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ARCHEOLOGY.—*A unique archeological specimen from Australia.*<sup>1</sup> FRANK M. SETZLER, U. S. National Museum, and FREDERICK D. MCCARTHY, Australian Museum, Sydney.

On October 26 and 27, 1948, within a few days prior to the closing of the Arnhem Land Expedition camp<sup>2</sup> at Oenpelli, we had the good fortune to recover the hafted adz and blade described and illustrated here (Fig. 3). Since these constitute type specimens, it is considered advisable to publish this preliminary description. Oenpelli is located on the western edge of the Arnhem Land Aboriginal Reserve in northern Australia (see map, Fig. 1). The specimens were discovered in a rock shelter, site 2, on Oenpelli Hill (Argaluk) during excavations that constituted a part of the anthropological investigations undertaken by the authors as members of the Arnhem Land Expedition. The excavations of the two rock shelters at the highest point on Oenpelli Hill were under the supervision of the senior author. The type of chipped blade, attached to the wooden handle by means of the hardened ironwood gum, is typical of the many quartzite blades found in most of the 12 rock shelters we excavated on Gallery (Inyalark) and Oenpelli Hills in 1948.

The *elouera* adz-flake had not previously been recorded from Arnhem Land. It has been recorded from Hook Island and Point Cartwright, along the Queensland coast, and occurs occasionally but not as a dominant specialized type in the Pirrian, Mudukian, and Murundian surface sites in far western New South Wales and other parts of the

interior of the continent, but is not known in Victoria. It has been recorded on surface sites belonging to the Bondaian culture in the Woakwine Ranges of South Australia (Campbell and Noone, 1943, p. 382, figs. 111–112). One was found in layer IV of the Murundian culture in the Devon Downs rock shelter (Hale and Tindale, 1930). It occurs as a dominant specialized knapped implement in eastern New South Wales on coastal shell-middens, in rock-shelter deposits, and on surface sites from the coast to the tablelands on the western side of the Great Dividing Range (McCarthy, 1943, south coast, pp. 139–140, figs. 17–19, Bathurst, p. 204, fig. 23; McCarthy and Davidson, 1943, Singleton, p. 217, figs. 13–16, 19; McCarthy, Bramell, and Noone, 1946, pp. 27–28, figs. 82–87). The *elouera* adz-flake occurs in both the Bondaian and Eloueran cultures revealed by the Lapstone Creek excavation in the Blue Mountains and is more abundant in the latter and younger culture (McCarthy, 1948).

Up to the time of our discovery it was uncertain as to the use to which these quartzite blades had been put by the Australian aborigines. A great deal of controversy has centered about the way in which the *elouera* was used (the references to which are given by McCarthy, Bramell, and Noone, *op. cit.*). Some students asserted that it was a chipped-back knife, the thin edge of the chord being used as a knife and the thick, crescentic back shaped for holding in the fingers. Others claimed that its chief function was that of a scraper along its thick margin. McCarthy has always held the opinion that the *elouera* is an adz-flake (McCarthy, Bramell, and Noone, *op. cit.*,

<sup>1</sup> Received October 3, 1949. Published by permission of the Secretary of the Smithsonian Institution.

<sup>2</sup> Commonwealth of Australia—National Geographic Society—Smithsonian Institution Expedition to Arnhem Land.

p. 29; McCarthy, 1948, p. 31). Noone (1943) recorded six *elouera*-like hafted adz-flakes in the Western Australian Museum's collection. The specimen herein described from Oenpelli is conclusive evidence, as revealed by the X-ray (Fig. 2), that the *elouera* was used as an adz-flake in those parts of Australia in which it occurs as a dominant specialized knapped implement.

The importance of the hafted shell or trimmed stone flake adz as a working tool of the Australian aborigines has long been recognized by Australian archeologists. The stone flake and blade adzes, which are hafted, vary considerably in shape (McCarthy, Bramell, and Noone, 1946, pp. 27-30, figs. 104-109, 324-325, bibliography). Most of them are hafted at the end of a spear-thrower or a rounded wooden, sometimes a bone, handle. The adz-flake is set in a gum cement, the nature of which varies in different localities. However, the working edge of the adz-flake, in the majority of cases, projects transversely, that is, across the end of the handle, but on the specimen from Oenpelli it is mounted laterally (Fig. 3).

The X-ray<sup>2</sup> reveals that the red quartzite adz-flake is of the *elouera* type, with a comparatively straight back or thick lateral margin; it has oblique ends, and the working edge is convex and irregular. This *elouera* adz-flake measures 3.5 cm long, 2.5 cm wide, and 1 cm on the thick margin. The cutting edge projects 1.2 cm from the gum cement. The working edge is not trimmed or retouched but bears use-polish on both facets; this polish is concentrated chiefly on the rounded portion in the middle of the working edge on one side of the flake, but it extends along the other side and is up to 2 mm wide in the middle. The gum cement measures 6 by 5 by 2.5 cm; it is a rounded mass shaped from the thick butt side, which encloses the top of the wooden handle and over half the width of the adz-flake. The X-ray reveals that the thick back of the adz-flake is not set against the wood but is separated by gum almost 1 cm wide from the handle, and that the top of the handle

<sup>2</sup> Kindly made by Drs. J. L. and K. E. Shell-shear, of Sydney.

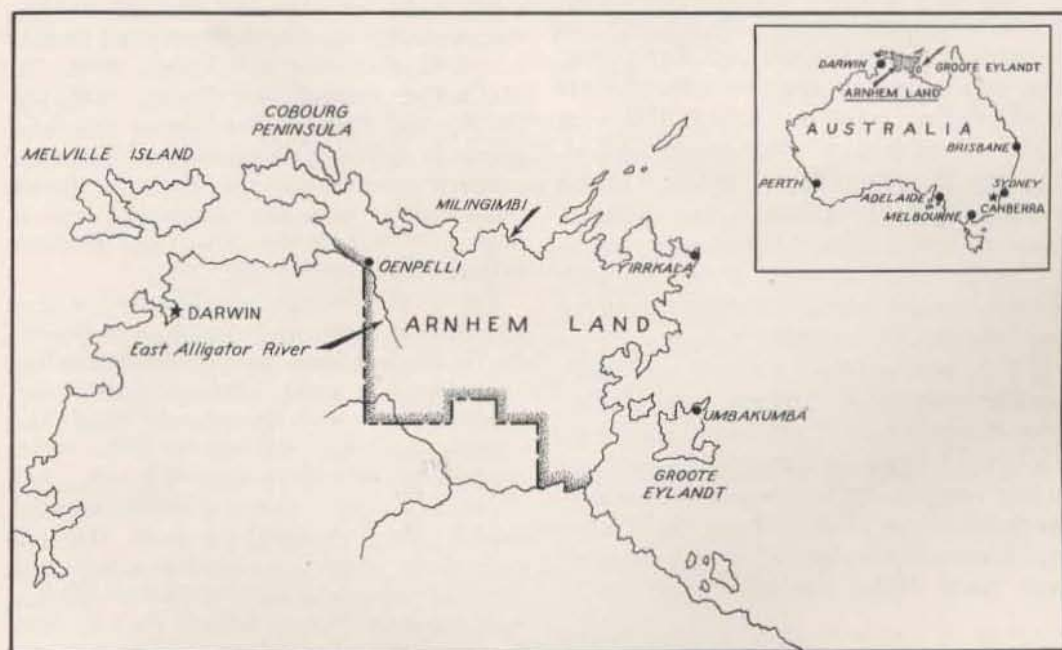


FIG. 1.—Map showing location of Oenpelli on the western edge of Arnhem Land, Northern Australia.

is barely covered with gum. The handle is a roughly shaped strip of ironwood (*Erythrophloeum chlorostachyus* or *E. labouchei*); it is flattened on both sides and tapers to a

point at the grip end. It is 35 cm long, 3 cm wide, and just over 1 cm thick in some parts and is almost black on one side and light brown on the other. There is a shallow

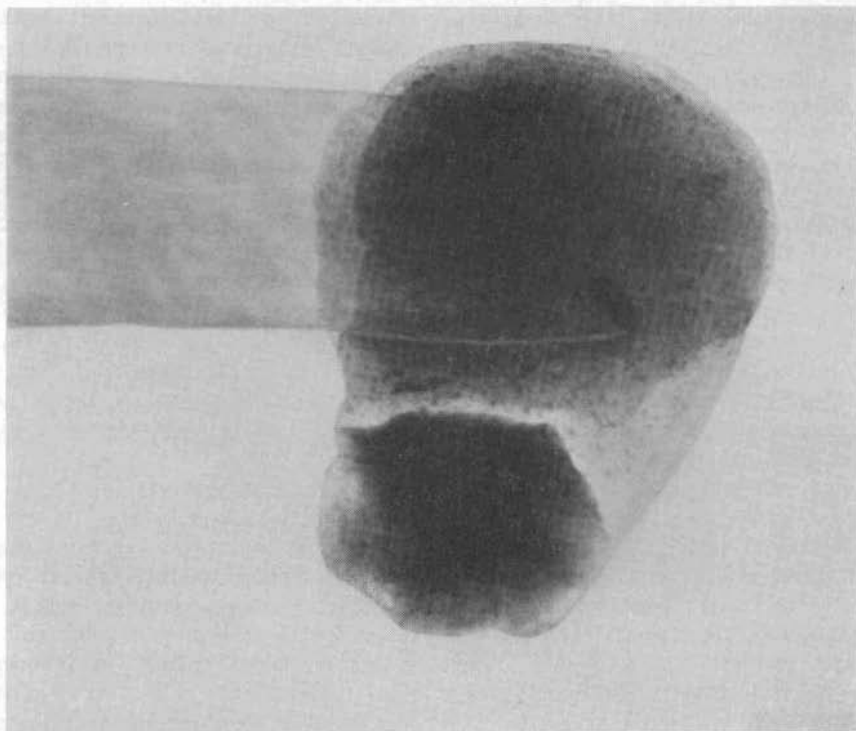


FIG. 2.—X-ray photograph of hafted adz showing the chipped quartzite adz-flake similar to those illustrated in Fig. 3.

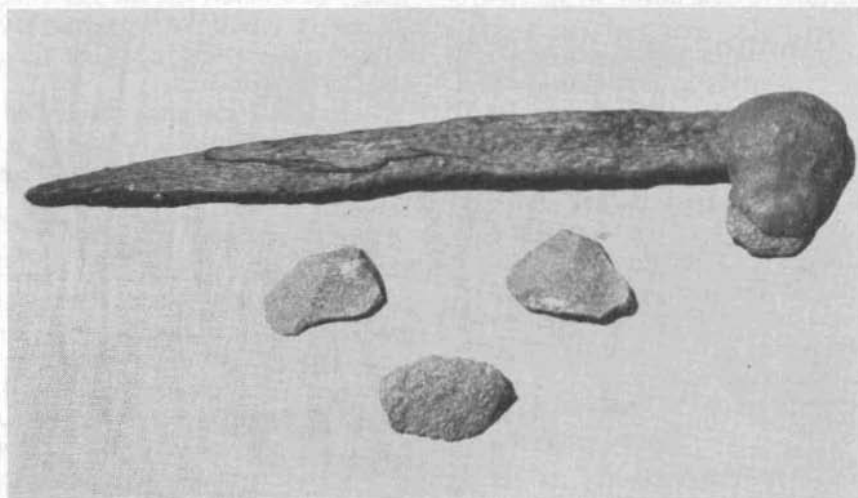


FIG. 3.—The hafted adz and *elouera* flake; also three types of chipped quartzite blades excavated in cave no. 2, on Oenpelli Hill (Argaluk). Length of adz 13½ inches (35 cm); width 1¼ inches (3 cm) thickness, 3/8 inch (1 cm).



depression 6 cm long in the middle of the inner edge, which forms a convenient grip. All the ridges on the dark side of this handle are polished as though from the holding of the tool during use, particularly from the middle to the pointed end, and along the concave area, but this polish is barely perceptible on the other side. The gum cement is obtained by heating the roots of the iron-wood tree.

The *elouera* proved to be a dominant specialized type of knapped implement in the Oenpelli rock shelters that we excavated, and many of the *elouera* recovered bear a pronounced use-polished working edge or sheen on the chord. Most of them are made of red quartzite, and they are identical in form and dimensions with the eastern New South Wales *elouera* made out of a variety of cherts, jasper, quartzite, chalcedony, silicified wood, and other materials. The use-polished edge occurs on *elouera* in the latter locality (McCarthy, 1943, south coast, pp. 132, 145; Bathurst, p. 207; 1948, pp. 7, 15) but not so commonly as at Oenpelli and on the large *worimi* hand cleavers (McCarthy, 1947, pp. 420, 423, 426, figs. 8, 11) from the north coast of New South Wales. Thus another important aspect of the discovery of this hafted adz at Oenpelli is that its adz-flake, an *elouera*, has a use-polished edge, a kind of working edge to which attention has only previously been drawn by the above author.

A second red quartzite blade from site 2 on Oenpelli Hill bears a use-polished edge. This blade is 4 cm long, 3.5 cm wide, and 3.5 mm thick, although at one end, broken transversely, it is only 2 mm thick. This thin blade had also been hafted, since it bears a layer of gum cement on one side which is 6 mm thick, and the area that had been covered by the gum is clean and well defined from the discolored area exposed. The sheen is on one side only of the working edge and is up to 2 mm wide.

The use made of the hafted adz and the explanation of the use-polished edge, which appears also as a diagnostic trait on many other flakes and blades at Oenpelli, are problems that must remain within the realm of theory. Local natives, even the old men, were unable to give any specific uses, and

most of them suggested that it was a wood-working tool. A suggestion advanced by one of the native workmen on the excavation was that it could have been used for enlarging the hole made in a tree to cut out a bees' nest and to scrape out the comb and honey. Other possible uses that would produce a use-polished edge are the dressing of skins, cleaning off outer bark, and smoothing off the surfaces of wooden shields, clubs, spear-throwers, and sacred objects. That the usage was of some variety is indicated by the occurrence of this type of working edge on implements ranging from thin flakes to hand cleavers, and on hafted adzes.

The hafted adz from Oenpelli weighs only 5 ounces and would not be a burden for these nomadic hunters and fishermen to carry about. Like many other aboriginal implements, it probably served a number of purposes.

No other hafted adz has been recorded from Arnhem Land, where the use of stone implements began to wane when the Makassan trepangers introduced metal tomahawks and knives some centuries ago, to be followed by the white man early in the nineteenth century. Sir Baldwin Spencer (1914), who made a large collection of ethnological specimens at Oenpelli and neighboring areas in 1912; Basedow (1907), who described the material culture of the west coast; Tindale (1922), who described the material culture of Groote Eylandt; and Warner (1937), who dealt with the Milingimbi area, do not mention this implement.

The original specimens described are deposited in the Australian Museum in Sydney. Casts will be sent to the Smithsonian Institution.

Our field work in Arnhem Land resulted in the establishment of three cultures:

**PIRRIAN:** *Pirri* uniface points, and scrapers, found on a surface site at Yirrkala.

**MILINGIMBIAN:** Edge-ground biface axes (some of which are highly polished from the blade to the middle of the ax), *Riambi* oyster picks, hammerstones and hammer-anvil stones, pestles and mortars, red and yellow pigments, associated with an unconventionalized flake industry in which there are *no* points. From the large shell midden known as the Macassar Well site on Milingimbi Island.

OENPELLIAN: Uniface (*Pirri*) points and biface points, *elouera* adz-flake as the dominant flake type, a variety of scrapers (many of microlithic size but none of geometrical type present), *Leilira* quartzite blades, flake-fabricated hammerstones, red and yellow pigments, bone *muduk* points, pestle and mortars; *elouera*, flake and blades with use-polished working edge. Associated with top deposit and bundle burials, modern iron nails and implements, twined and netted bag fragments, wooden weapons, trade beads.

This note serves only as a general description of an important archeological discovery in Arnhem Land. The authors are preparing detailed reports of their anthropological investigations during the eight months of field work in this northern section of Australia. This international expedition, led by the Australian representative C. P. Mountford, was made possible through the joint sponsorship of the Commonwealth of Australia, the National Geographic Society, and the Smithsonian Institution.

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