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THE BONE POINT, KNOWN AS *MUDUK*, IN EASTERN AUSTRALIA.

By

FREDERICK D. MCCARTHY,
The Australian Museum, Sydney.

(Plate xxxiii and Figures 1-2.)

For some years the *muduk* has been collected on kitchen-middens along the coast of New South Wales and Victoria; examples were found by Harper (1) in a cave deposit which he dug out at Port Hacking in 1899, and the excavation of the Devon Downs cave on the Lower Murray River yielded them in the Mudukian layers especially (2, p. 189-190, figs. 111-7, 153, 155-6, 125-6). A great deal of reliable evidence indicates that the principal use of the *muduk* was as a dual spear point and barb, but it has not been recognized; consequently, on the basis of one record from the Geelong district, Victoria, (12, p. 391), it is generally termed a fish-gorge. In this paper a review of the data is given, together with descriptions of spear prongs bearing *muduk* kindly presented to the Australian Museum by Mr. Ivor Jones, and of other specimens now available.

Records in Literature.

In 1770 Captain Cook (3) observed that some natives he saw at Botany Bay were all armed with "darts", which had four prongs pointed with fish bones and stingray spines; these were used more for striking fish than as offensive weapons. He noted also that these natives formed kitchen-middens, because he saw them gathering oysters, mussels, cockles, etc., on the mud banks, and saw mussels broiling on the fires at their camps.

In 1789 Captain Phillip (4) said that the natives of Botany Bay more frequently point their grass-tree spears with bone than by sharpening the point of the stem. In 1790 White (5) figured a four-pronged fish-spear from the neighbourhood of Port Jackson, and said that each of the prongs is terminated by the tooth of a fish stuck on by a lump of gum cement. In 1793 Captain Hunter (6) described fish-spears in Port Jackson as having 1, 2, 3, or 4 prongs, pointed and barbed with a fish, or animal's, bone, and Captain Tench (7) said they were barbed with the bone of kangaroos.

In 1798 Collins (8) said that the "natives on the sea-coast (from Botany Bay to Broken Bay) procure fish with the fiz-gig, which is made of wattle, and has a joint in it fastened by gum. It is from 15 to 20 feet in length, and armed with four barbed prongs, the barb being a piece of bone fastened by gum."

In 1816 Péron (9) figured a four-pronged fish-spear from Port Jackson. In 1843 Backhouse (10) recorded that he met a party of natives at the foot of Cambewarra Mountains who were carrying multi-pronged spears. In 1845 Hodgkinson (11) figured a native using a three-pronged fish-spear on the Bellingen

River. The point and barb on some of these spears were probably of the *muduk* type.

In 1878 Brough Smyth (12, p. 306) recorded "two forms of spear. In fig. 77 the head and barb are formed wholly of bone, which is firmly attached to the shaft of wood by sinews and gum. In Fig. 78 the head and shaft are of wood, and the barb is a piece of bone, which is fixed by sinews and gum to the side. These are used principally for spearing fish. Dr. Gummow, of Swan Hill, states that these are used also in war. The spike of bone is called *Kulkie*, the barb *Tilloo*."

Brough Smyth (12, p. 391) also stated that: "Mr. A. J. Panton says that the natives of the Geelong district used in former times, for catching bream, a piece of hardwood or bone sharpened at both ends and attached to the line by a hitch-knot (fig. 227). This cannot be called a hook. It was baited, however, and when seized by the fish and the line strained, the bone stuck in the jaws."

In 1879 the Rev. G. Taplin (13) said that the Narrinyeri of the Lower Murray-Coorong area in South Australia catch fish with the three-pronged fishing spear, which is a slender pole about 14 feet long, with three points of sharp bone lashed to its top with twine. Every native carried one in his canoe,

In 1893 Palmer (14) remarks that on the New South Wales coast probably the greatest quantity of fish was obtained by the use of the muttock or three- or four-pointed fish-spear.

In 1893 Mann (15) described the method of making a multi-pronged fish-spear, as follows: A grass-tree shaft was preferred, though the stem of the gigantic lily was used. Two splits were made at one end of the shaft, at right angles, and the pith extracted to the depth of three or four inches. This end is then bound round with ribbon-like strips of bark, obtained from a small shrub or from the kurrajong tree. This aperture was then filled with grass-tree gum, and the four prongs, each slightly tapered at the end, were inserted into it, and the gum which was forced out was spread over the joints. The prongs were from 15 to 18 inches long, scraped to a fine point, and barbed by means of a small splinter of bone fastened to the end. The four points of this spear form a square about one inch or more apart, and are kept in position by small wedges passed between the prongs and fastened by bands of ribbon bark. The pitch from the other end of the spear is extracted to the depth of about an inch, the end is bound with twine, and the whole stopped with the fine scrapings of hardwood, which serves as a pad for the hook of the 'wammerah', or throwing-stick, to press against. Other grass-tree spears are made in a similar manner, but with only one prong."

From 1901 to 1909 Roth described the manufacture and use of multi-pronged fish-spears, with the *muduk* forming point and barb, in Cape York on the Palmer River (16), and at Princess Charlotte Bay (17, sect. 68, figs. 255-6), and the four-pronged type at Princess Charlotte Bay, Cape Bedford, Bloomfield and Middle Palmer Rivers (18, pp. 192-4, pl. lviii, fig. 7). He stated in 1909 (18, p. 194) that on the Pennefather River the type was an introduction of but comparatively recent years. He mentions the use of the *muduk* on harpoons on the Batavia River (17, figs. 238-43, sect. 66), and on fighting spears with single points on the Pennefather River (18, p. 191). These *muduk* vary from 3-30 cm. in length (Pl. xxxiii, fig. 5).

In 1904 Petrie (19) says of the Turrbal tribe of the Brisbane district that "the sharp barb from the butt of a stingaree's tail might be used for the point of a spear. It was fastened on with bees' wax and string."

In 1930 Hale and Tindale (2, p. 205) stated that "the implements recovered seem to indicate that the people of Murundian horizons were the last at Devon Downs (rock-shelter on the Lower Murray River) to extensively utilize bone implements; most of the examples are smaller than those in Pirrian and earlier layers. The *muduk*, or supposed fishing-bone, the most characteristic of these bone artefacts, apparently was not used by Murundian people. . . . In the accompanying drawing (fig. 242) a line is shown attached to one of the *muduk* from Devon Downs in the manner illustrated by Brough Smyth; it is worthy of note that slight grooves are present on the edges of the bone where encircled by the string (compare figs. 111, 153, and 242, all illustrations of the same specimen)." And (2, p. 189) that "double-pointed fusiform artefacts, made from split bone, and scraped and highly polished at both ends . . . are similar to the type said to have been used for fishing [12, p. 391]; as their name is unknown, the Murundian word for bone, '*muduk*', is here adopted for them". Double-pointed *muduk* were found in layers III (Murundian) (2, p. 181, fig. 154), VI (Mudukian) (2, p. 189, figs. 111-17, 153, 155), and VII (Mudukian) (2, p. 190, figs. 125-6, 156).

Descriptions of Specimens.

There are four spears from "New South Wales" in the collection of the National Museum of Victoria, of which Mr. D. A. Casey, Honorary Archaeologist, has kindly supplied me with the following details.

No. 1057 (Plate xxxiii, fig 1): hardwood (reddish-brown), with short reed-shaft or butt, and 2.62 metres long. A bone *muduk* is mounted as dual point and barb; it is bound on with vegetable fibre covered with gum. This binding encircles both the spear and the *muduk*, and towards the barb end is done in a figure-of-eight. Gum is smeared for 46 cm. from the point down the shaft of the spear-head, and there is a concavity on the butt for a spear-thrower peg.

No. 1058 is 2.62 metres long, No. 1725 (Plate xxxiii, fig. 2) is 2.41 metres, and No. 1727 (Plate xxxiii, fig. 3) is 2.39 metres. There is no gum on the heads of Nos. 1058 and 1727.

The *muduk* on these four spears have been ground all over to a smooth surface, are flattened-oval in section, and pointed at each end. The flatter surface on each one is set against the spear-head.

The locality given is New South Wales. They were purchased from H. F. Richardson, and came from the estate of the late A. H. Smith, of Batesford, Victoria, on 7 May, 1888.

In the Australian Museum collection there is a spear (B.8461, Plate xxxiii, fig. 4) made of a reddish-brown hardwood, 1.64 metres long, 2.5 cm. thick, one-piece with acicular ends; a bone *muduk* mounted as a barb projects 5.3 cm. from a binding which is overlaid with gum. The *muduk* is 6 mm. thick, flat on the side facing the spear-shaft, and rounded on the outer surface. Locality: Lower Darling River, N. S. Wales. Collected by K. H. Bennett in 1885.

In 1938 Mr. Ivor Jones kindly presented to the Australian Museum a number of prongs of fish-spears which he had found in a crevice in a cave near Lake Wonboyn, on the south coast of New South Wales. Details of these prongs are as follows:

- (a) (Plate xxxiii, fig. 10): 9 spatulate prongs, from 9.5 to 31 cm. long (E.43496-502, E.43504).

- (b) (Plate xxxiii, fig. 9): 2 spatulate prongs, bound together with thin strips of bark up to 7 mm. wide; they are 26 and 27 cm. long (E.43503).
- (c) (Plate xxxiii, fig. 8): 10 pointed prongs, from 14.5 to 26.5 cm. long (E.43486-95).
- (d) 3 pointed prongs, each bearing a bone point bound on with vegetable fibre so as to form a point. E.43483 is 24.5 cm. long and has an unworked bone splinter 4 cm. long pointed at the free end; E.43485 is 15 cm. long, and has an unworked bone splinter (the point is missing) 1.5 cm. long; E.43484 (Plate xxxiii, fig. 7) is 26 cm. long, and has a bone splinter 2.5 cm. long which has been ground on both sides at one end to form a point, the other end is blunt and enclosed in the binding.

In 1938 it was ascertained that Mr. J. Ashley, of Rockdale, Sydney, had in his possession the head of a three-pronged fish-spear from Wallaga Lake (Plate xxxiii, fig. 6), on the south coast of New South Wales, and he kindly made it available for description. The prongs are bound on to the short piece of shaft with dark fibre, and this binding is 17.5 cm. long; the prongs project 44 cm. The binding is covered with gum, and its surface is red-ochred. 2.5 cm. above the binding gum has been smeared for 13.5 cm. along the shaft of each prong. A double-pointed bone *muduk* is mounted on each prong; each of these *muduk* is set in gum in a groove cut into the end of the prong, and bound with thin strips of grass, so that it forms a dual point and barb. Two of the *muduk* are 7 cm. long, and one is 7.5 cm. All are 4 mm. wide and from 1.5 to 2 mm. thick.

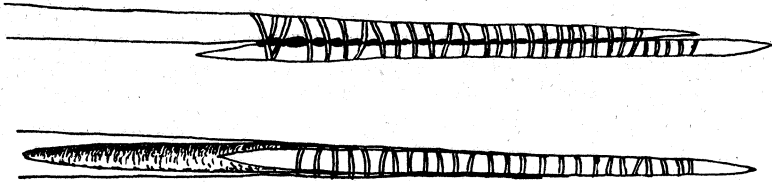


Fig. 1.—Attachment of *muduk* to multi-pronged spear from Wallaga Lake.

The single-pointed spears in the National Museum of Victoria, the Lower Darling River specimen, and the three-pronged spear from Wallaga Lake agree in all respects with those from Cape York described by Roth, and those from the coast of south-east Australia described by early writers.

The *muduk* named by Hale and Tindale is the double-pointed form thought to be a fish-gorge, but the evidence given above proves that it is also a dual spear point and barb. Further, the spear prongs from Lake Wonboyn indicate that the single-pointed bones used as spear-points should also be classified as *muduk*.¹

The *muduk* found on the kitchen-middens along the coast of south-east Australia include both types, as follows:

- (a) Pointed by grinding at one end only.
- (b) (Plate xxxiii, fig. 11.) Double-pointed, ranging from 4 to 8 cm. long, and from 5 to 8 mm. wide. They are oval and flattened-oval in section, usually

¹ Some of the bone splinters and single-pointed bones found in layers III (Murundian), V-VII (Mudukian), and X (Pirrian) of the Devon Downs deposit (2) were probably spear points.

flat on the inner side (when mounted), convex on the outer side, and shaped (usually on both sides) by grinding so as to produce a fusiform shape. The grinding often extends all round each end contiguous to the points.

Discussion.

In his paper on the distribution of spear-traits in Australia, Davidson (20) says that "the Australian use of bone-barbs is concentrated in Queensland and the Cape York peninsula, and probably extends as far south as northern Victoria. . . . Bone-barbs seem to be quite definitely associated with reed-spears in Australia, Torres Strait and parts of New South Wales, and also with reed arrows in Torres Strait and in New Guinea. Since there is a contiguity throughout this distribution an historical relationship seems apparent. All of the reed-spears with bone-barbs seem to be thrown with the aid of a spear-thrower."

In reviewing (21) this paper I put forward the contention that the bone *muduk* found on the coast of south-east Australia were used as spear points and barbs, and that, therefore, it is probably correct to assume that this type of spear was used wherever the *muduk* occur in this region. Dr. Davidson (22), replying to this review, stated that further evidence was required before the double-pointed bones found archaeologically in coastal sites in south-eastern Australia could be accepted as barbs for spears.

Sufficient new evidence about the use of spears bearing *muduk* along the coast from Brisbane to the Murray River mouth is presented in this paper to establish beyond all doubt that the *muduk* collected on the coastal middens were used as spear points and as dual points and barbs on the multi-pronged and single-headed spears. That the *muduk* was also employed as a fish-toggle is probable, although the Geelong district (Victoria) record is the only one.

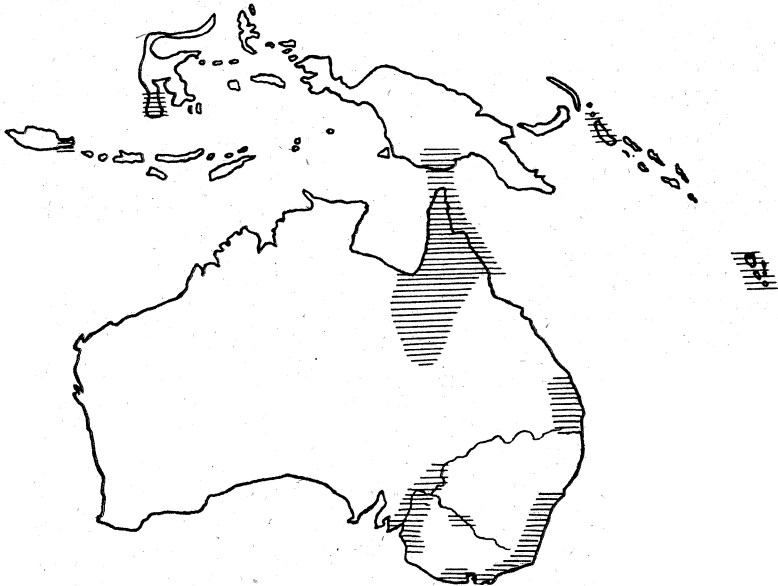


Fig. 2.—Distribution of the *muduk*.

These new records extend the distribution of bone-barbed and pointed spears given by Davidson in his map (22). The known range in south-east Australia is now from the Brisbane District to the Murray River mouth, Lower Darling and Murray Rivers, and at Devon Downs and Swan Hill on the Murray River. They appear to have diffused southward from Cape York along the east coast of Australia, to have spread along the Murray River from its mouth, and also up the Darling River.

Careful collecting will probably yield *muduk* on the kitchen-middens on the north coast of New South Wales, and the Queensland coast between Brisbane and the Tully River, and close the gaps in their distribution. It is to be noted that mammal bones, bird bones, fish teeth and bones, and stringray spines were used for making *muduk*.

Muduk occur on the arrows and spears of Bougainville and Buka, Solomon Islands. On New Hebridean spears polished double-pointed bone barbs are mounted in a reverse manner, and vary from 5 to 20 cm. in length. *Muduk* are present in the prehistoric Toalian culture of Celebes and southern Java.

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EXPLANATION OF PLATE XXXIII.

Figs. 1-3.—“New South Wales” National Museum of Victoria Collection, Nos. 1057, 1725, 1727.

Fig. 4.—Lower Darling River, N. S. Wales (A.M., No. B.8461).

Fig. 5.—Mapoon, Batavia River, Cape York, Queensland (A.M., No. E.11760).

Fig. 6.—Four-pronged spear, Wallaga Lake, N. S. Wales. J. Ashley collection.

Fig. 7.—Lake Wonboyn, N. S. Wales (A.M., No. E.43484).

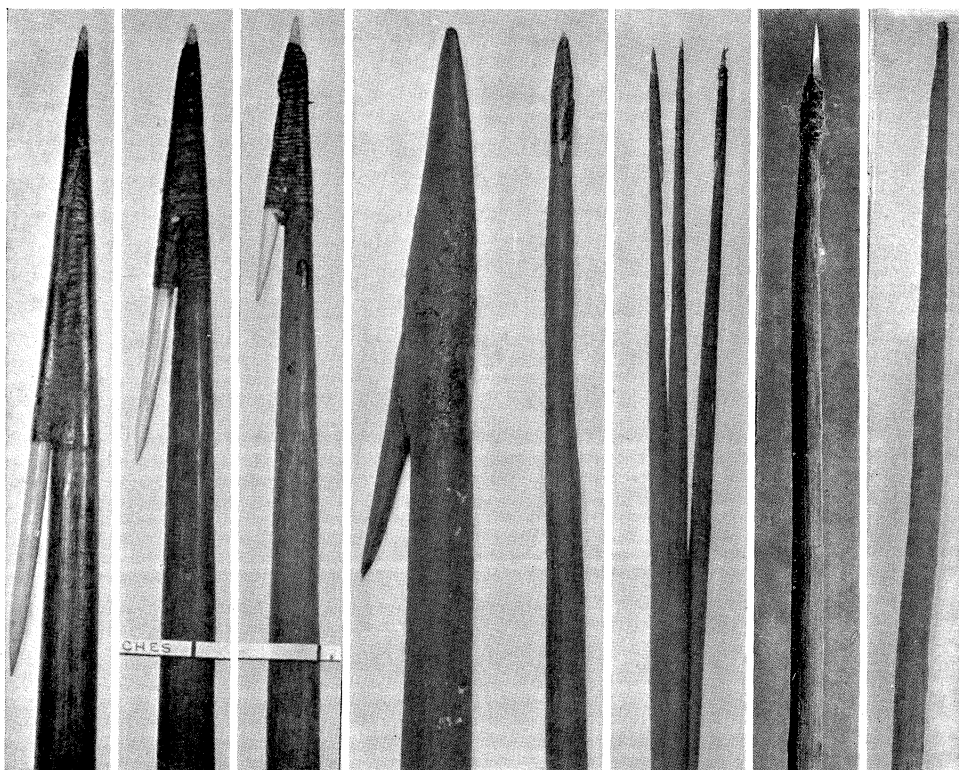
Fig. 8.—Pointed spear prong, Lake Wonboyn (A.M., No. E.43504).

Fig. 9.—Pair of spatulate prongs bound with bark. Lake Wonboyn (A.M., No. E.43505).

Fig. 10.—Spatulate spear prong, Lake Wonboyn (A.M., No. E.43498).

Fig. 11.—Series of eight double-pointed *muduk* from kitchen-middens on the south coast of N. S. Wales (A.M. specimens).

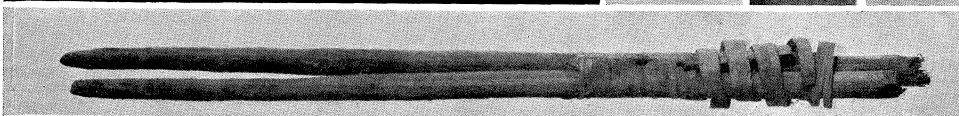
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10



D. A. CASEY (1-3) and G. C. CLUTTON (4-11), photos.