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SOME PREHISTORIC AND RECENT STONE IMPLEMENTS FROM NEW GUINEA.

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(Plates viii-xi.)

The implements herein described consist of an interesting collection of prehistoric specimens which includes a number of new types, and a series of implements, also hitherto undescribed types, used by modern natives. All of these pieces are in the collection of the Australian Museum, to whom they were presented by various donors, as stated. To eliminate repetition of the somewhat lengthy localities the following details refer to the majority of the specimens, and the localities are given with those not included below:

Nos. 1-11 (mortars), 14-16 (pestles), 23 (animal figure), 26-29, 32, 40-42 (club-heads) are prehistoric pieces which were unearthed in native gardens in the Iani-Halumgali portion of the southern Wahgi valley. The local natives know nothing about the true origin of these implements and call them *kobiloa* or stones; they believe that they were made by spirits or supernatural agencies, and always wrap them in banana leaves to prevent the women and children seeing them. They were collected and presented by Mr. A. L. Costelloe, District-Officer at Chimbu.

Nos. 13 (mortar), 21-22 (animal figures) are prehistoric pieces found about ten years ago by natives up to a depth of eighty feet in hillsides, after landslides, between Bena Bena and Mt. Hagen. The natives said that these pieces were made by the spirits. They were given to a German named Aufenanger, who was interned, and were subsequently forwarded to the Museum by Mr. Costelloe.

Nos. 24 (abrading stone), 25, 30, 33, 36, 39 (club-heads) were found in native gardens between Bena Bena and Mt. Hagen. They were not used by the local natives, who regarded them simply as stones. Mr. Costelloe has informed me that similar types of club-heads are in use along the Tauri River and could have reached the Wahgi valley by trade, so that it is uncertain whether this series is prehistoric. This series was also in the possession of Aufenanger and was forwarded to the Museum by Mr. Costelloe.

Nos. 31 and 34 (club-heads) are from the Iani-Halumgali portion of the southern Wahgi valley. They were collected and presented by Captain N. B. Blood.

Nos. 35 and 37 (club-heads) were collected in the Mt. Hagen district, Wahgi valley, by Mr. J. L. Taylor, District-Officer, and both are prehistoric pieces found in native gardens.

A. MORTARS.

1.—E.52454. Circular, grey sandstone with weathered pecked surface, irregular convex base, and eleven convex bosses on the outside. It is 25 cm. in diameter, 10 cm. thick, and has a small hollowed basin 12 cm. in diameter and 4 cm. deep.

2.—E.52455. Oval, grey andesite, pecked surface, well shaped, with ridged lip cracked in seven places, and with eight convex bosses; it is 22 × 20 cm., 11.6 cm. thick, and has a large basin 13.5 × 14 cm. and 4.5 cm. deep, used in modern times for pounding and mixing a pink ochre.

3 to 8.—This series consists of six small, high mortars, each standing on a flanged base:

3.—E.52449 (Plate xi, fig. 26). Oval, grey andesite, weathered surface, rounded lip, and a rounded ridge just above the base; it is 13 cm. high, 12.5×11.5 cm. at the top, with a basin 5 cm. deep and a base 10×8.5 cm.

4.—E.52450. Circular, sandstone, very weathered surface, ridged lip, a row of very small elongate bosses discernible on one side only and the remainder weathered away, and an irregular circular base 10 cm. in diameter. It is 11.5 cm. high, 14 cm. in diameter at the top, with a basin 6.5 cm. deep.

5.—E.52451 (Plate xi, fig. 28). The finest and best preserved example in the series. The top is oval but wider at one end than the other; it is made of grey andesite, and has a ridged lip, a row of small rectangular and convex bosses separated from the lip by a groove, from which the outside surface slopes diagonally to the flat flanged base 12 cm. in diameter. Its general shape is asymmetrical and the surface is polished over the pecking. It is 13 cm. high, 20×18 cm. at the top, with a basin 16.5×15 cm. and 6 cm. deep. Right around the inside of the basin is a branching line pattern (like a plant), incised in fine lines. The end of each stem terminates in a circular groove.

6.—E.52452. Circular, very weathered pecked surface the yellowish colour of which appears to be due to the deposit in which it lay for a long period. It has a row of medium-sized horn-like bosses all but one of which are broken and worn away, and below them the outside surface is flat, deeply concave, and then slightly convex where it joins the flat base which is 12.5 cm. in diameter. It is 10.5 cm. high, 19 cm. in diameter, with a basin 12 cm. in diameter and 5 cm. deep.

7.—E.52453. Semi-circular, being half of the specimen only, with pecked surface, a ridged lip separated by a groove from a row of rectangular, flat-topped bosses, convex outside, flat pecked area on the bottom 9 cm. in diameter. It is 8 cm. high and 13.5 cm. in diameter.

8.—E.52493 (Plate xi, fig. 27). The smallest example in the series, neatly shaped, oval, and the lip bears unevenly spaced cuts and flake-scars; on the outside is a groove 3 cm. below the lip, then a flat surface defined on its lower edge by a row of small rectangular flat and convex bosses of varying sizes, beneath which is a concave surface which joins the oval base 7×6 cm. There are three flake-scars on the edge of the base. It is 6.5 cm. high, 9.8×8.8 cm. on the top, with a basin 6.5×5.5 cm. and 4 cm. deep. It is a dark-brown sandstone.

9.—E.52457 (Plate viii, fig. 2). A unique specimen bearing a carved head at one end. It is oval in shape, with a polished surface previously pecked. The thin flat-topped lip, cracked in several places, is separated by a groove from a row of rectangular and convex bosses 2×1.5 cm., and the outside surface is convex. On the corner of one end is a carved head, 7 cm. high, 6 cm. wide, projecting 5 cm. The mortar is 9 cm. high, 23×18 cm. on the top, with a basin 16×14.5 cm., and 4.5 cm. deep. The carved head has a flat triangular surface on the back, from which a ridged beak curves outward and then inward to the middle of the mouth; each side of the mouth is a pointed oval depression extending at an angle of forty-five degrees from the flat lip for 3 cm. There is a rounded ridge along each side of the beak and a small pecked rounded boss represents each eye. All of the concave portions of this face are pecked, but the high relief portions are polished over the pecking. It is difficult to identify the creature represented; the mouth is typical of those seen on some modern wood-carvings of the human face, but the head in general form resembles a parrot or cockatoo. The mortar, as a whole, could quite well represent a tortoise. Naturalistic forms previously recorded among these mortars and pestles include birds, the possum, the lizard, a woman and a human head.

10.—E.52456 (Plate viii, fig. 3). Semi-circular half of an oval mortar, with a pecked surface, and a ridged lip separated by a groove from a row of seven and a half pointed and well-shaped horn-like bosses. The base is a flat polished surface. It is 8.3 cm. high, 23 × 10.7 cm. on the top, with a basin 13.8 × 6.5 cm. and 5.4 cm. deep. This is a very well shaped specimen.

11.—E.52457 (Plate viii, fig. 4). An oval bowl, the shallowest example in our collection, with a ridged and sharp-edged lip bearing a row of twenty-seven small triangular bosses, 28.2 cm. wide and 7 cm. thick. The basin is 24.5 cm. wide and has been worn right through by an abrading process. The slightly convex bottom is polished, and its margin is only 3.5 cm. from the periphery of the bowl. The surface is pecked elsewhere. The shape of this piece suggests that it is only about one-third of the complete bowl, and it resembles the large mill-stone type recorded by Etheridge from New Hebrides (Etheridge, *Rec. Aust. Museum*, xi, 1917, Pls. xxxii-xxxvii).

12.—E.49882 (Plate viii, fig. 1). A large irregular oval boulder of grey andesite, with a natural hollow at one end. Its surface is pecked, and it is 35 cm. long, 29 cm. wide, 20 cm. thick, with a small basin 20 cm. in diameter and 5 cm. deep. The ridged lip is separated by a groove from a row of large, low and flat bosses which narrow in width above the hollow at one end. At the other end is a human (?) face design, with large round eyes separated by a triangular flat surface on which is a vertical groove between the eyes. On each side of the latter a diagonal and curving groove runs upwards to form an encircling groove just below the lip of the mortar. On one side of the mortar the grooves around the bosses join this upper encircling groove, but on the other side are two large bosses, with a short vertical groove between them, completely encircled by their own grooves. This mortar was dredged from an alluvial layer, at a depth of between twenty and twenty-five feet, at the lower end of the Bulolo valley, and Dr. C. E. M. Gunther, who presented it to the Museum, informed me that geologists working in the valley dated the deposit at between four and five thousand years old, an age which can be correlated with that of the pecking technique in the early Neolithic period.

13.—E.52065 (Plate x, fig. 16). A circular, well-shaped mortar of small size, made of grey sandstone painted black, with a flat-lipped basin 6 cm. in diameter and 5 cm. deep. The outside surface is convex. It is 11 cm. in diameter and 7.5 cm. high. The grooved design consists of a seven-pointed star on the flat lip, with a straight line at right angles between two of the points, and on the outside surface are two rows of these points and a wavy line separated by three other grooves.

Nos. 1 to 12 possess some interesting features in common. The material is andesite in the majority, of both fine and coarse texture (in which large crystals of augite and hornblende are prominent), but sandstone and tuffs are also represented. The outside surface is convex on most mortars, but it may be straight or concave, or a combination of these shapes. The basin may be small in comparison to the dimensions of the top of the mortar, or it may occupy almost the whole area, and its surface is either pecked or rubbed smooth by an abrading process. There is usually a ridged lip separated from the row of bosses below it by a broad groove or concave surface. The bosses vary from small rectangular convex-topped shapes (like those on the knobbed club-heads) to large flat or slightly convex forms. The above characteristics form part of the technique of making these mortars, and their recognition should make it possible to establish a relationship should they be found on similar objects in south-east Asia, Indonesia, Micronesia or elsewhere in Oceania. The evidence from the Bulolo valley and the importance of the pecking technique in this culture indicate that these implements were in use from the early to the middle portions of the Neolithic period, up to about five thousand years ago.

B. PESTLES.

14 to 15.—E.52459-60 (Plate x, fig. 18). Two rounded but elongate heads of pestles, one 8.5 cm. long and 5 cm. in diameter, the other 8.5 cm. long and 7.5×5.5 cm. on its head. One of them bears two series of branching lines incised beside one another, on both flattened sides, and they terminate in a thin incised line which runs up two sides and across the top, whilst at the bottom they terminate in an encircling groove around the shaft. There is also a band of red ochre on the head. The top of the latter is slightly battered and it might be the pestle belonging to the mortar (No. 5, E.52451) bearing similar decoration.

16.—E.53461. A dark-brown pestle end, 6 cm. long, with a rounded shaft, broken off abruptly, 2.25 cm. in diameter, on which is a ridged band, whilst the end is a concave cup 4.75×4.5 cm. and 11 mm. deep. This pestle is polished on all surfaces.

17.—E.36375 (Plate ix, fig. 9). Cylindrical in shape, increasing in diameter from the butt end, which is 2 cm., to the head, which is 6.5 cm. The head is demarcated by an encircling ridge 12 cm. from the distal end, and the latter is rounded by use. The light grey surface is pecked. It is made of black basalt, and the broken surfaces show a band of weathering up to 4 mm. deep. This pestle is from Papua, being numbered 777 in the Papuan Official Collection, but the precise locality is not available. It is the longest pestle known to the writer, being 52 cm. in length.

C. BARK-CLOTH BEATERS.

18.—E.49883 (Plate ix, fig. 7). This bark-cloth beater was obtained by Dr. C. E. M. Gunther from the same deposit of alluvial gravels as the mortar No. 12, E.49882, but at the upper end of the Bulolo valley. It is black slaty stone, fine grained, flattened oval in transverse section, with a pecked and eroded surface which is slightly polished on the grip. In thickness and width it tapers from the head end, which is 5.5×4 cm., to the grip. It has a panel, 18×4 cm., of irregular sized, polished and slightly raised faces on one lateral surface of the head, formed by a series of right-angled grooves, of which there are eight transverse and thirty-five longitudinal ones; the ends of these grooves project at the sides and ends of the panel. The distal end of the head is broken abruptly. The specimen is 35 cm. long.

19.—E.18282 (Plate ix, fig. 8). A second specimen in our collection was obtained in the Huon Gulf by E. Schmidt, from whom it was purchased. It is a well-made example, being polished over a previously pecked surface, but is similar in all other respects to No. 18. The head is rounded at the end and is 5.5×3.5 cm., whilst the total length is 36 cm. Whether this is an archaeological specimen used by the Huon Gulf natives is not known, but the type has a wide distribution among living natives, including D'Entrecasteaux Island (Schmeltz, J. D. E., *Intern. Arch. f. Ethnol.*, I, 1888, p. 233, figure), Mafulu tribes in the Central Division of Papua (Williamson, R. W., *The Mafulu*, pp. 201-3, pl. 51, fig. 3), the Kambisa tribe in the Chirima valley, Northern Division, Papua (Monckton, C. A. W., *Ann. Rept. Brit. New Guinea*, 1905-6, figures), and elsewhere. The type is similar also to the knobbed club-heads figured by Haddon (*Jour. Roy. Anthr. Inst. Gt. Brit. Irel.*, N.S., III, 1900, Nos. 64 and 82).

20.—E.52440 (Plate x, fig. 20). A cylindrical implement, rounded at both ends, on which it is hammered to a flat face. There is a panel, 12.8×5 cm. on one side, enclosing fourteen longitudinal ridges, and at the ends are transverse grooves forming a series of rectangles which are not raised. The surface is pecked and weathered, and the specimen is 25 cm. long and 5.5 cm. in diameter. The Rev. Scanland, who presented it to the Australian Museum, dug it out of a prehistoric mound on San Cristoval, Solomon Islands. A similar specimen is in the collection of Mr. H. R. Balfour, of Melbourne, who obtained it from the late W. H. Gill, unfortunately without locality. It has a series of short diagonal and parallel grooves at one end of the panel of ridges. The similarity of the New Guinea and Solomon specimens indicates that both had the same function.

D. ANIMAL FIGURES.

21.—E.52063 (Plate x, fig. 15). A bird resembling a pigeon, $10 \times 10 \times 4$ cm. It is carved in a series of planes, with a long rounded and pointed head, rounded neck, a marked concavity on the breast between the wings, and two concave wings pushed forward in front of the breast and joined in a central ridge on the back; they thus merge into three planes to form a rounded tail end. The lower surface of the body is flat, and the bird is posed on a short cylindrical post, flat on the bottom. The surface is smoothed, but pecked, and is weathered to a pale-green colour.

22.—E.52064 (Plate x, fig. 14). A small polished head in a black igneous stone, broken off abruptly at the lower end of the neck. The latter is 3×2 cm., lenticular in section, and merges into a long curved and rounded head, 6.5 cm. long, ending in a pointed snout. The eyes have a hollow middle and high rim. This head is not unlike that of an echidna or possum.

23.—E.52462 (Plate x, fig. 17). Made of a dark igneous stone weathered 1 cm. inwards to a yellowish colour. The rounded shaft, 5 cm. in diameter, is broken transversely, and it joins a semi-circular flange, the front edges of which project forwards like a bird's wings. In the middle of the shaft, on the opposite side, is a low rounded boss, and on top of the flange is a projection (also broken off abruptly) which was probably a bird's neck and head. The specimen is 6.5 cm. high and the flange or wings are 9 cm. wide.

E. ABRADING STONE.

24.—E.52070 (Plate x, fig. 19). An elongate pecked implement, $15 \times 5 \times 3$ cm. The upper and lower surfaces are flattened and the ends and sides are rounded. There is a deep encircling groove 1 cm. wide and 3 cm. from one end, and a similar groove at the other end has been cut half-way around only. On the upper surface are two parallel grooves 6.5 cm. long and 8 mm. wide, straight at one end and narrowed to a point at the other end, and a third one 1.5 cm. wide on one side which joins one of the encircling grooves; these three grooves bear narrow cuts and ridges, obviously produced by a pointed object, such as a bone-point or a fire-stick. It is the only specimen of its type known to me from New Guinea.

F. CLUB-HEADS.

Ring Type.

25.—E.52067 (Plate x, fig. 20). A small circular example 6 cm. in diameter, with rounded marginal face, a wide bevel on the upper and lower surfaces extending from the hole almost to the periphery. The surface has been polished over pecking. It is very light in weight, apparently due to the weathering of the interior.

26-27.—E.52463-64 (Plate ix, fig. 11). These two large discoids are slightly irregular in shape. They are made of a grey andesite and a blackish gabbro, respectively, and their surfaces are pecked. E.52463 has one margin turned upward and the opposite flat, and it has a high ridged lip, 3 cm. in diameter, around the central perforation, which has not been made right through, although worked from both sides. E.52464 has a low ridged lip around its completed hole, 4.5 cm. in diameter. They are $22.5 \times 20 \times 7$ and $21 \times 19 \times 4.5$ cm., the thicknesses being measured through the lip.

Blade Type.

28-31.—Four elongate, slightly crescentic blades, with flat or slightly convex upper and lower surfaces, rounded sides concave between the hole and the flanged blade, and straight from the hole to the butt. The hole is closer to the butt than the blade, and has been hollowed by pecking through three-quarters of the thickness from one side and one-quarter from the other. The lateral margins bulge outwards on each

side of the hole. The flattened butt has been used as a hammer on the three complete specimens. E.52468 is an unfinished specimen pecked all over, with unground blade, 28 cm. long, 8.5 cm. wide across the flanged blade, and 4.5 cm. thick. E.52469 is also pecked all over, is slightly larger than E.52468, and has a ground blade, a hole 4 cm. in diameter, and its butt is broken transversely to leave half of a deep oval depression on the upper and lower surfaces. E.52066 is polished all over, 16 cm. long, 5.5 cm. wide across the flanged blade, with a hole 3.5 cm. in diameter. E.52533 (Plate ix, fig. 6) is a slim and beautifully polished example, markedly crescentic in shape, 26 cm. long, 6 cm. wide across the flanged blade, and has a series of small flake-scars along the edge of its battered butt.

32.—E.52467 (Plate ix, fig. 10). A broad flat blade, light grey in colour, $17 \times 10.5 \times 2$ cm. in size, polished on both sides, central hole 3.5 cm. in diameter, blade edge in the middle axis, butt hammered flat.

Knobbed Type.

33.—E.52068 (Plate x, fig. 22). An almost circular polished specimen, $9.5 \times 8.5 \times 2$ cm., central hole 2.5 cm. and ridged lip 4 cm. in diameter. It is decorated on the upper surface with radiating cuts beginning at a small puncture near the lip, forming a series of rectangular and flat panels, below the ends of which is a deep encircling groove on the margin. The lower surface is smooth and flat.

34.—E.52334 (Plate x, fig. 25). A circular example, polished over pecking, made of a blackish igneous stone, 11.5 cm. in diameter, 1.5 cm. thick, hole 2 cm. in diameter with a high ridged lip, below which, on the upper and lower surfaces, are twenty-two convex ridges of different widths separated by deep grooves; the ends of the ridges form two rows of knobs separated by a deep encircling groove on the marginal face.

35.—E.37059 (Plate x, fig. 24). A crude example 10 cm. in diameter, lenticular in transverse section, and 3.5 cm. in greatest thickness. From the single row of marginal knobs the upper and lower surfaces slope upwards to a high ridged lip around the hole 2.5 cm. in diameter. Attached to this club-head on a two-ply cord is a pyriform lump of stone, unworked, 4.5 cm. long. Both pieces have a ruddled surface.

36.—E.52067. Similar to E.37059, with only five complete knobs remaining, 8.5 cm. in diameter, hole 2 cm. with high ridged lip 1 cm. wider.

37.—E.37060 (Plate x, fig. 21). A fine example 9.5 cm. in diameter and 6 cm. thick, with two rows of conical but thick-ended knobs 2 cm. long in eight well-spaced pairs vertically arranged. The hole is 2 cm. and the high ridged lip 4.5 cm. in diameter. Some of the knobs are worn down by weathering.

38.—E.52466. Similar to No. 37, with two rows of eight knobs 5 mm. long. It is a weathered example 6 cm. in diameter, 4.8 cm. in thickness, with a hole 1.5 cm. and lip 3.5 cm. in diameter.

39.—E.52069. The two rows of knobs are arranged so that each one of the upper row of eleven lies between two of the lower row. A band of pink ochre is painted on the outside of the ridged lip.

40.—E.52465 (Plate x, fig. 23). A damaged specimen 8 cm. in diameter and 4.5 cm. thick, with two rows of rounded knobs 1.5 cm. long, the top series lying interspaced between the lower series, and some of the knobs project upwards. The hole is 1.8 cm. in diameter and the smooth lip is not ridged. It is painted pink on the outside of the hole, and there are four alternate bands of pink and white across the knobs.

Star Type.

41.—E.52471 (Plate ix, fig. 13). A three-pointed star made of coarse green gabbro. Two of the rays are broken off at the base and the other complete one is 11 cm. long. The hole is 3.5 cm. in diameter and has been hollowed obliquely, principally from one surface.

Triangular Type.

42.—E.52470 (Plate ix, fig. 12). A thick club-head, with the end slightly shorter than the two sides; the marginal faces are convex, and the hole, 4.5 cm. in diameter, has been pecked through half-way from each surface. The latter are polished over pecking. It is 16.5 × 13.5 × 6.5 cm.

G. HAFTED CLUBS.

The following seven club-heads are types not represented in Haddon's classification of New Guinea stone club-heads (*Jour. Roy. Anthrop. Inst. Gt. Br. Irel.*, N.S., iii, 1900, pp. 221-50, pls. xix-xxiii).

Globular Type.

43.—A.15363 (Plate xi, fig. 31). A poorly made club-head, in a green fine-grained stone, 6.5 cm. in diameter and 8 cm. thick, with a hole 2.25 cm. and lip 3.5 cm. in diameter. It is cylindrical in shape, each end being a flat lip, and in the middle is a broad convex ridge bearing one and a half flat lozenges grooved along each side, but the other two and a half are not properly formed. Its surface is polished over pecking. The handle is 120 cm. long, fitted with a narrow band of plaited cane to hold the stone head in position, and decorated with a bunch of feathers at the top. Koiari tribe, Port Moresby, Papua.

Knobbed Type.

44.—A.15343 (Plate xi, fig. 30). A dark igneous club-head with pecked surface, 8 cm. in diameter, 5 cm. thick, with a hole 2.25 cm. and lip 4.5 cm. in diameter. The lip at both ends of this cylindrical shaped piece has a row of eight rounded knobs, oval in shape, and there is a central row of seven pairs of oval knobs. The handle is 67 cm. long, and the stone head is simply jammed downwards to hold it securely. Koiari tribe, Port Moresby, Papua.

45.—E.44036 (Plate xi, fig. 35). A most unusual example made of a brown fine-grained stone, 12 cm. long, 9.5 cm. wide and 7 cm. thick, with a hole 2 cm. and lip (without ridge) 3.8 cm. in diameter. At the end of each side is an oval sharp-edged bifurcated knob separated by a convex bifurcated ridge in the middle, arranged so that it is symmetrical when viewed from any angle. It is pecked in the grooved surfaces and polished over the pecking on the flat and projecting faces. The handle is 120 cm. long, and the stone head is held in position by a ridge on the handle. Collected by Stewart Campbell at Sinum, Upper Fly River, Papua.

46.—E.27781 (Plate xi, fig. 32). A polished dark igneous club-head 10 cm. in diameter, 5 cm. thick, with a hole 2.25 cm. and lip (without ridge) 3 cm. in diameter. It has two rows of convex projections bifurcated in the middle to produce two rows of knobs. Pieces are broken off inside many of the bifurcations as a result of use. The handle is 67 cm. long and the stone head is held in position by the cone-shaped end of the shaft. Collected at the entrance to Lake Murray, Fly River, by A. R. McCulloch and Captain F. Hurley.

47.—E.27429 (Plate xi, fig. 29). A pecked grey andesite club-head 13 cm. in diameter and 3 cm. thick, with a hole 3 cm. and lip (without ridge) 4 cm. in diameter. It has on its upper and lower surfaces twenty-nine radiating ridges, each ending in a pointed knob, in vertical pairs separated by a groove on the marginal face. The handle is 87 cm. long and is fitted with a wide band of plaited cane above and below the stone head to hold it in position, and it is further secured with a narrow bamboo wedge driven down the shaft inside the upper plaited band. Collected at Kaimari, Gulf of Papua, by A. R. McCulloch.

48.—E.19 (Plate xi, fig. 33). A polished dark igneous club-head 11 cm. in diameter, 2.8 cm. thick, with a hole 2.5 cm. and low ridged lip 3.5 cm. in diameter. It has a

single row of seven large rounded points, and its surface is polished over pecking. The bamboo handle is 66 cm. long, and a bamboo wedge has been driven into its end to secure the stone head. A narrow plaited shoulder strap is attached to the shaft. Fly River, western Papua.

49.—A.15563 (Plate xi, fig. 34). A polished grey andesite club-head 12 cm. long, 6 cm. thick, with a hole 2 cm. and high ridged lip 3.5 cm. in diameter. It has three long points, lozenge-shaped in transverse section, one pair being 4 cm. long and the other one 5 cm. long, each separated by a pair of small rounded knobs one above the other. The handle is 68 cm. long and has a narrow plaited band of cane above and below the stone head to hold it in position. Koiari tribe, Port Moresby, Papua.

Remarks.—The majority of the stone club-heads are featured by a ridged lip similar to that on the mortars. The hole may be hollowed half-way through from each side, or three-quarters from one side and one-quarter from the other; in the latter examples it is sometimes at an oblique angle. A study of the methods of fixation of the head on the shaft should make possible a more accurate determination of the large number of specimens in museums marked "New Guinea". It is important, also, to establish the variety of prehistoric types of club-heads for comparison with the modern types as a means of providing more accurate data for comparisons of prehistoric cultures from south-east Asia and Oceania.

The introduction of the pecking technique was an important event in the history of stone working in Oceania. It enabled man to fashion a piece of stone into almost any shape he desired, and particularly to produce rounded surfaces. Thus we find as this early Neolithic technique spread into Oceania there took place a remarkable development in the production of well-shaped mortars and pestles, animal and human figures, club-heads and other objects of which the collection herein described is typical. Throughout Indonesia, Melanesia and Polynesia a great variety of pecked stone objects and implements have been recorded, and in Australia the technique was applied to a wide range of implements. The prehistoric implements described (Nos. 1-42) show clearly that pecking preceded polishing in the chronology of stone-working techniques.

EXPLANATION OF PLATES VIII-XI.

Plate viii.

- 1.—Prehistoric mortar dredged up amongst alluvial gravels at the lower end of the Bulolo Valley.
- 2-4.—Prehistoric mortars from the Iani-Halumgali portion of the Wahgi Valley, Central New Guinea.

Plate ix.

- 5.—"Bark-cloth beater" found in a prehistoric mound on San Cristoval, Solomon Islands.
- 6.—Club-head from the Iani-Halumgali portion of the Wahgi Valley, Central New Guinea.
- 7.—Implement dredged up amongst alluvial gravels at the upper end of the Bulolo Valley. Type used by modern natives as a "bark-cloth beater".
- 8.—Bark-cloth beater, Huon Gulf.
- 9.—Prehistoric pestle from Papua.
- 10-13.—Prehistoric club-heads from the Iani-Halumgali portion of the Wahgi Valley, Central New Guinea.

Plate x.

- 14.—Head of a mammal or bird found in a hillside, after a landslide, between Bena Bena and Mt. Hagen.
- 15.—Figure of a pigeon found in a hillside, after a landslide, between Bena Bena and Mt. Hagen.
- 16.—Small mortar found in a hillside, after a landslide, between Bena Bena and Mt. Hagen.
- 17.—Ventral view of prehistoric figure of a bird from the Iani-Halumgali portion of the Wahgi Valley, Central New Guinea.
- 18.—Head of a prehistoric pestle from the Iani-Halumgali portion of the Wahgi Valley, Central New Guinea.

- 19.—Abrading stone found in a hillside, after a landslide, between Bena Bena and Mt. Hagen.
- 25.—Club-head from the Iani-Halungali portion of the Wahgi Valley, Central New Guinea.
- 23.—Prehistoric club-head from the Iani-Halungali portion of Wahgi Valley, Central New Guinea.
- 24.—Prehistoric club-head from Mt. Hagen, with lump of stone attached.
- 25.—Club-head from the Iani-Halungali portion of the Wahgi Valley, Central New Guinea.

Plate xi.

- 26-28.—Prehistoric mortars from the Iani-Halungali portion of the Wahgi Valley, Central New Guinea.
- 29-35.—Stone-headed clubs used by modern New Guinea natives. This series of head types is not represented in Haddon's classification of these implements.

Photos—Howard Hughes.







