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ADZES AND ADZE-LIKE IMPLEMENTS FROM EASTERN AUSTRALIA.

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(Plate xvii, figures 1-6; and Figures 1-5.)

Occasional edge-ground adzes have been recorded from scattered localities in Australia, and their existence as a type has been referred to by the author (1939, 4-5, figs. 2 and 8; 1940b, 227, fig.), and Noone (1943, 274-5, 279, figs. 10-12, 30-31). In this paper is given a description of the examples in the collection of the Australian Museum.

The chief characteristic of the adze is the asymmetrical blade with its edge above or below the middle; the upper facet is usually rounded, and the lower facet varies from convex to concave and is often at a steep angle. Such implements are hafted, with the blade at a right angle to the haft. The body of the adze varies widely in shape and in Oceania embraces examples with round, lenticular, rectangular, trapezoid, or triangular section.

The axe is the predominant edge-ground implement in Australia; in various collections there are implements with adze-like blades, which, in this paper, are distinguished from true adzes.

Axes with Adze-like Blades.

The examples described below have a distinct adze-like blade, but possess no other adze characters. It is considered probable that in the majority of instances such a blade is fortuitous, and is merely to be considered within the range of axe types in Australia. It does not appear to be due to adze influence, and they should not be termed proto-adzes. The following specimens are described from the Australian Museum collection.

(A) *Trimmed coroid axes.*

E.29202. Woodbine, New South Wales.—An irregular piece of igneous stone, crudely flaked on the upper surface, and flat on the lower surface. The blade, which is 5 cm. long, has an upper rounded facet only 1 cm. wide, and a lower adze-like facet 2 cm. wide, with the edge in the middle line. It is $9.5 \times 7 \times 3$ cm., and 12 oz. in weight.

E.13591. Lawn Hills, Queensland (Plate xvii, fig. 1; and Figure 5).—Made from a broad symmetrical flake, with a flat butt-platform. It is trimmed all over one surface. Both lateral margins are sharp-edged, although trimmed in places. The ridges on the upper surface, from the blade to the middle, have been smoothed by grinding, and the facet of the blade is 2.5 cm. wide. Most of the lower surface is polished, and the facet of the blade is 4 cm. wide. It is $8.5 \times 8 \times 2.5$ cm., and 9 oz. in weight. The material is a fine-grained igneous rock.

E.9481. Hamilton Creek, near Mount Fitton, Queensland.—Its upper surface is carefully trimmed from the butt to the middle, and the polished adze-bevel of the blade occupies the other half of the surface. The lower surface is slightly convex and polished. It is lenticular in section, with a carefully trimmed edge on the lateral margins and butt. The material is a fine-grained igneous rock. It is $12 \times 9.5 \times 3$ cm., and 1 lb. 6 oz. in weight.

(B) *Hammer-dressed.*

The great majority of adze-like blades occur in the hammer-dressed group of axes. Six specimens, in particular, merit notice in this section. They are from round to oval in section, and several are elongate-oval in shape. They are from 9 to 15 cm. long, and

8 oz. to 1 lb. 8 oz. in weight. They comprise E.18237, 16393, 24327, 24339, 34912, 34946, and are from Condobolin, Coolah, Coolamon, Gooloogong, Kiandra, and Wyalong, New South Wales.

E.15342 is a squat example of cream quartzite from south Central Queensland. The butt is concave but unshaped, and its edges have been used for percussion. There is a wide adze-bevel on its upper surface, but the ground facets are very narrow. The blade is 7 cm. long and is gapped. It is $10 \times 9.5 \times 4.5$ cm., and 1 lb. 6 oz. in weight.

Adzes.

(A) *Trimmed coroid type.*

E.49497. Woodstock, Victoria.—A large shoe-shaped implement, flat on both upper and lower surfaces, and rounded along its margins by crude trimming. The polishing of the upper and convex facet of the blade extends for 4.5 cm. from the edge, and on the lower concave facet for 2.5 cm. The lower facet is in the form of a steeply sloping surface 7 cm. long. The edge of the blade curves upward from each margin. The material is a fine-grained metamorphic rock, brown in colour. It is $14 \times 9 \times 7$ cm., and 2 lb. 10 oz. in weight.

Two other examples are rectangular in section. One, E.12739, from Hexham, Hunter valley, New South Wales (Plate xvii, fig. 2), is made from a flat piece of creamy-grey chert, and its upper and lower surfaces are of weathered crust. The butt is trimmed along its upper edge. Both lateral margins have been trimmed, and partially ground to form three long narrow facets on each side; two of the facets on each margin are bevelled, and the middle one is vertical; the section is an irregular octagon (Figure 4). The blade consists of an upper convex adze facet ground 2.5 cm. back from the edge, and a very narrow lower facet only 3 mm. wide. It is $20 \times 7 \times 2.5$ cm., and 1 lb. 4 oz. in weight. H. V. V. Noone has figured three examples of this type from the Napier and Grant Ranges, Western Australia, but they are polished on all surfaces, and are thus purposely fashioned adzes. The Hexham specimen is made of a horizontally layered chert, and this explains to some extent its rectangular section, but does not provide any reason for the adze blade.

E.3596, Darling Downs, Queensland (Plate xvii, fig. 3), is made from a pear-shaped piece of fine-grained brittle rock, water-worn and rolled. At the narrow end is a well polished adze-blade, 2 cm. wide, and the polishing extends 3.5 cm. back from the edge on the lower surface. The butt is a cleavage surface. It is 9 cm. long, 5 cm. wide, 3.5 cm. thick, and 8 oz. in weight.

(B) *Hammer-dressed.*

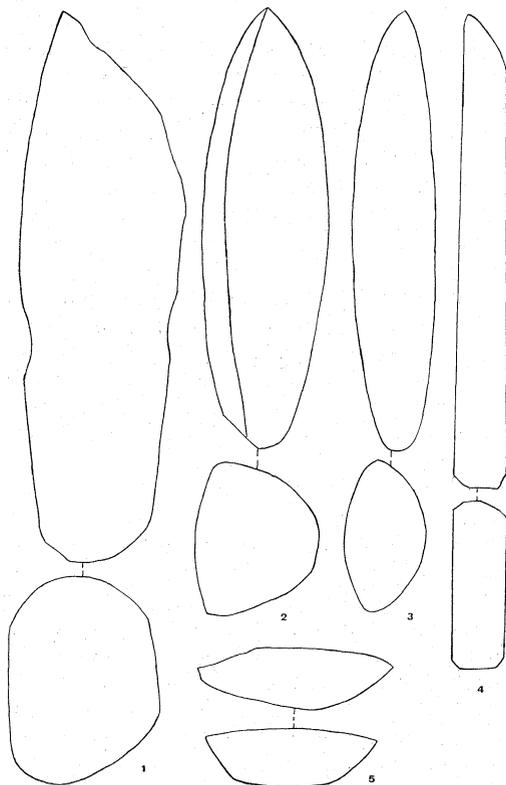
It is to be expected that adzes would be found principally in the hammer-dressed group of edge-ground artefacts, because the technique belongs to the early neolithic period and was employed for the shaping of adzes throughout Melanesia, Polynesia and Indonesia. There are only eleven specimens in the collection.

E.30487. Breeza, New South Wales.—A small adze with a slightly concave facet, 3.5 cm. wide, on its lower surface. The whole of its upper surface is polished. The edge of the blade, which is 3.5 cm. long, is gapped from use, and a large flake is missing from the butt. It bears signs of percussion use on its butt and margins. The material is andesite. It is $6.5 \times 4 \times 2.5$ cm., and 4 oz. in weight.

E.21269. Boggabri, New South Wales.—The upper surface is convex, and the two sides are flat. The lower surface is slightly convex from the butt to the distal end. The blade is 2 cm. wide on both ground facets, and is 3 cm. long. It is made of a fine-grained igneous stone. It is $8.5 \times 3.5 \times 3.5$ cm., and 8 oz. in weight.

E.39591. Myrtleford, Ovens River, Victoria.—A very well finished adze of cylindrical section. The slightly hollowed facet of the lower surface begins 15 cm. back from the edge of the blade, while the upper facet is convex. The grinding is only 1 cm. wide on both facets, and the blade, which is 4.5 cm. long, is continued 3 cm. round the lateral margins. The opposite end tapers to a narrowed ridged butt which has been used for percussion. It is made of an igneous stone, and has a weathered surface. It is 32 cm. long, 7 cm. in diameter, and 5 lb. in weight.

E.8807. Murtee Station, Wilcannia, New South Wales (Plate xvii, fig. 4).—The puncturing all over the surface is very fine, and the shape is distinctly that of an adze in all respects. The lower surface is slightly convex and partially polished, while the upper surface is rounded. It is thus somewhat semi-circular in section (Figure 2), and in this respect it is the same as a high-backed turtle. The blade is 4.5 cm. long, and the ground facets are 1.5 cm. wide. The butt bears percussion marks. It is $19 \times 7 \times 5.5$ cm., and 2 lb. 8 oz. in weight. The material is cream quartzite.



Figures 1-5.

Cross-sections of adzes: 1, Austr. Mus. Coll. Regd. No. E.34143. 2, E.8807. The edges between the lower surface and sides are rounded. 3, E.5266. 4, E.12739. 5, E.13591.

E.2253. Lachlan River, New South Wales.—A red quartzite specimen finished all over with neat and fine puncturing. It tapers from a very broad blade end to a neatly rounded butt. There is a patch of polishing on both upper and lower surfaces. The blade is 10 cm. long, and slightly concave on the lower surface, but it is not ground on either facet. It is one of a group of edge-ground implements which vary from axes to adzes, and from round to lenticular section, found in the neighbourhood of the Darling-Paroo river system. It is $23 \times 10 \times 6$ cm., and 4 lb. 6 oz. in weight.

(C) *Hammer-dressed and grooved.*

E.37177. Laanecoorie, Victoria.—A large heavy specimen hammer-dressed over the whole of its upper convex surface except the butt, which is irregular. There is a marked slope on the upper surface from the groove to the blade. The lower surface is flat apart from a slight upward slope at the blade end. The groove is not central, but is nearer the butt than the blade. The ground facets of the short blade are 1 cm. wide. The material is basaltic. It is $21 \times 10.5 \times 7$ cm., and 5 lb. 8 oz. in weight.

E.34143. Oberon district, New South Wales (Plate xvii, fig. 6; Figure 1).—A large unfinished adze which was described by Thorpe as a pike (RECORDS OF THE AUSTRALIAN MUSEUM, xviii, 6, 1932, pl. xxix, fig. 3). The upper surface is rounded, and bears a chipped bevel face which extends from the groove to the blade, and a flat crust area between the groove and the butt. The lower crust surface is flat. Thus the blade, which is 6 cm. long, is crust on one facet and trimmed on the other, but was apparently in course of preparation. The central encircling groove is wide and deep. The butt is battered. The material is a dark green quartzite. It is $23.5 \times 9 \times 5.5$ cm., and 5 lb. 8 oz. in weight.

E.49207. Marra Station, Darling River, New South Wales.—Elongate in shape, tapering from the butt to a narrow distal blade. It is flattened on the lower surface, and rounded on the upper surface. The blade is only 2 cm. long, and the ground facets 1 cm. wide; its edge is battered from use. The wide shallow groove encircles the implement. The butt bears percussion marks, and many large flakes have been knocked off it as a result of this usage. The material is silicified tuff. It is $20.5 \times 6.5 \times 5$ cm., and 2 lb. 4 oz. in weight.

(D) *Polished.*

E.5266. Booligal, Lachlan River, New South Wales (Plate xvii, fig. 5).—This adze was hammer-dressed prior to being polished. It is elongate bi-convex in shape, and bi-convex in section (Figure 3), with a narrow rounded butt that has been used for percussion purposes. The blade is 5.5 cm. long, and the lower facet has a steeper convex curve than the upper one. The edge is sharp. It is one of the finest polished implements from Australia in the Australian Museum collection. It is $19 \times 6.5 \times 3.5$ cm., and 1 lb. 2 oz. in weight.

(E) *Polished and grooved.*

No. 76 (Australian Institute of Anatomy collection, Canberra). Gundry, Goulburn district, New South Wales.—Although there are no signs of hammer-dressing, it is probable that this technique was used prior to the polishing. One surface has large, rough, natural depressions on both sides of the groove. It is flattened oval in section. There is a thin patination on the surface little different in colour from that of the greenish igneous material of which it is made. The blade has two broad convex facets, and its edge is gapped from use. The opposite end is conical, and the point is polished from use, but is not ground. The groove is 2.5 cm. wide, shallow and polished, and is a deeper colour than the rest of the surface. Two pits caused by percussion are situated between the groove and the blade. This is an exceptionally fine polished artefact, and is much superior in workmanship to the general average of Australian edge-ground implements. It was described and figured (*Mankind*, ii, 1939, 4–5, figs. 2 and 8) by the author as a grooved conical stone because it possesses the characteristics of this group, combined in a unique manner with an adze-blade. It is $25.5 \times 7.5 \times 5$ cm., and 3 lb. 8 oz. in weight.

E.26728. Shea's Creek, Picton, New South Wales.—A similar specimen to E.34143, but it is slightly smaller. It has a hammer-dressed and polished central groove, which is wide and deep, and its lower surface has been similarly treated. The upper convex surface is roughly trimmed, and tapers from the groove to each end. The butt is battered, and the upper facet of the blade is not ground. It is $20 \times 8 \times 6$ cm., and 3 lb. in weight.

Discussion.

Shape.—There is no uniformity in the shape of the adzes described above. The adze-bevel is on the lower surface on the majority. Although the blade is the most important single character for distinguishing adzes, and some examples such as E.3596 possess only an adze blade to merit classification in the group, other characters are to be considered. The turtle-like cross-section of E.8807 and E.34143 and the conical butt end of E.5266 and the Canberra specimen (No. 76) are characteristic of Melanesian adzes.

Techniques.—The majority of the adzes have been fashioned by hammer-dressing, or by hammer-dressing and polishing, and in these respects bear some affinity with many other artefacts in Australia, including axes, grindstones, mortars, percussion stones, the *yodda* and *mena* types of tanged implements, cylcons, and grooved conical stones. The intaglio rock engravings of the interior of Australia are also hammer-dressed.

Affinities.—It is obvious that local variation of workmanship would produce a small percentage of adze-like blades among the immense numbers of axes in Australia, but adzes like E.5266, E.8807 and E.34143 are so different in shape from axes, combining adze blade and form so distinctly, that a comparatively recent ex-Australian cultural influence is denoted. The Melanesian area is the most probable source of this diffusion, and this conclusion is supported by the conical pointed butt on several specimens, a characteristic of Melanesian adzes. In addition, it is now generally considered that the hammer-dressing and polishing techniques were introduced into Australia (McCarthy, 1940a, 40-43; 1940b, 268) as part of a diffusion of culture from this area over a long period.

Reference might also be made to the three specimens recorded by Davidson (1935, 155, pl. ix, figs. 1-3) from Western Australia. It is considered that they are not of Australian aboriginal manufacture, despite the superior workmanship of such examples as E.8807 and No. 76 (Canberra) described in this paper. They are of three distinct types, each highly developed neolithic forms widely distributed in the eastern Indonesian islands (Celebes, Ambon, etc.), New Guinea and Melanesia, and, in addition to being the only specimens known from Western Australia, are unique among Australian artefacts. It is probable that the aborigines obtained them from Malayan proa traders, Papuan pearl-divers, or even from white people along the north-west coast, and traded them along the pearl-shell routes (McCarthy, 1939a, x, 92-95, map 14; 1940b, ii, 268; 1940b, 43); Noone (1943, 275) has also referred to them as alien adzes.

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EXPLANATION OF PLATE XVII, FIGURES 1-6.

Fig. 1.—Trimmed axe, made from a heavy flake, with adze-like blade, Lawn Hills, Queensland. Austr. Mus. Coll. Regd. No. E.13591.

Fig. 2.—Trimmed coroid adze, rectangular section, Hexham, N. S. Wales. Austr. Mus. Coll. Regd. No. E.12739.

Fig. 3.—Trimmed coroid adze, Darling Downs, Queensland. Austr. Mus. Coll. Regd. No. E.3596.

Fig. 4.—Hammer-dressed adze, Murtee Station, Wilcannia, N. S. Wales. Austr. Mus. Coll. Regd. No. E.8807.

Fig. 5.—Polished adze, Booligal, N. S. Wales. Austr. Mus. Coll. Regd. No. E.5266.

Fig. 6.—Hammer-dressed and grooved adze, Oberon, N. S. Wales. Austr. Mus. Coll. Regd. No. E.34143.

Photos.—G. C. Clutton.

