruit which furnished and still furnishes necklaces both showy and odoriferous. All these, however, were perishable. More permanent were the marks of the tatauers, although this practice was neither so general, nor were the designs so artistic as on the southern islands or in New Zealand. Lizards, crescents and triangles were sparingly scattered over the body, unsymmetrically by preference; thus one leg would be covered with a diaper of triangles while the other was left untouched.

Strings of shells were both durable and beautiful, especially those made on Niihau of a small white Columbella, No. 1345, c. 16. Cowries (*Cypræa moneta*), Nos. 1282, 1283, were also a favorite, and boar tusks, whale teeth, seeds and dried fruits also contributed to personal decoration. Most characteristic of all were the *lei niho palaoa*, No. 1314, in Fig. 80, necklaces of many strands of human hair closely braided in a square cord, to which was attached the cherished ornament, a whale tooth carved into a hook. These were kapu to all below the rank of chief. No. 1325, c. 15, is a very choice specimen; No. 4925, a composite one of tortoise shell and ivory; No. 1287 is of elephant ivory from China; No. 4934 has been buried.

A favorite bracelet consisted of one or more shells of pipipi (*Nerita picea* and *polita*) fastened around the wrist by a string, the black species, Nos. 1306, 1307, often ground to show spots or lines of white, and the colored species also polished or cut. Another favorite bracelet was composed of bosses of whale's ivory attached to the arm in the same way, Nos. 4912-17, c. 16. These, like the other ivory ornaments, the Hawaiians preferred to color by wrapping in ki leaves and exposing to the smoke of sugar cane. Boar's tusks were often strung with the concavity outward for bracelets, No. 7740. Nos. 1303, 1304 are gruesome bracelets made of alternating sections of tortoise shell and human bone, the latter carved with death heads.

There is nothing to indicate that the use of finger rings was ancient, or that they were known before the advent of foreigners. They probably came in with the more barbarous ear rings of the strangers. They are shown in Nos. 4968-72, in ivory, coconut shell and kukui nut, all of poor type.

Necklaces of polished kukui nuts, Nos. 2279, 7522-24, have always been popular, as the hard nut takes a durable polish; the polishing and carving was a matter of much labor. The seeds of "Job's tears" (*Coix lachryma*), Nos. 6249-53; of the seeds of *Abrus precatoria*, No. 6372; of *Leucaena glauca*, of *Acacia koa*, and of *Inga* were all used, and specimens are in c. 16. The ilima lei, of the flowers of the native *Sida fallax* and *S. meyeniana*, of an orange color resembling the mamo feathers, are made and worn at the present day as of old; models to show the color and effect are in c. 15. The capsules of mokihana (*Pelea anisata*), No. 2296, c. 16, have a strong and persistent odor of anise unpleasant to most

FIG. 80. HAWAIIAN ORNAMENTS.

white people, but popular with the natives of Kauai, are often strung for lei. The dried fruit of *Solanum aculeatissimum*, of a bright scarlet color are used by Hawaiians as by the natives of the southern islands.

The abundant strings of dog teeth are useful not merely as ornament but also to ward off evil. Nos. 1297, 1298 are charms for the same purpose, the cachelot teeth in the second acting like the dog teeth as a prophylactic.

The curious collection of glass beads once worn by H. R. H. Keelikolani are fair specimens of what foreign importations were in the early days.

Kapa, usually pronounced tapa, was the cloth of the Pacific. The process of beating vegetable fibre was known in many tropical lands, but was nowhere carried to such perfection as here. The very coarse product of the western islands improves as we go eastward until it culminates in the strong and delicate fabric of the Hawaiian Islands. With the introduction of woven cloths at prices far below the cost of the less durable native manufacture, bark cloth is become a thing of the past, and on these islands the very implements of the makers are held as curiosities. Few are the natives who can give any trustworthy account of the kapa making of their ancestors, and yet forty years ago the beaters of kapa were still at work in the Hawaiian valleys, and the cheerful sound of the beating was heard in all the country districts.

No loom nor complicated machinery was needed for the simple process by which bark was converted into sheets of varying size and consistency. A log of some tough wood was cut to a length of about six feet, hewn to a flat surface three to four inches wide at the top, cut away slightly at either end and hollowed longitudinally underneath, Nos. 720, 711, and Fig. 81. This anvil, *laau kui kapa* or *kua kapa*, was supported on two stones. A variety of hand clubs, some round (*hohoa*) for the first beating, or square (*ie kuku*) for the finishing, and a few calabashes to hold water or some mucilaginous liquid, were all the tools needed to make what was probably called from the means used in its creation "kapa"—*ka pa*, the beaten (see Fig. 81).

To render all this more real and easy to be understood the group in c. 19 has been devised, and with that clearly before one

FIG. 81. GROUP OF KAPA-MAKING TOOLS.

the whole process can be readily understood, and it only remains to call attention to some of the materials used and the many forms of beater, or rather of the patterns on the sides of these beaters. As the Museum has in preparation a very full account of not only the Hawaiian but also of the other Pacific kapa, illustrated very fully and by colored plates, no great detail will be undertaken here. The raw material varied somewhat, but most common by far was the wauke or waoke (*Broussonetia papyrifera*). This

"paper mulberry" is a shrub or small tree cultivated by most Polynesians; but according to Berthold Seeman it has never been found wild. Formerly extensively cultivated on these islands it is now found all over the group in moist forests as an escape from cultivation. The habit of the waoke is to branch from the base and not to form main trunks, and it is from these numerous low branches that the bark is stripped in lengths of about six feet and a width of two inches. Specimens of these strips are in c. 17, dried as always until the sap has evaporated, when they are stored for future use either with the bark still on, or commonly after this has been removed by use of the oloná scrapers in the way shown in c. 25. The men cut the branches but it was the women's work to strip off the bark. In use the strips were soaked in water until soft, then beaten with the hohoa, Nos. 365-92, c. 17, on a smooth stone until the fibres were more or less felted together, making rather thick strips of stock material. When kapa was to be made a sufficient supply of this was soaked over night and then beaten on the kua kuku by the ie kuku. Strip was welded to strip until sheets of a surface of more than 125 sq. ft. were obtained. The pattern (*nao*) on the beater gave the water mark or tissue figure to the kapa, as may readily be seen in the specimens shown in the windows at either side of c. 19. In this state the pulp was sometimes colored, either by dyes, mostly of vegetable origin, or previously colored kapa was pulped and then beaten in; charcoal (*nanahu*) made from waoke stems, pili grass, etc., and red ochre (*alaea*) were also powdered and peppered in to the moist pulp before the final beating. Pieces accidentally torn were mended by the welding process, and patterns were also applied cut from kapa of other colors. The only other material beside waoke that need be mentioned is the mamaki (*Pipturus albidus*), from which is beaten a strong brown kapa, specimens of which are in cc. 18 and 20.

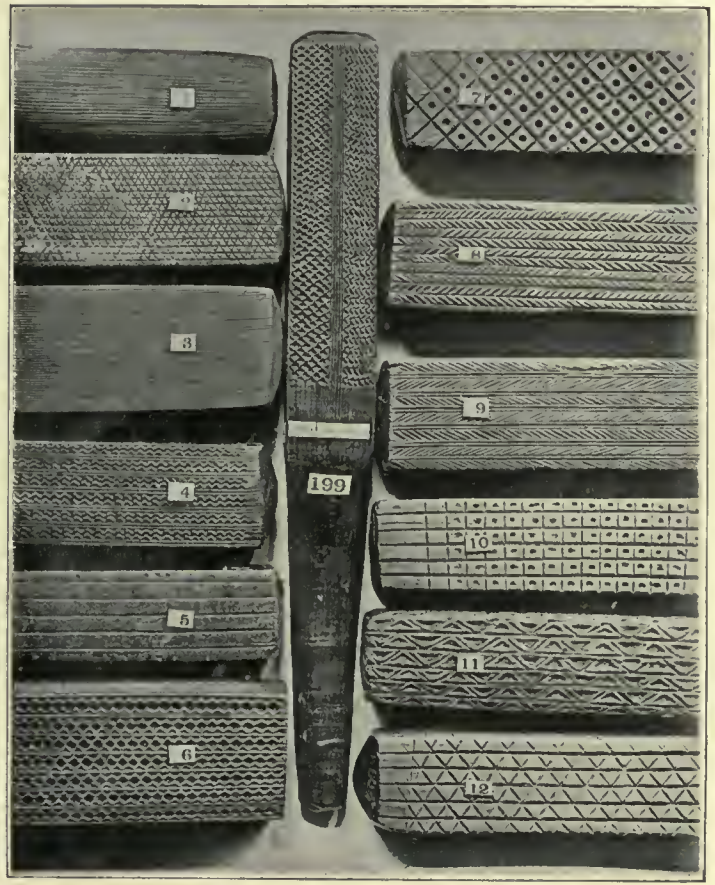


FIG. 82. KAPA BEATERS: IE KUKU.

In olden time the kapa beating was done in one of the six houses of a well-to-do Hawaiian, but in later times I have usually seen the old women establish their kua kuku under some tree near a brook or kalo patch. It is interesting to note that the women, while at work, had a system of signalling by blows and

FIG. 83. OLD GRASS HOUSE: HALE PILI.

intervals from valley to valley. Lauhuki was the god of kapa makers; so also was Hai. It generally took four days to beat an ordinary sheet of kapa. The patterns on kapa beaters are not numerous and may be arranged as follows: first is the smooth surface called *mole;* longitudinal grooves one-third of an inch apart convert the mole into *pepehi* (Fig. 82), No. 5; when the grooves are closer (20–25 to an inch) the pattern becomes *hoopai*, No. 3, by far the most common and perhaps the best for felting the bark fibres together. If the pepehi is crossed by a series of parallel lines at right angles the pattern becomes *pepehi halua*, No. 10; and if two series cross the lines of the pepehi at less than a right angle the pattern becomes *pepehi halua maka upena*, No. 2, or simply *maka upena* = meshes of a net. If any of these patterns have on their flat surfaces round holes the term *pupu*, No. 7, is added, while if the holes be triangular, No. 11, the name is *niho mano* = shark teeth. So hoopai crossed by lines at a right angle becomes *hoopai halua*, but when the crossing is at other angles it becomes *hoopai pawehe* or *halua pawehe*. Another very common form is an undulating ridge; if the undulations are parallel they form *koeau*, No. 4; if not, *puili*, No. 6. These undulations are often separated by lines when the term halua is added, as in the central figure. The *iwipuhi*, No. 8, resembles the backbone of an eel; the *lauma'u*, No. 9, the pinnate leaf of a fern; the *kapuai koloa*, No. 10, is supposed to resemble the track of a duck. Nearly all other patterns are slight modifications of these. Not unnaturally certain makers of kapa had preference for particular patterns of beater, and some forms seem to be almost confined to Kauai; but beyond the patterns mentioned invention did not pass, and today the names have been generally

FIG. 84. PANDANUS BASKETS.

forgotten. If the visitor cares to identify any of these patterns on the beaters in c. 17 the following list will help in the identification: the numbers are those of the specimens.

Ehe hoopii, 215=Koeau.
Haao, 193, 257, 2856 = Koeau halua.
Halua leihala, 224.
Halua pawehe, 198.
Halua koeau, 193, 203.
Halua manama=Maka upena.
Halua puili, 189—better Puili koeau.
Halua pupu, 230, 240 = Mole halua pupu.
Hoopai, 206, 213, 8673, 242, 2893.
Hoopai halua, 216.
Hoopai pawehe, 198 = Halua pawehe.
Hoopai puu, 212.
Huelopoki = Iwipuhi.
Iwipuhi, 188.
Kalukalo = Koeau.
Kapuai koloa, 227, 188.
Koeau, 196, 215.
Koeau halua, 193, 200, 255, 205.
Koeau pawehe, 253.
Laukoa = Lauma'u.
Lauma'u, 191, 202.
Mole, 243.
Mole halua, 211.
Mole halua pupu, 214, 282, 2924, 284.
Mole halua leihala, 224.
Mole pupu, 217.
Nanauahuki = Koeau halua.
Oholupalupa, 220, 241 = angular Puili.
Painiu = Lauma'u.
Papa konane, 194.
Pawehe, 220.
Pepehi, 233.
Pepehi halua, 207, 283.
Pepehi halua pupu, 210.
Pepehi halua niho mano, 219, 258, 274, 2845.
Pepehi maka upena, 208-9, 255.
Pepehi pupu, 218.
Puili, 199, 387, 200.
Puili halua, 189, 200, 197, 204.
Puili pawehe, 190, 220.
Pukapuka = Mole pupu, 217.
Uahaao = Halua pawehe.
Waiele = Puili.

Names of the patterns cut on the *ohekapala* or bambu stamps cannot be so easily classified, as the numerous names are not always suggested by the form and are generally capricious and without meaning. In this collection are more than a hundred distinct patterns, but none shows any artistic invention, and they are all geometric combinations, rarely attempts to imitate natural objects. Owing to the curved shape of the bambu the width was limited in each die, and to cover a large kapa infinite pains were required to repeat the small impression in order and properly joined. The specimens in cc. 18 and 20 will show how well this was done. When the pigments were to be applied either by these stamps or by the means to be mentioned presently they were ground in oil, usually of kamani, kukui or coconut, in a stone mortar (Nos. 2979-81, c. 17). All these grinding tools are shown here. Beside the stamps the Hawaiians used natural objects, as sea urchins, or fish hooks for impressions, although it is not known that they used fern leaves, as did the Tahitians; also cords, Nos. 1267, 4495, dipped in the thick liquid and snapped on the kapa like a chalk line; by pens of bambu or wood, Nos. 1262-66, and by painting with a brush furnished by the ever useful pandanus, No. 2982. Kapa was waterproofed by saturation in oil which never seemed to completely dry. Kapa made into pa'u or the female waistcloth and those used for dances are in c. 18; the bed kapa and "piece goods" are in c. 20; and in these two cases are specimens of all the known forms of this fine fabric. Of the kapa in cc. 19 and 20 certain specimens may especially interest the visitor. No. 2323 is a cotton cloth printed to imitate native work. The oiled riding pa'u in the upper part of this case show fine printing; No. 2373 is the favorite "bent knee" pattern; No. 2394 is a magic kapa used by the kahuna as an aphrodisiac of dangerous potency; No. 2432 is a pattern that I have never seen repeated, consisting of a circle divided into quadrants by lines of stamps; No. 2397 is the *haukeuke* or echinus pattern, and No. 2469 is the fish hook pattern. No.

2398 seems to be a good imitation of French prints of the second quarter of the last century; the fragment, No. 2471, is well designed with red stripes and green spots; No. 2366 is a very old specimen of painted work, done with the pandanus brushes (No. 2982, c. 17); No. 2395 is another echinus pattern; No. 2379 is a good example of the better class of *malo*, the common garment of the men, and No. 2451 is a very elaborate ruled malo; No. 2370 is a specimen of the *mamaki*, a kapa of much harsher texture than the waoke; No. 2364 is a fine white kapa, and No. 2396 a delicate pink *mahunalii;* No. 2316 is a sheet 3×9 ft., closely covered with stamps which must have required infinite patience; No. 2450 was made by punching the pattern through a sheet of black kapa and then beating this when wet to a white sheet; Nos. 2490, 2491 are *kihei*, a sort of shawl glazed with breadfruit varnish; No. 2465 is an imitation of a foreign shawl; No. 2487 is a specimen of the dress given by the missionaries as a substitute for the more graceful pa'u, the pattern ruled in black and red with bambu pens.

FIG. 85. HINAI POEPOE.

In c. 20 are the bed kapa. Usually a *kuina* of a *kapa moe* consists of five sheets stitched together at one edge with a kapa tape, and the top sheet is often colored or printed and is called *kilohana;* in some examples there are two kilohana. No. 2334 is a silk-like specimen 8×12 ft.; No. 2362 has the kilohana beautifully printed black on white; No. 2462 is a sheet of *kalukalu*, the most delicate kapa made, and was one of a kuina belonging to Kamehameha III; No. 2466 is another piece of kalukalu; No. 2505 is made by beating in strips of colored kapa; Nos. 2459, 2486 are mamaki kapa, and No. 2446 is well painted; No. 2419 has a kilohana called *aeokahaloa;* No. 2345 is a very old bed kapa, 6×7.7 ft., of a favorite stripe. No. 2352 has a kilohana of blue with dark squares and triangles, then a white sheet and another kilohana of white with broken stripes followed by two white sheets. To those who wish to pursue farther the study of kapa, a Memoir, soon to appear in the Museum publications, will, it is hoped, afford ample material, as it will be fully illustrated both with plain and colored plates.

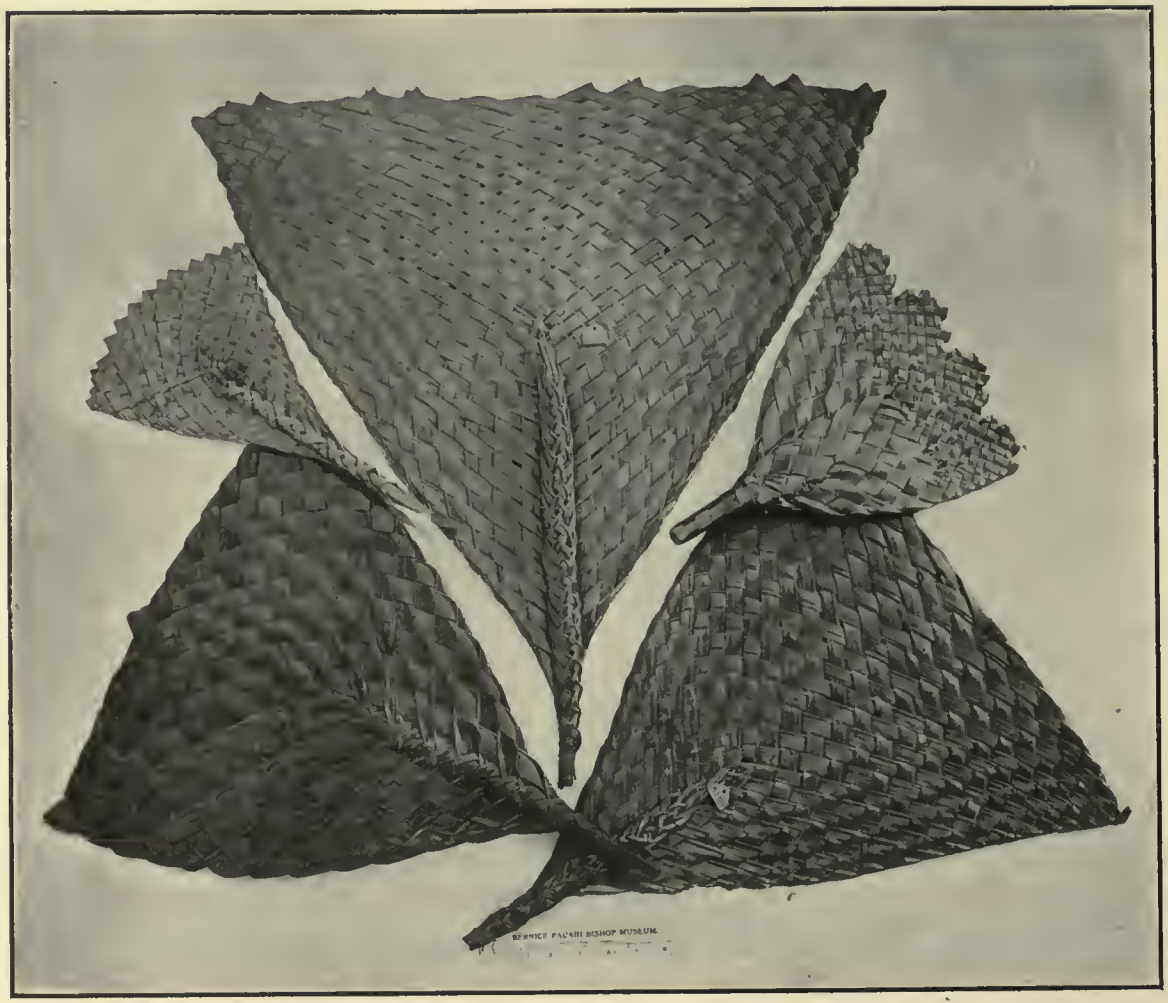


FIG. 86. HAWAIIAN FANS.

The House.—While it is true that the common people often had insufficient shelter in the ancient days, living in caves or miserable huts, several families often herding together, the houses of the chiefs and well-to-do citizens were by no means uncomfortable, although destitute of any architectural beauty. Even the palace of the king was not an elaborate structure, and all looked at some distance like well trimmed haystacks, from the grass with which they were covered. In the second quarter of the last century Honolulu was, with few exceptions, composed of such houses. The house in this hall is one well deserving study, for the frame was cut of naio and uhiuhi wood with stone adzes, and was found in a remote valley of Kauai by Mr. W. E. Deverill, and given to the Museum by the Knudsen brothers, to whom the valley belonged. It was put together in the ancient way by skilled natives, tied together with ukiuki braid and thatched with pili grass. As the door was always low a portion of the thatch has been left off to admit light to the interior, and to show both the structure and the furnishing.

The building of a chief's house will serve as an illustration of all the rest, which differed mainly in size and finish. Religious rites, which filled so large a part of the daily life of a respectable Polynesian, had an important part in the building of his dwelling. It is not necessary here to describe them all, as this has most fully been described in a Memoir in preparation for this series, on Hawaiian life, in course of publication by the Museum. The aspect of the site, what the Chinese call its "Fung Suey," was determined by the kahuna; the time for cutting the timber, the kinds to use, as for example, opposing rafters must both be of the same wood or the house would be unlucky; the sacrifice of a man to place under the main post of the house; and the final cutting of the grass over the door; all were occasions for priestly interference and taxation.

The dimensions of a native house might be 25 ft. wide, 12 ft. deep, and of a height from 4 or 5 ft. at the hip to 10 or even 15 ft. at the ridge, according as the high old priestly style or the lower and more modern one was adopted. The shape of common houses at the time of Cook's visit is well shown in the view taken by Wäber at that time and transferred to the background of c. 19. The corner posts were planted first, set deep in the earth or among the stones of the platform on which the better houses were built; the other posts of a side were then set at intervals of about 3 ft., and when the posts of front and back were complete the plates were bound firmly with cord to grooves already cut in the posts, leaving a slight finger projecting above the plate to engage the fork of the rafter. The two main posts were then raised and it was under one of these that the human sacrifice was placed in the case of a chief's house. The ridgepole was bound to notches in the top of the main posts and the rafters

FIG. 87. HAWAIIAN FISH HOOKS.

FIG. 88. HAWAIIAN FISH BASKETS AND TRAPS.

were bound carefully to this and to the uprights; then the whole building was drawn tightly together with ropes until the *ahu* or small lath-like sticks were tied on all over the house. The frame was then ready for the thatch, which might be pili grass, ki leaf, or sugar cane leaf, the first being most durable. There were no windows and the plank door was usually not over 3 ft. high. A light fence around the outside completed the dwelling, but the owner might not move into it until the priest had uttered the *kuwa* or prayer at the cutting of the grass over the door. As the Museum house is not intended for habitation this grass has been left uncut. Within there was little enough in the way of furniture. A raised portion of the gravel floor, the *hikiee*, was covered with finer mats and was the bed for the family. A small circle of stones in the floor marked the fireplace, if the house was in a cool situation, but there was no chimney except sometimes a small hole at one gable. A few calabashes to hold food and clothing, some dishes for pig, dog or fish, some water bottles, a few rolls of mats and some bundles of kapa: this was essentially all the furniture of the ancient Hawaiians. "Great pity for him!" says David Malo.

While Kapu was the supreme law of the land, an Hawaiian establishment consisted of at least six distinct houses: 1. *Heiau*, where the family gods resided; women could not enter. 2. *Kua*, or house for beating kapa; the women's workroom. 2. *Pea*, or house where females could retire during their infirmity. 4. *Kua*, or men's eating house; women could not enter. 5. *Aina*, or women's eating house; men could not enter, except priests. 6. *Noa*, or common sleeping house where guests were received. The abolition of kapu and the extinction of kapa making did away with this multifarious abode, and bringing all together made the house more comfortable. A new grass house is cool and pleasant, but it soon gets full of vermin, and from its poor ventilation musty and unwholesome. It should be remembered that they were generally occupied only at night and in wet weather. There are still some "hale pili" left in out-of-the-way places, but, like the kapa making, they belong to a past that can never return.

In the centre of the Hall is the model of the crater of Kilauea, made by Mr. W. A. Bryan. It is on a scale of 130 ft. to the inch, and shows the conditions of 1903.

Medicine.—Very little is now known of the medical practice of the ancient Hawaiians, but it probably closely resembled the kahuna practice of the present day. No such knowledge of medicinal herbs as was possessed by the Amerind existed on these Islands. Evil spirits were at the bottom of physical as well as moral troubles and disturbances, and must be exorcised by the help of other *aumakua* more powerful and better disposed toward suffering humanity. Charms and incantations usurped the place of simples, and an experimental study of the effects of the trees and plants of the mountains seemed out of place when the scrapings of a beach pebble could kill or cure. Where medicinal plants were used they have not generally been identified. The use of the calabash vine in very large doses as a cathartic was well known. Noni (*Morinda citrifolia*) was a popular medicine applied both internally and externally; in the latter case the ripe fruit is used even by foreigners as a useful poultice. Ahuhu (*Tephrosia piscatoria*) was used to stupefy fish and human sufferers. Koko (*Euphorbia lorifolia*) and Koali (*Ipomœa insularis*) were plants of recognized medicinal virtues. Mud baths, sea bathing and massage were all resorted to for their curative properties. The *lomilomi* or massage was of great efficacy when practiced by skilled old women, whether to

palliate the effects of gluttony, to cure headaches, or give rest to overworked muscles, and one of the most capital instruments, next to the human hand, is seen in Nos. 1163, 1164, c. 21. In surgery there was little to be described. Cutting the umbilicus was a religious rather than a surgical operation, while the universal circumcision or incision was purely sanitary and had nothing religious about it. Abortion was practiced in various ways; the Hawaiian vocabulary contains seven words designating as many methods; No. 4980 is a bambu stiletto used for that purpose. In administering clysters (usually an infusion of hau bark in hot water) a syringe was made of a cow's horn (No. 174), of bambu (No. 175), or commonly of gourd (Nos. 4974-79), the patient being placed on his knees with his head to the ground. No. 4107 is an ivory pounder for crushing drugs, and No. 177 is a cup made from the vertebra of a cachelot, bone and ivory being considered especially fit for the preparation and administering of remedial agents. Nos. 4248, 4249 are bath rubbers of vesicular lava, used to remove loose epidermis. No. 4988 is a bundle of maia pilo wood (*Capparis sandwichiana*) over which a kahuna has breathed a blessing; in serious cases this was used to cook the food prescribed by the kahuna. No. 4981 is a bit of pumice used to remove the fur on a patient's tongue, and by removing the symptom so cure the disease! But it would be unprofitable to follow these matters farther in this place.

There is of course nothing ancient about the use of tobacco on these Islands; it was introduced by the whites and quickly adopted by the natives, who generally raised their own tobacco in the earlier days, the weed growing here as a weed usually does. The fashion of the pipe was, however, curious, and specimens have been brought together in c. 21. In smoking, the Hawaiians used to pull a few whiffs and then pass the pipe to the next person; smoke was generally swallowed. For pipes wood was the rule, and whale ivory, No. 4318, the exception, and old chiefs affected those of great size, as No. 4311, called "Kika," belonging to Gov. M. Kekuanaoa, which was 20 in. long and 16.5 in. arouud the elbow. No. 4325 is of orange wood and has two bowls arranged tandem; it belonged to a kahuna. Tobacco was carried in a small coconut shell, Nos. 4327-29, 4492, 4493, as was the custom throughout the Pacific.

Baskets and Mats.—The early voyagers speak of the baskets of the Hawaiians with approbation, perhaps referring to the *hinai poepoe* shown in c. 22; but in later times the basket work has greatly degenerated and at last has beeu confined to the making of fish traps and an inferior kind of pandanus basket or sack. The same observation has been made of the mats, of which the finer varieties are no longer made. It certainly was not always a manufacture of a low grade, and that the voyagers were right in their commendation is proved not only by the hinai poepoe but by a basket which seems to be the only survivor, at least none have been found in any museum. This, No. 7651, was for many years preserved in Boston. It is made of the aerial roots of the ieie (*Freycinetia arnotti*) delicately plaited in two colors, brown aud black, and the cover was bound on by means of loops of finely braided coconut fibre. A smaller one of the same kind, but without a cover, No. 6942, was used in the house of Rev. Asa Thurston at Kailua in 1820, and continued in use in a busy household for nearly eighty years, is still in good condition save the loss of the cover. The loss of this art is greatly to be lamented, for no better baskets are knowu. With the same material, abundant in the mountain regions, were made the hinai poepoe already mentioued; these were originally bowls, of wood or gourd, arouud which was

uetted the basket so firmly and durably that when the bowl or gourd was broken or decayed the basket remained as good as ever; No. 3889 shows the beautiful work around a wooden umeke; No. 3890 is complete with cover; No. 1550 is one where the wooden umeke long ago disappeared and the basket has been used for fish, still strong and useful. Gourd bottles were sometimes covered in the same way, No. 5350; No. 1409 originally had a gourd within. Baskets of a coarser make, used for fish, nets, etc., are on the lower shelf. The baskets of pandauus are in c. 23 and are not remarkable for either beauty of form or good workmanship. The bottom is usually square and the sides rise to a circular rim to which a handle is attached. Another form has also a square foundation but is closed in at the top, leaving a narrow opening which is closed with a flat cover through which pass the strings which serve for a handle and fastening. Fig. 84 shows both these and other forms.

FIG. 89. HAWAIIAN SPINNING ON HIS THIGH.

Iu c. 22 is a portion of a makaloa mat just begun which shows the method of arranging the grass, which differs somewhat from that adopted with the pandanus mats, a specimen of which is in the opposite case. The favorite figures found on the makaloa or Niihau mats are shown on the back of the case. No. 5621 is a simple basket of palm leaves, much used for fruit. Rolls of the pandanus leaves ready for the weaver are Nos. 8572, 8573, c. 23. The mats have already been described, and are found in K. A bit of mat work neatly finished to a suitable form served well for fan (Fig. 86), and the small, narrow specimens shown in c. 23 are very useful and durable for their purpose, unsurpassed by any others in the Pacific. The fau of olden time, *peahi*, was stiffer and of more complicated structure, but by no means so useful. A nnmber of specimens of this old form are in the British Museum, but here there is only one, No. 7965, c. 23. At the present day fans of foreign form are neatly made of split bambu and variously decorated, of which specimens are shown. Another applicatiou of mat work is seen in the pillows, *uluna*. The pillow is firm, stuffed with hala leaves, and but slightly elastic, a capital accompaniment to the mat bed. No. 1145 is the longest (21 in.) of the collection; No. 1144 shows the effect obtained by alternating sun-dried and honse-dried leaves. In the second volume of the Museum Memoirs the subject of mat and basket work is treated at length, and the visitor cnrious in such matters is referred to that.

Fisheries.—We may say, without boasting, that the collection of hooks, nets and other implements in cc. 24 and 25 is the most complete to be found in any museum. The Kamehameha

family were all noted fishermen, and their choice hooks and other implements came, through Mrs. Bishop, to this Museum; and, as in olden time Hawaiians lived largely on fish and were very skilled fishermen, contrivances were many and ingenious to capture the finny prey. At present the Japanese have taken the place of natives in all important fisheries.

Fish hooks were made of tortoise shell, ivory, shell and bone, before the introduction of metal. With the nails obtained from early visitors the Hawaiians made hooks similar in shape to their earlier hooks, many of which also were without barbs. The hooks were filed with the bits of lava as shown in c. 8, and the finish is often of the most perfect kind. To each hook, when ready for use, is attached a cord, called *kaa*, bound permanently to the shank and usually whipped with a thread of oloná. This, which may be from a few inches to a yard in length, is tied to the *aho* or long line when used. The space between the point and shank determines the kind of fish to which the hook is presented, and in many hooks this space is so limited that it is apt to surprise a stranger that the fish could squeeze their lip into it; it is true that the old fishermen caught more with these peculiar hooks than they could with the more dangerous-looking hooks of the foreigner. Of the *makau ea* or tortoise shell hooks in this collection the number is so considerable that they seem the most popular. They varied in size, as they were used for different fish, and they sometimes had a barb inside, sometimes outside, or in both positions as shown in the lower right-hand specimens in Fig. 87. The *makau palaoa*, made from the tooth of the cachelot, was of similar shape, of circular section, and remarkably well finished. The *makau papaua* were filed from shell and were nearly finished before they were detached from the shell, which served as a convenient handle. These were sometimes very small, and No. 3757 is the smallest in the collection. Another form of shell, or shell and bone, or tortoise shell, is the *pa hi aku* or hooks for the fish aku. There is a shank of papaua or pearl shell to which is attached, by fibres passing through drilled holes, a barb or point of bone, often human or *ea*. Many of these are shown as well as the shanks in process of manufacture. The bone hooks were either of one piece, often of large size, No. 7739, or of two pieces ingeniously spliced with sinew, No. 7826, or perhaps oloná fibre. It was considered lucky to fish with a hook of human bone, No. 5285, and the bones of enemies were often so used.

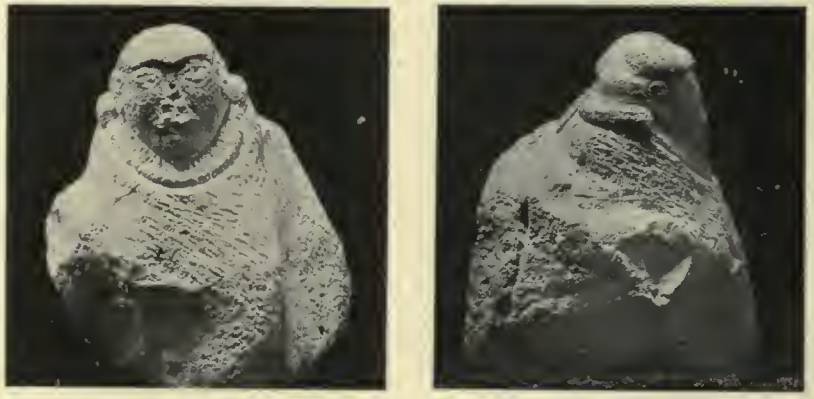


FIG. 90. MANOA IMAGE.

Shark hooks, *makau mano*, were often made of wood and pointed with bone, Nos. 6924, 7737. The very large one, No. 777, was called "Kiholo," and was always baited with human flesh. In this connection should be mentioned the two curious double-edged wooden platters of elliptical form used as bait dishes by

Alapainui of Hawaii. A human victim, usually a slave, was cut up and left to decompose for several days, then put on these platters and carried to sea on the pola of a double canoe. The *hinu* or oil which was allowed to drip into the water attracted the sharks, and the trail thus laid drew them into deep water where the king and alii fought them with great courage and skill. Alapainui is supposed to have died in 1754, and at that time these platters were placed with other relics of this king in a puoa at Puuanahulu, North Kona, Hawaii, where they were carefully guarded by successive generations of *kahu* until the lava flow of 1868 threatened to cover the hiding place, and they were removed to a house in Kaupulehu where they were kept until the last of the kahu died, in 1883, when they were purchased for this collection.

FIG. 91. THRONES OF KALAKAUA.

To return to the hooks: the *makau lu hee* or squid hooks (shown in the upper part of Fig. 87) were a permanent combination of hook and bait, the latter a shell of *Cypræa mauritanica;* to this is attached a cut stone sinker of a similar shape, and often of some unusual stone, and between shell and sinker is a stick, to one end of which is fastened the line, to the other the hook of bone and later of metal, concealed by a wisp of leaves. A similar contrivance, but without the shell bait, was used for turtle, Nos. 779, 3791. Halibut hooks made by the Amerinds of the northwest coast, with whom the Hawaiian whalers had considerable intercourse in early days, were naturalized here and named *makau ia hapuupuu*, Nos. 775, 3659. The iron hooks need not detain us, except Nos. 3774, 3777, which are made directly of iron nails in the old form. Fish poles were of native bambu, of which a fine specimen hangs over the entrance to this alcove. Fish spears were also used, *kao*, and one with the seven prongs is shown, No. 769.

A more unusual method of fishing was in vogue among the old Hawaiians; on the coast of Hawaii fishing sticks, *laau melomelo*, are employed to attract the fish. They are smeared with a peculiar bait and left in the water to attract the fish. The *palu* or bait is prepared in various ways, the base always being the roasted ink

bag of the squid. In some cases stone is substituted for wood, Nos. 7452, 7453. Bait is mixed in small stone mortars with wooden pestles used only for this purpose, Nos. 5151-55. Fish lines were usually of oloná, some small ones of coconut fibre. No. 771 is very old and was used for kalekale, oio, ulua, weke, etc. No. 772 is larger for ahi, kahelo, etc. No. 3886 is 200 fathoms long. Lines were kept in the *poho aho*, a gourd bottle with stout neck and a cover. Another form used for both lines and hooks, *ipu le'i*, consists of a thick wooden bowl with a much larger cover of gourd. In some examples, especially the smaller ones, both bowl and cover are of gourd, No. 3994, c. 30, H.G. Ingenious reels for small lines consisted of a portion of the neck of a gourd bottle, No. 3822. Held on two fingers the delivery of line could be easily regulated. A simpler reel was a fragment of gourd, No. 3825. When iron came into use the sharp points of the foreign hooks were often inserted in a fold of the fibrous base of a palm leaf. A basket of pandanus, No. 3883, was used for bait, the side pocket for hooks.

Of the basketry fish traps or holders, No. 3842, are used to keep a decoy fish immersed in sea water until wanted, when a cord is passed through its snout and it is allowed to swim around a net. The small traps are used for crustaceans, like shrimps, crabs, etc., and the large funnel-shaped ones are for the same game but not baited.

Nets ranged from the small hand net to the large draft nets more than perhaps 20 fathoms long. The chosen material was oloná, the strongest and most durable, as well as most flexible fibre known to the Hawaiians. Specimens of the smaller hand nets are in c. 24; a large scoop uet hangs from the ceiling in front of this case, and in c. 25 are the larger nets. Here too is a cast of an athletic Hawaiian scraping the oloná fibre, which is then ready to be spun on the thigh, as shown in Fig. 89. The netting is done with the needles and mesh sticks already noticed in c. 8. A whip or broom, *pula*, No. 6369, was used to drive fish into the smaller nets. Where floats were needed for the nets blocks of wiliwili wood were used, and stones made sufficient sinkers.

FIG. 92. BOWLS WITH TEETH AND BONES.

Near the door leading into V. there stands a cast of a curious figure that was said to have been in Manoa valley before Cook's visit. Forty years ago the original, which is now in the Berliu Museum für Völkerkunde, stood at the entrance to Judge Moffit's estate at Kahuku, Oahu, and there it was often worshipped, with its companion gate guardian (cast in c. 12). The ruff and cue suggest a Spaniard of the fifteenth century, and it may be a relic of the Spanish discoverers of this group. The flat stone near by is from the altar pavement of a fisherman's temple in Puna, Hawaii. The large slab was cut and finished with stone tools.

The first gallery, H.G., is devoted to Hawaiian Natural History, with the exceptiou of the front end where certain relics of Hawaiian chiefs are exhibited. At the head of the stairway in

case 60 are casts of tropical fruits grown on these Islands, and this collection extends into cc. 76 and 77; all have been cast and painted by Mr. J. W. Thompson of the Museum staff.

The collection of Hawaiian fishes, cast and painted by the same artist, begins at c. 78, and when the majority of the 500± species recognized as belonging to this region are all done will extend nearly around the gallery rail cases. The strange forms and brilliant coloring give a good idea of the Hawaiian Fish Fauna, and this seems the most satisfactory way of preserving both form and color of specimens which, as is well known, cannot easily be conserved in any other way. Cases 26 and 27 contain fish specimens too large for the rail cases, while others, as the sharks, will be found suspended from the ceiling.

Case 28 has certain relics of the Kalakaua reign, swords, epaulets, liveries, etc., where the labels tell sufficiently the story. In c. 29 are the throne of the later Kamehamehas, a koa chair covered with crimson damask, and on either side of this the gilded thrones of Kalakaua and Kapiolani. The carpet that covers the floor of the case was woven expressly for the throne room of the palace, a tropical design of palm leaves, ferns and pothos. The Royal Standard hangs on the wall behind the thrones, and the Queen's flag on the ceiling. The crown is on the Queen's throne, and the sceptre on that of the king. Crown, sceptre and gilded thrones belong to the later years of Kalakaua's reign. The coat of arms beneath the Kamehameha throne (adopted by Kamehameha III) was from the front gate of the palace enclosure.

FIG. 93. METHOD OF MOUNTING SMALL BIRDS.

In c. 30 are relics of the Kamehamehas and the older Hawaiian Alii. Slop bowls and spittoons inlaid with the teeth and bones of vanquished enemies (Fig. 92); the malo of net work fringed with human teeth, No. 6921, belong to the period of barbaric customs. To this class might properly be added No. 7756, a cannon ball fired by a foreign crew over the house of the missionary at Lahaina because he endeavored to save the natives from the foreigners' licentiousness. No. 5011 is a fan handle of whale ivory and tortoise

FIG. 94. LIBRARY CASES IN UPPER GALLERY.

shell once the property of Kalaniopuu, the Moi of Hawaii at the time of Cook's visit. No. 4764 is a cane used by John Young, Kamehameha's friend, and the grandfather of Queen Emma. No. 5009 is the spit box of the Conqueror, and No. 5010 his medicine bowl of tortoise shell. Here also are his favorite fish hook, No. 1286, and bowls he used when on a fishing cruise, Nos. 1355-57. No. 5029 is the green and blue silk dress made in London in 1824 for the young Queen Kamamalu, who arrived in that city clad in the sufficient but unfashionable garb of her native islands: she did not long survive the infliction. In contrast is the black dress of H. R. H. Ruta Keelikolani. The bible given to "Kemehameha" IV by the American Bible Society in 1856, and the Prayer Book translated into Hawaiian by this same Kamehameha IV, mark a change, as do the very interesting specimens of thread, yarn, cloth, and knitted stockings made in 1835 under the instruction of Miss Lydia Brown of the American Mission. No. 7752, cotton cloth, of which the material was spun, woven and dyed in the factory established by Gov. Kuakini at Kailua, Hawaii, in 1840, "entirely independent of foreign aid or direction," as the old label of the A. B. C. F. M. declares. Several hundred yards were manufactured at this establishment, but foreign cloth was better and cheaper and the work died out. These specimens are, however, striking proofs of the early endeavors of the foreigners to teach the natives useful industries.

The cases on this side of the gallery are assigned to bird groups which shall show the life history of the principal species of the Hawaiian Avifauna, but this is a work of such magnitude that only four of these groups are complete at the present writing, the Pueo or Owl, the Nene or Goose, the Koae or Tropic Bird, and the Auku or Heron. In c. 45 are those birds not peculiar to the group but which have been introduced or are visitors. In the rail case 73 are fifteen cards with carefully prepared specimens to show all the important steps in the process of bird skinning. No. 74 contains the smaller nests and eggs, while the larger nests are in c. 53. Case 54 contains the mounted birds that are not placed in groups. Rail case 75 has a collection of woods from Molokai. Case 55 is devoted to corals and sponges; c. 56 to crustaceans and radiates; c. 57, vertebrates, and cc. 58, 59 to vegetable products. In the latter will be found most of the economic products, such as coffee, rice, arrowroot, cotton, vanilla, pulu and the fibres. Under c. 57 is the collection of Hawaiian land shells arranged by localities. In these and other drawers will be placed the marine shells, and their contents are shown by the labels on each drawer.

On the centre of the gallery rail is a much reduced model of the head of a right whale, and beneath it a bar of whalebone to suggest the natural size. The fine skeleton of a sperm whale (*Physeter macrocephalus*) was captured in the Pacific and prepared by the Messrs Ward of Rochester, N. Y.; it is 55.7 ft. long, and one longitudinal half is covered with a casing to show its form, which is hardly suggested by the skeleton. Hanging from the ceiling beyond this are skeletons of other whales, as *Mesoplodon grayi*, *hectori*, etc.

The upper gallery is at present used for the working Library of the Museum, instruments for investigation, and the storage of duplicates, and is not open to the public.

博物院規矩

一允來遊觀者所持鞭桿洋遮置于門口放遞之所

二允諸員入院先將帽除去如有着日本木屐必置外

三允小孩無大人同來不許入院如小孩將院物毀壞惟大人是問

四不許入院內食煙吐痰不許帶狗入院

五不許帶食物入院祇可于院外食物

一杖ト傘ハ入口ノ置場ニ置クヘシ

室内ニテハ帽ヲトルヘシ

一下駄ハ戸ノ外ニ按クヘシ

一子供ハ大人ニ連レラレテ来ルヘシ子供ガ建築物ヤ陳列品ヲ毀損シタトキハ連レノ大人ガ其責ヲ負フヘシ

一タバコ吸フヘカラス　ツワハクヘカラス　犬ヲ入ルヘカラス

一食物ヲ持ナ入ルヘカラス　食事ハカナラス場外ニ出テナスヘシ

NA RULA HOOMALU O KEIA HALE.

Ke uoi oluolu ia nei i na poe makaikai e waiho i ko lakou mau ukana-kookoo, mamalu a pela'ku, ma ka waihona e pili ana ma ka ipuka. E wehe na keonimana i ko lakou mau papale, anana ohua Iapana e waiho i ko lakou mau kamaa laau ma ka lanai.

Aole ae ia e komo wale mai na pokii ke komo pu ole me ua makua ua lakou e hoomalu a e kiai o pilikia kekahi mea.

Mai puhi baka iloko o ka hale; mai kuha i ka papa hele. Aole i aeia na ilio maloko o keia hale.

Aole ae ia e lawe ia na mea ai iloko o ka hale; ka hooloihi ia ke komo aua o na makaikai he mea pono ia lakou, ke pololi, e puka iwaho e paina ai.

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