McCarthy, F. D., 1964. The archaeology of the Capertree Valley, New South Wales. *Records of the Australian Museum* 26(6): 197–246, plates 11–24. [5 June 1964].

doi:10.3853/j.0067-1975.26.1964.674

ISSN 0067-1975

Published by the Australian Museum, Sydney

THE ARCHÆOLOGY OF THE CAPERTEE VALLEY, NEW SOUTH WALES

by

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RECORDS OF THE AUSTRALIAN MUSEUM

Vol. 26, No. 6. Pages 197-246.
Plates 11-24. Figures 1-6.

SYDNEY
5th JUNE, 1964

Price, 16s. 6d.

Printed by Order of the Trustees

Registered at the General Post Office, Sydney, for transmission by post as a periodical.
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Australian Museum

Plates 11-24 Text Figs. 1-6 Manuscript received 1-2-63

In 1951 Mr. J. Norcross reported to the Australian Museum several rock shelters containing stencils that he had inspected in the Capertee Valley, near Glen Davis. His attention was drawn to them by local residents, particularly W. Ferguson (store-keeper), to whom they had been known for some 50 years. At my request, Mr. Norcross dug a test hole in the floor of two sites, 1 and 3 in this paper, which produced *Bondi* points and waste flakes. In 1954 Mr. J. Bland, of Sunny Corner, further examined the sites at my request, and test holes dug by him yielded Bondaian culture implements and patinated yellow flakes not known elsewhere. Excavations of the sites were undertaken in 1958.

The following were members of the excavating parties during university vacations for periods of from 7 to 10 days:—

December, 1958: Professor N. W. G. Macintosh, Department of Anatomy, University of Sydney; Mr. D. Currie, of Imperial Chemical Industries, Sydney; Mr. J. Bland, farmer, Sunny Corner; Mr. V. Rose, Fruit Inspector, Bathurst; Mr. P. Gresser, retired, Bathurst; and Mr. W. Coombes, medical student, University of Sydney.

December, 1959: Messrs. J. Bland and D. Currie and the following members of the Sydney University Rover Scout Crew: Messrs. G. Ford, R. Jamieson and P. Sinclair.

May, 1960: Messrs. J. Bland and D. Currie and the following members of the Sydney University Rover Scout Crew: Messrs. R. J. Baker, G. Ford, R. Higgins, R. Jamieson, A. McHugh, P. Sinclair, R. Sutton and W. Warne; Messrs. B. Shanahan and A. P. Walker, Arts Students at the University of Sydney, and E. D. McKenzie, Ph.D., student in Chemistry at the University of New South Wales.

May, 1961: Messrs. J. Bland, D. Currie, R. French and J. Paterson (the latter two of the C.S.I.R.O.) and the following members of the Sydney University Rover Scout Crew: Messrs. A. McHugh, R. Lucas and R. Jamieson.

Mr. P. H. Walker, Research Officer, Soils Division, C.S.I.R.O., was present during several of these periods and participated in the excavation during one of them.

G 58642—1

The author organized and led each of the four parties. He is extremely grateful to all of the above, and particularly the Sydney University Rover Scout Crew, for their generous assistance in this arduous series of excavations.

The Capertee River rises in the Triassic sandstone plateau which forms the main topographical feature of the countryside. In the Glen Davis area the river is joined by many creeks, among which Running Stream or Coorongooba, Cook's or Coco, and Umbiella are the most important. The main valley is up to 10 miles wide, and is a mixture of alluvial flats and low hills now used mainly as cattle pastures. The Capertee flows eastward through a deep and narrow gorge, in which sites 1 to 4 are situated, which it has cut through the Hawkesbury and Narrabeen sandstones. The gorge is over 1,000 feet high, and at the base of it Permian Lithgow coal measures, in which cherts are present, are occasionally exposed.

The environment is fertile, with an average rainfall of 20 in., but is subject to periodic dry spells varying in length from one summer to several years, when bushfires are common in this type of country. The summer temperatures rise to over the century and the winter temperature falls to the low 30's. The countryside is covered by open woodland eucalyptus forest, with comparatively dense epiphytic undergrowth. It could be described as an ideal environment for a hunting and gathering people of semi-nomadic habit. Game in the area includes all of the major kinds of Australian mammals—grey kangaroos, swamp and rock wallabies, ring-tailed and brush-tailed possums, wombats, echidnas, koalas, platypuses, bandicoots, phalangers, and various small rodents; emus (in the more open country), ducks, scrub turkeys, pigeons, herons and many other species of birds; goannas and a variety of lizards and snakes; eels, perch, crayfish and mussels in the river; bees, moths and other insects. Several species of yams, the seeds of the kurrajong, *macrozamia*, *acacias*, *pinus* and other plants, and various leaves, berries and fruits added the vegetable element to a well-balanced diet. The methods of hunting included the use of the spear, club, boomerang, burning-off and group ambushes to kill the bigger animals; others were dug and burnt out of trees and holes in the ground, and bird nets were in use. The game would no doubt become very wary and difficult to kill after a few weeks of hunting by the Aborigines in these confined gorges and valleys, and for this reason the families and local groups either used a number of shelters during the year, or spread their hunting over a wide area in the valley.

No major geological or physiographical changes took place during the occupation of the area by the Aborigines. It is obvious that in a period of thousands of years the river would make deeper inroads into its bed, and many falls of rock would take place along the cliffs, otherwise the building up and consolidation of the soil mantle, and the growth of vegetation after forest fires, are the only features worth noting. There is no evidence, as Mr. Walker's report on the soil and landscape history of the area makes clear, to indicate that there has been any marked change in climate during the period of occupation of the sites.

All of the shelters examined, of a size and kind suitable for habitation, in the Capertee Valley have been inhabited by man, but the distribution and size of the local groups and their territories are unknown. The area is in the north-eastern corner of the territory of the Wiradjuri tribe, near its border with the Darkinung tribe. The Wiradjuri belong to the No (Wira) group of tribes, with sections and matrilineal moieties, and with totemic clans each of which seems to have consisted of quick and slow blooded divisions; personal and sex totems existed (Brown, 1931, 59-61).

STRATIFICATION

When the first excavation of sections 1 to 4 in site 1 had been taken down to the bottom of the deposit by six-inch layers, it was found that from the bottom of the dark ashy layer at the top downwards, it was impossible for an archaeologist to distinguish separate depositional strata. For this reason the deposits were excavated in layers from 3 to 6 in. thick. Mr. P. H. Walker, M.Sc., Division of Soil Science, Commonwealth Scientific and Industrial Research Organisation, kindly accepted my invitation to make an analysis of the deposits in sites 1 and 3, which is published separately (1964).

The cave deposits are derived from the fretting of the walls and from aeolian deposition, and are not due to river sedimentation.

A hearth in the form of a basin of ashy sand several feet in diameter and 6 in. thick occurred in section 4 of site 1. Ash from a fireplace was noted among boulders in a densely packed layer at a depth of 36 in. in the western portion of site 3. In sections 6 to 11 a large pit of grey ashy soil, which lightened in colour toward the bottom, apparently constituted a traditional and long used fireplace during the occupation, as it extended from the surface to a depth of 54 in. and was clearly demarcated from the buff-coloured sandy soil surrounding it. In layer 1, section 6 of site 3, a mass of *Macrozamia* shells and kernels, a few mussel shells, burnt wallaby bones, and large lumps of charcoal was uncovered in a hearth 6 in. thick. Macrozamia appeared to be an important item of food, the palms growing in big patches in various places.

Mr. R. O. Chalmers, A.S.T.C., Curator of Mineralogy, Australian Museum, identified four different chemical processes, due to various solutions from the sandstone filtering through the deposits, affecting the surfaces of the cores, implements and flakes. Manganese stained them with a patchy black pattern tending to a dendritic condition on some pieces. Iron solution stained a high proportion of the pieces from a very pale yellow or orange to a mottled orange, and on some to a very deep umber patination. The pieces in the hearths or ashy areas are stained grey from the charcoal in solution. Finally, calcium carbonate cemented grit, quartz and stone fragments to one surface of many implements and flakes. This encrustation varies from a thin surface discolouration to a layer up to $\frac{1}{4}$ in. think. It is present from layers 2 to the bottom of the deposits in sites 1 and 3. The manganese and iron staining are both present from the top to the bottom layers.

It is important to note that the inhabitants did not acquire the various diagnostic specialized types of implements at the one time, but as a succession of new ideas. It will be noted that in site 1 *elouera* did not occur below 18 in., fabricators and prismatic cores below 24 in., *Bondi* points and geometrics below 30 in., that saws were not found above 30 in., and a few burins were found to a depth of 54 in. In site 3, however, ground edge axes appeared between 18 and 24 in., while *eloeura*, *Bondi* points, geometrics and burins were not found below 30 in., prismatic cores occurred as deep as 48 in., and fabricators as deep as 54 in. The few *Bondi* points and geometrics found in the Capertian portion of the deposit in site 1 need not be considered here as they apparently slipped down in the course of time through the faunal cavities. The change in both deposits to the second soil system R is within 6 in. of the bottom level of the *Bondi* points and geometrics, the correlation being so close that it might be accepted as the Bondaian stratification. From 24 in. down to the bottom of the true implement zone at 72 in. in site 1, and from 36 in. to this point at 84 in. in site 3, might be accepted as the Capertian stratification. The basal soil system T contained practically no implements in either site.

TABLE 1

Site 1

Bondaian	Bottom levels of:— Ground edge axe		Loose dark-grey ashy sand, rich in bone fragments with occasional mussel shells, of variable thickness.
	Elouera, *Bondi* points, geometrics and burins.	18 in. 30 in.	
	Prismatic cores.	36 in.	Loose reddish sand, slight white mottling, thin clay band at back of shelter.
	Fabricators.	48 in.	
Capertian	Bottom of true implement zone.	60 in. 76 in.	Abrupt change to basal red and yellowish mottled cemented sandy loam, with network of faunal channels ¼ in. dr.
	A few scattered flakes and implements.	84 in.	Bouldery talus zone.

TABLE 2

Site 3

West section				*East section*
Dark-grey loose ashy sand rich in bone fragments, some mussel shells.	Bondaian	Bottom levels of *Elouera*	15 in. 18 in.	Very loose ashy sand rich in bone fragments, occasional mussel shells.
		Fabricators and prismatic cores.	24 in.	Light-brown, very fragile sand with frequent faunal cavities ½ in. in diameter.
		Bondi points and geometrics.	30 in.	
Loose pale-brown sand, thin horizontal bands of red clay which become thicker as the depth increases.			36 in.	Stony layer of densely packed sub-rounded sandstone fragments with reddish clay bands.
	Capertian	Bottom of true implement zone.		
Basal, weakly cemented red sandy loam.		A few scattered implements and flakes.	72 in.	Soil passes abruptly into the basal boundary zone of red, weakly cemented, clayey sand.

DISCUSSION

The whole investigation indicates that the development of stone working was a progressive process over a long period while the shelter deposits were built up steadily. Should this be so, the addition of these diagnostic traits to the culture of these people can be explained by differential diffusion in time. This conclusion is supported by the fact that one *tula* and one *Burren* adze slugs were found in the top 18 in. of sites 1 and 4. The diffusion of the knapped adze worked back to a slug in eastern New South Wales was thus a recent extension of its distribution compared to its entrenchment on the lower Murray River for between 6,000 and 7,000 years (Tindale, 1957, Mulvaney, 1960b). This explanation also accounts for the appearance of the *Bondi* points in the top layer of Fromm's Landing rock shelter on the Lower Murray (Mulvaney, 1960b) an area to which, apparently, the *Bondi* point extended its distribution in comparatively recent times. We must not ignore the important fact that four diagnostic traits, the *Bondi* point, geometrics, burins and *elouera*, all occurred to a depth of 30 in. in site 3 but not below that depth, and it could be argued that the addition of so many traits at one time was due to the arrival of a new wave of people. In view of the facts, however, that a basic flake and blade industry runs right through the Capertian and Bondaian periods, that the ground edge was the last important trait to reach the area, and that the building up of the deposits was a steady and apparently undisturbed process above the basal soil, it would appear that the change took place in the culture, and not in the people. The evidence is thus insufficient to advocate a new wave of people occupying the site at the beginning of the Bondaian phase.

Comparison With Noola Site

The findings at Noola (Tindale, 1962) tell much the same story as sites 1 and 3 in the Capertee gorge. In the latter sites there was no definite sterile band 12 in. thick, indicating virtual absence of visits, followed very suddenly by dense accumulations of occupational debris of the succeeding microlith-using people as at Noola, and the only evidence that these sites were occupied intermittently during the Capertian phase is that layer 6, 31-36 in. in site 1, yielded few implements.

Tindale (1962) assigned the lower culture phase at Noola to the Tartangan, despite the fact that it does not contain any *tula* or slugs, and its large flakes are completely different to those at the type site of Tartanga on the lower Murray. I have examined the specimens from the latter site, and pointed out (confirmed by Mulvaney, 1961) that the only diagnostic implement among them is the *Burren* adze slug, of which there are six. These slugs do not occur in the Capertian, as I have named the lower phase in this area (McCarthy in Mulvaney, 1960a; McCarthy, 1959-62, 1962 a-b), and saws, which are typical of the Capertian, are unknown in the true Tartangan. Tindale (*op. cit.*) in turn assigned the upper phase at Noola to the Mudukian, a term already supplanted by Pirrian (Mulvaney, 1961, 1962) as a result of his Fromm's Landing excavation. The only link between the Bondaian, as I have named the upper phase (McCarthy in Mulvaney, 1960 a-b; 1962 a-b) and the Pirrian lies in the geometric microliths, but the remainder of the diagnostic implements differ so much that Tindale's attempt to merge the phase into his lower Murray sequence must be rejected. There is no evidence to demonstrate that a hiatus of time involving the whole of the Pirrian phase of the lower Murray Tula culture (McCarthy, 1962a), from 3756 $\pm$ 85 to 4850 $\pm$ 100 years B.P. (Mulvaney, 1960b), during which there was no occupation of the sites, took place in the Capertee sites that I have excavated. I have pointed out repeatedly since 1949 that the Bondaian assemblage, except for the geometrics, is completely different to that of the Mudukian at the type site, and Mulvaney (1961) has supported this claim.

I believe that two culture traditions are involved, the one the inland tradition typified by worn-out slugs that I have named the Tula culture (1962 a-b), with an early (Tartangan), middle (Pirrian) and late (Murundian) phases, the other the eastern culture with an early (Capertian), middle (Bondaian) and late (Eloueran) phases. Sites where these overlap may produce various aspects of one tradition or culture in reverse order to that of another site, depending upon the time of diffusion of each diagnostic trait to the particular site. It is essential that, in the present state of our limited knowledge of Australian prehistory, we restrict our nomenclature of cultures and their various phases to the areas or regions in which they are excavated or found on surface sites, and not, as Tindale (1957) is attempting, to relate the whole of our prehistoric industries to his excavation of over 30 years ago on the lower Murray River (Hale and Tindale, 1930).

Two other statements made by Tindale (1962) in reference to the Noola site may be questioned. One was that, " consonant with the absence nearby of any rivers or deep streams which might have yielded fish, no *muduk* bone fishing toggles were present ". The Capertee River contains eels and perch, and there are many long deep stretches and pools in its bed during normal seasons. *Muduk* have only been found on the eastern side of the Blue Mountains, and are unrecorded from the western side on which the Capertee Valley is situated. The second one is that " a relatively great abundance of points, of types thought to have been used as needles in sewing skins together, may suggest that the altitude and southern exposure of the site was conducive to the use of skin cloaks and rugs ". It is now generally believed, as I pointed out (1943, 1946, 1949, 1958), that the *Bondi* point was a dual spear barb and point, and Mulvaney (1961) has revealed evidence from Loshult in Sweden supporting this claim, but Tindale continues to regard it as an awl or borer, a claim which automatically involves the idea that the making of skin cloaks and rugs began when *Bondi* points originated. A point less than 1.5 cm. long would be very awkward to use for boring skins, and the majority of them are under 3 cm. I have already discussed this matter at length (1958), pointing out that most of the first-hand records of the making of skin cloaks and rugs indicate that a bone awl was the common implement employed for piercing the skins.

HABITAT

Sites 1 to 4 are situated in a rugged gorge in which steep-sided walls alternate with high and low terraces inhabited by swamp wallabies and other game. Most of the rock shelters adjacent to water in the gorges and valleys of this area have been inhabited by the Aborigines, some for a long period. The shelters occur at all levels on the ridges, at the top of the talus slopes, and even on the tops. Strenuous climbing is necessary to reach some of them. Site 5 is situated hundreds of feet above the upper wide portion of the valley, and appears to be difficult to reach from any side. These natives had a forest economy adapted to a mountain environment which yielded ample food and shelter. The population was dense enough to make it necessary for groups of natives to occupy both the rugged gorges and the broad valleys nearby, where better hunting and camping conditions prevailed. The list of animals identified from the bones found in the excavated sites indicates that in the gorges the natives depended chiefly upon the swamp wallaby and possums for their flesh food, and in the open valleys they added the grey kangaroo and the emu. It was evidently not a specific type of food they were seeking. Possibly the local groups were hostile and some lived in the gorges for safety.

Sites 1 to 4 are situated on the southern bank of the Capertee River, which flows eastward for some 20 miles to join the Colo River, which in turn joins the Nepean. As the Nepean and the Hawkesbury are the one river, a route exists along these various streams from the Capertee Valley to the coast. A rock shelter containing stencils occurs near the junction of the Colo and Capertee Rivers. Inter-group contact probably took place along these streams, but to what extent is not known. The ground edge axes found in our excavations are not of local origin, but we cannot as yet decide whether they were made in the mountains, or whether they came from the east or west.

CLASSIFICATION

The classification followed is that of McCarthy, Bramell and Noone (1946) but as this memoir is now out of print the following information is included as a guide to the readers of this paper. All implements under 3 cm. long are regarded as microlithic and their numbers have been quoted for comparison with the macrolithic series.

The coroid group includes all implements not knapped from a core which are either a pebble, slab or lump with a used edge.

In the side and end scrapers all of the implements with a concave or nosed working edge are described in these two groups to illustrate the importance of these two working edges in the industry, and to enable comparisons to be made with other industries in which the same practice has been followed (McCarthy, 1943-1962). The other side or end scrapers possess either straight or convex, or both kinds, of working edge. The notched working edge bears a series of used but small trimmed concaves and convexities, like a coarse saw, made by percussion and not by pressure. The saws have a neatly dentated edge produced by pressure.

The implements classified as knives have a working edge lightly faceted from use on the majority but very neatly trimmed on others. This edge varies from a long shallow concave to straight and convex.

Noone's (1934) classification of burins has been followed because it fits the Australian examples so well. A change adopted, however, is to divide the burins into the major groups of (*a*) coroid in place of nucleoid, (*b*) macrolithic or normal flake and blade, and (*c*) microlithic, with the varieties of spalled, scaled and fluted as defined by Noone. Coroid burins also occur in the microlithic group. As they are not provided for in Noone's classification it was decided to introduce the term into the classification of Australian burins and when this was done the whole series was classified without difficulty.

The specialized implements mentioned in this paper are as follow: *Worimi*, a block with triangular or wedge shaped section; *Elouera*, an asymmetrical blade (often resembling an orange sector in shape), with thick back trimmed on one or both edges, and sometimes bearing use polish on the chord; *Tula* adze, a semi-discoid flake or tongue-shaped blade mounted in gum on the end of a wooden handle or spearthrower. After prolonged use, during which the working edge is re-sharpened a number of times, the adze is worn back to a slug which is discarded. The *tula* slug is produced when the adze is used on the distal end edge, and the *Burren* slug when it is used along both lateral margins; *Glanmire* butt end scraper has a neatly trimmed convex butt which tapers away to a thin pointed distal end; *Bondi* point, an asymmetrical point trimmed along one or both edges of the thick side, and often around the butt; *fabricator*, a flake or blade, often biface and struck by the bipolar technique, with a bi-faceted working edge which eventually assumes a gouge-like shape.

SITES

Sites 1 to 3 form a group in huge blocks of sandstone from 40 to 150 ft. long which weathered out of the cliff in past times and which now rest upon the talus slope. They form a triangle in which sites 1 and 2 are some 200 ft. from the river and the highest one, No. 3, is 58 ft. above 1. They are from 58 to 190 ft. apart. No. 4 is a shelter high up on the ridge, one-third of a mile west of Nos. 1 to 3. No. 5 is on top of the ridge between Running and Nile Creeks, to the east of Crown Station in the Capertee Valley, from which there is a steep and arduous climb to the top of the ridge. It is 10 miles north-west of sites 1 to 4. No. 6 is near Noola Station, 20 miles to the west of Nos. 1 to 4.

SITE 1

This site is 25 ft. long (with a shallow extension 8 ft. long at the southern end), 8 ft. high, 8 ft. deep from front to back, and faces east. The floor, prior to excavation, sloped steeply from the high southern end, which is 4 ft. higher than the northern end. The deposit extended from the back to more than 6 ft. in front, several feet outward at the low northern end, and thinned out markedly up the slope of the floor to the southern end. An area 13 ft. long and 9 ft. wide was excavated in 10 sections. The excavation was taken down to 9 ft. in section 6, and 10 ft. in section 8, but as the table of implements reveals, the true implement zone finished at approximately 72 in., with a few scattered implements below this depth. A hearth of black ash 6 in. thick was uncovered in section 5, at a depth of 3 ft. to 3 ft. 6 in. There appeared to be a comparatively sterile layer between 31 and 36 inches.

Bondaian Layers 1-5

Cores

Those with one platform include a chert pebble 10 x 9 x 6.5 cm., on which the platform has been prepared by the removal of two large flakes at one end. Five are prismatic cores, one pointed at the distal end, and 3.7 cm. long. The majority are irregular lumps on which the platform is formed by the knapping of a flake or block. One is a small remnant, one is a tested and rejected quartz pebble, nine out of the 25 have a dished platform, three have crust platforms, and five are yellow patinated. Six are from 2.4 to 3 cm. long, the remainder from 3.2 to 10 cm.

There are 10 prismatic cores, 2.3 to 5 cm. long, with a platform at each end, varying in shape from thin and narrow to wide and flat backed. The other three are irregular in form. One is a quartzite pebble 8.5 cm. long on which a large flake was struck off each end to form the platforms.

The cores with two platforms at an angle to one another are the most irregular in the series, but several of them have carefully designed platforms at right angles. One is a large chert core 9 cm. long, one is a round-topped core with dished platforms, one is a large chert core 9.5 cm. long with two concave working edges, 7 x 2 cm. in size, on one lateral margin, and one is a chert pebble 6.5 cm. with one crust and one flaked platforms, one 3.5 cm. long has one flat crust and one flaked dished platforms.

The only core, 7 cm. long, with alternate platforms is worked along one side only.

Coroids

They are all made of chert and include: two lumps, 8 and 5 cm. long, with scraper use on one lateral margin; a flat-sided laminated pebble, 15 x 11 x 3 cm., used as a chopper along one oblique but straight-edged end; a flat-sided chert implement 5 cm. long, with a concave 20 x 3 mm.; a flat based lump 5 cm. long with four small rounded noses, each 5 x 3 mm. in size, and a corner nose 8 x 5 mm., separated by concaves 2 x 1, 5 x 2 and 7 x 1 (2) on adjoining margins; a large lump 11 cm. long with a concave 25 x 5 mm., a concave margin bearing four concaves up to 10 x 2 mm., and several faces on which flakes have been knapped; a quartz pebble 3.5 cm. long with a scraper working edge; and a red oxide lump 4.5 cm. long chipped on both lateral margins.

The coroid burins include both spalled and scaled types. In the spalled type is a blade-like piece 5 cm. long, used as a core at one end; it is an (*a*) central type on which the working edge of the burin is formed by two spalls and is 9 mm. wide. A similar piece, 3.5 cm. long, with crust back, has two burin edges, 5 and 9 mm. wide, one of which has been re-struck at right angles to the concave scaled edge.

Re-directing Slivers and Blocks

The slivers are from 2 to 9 cm. and the blocks from 3 to 4 cm. long.

Fabricators

One is a discoid 4 cm. diameter keeled on both sides, heavily used on both ends which are 18 mm. long, one is a spherical quartz pebble 4 cm. dr., and an irregular one, 7 cm. long, has a gouge edge 2 cm. long on one end.

Blocks

Nine chert blocks from 5 to 10 cm. long have either one or two concaves from 6 x 1 to 25 x 4 mm. in size on the lateral margins or distal end. They also bear additional chipping on a straight or convex working edge on these margins. Two are outside spall blocks. One has a rounded nose 20 x 5 mm. between two concaves. One has two concaves on the outer edge of the butt, one is an elongate thick blade-like block 10 cm. long used on a rounded corner nose 20 x 5 mm. in size at the distal end. One is a thick fragment 2.5 cm. long with the edge worked back under the body of the implement. One semi-circular block 3 cm. long has had a flake removed in tortoise-core fashion, and four other blocks, 4.5 to 9 cm. long, have straight to convex working edges, and one has a concave.

There are three blocks of *Worimi* type. One is a heavily patinated chert block, used as a core along one edge from which a large and a small flakes have been removed. The edge of the scar bed of the large flake has been used as a concave 33 x 6 mm., and the long outer edge of the block has been used as a scraper. Two other blocks, not very thick, of quartzite and chert, are both used along the chord on which one has a concave 30 x 5 mm.

Slices

A split pebble slice 13 cm. long, chipped on the inner edge in several places. It is a dark shale with yellow staining, and a perfect fossil leaf (*Glossopteris*) is embedded in the split surface.

Elouera

Two good examples from layer 1. One is of type 2, is 4.5 cm. long and lightly worked on one edge of the thick back. The other example of type 3 is 5.3 cm. long, and notch-trimmed along one edge of the margin. From layer 3 are one of type 1, which is 3 cm. long and trimmed on both edges of the back and right along the chord, and a big example, 5 cm. long, with a concave 20 x 3 mm. on the back of which only one edge is trimmed, and a fabricator-edge on the chord. Both are straight sided.

Scrapers

Half of the side scrapers are on narrow to broad blades, some of which are pointed, and the others are on flakes, from 3.2 to 5.8 cm. with two 7.5 and 8 cm., and eight from 2 to 3 cm. long. Two are yellow patinated. The use varies from partial to full use of the margin. One is chipped on the inner face, one is reverse trimmed on the one margin, and two are used on the thicker side of the flake. One is a large grey and yellow patinated flake 8 cm. long, with a convex working edge, and two are fragments from larger pieces.

The majority of the end scrapers are on blades; only two are on flakes, from 3.2 to 6 cm. long. The working edge of one is oblique, all of the others being convex, and the longest one has two trimmed convex ends. One is an *elouera*-like segment, 3.8 cm., used lightly on one thin edge of the thick side. Two are worked on the inner face, and one is a trimmed edge broken off an end scraper.

There are three flakes, 2.2, 3.4 and 3.8 cm. long, with convex working edge, and a blade, 3.5 cm., with a straight working edge, all used on the butt end.

The one side and end scraper is a broad blade 4.8 cm. long. There is an outside spall blade 5 cm. long, and a keeled blade 2.8 cm. long (one end broken off) used on the inner face.

There are 12 blades and nine flakes from 2.2 to 3 (3), 3.2 to 7, and 10 cm. long, bearing concave working edges. The concave is on the lateral margin of 13, distal end of three, and the butt end of five. One of the butt-end concaves is notched along the distal end, one is a spall flake, and one is yellow patinated. One is a large flake 10.5 x 6.5 cm., with a concave on both lateral margins and distal end.

In the concave and nosed series 11 are blades and four flakes from 1.7 to 2.7 cm. (6), 3.2 to 4.5 (6), 7 to 7.5 (3) cm. long. The nose is on the lateral margin of the majority, on the butt end of one, the distal end of four and occasionally on the corner of the distal end and lateral margin. Five of the noses are pointed, and 12 are rounded. One blade has two rounded and two pointed noses separated by three concaves on the butt end, one is a wedge-shaped blade with a concave on the distal end and a nose between concaves on the lateral margin, one has three noses separated by three concaves, one is a pyramidal flake with two rounded and two pointed noses separated by five concaves, one is used as a scraper on the butt end and has a nose between concaves on the lateral margin. The noses are from 2 x 2 to 14 x 4 mm. in size, and the concaves range from 3 x 2 to 15 x 4 cm., with odd ones 18 x 5, 20 x 4 and 30 x 2 mm.

Knives

All but nine of the 68 are blades from 3 to 8.5 cm. long, the others being flakes from 3.1 to 8.2 cm., with four from 2.3 to 2.8 cm. Their use is invariably on the longest margin, and is demonstrated by light fracturing of the edge or neat and purposeful trimming.

Saws

The only example is a thin fragment 3 cm. long, broken off a larger implement, with a dentated edge 1 cm. long.

Burins

In the spalled type there are four of (*b*), bevel spalled, on three irregular flakes 3.4 to 4 cm. long, and blade 5.6 cm. long. One is formed by one spall 6 mm. wide, one by two parallel spalls 8 mm. wide, one has been re-struck three times and has a working edge 5 mm. wide. The blade of one has been restruck twice and has a working edge 10 mm. wide. There are two of (*c*), rectangular spalled, one on a narrow thin blade 4.3 cm. long, double ended, re-struck twice on one end and four times on the other, with working edges 3 and 4 mm. wide. One is an irregular blade 4 cm. long with a transverse single spall, 5 mm. wide, with a trimmed lateral margin and distal end. Three are of (*d*) convex spalled, on flat-sided blades of chert 4.5 and 6 cm. long. One has a short spall 4 mm. wide, the other has a single spall 7 mm. wide at one end, and at the other end a number of short spalls removed along 10 mm. of the edge which may or may not have been intended for burin use, as this kind of working is common on the cores. A third one, on a narrow blade 3.2 cm. long has a single spall 5 mm. wide. Two are of (*e*) concave spalled, on two narrow blades 3.6 and 4.5 cm. long, both with a single spall 3 and 4 mm. wide. One has a trimmed edge on both sides of the distal end which is pointed.

In the scaled type two are of (*c*) rectangular scaled, one on a narrow thin blade 4 cm. long, which has been re-struck twice on a working edge 4 mm. wide, and one on a blade 4 cm. long, with an inward angled spall 5 mm. wide, is one of the finest burins in the series. Four are (*d*) convex scaled, on narrow thin blades 4 to 5 cm. long, three being formed by a single spall from 4 to 9 mm. wide, the other one being double ended, with working edges 7 and 8 mm. wide formed by single spalls. Three are (*e*) concave scaled, one on a flake 3.5 cm. long, two on blades 3.5 to 5 cm. long. The flake burin is formed by a transverse spall across the corner of the inner face, and has been re-struck. Two of the others are formed by two parallel spalls with working edges 10 and 14 mm. wide.

There are two with spalled and scaled burins on the same implement. One is made on a re-directing sliver 7 cm. long bearing the trimmed edge of the core platform from which it was removed. It is double ended, with single spalls 8 and 9 mm. wide forming the working edges. One end is convex, and the other a scaled concave. The other burin is a flake 4 cm. long with working edges formed by two parallel spalls 9 mm. wide against a concave scaled edge at one end, and at the opposite end two short parallel spalls form a second burin edge 6 mm. wide.

The range of burins is limited to the spalled varieties of the bevel, rectangular, convex, concave, and single blow, and the scaled varieties to the same kinds with the addition of the side and counter scaled ones, all the simpler forms of burins. They occur in the coroid, normal flake and blade and microlithic types. The central or bec-de-flute variety is rare, and the multiple fluted (Noone, 1934, fig. 2, o-p) and nucleiform (Noone, 1934, fig. 1, f) are absent. Features of the series are that the spall is knapped at the opposite end to the platform on 10, the spall has been re-struck on 4, other edges of the implement are trimmed for use on 3, two are double ended, and three parallel spalls have been struck on 5.

Fabricators

Two are thin flakes 2.2 and 3.8 cm. long, used on one lateral margin. and on one end and lateral margin respectively, one is a thick flake with a heavily used gouge-type working edge 2 cm. long, one is a blade 3.5 cm. long with a gouge-type working edge 1.4 cm. long, and a straight working edge 6 mm. long. Five are bipolar blades of punch type used at one or both ends, and five are microliths.

Bondi Points

One is trimmed along the chord but not along the thin margin, one bears light knife use on the chord, one is an elongate segment in shape grading into the geometrical microliths and is trimmed on both edges of the thick back, 4.3 cm. long, and three have a concave—5 x 3, 3 x 1, 8 x 1 mm.—on the trimmed margin. Fifty-six are from 1.5 to 3 cm. and 12 from 3.1 to 4.6 cm. long.

Geometric Microliths

The sizes range from 1.6 to 2.6 cm., with one segment 3.2 cm. Unusual examples comprise a hat-shaped or elongate trapezoid with reverse trimmed sides, and an irregular triangle with a marked concave 10 x 3 mm. on one half of the trimmed back. One is yellow patinated. The segment, trapezoid and triangle are the predominant types, and the oblique trimmed blade (or half trapezoid) is well represented.

Four of the thumbnail scrapers have convex ends, three are side, one is a side and end, and two are double end trimmed microliths from 1.2 to 2.7 cm. long. One has a tiny nose on its trimmed edge, one has a tiny nose between two concaves 5 x 1 and 6 x 5 mm., one is a thin-keeled double end scraper with convex edges, one has straight and convex trimmed ends, one has a concave 3 x 2 mm. on one side and a neatly trimmed chord.

Oblique Trimmed Blades

Three are microliths from 2 to 2.8 cm. long, three others are from 2.3 to 3.5 cm., and one 4.7 cm. has two small concaves on its unevenly trimmed edge.

Hammerstones

Half of a pebble 6 cm. long, well used on its sides, and a pebble 7 cm. long, used on one corner from which a spall has been broken off during use.

Mortar

A pebble 8 x 8 x 4 cm., used as a mortar on one surface and as a hammer on one end which is heavily battered.

Pigment

Two flat pieces of red shale, 4 to 6 cm. long, were found in layer 2. They show no signs of rubbing or use as pigment but the shale could have been a source of pigment.

Yellow Patinated Implements

Sixty-five of the implements in the Bondaian layers are yellow patinated and stained, the remainder vary from firm clean surfaces to discoloured grey from lying in the ashy portion of the deposit.

Capertian Layers, 6-10

Most of the implements in the assemblage are stained and yellow patinated. A number of them have a layer of grit, up to one-eighth of an inch thick, adhering to one surface. The white chert is thus altered to yellow and rich umber brown on the outside, the black chert to grey on the outside. Where the white chert has been lying in an ashy deposit it is discoloured to a grey. All of the implements in this group are made of chert unless otherwise stated.

Cores

Among those with one platform is one 7 cm. long with part crust and part dished flake-scar platform used on the distal end as a hammer; six from 3.5 to 7 cm. long have dished platforms; one is a slab 9 cm. long and 3 cm. thick; one is a tested reject 6 cm. long; one has a concave working edge 25 x 5 mm. in size on one edge, and two have a used concave at the top of a flake scar.

Among the cores with two platforms at opposite ends are two prismatic nuclei 2.8 and 4 cm. long from layers 7 and 8, with two plain and two faceted platforms, and a prismatic core 5 cm. long from layer 11 with one flat crust and one dished and faceted flaked scar platforms. One is a flat and convex sided core 4 cm. long trimmed along both sides. Two are 4 and 4.5 cm. long, and a keeled one is 8 cm. One 9 cm. long is a thickly patinated lump of black chert with two dished platforms.

One of yellow patinated chert 9.5 cm. long, with three platforms from which large flakes have been knapped.

A quartz pebble 4 cm. long has two platforms at right angles, and a core 7 cm. long bears alternate knapping and a trimmed working edge.

Re-directing Slivers and Blocks

The slivers are from 5 to 8 cm., and the blocks from 3 to 4 cm. long. One exceptional piece is a re-directing sliver 9.2 cm. long, deliberately knapped, which bears very neat trimming right along one convex edge and around the distal end.

Coroids

A lump of flat laminated chert, 10 cm. long, 1 to 2 cm. thick, has a convex working edge, and a quartz pebble 4 cm. long has a concave 8 x 2 mm.

Blocks

One 7 cm. long with a concave 30 x 2 mm. on the back edge of the striking platform; one 7 cm. with a concave 8 x 2 mm. beside a reversed concave 15 x 5 mm.; two flat irregular blocks 4.5 and 5 cm. one of which has a concave 10 x 1 mm. and the other two concaves 10 x 2 mm. separated by a notched nose 10 x 2 mm.; one 5 cm. ends in a rounded nose 17 x 10 mm. bearing a used concave 15 x 4 mm. on the inner side; a pyramidal block 3.2 cm. with a notched concave working edge and two concaves 13 x 2 and 6 x 2 mm.; a keeled block 5 cm. with a notched and convex working edge at the distal end, and a keeled re-directing block 5.3 cm. long with a well-used trimmed edge along the keel. A block 6.5 cm. long has a lateral working edge, and one 7.5 cm. long is lightly used at both ends.

Uniface Pebble Implement

A pebble 13 x 7.5 x 4.5 cm., heavily worked over one surface and side to form an oval face, with well-used working edges along the lateral margin extending around both ends. One end has a straight working edge, the other end bears four concaves, of which three are 10 x 3 mm. and one 15 x 5 mm., worked back under the body of the implement. On the lateral margin a long concave 50 x 5 mm. is also worked back in this way. This is a typical Kartan pebble chopper.

Scrapers

Eight of the side scrapers are on blades, the others on flakes, from 3 to 8.5 cm. long, most of them having been used lightly on a straight working edge. One is a thin and narrow blade, lacking its point end, trimmed like a *Bondi* point on two edges of a thick margin. One is made of quartz.

The end scrapers are mostly blades from 2.8 to 3 (3), 3.5 to 5.5 cm. long. Four have convex working edges, and on two the trimmed end is like a broad nose. One is keeled and one is a quartz spall. One is double ended on a flake 4.5 cm. long trimmed on the inner face at one end, and on a narrow straight edged corner at the other end.

Two side and end scrapers on flakes 4.5 and 7.5 cm. long are both poor examples, and a double side scraper is on a blade 4 cm. long.

Notched working edges occur on the lateral margins of two broad flakes 7 cm. long and a blade 8 cm., and on the end of a keeled blade 3.5 cm.

One tiny chip 1.9 cm. long, from layer 10, has a trimmed convex edge on one corner.

The majority of the concaves are on flakes, one being 3 cm., the others from 3.2 to 7 cm., and one 7 cm. long. One is a flake 4.5 cm. with a long concave 36 x 2 mm. across the butt end, one is a pointed flake 6 mm. long with one lateral margin notched and a concave on the other margin, one is a quartz spall with three concaves, and one has a pair of reversed concaves.

The concave and nosed scrapers are mostly on flakes. The blades and flakes are from 2 to 3 cm. (2), and from 3.2 to 7 cm. long. One is a flake 3.5 cm. with a rounded nose on the corner of the butt and a concave on the lateral margin, one is a flat outside spall with a well formed and unusually long narrow nose 10 x 8 mm., like a borer, between two concaves at one end, and a concave at the other end, one is a blade 6 cm. with a rounded nose between two concaves on one lateral margin, and a straight edged nose on a corner at the opposite end, one is a quartz spall with two tiny rounded noses between three concaves. Most of the noses are on lateral margins but they occur on the distal and butt ends, and on the corners of the flakes and blades. Rounded noses are in the majority, but pointed and straight edged ones also occur.

Knives

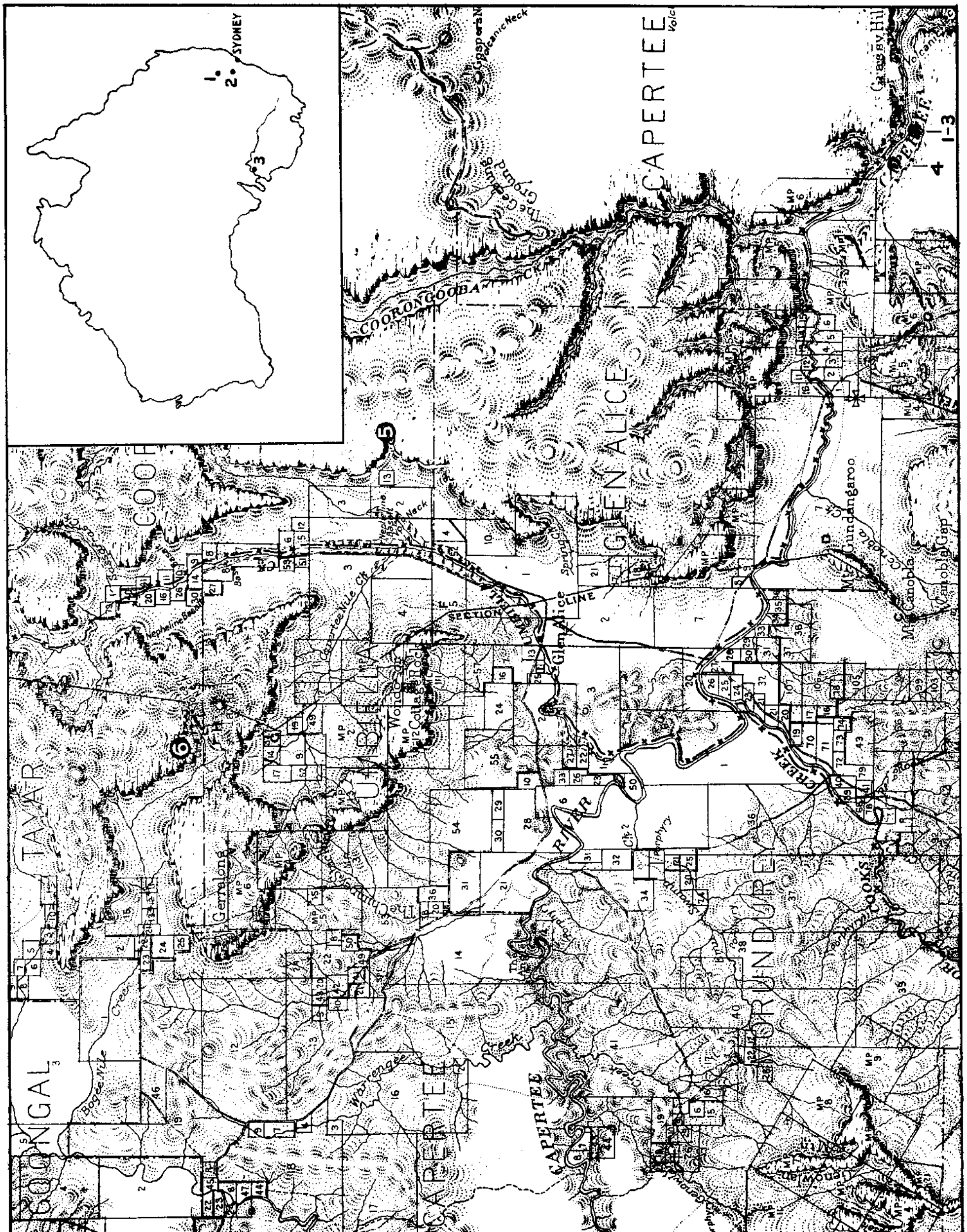
Half of the knives are on blades and half are on flakes, from 2.5 to 3 (6) and 3.2 to 7 cm. long, with one 11 cm. The working edge may be convex, straight, concave or concave-convex.

Saws

The series comprises two flakes 4.5 and 5 cm. long bearing from 3 to 4 incipient but not prominent teeth as the beginning of a dentated edge, a hinged flake 3.7 cm. with a convex dentated edge 2 cm. long, a tongue-shaped blade 4 cm. with a convex dentated edge 3 cm. long, a keeled flake 4.5 cm. with a convex and straight dentated edges on the two lateral margins, and portion (3.5 cm.) of a flake with a delicately dentated edge.

Bondi Points

Two were recovered in layer 7, both lacking tips, one of which is re-trimmed along the broken oblique distal end and has three teeth on the chord. Two were found in layer 8, and one in layer 9, all with broken tips. They are all from 1.5 to 3 cm. long.



Text Fig. 1.—Location of sites 1 to 6, excavated in the Capertee Valley. Outcrops of porphyry and limestone are identified. The major formation consists of Hawkesbury and Narrabeen sandstones, at the base of which cherts outcrop in various places. River and creek alluvials form the floor of the valley. After E. J. Carne, Dept. of Mines, N.S.W., 1906.

Thumbnail scraper

One from layer 9, 2.7 cm. long, with a trimmed convex end.

Hammerstone

A pebble 13 x 9 x 6 cm. used on the lateral margins and ends.

Remarks

Flakes predominate over blades in the Capertian phase. The majority of the 64 implements are stained from yellow to burnt umber, and they are bigger in absolute size than those in Bondaian phase.

SITE 2

This is a low shelter running the full length of a huge elongate block of sandstone lying lengthwise down the slope of the ridge. The shelter is 60 ft. long, up to 5 ft. high, and 8 ft. from front to back, and faces to the west. The deposit extends up to 5 ft. outside the shelter, in one section at the high southern end it fills a shallow area enclosed by rocks, and it slopes from the southern to the northern end. The deposit is up to 3 ft. deep and contains Bondaian implements from top to bottom. The whole of the specimens are described, therefore, as one assemblage.

Cores

An irregular series with flat, dished and cortex platforms, all of chert.

In the one-platform type, from 3.5 to 7.5 cm. long, one has a flat cortex platform and one is a flat sided piece of laminated chert. One is an elongate pebble 12.5 cm. long which has had a block removed from one end to prepare a dished platform, from which one large flake only has been knapped, and there is a concave working edge 3.5 cm. long on the edge of the platform.

The cores with two platforms at opposite ends are from 3.5 to 4.5 cm. and all have dished platforms. One is a flat prismatic core, and one is a tabular type, 5 cm. long, 1 cm. thick and wide. Those with two platforms at right angles comprise one of quartz, 4.8 cm. long, one of chert, 7 cm., and a well-worked one 6 cm. with two dished platforms.

There are two cores 5 cm. long with irregular platforms.

Re-directing Flakes and Blocks

Four slivers from 4.5 to 6.5 cm. long, and one block 5 cm. long.

Coroid Burins

One of (*c*) concave scaled, on a lump 4.5 cm. long, with a working edge formed by one full-length spall 7 mm. wide against a well-trimmed edge.

Blocks

The best examples of blocks from all sites came out of layer 1 in this deposit. They are from 3.5 to 8.5 cm. long. One flat block bears three rounded noses separated by four concaves on the distal end, and has bigger concaves 35 x 5 mm. and 30 x 5 mm. on each lateral margin; one keeled block, 8 cm., is well used on three margins with a concave on one; a keeled block has two trimmed convex ends; a flat block, 7 cm.,

is heavily worked back under the body of the implement on one edge, and has a rounded nose between concaves on another edge; a discoid block 3.5 cm. has a notched concave on a trimmed convex edge; a quartz block has a concave on its thicker end. The majority of these blocks thus bear from one to three concaves. but only one has a trimmed nose.

Slice

One 9 cm. long, with a trimmed lateral margin and a rounded nose on its distal end.

Elouera

One 5 cm. long, slightly used along the chord.

Scrapers

In general, there are more blades than flakes in this series.

Two of the side scrapers are from 2.3 to 3 cm., the others from 3.2 to 5 cm. long. One has a bi-faceted edge, one a steep-faced working edge, and two are fragments. In the double side scrapers, from 3.2 to 4.2 cm. long, two are reverse trimmed, one has a steep-faced working edge, and one bears use polish.

Two of the end scrapers are from 2.3 to 3 cm., the others 4.8 and 5 cm. long. Three have a straight and one a convex working edges.

One side and end scraper is a well fashioned broad blade 8 x 6 x 2 cm., heavily patinated, used on both lateral margins, one of which bears two different coloured patinations, a grey and a yellow, indicating use at two different periods. The only other example is a blade 4.5 cm. long. The only double side and end scraper is a reverse trimmed blade 4 cm. long.

Two of the concave scrapers are 2.5 and 2.7 cm., one of which is quartz, the other from 3.2 to 6 cm., long. One is a keeled blade, 6 cm., with three concaves on one edge, one a thin blade with a concave on both lateral margins, one is a thick keeled blade with two concaves on the chord, one has knife use on one lateral margin and a concave on the other margin. Three are well used butt concaves on flakes 5 cm. long.

In the concave and nosed series one is 3 cm. and the others from 3.2 to 5 cm. long. One is a blade 5 cm. with two rounded noses separated by three concaves on one lateral margin, one has a distal corner nose, a spall flake has a long pointed nose between concaves on the thicker end of a lateral margin, one has a rounded and a pointed nose on the convex end. The working edge is on the lateral margin, and the nose is rounded, on the majority.

A flake 4.6 cm. long has a notched lateral margin.

Knives

Seven blades and four flakes from 3.3 to 8.5 cm. long.

Burins

In the spalled type there is one of (*b*), bevel spalled, one on a flat sided blade of chert 5 cm. long with a single spall 6 mm. wide, the other on a trimmed flake 3.7 cm. long with two parallel spalls producing an edge 10 mm. wide. Two of (*g*), single blow spalled, one on a flake 4.5 cm. long, re-struck, with a working edge 7 mm. wide, and

its other end a trimmed concave edge; two of (*b*), bevel spalled, one on a flat sided blade of chert 5 cm. long with a single spall 6 mm. wide, the other one a triangular flake 3.7 cm. long with two parallel spalls and a working edge 10 mm. wide.

One has been re-struck, one has a trimmed working edge, two have parallel spalls, and two are double ended.

In the scaled type there is one of (*c*), rectangular scaled, on a blade 6.7 cm. long with single spall 6 mm. wide.

Fabricators

Three quartz fragments 1.3, 2.8 and 3.2 cm. long. One is lightly used on one lateral margin and two on adjoining margins.

Bondi Points

There are no unusual points in the series. The majority of the partly-finished points are trimmed at the point end, but two are trimmed on the rounded butt end. Forty-one are from 1.5 to 3 cm., and 16 from 3.1 to 3.8 cm. long.

Geometric Microliths

A well made series of segments 2 to 2.2 cm. long, a triangle 1.6 cm., and six trapezoids 1.5 to 2.5 cm. There are two oblique trimmed blades 2.6 cm., and three thumbnail scrapers 1.6 to 1.8 cm., two of which have convex and one a straight working edges.

Microlithic Burins

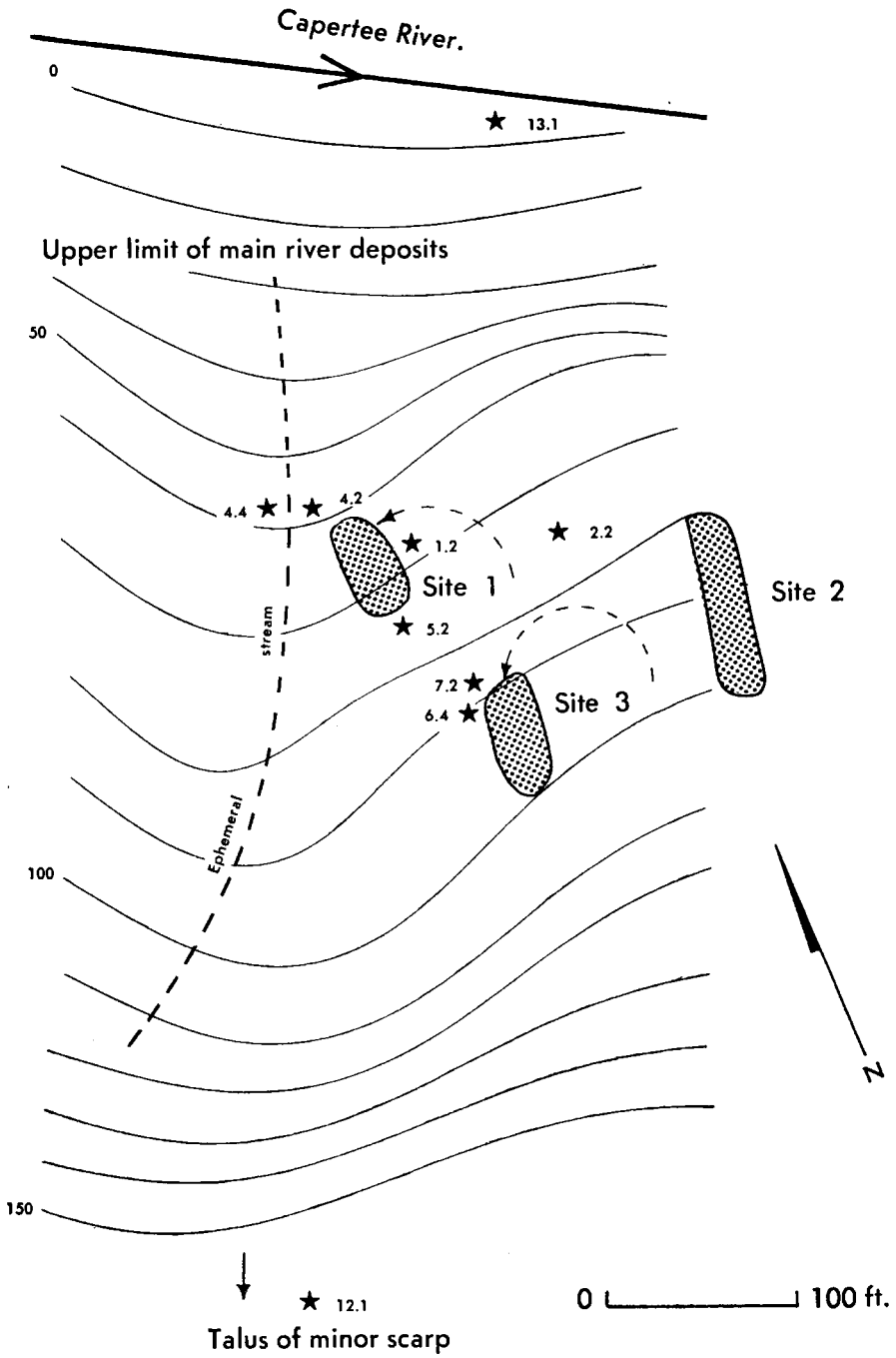
In the flake and blade group two are of (*b*), bevel spalled, one a thin narrow prism 2.5 cm. long with a single spall 3 mm. wide, the other on a flake 2.5 cm. long with three parallel spalls on the end forming an edge 18 mm. wide. One of (*e*) concave scaled, 2.8 cm. long, on a blade with a single spall 7 mm. wide, two of (g), plain or single blow, one on a narrow thin prism 2.6 cm. long with two parallel spalls 6 mm. wide, and one on a blade 2.8 cm. long, used as a burin at both ends of the one lateral margin, with working edges 9 mm. wide. One of (*h*), counter scaled, on a flake 2.6 cm. long.

Hammerstone

A quartz pebble 11 x 6 x 5 cm., heavily used on both ends and sides, with lines of two and three percussive pits on the upper and lower surfaces and one pit on one end.

SITE 3

This site, the last one excavated, proved to be the most important and productive of the series. It was 10 ft. long, 8 ft. high, and 5 ft. from front to back when we began excavation but as the deposit was taken out the shelter was found to be much bigger at a depth of 10 ft. A hole 4 ft. long, 3 ft. wide and from 1 to 3 ft. deep was dug in this deposit by some collectors who were not aware that we intended to excavate the site. The dark ashy deposit varied in depth up to 24 inches, but it formed an extensive pit 54 in. deep in sections 7, 8, 11 and 12, clearly demarcated by its grey colour from the buff-coloured sandy deposit surrounding it. Implements at all depths in this area are coloured according to whether they came out of the ashy-sand pit or from the sandy grit portion of the deposit.



Text Fig. 2.—Plan of sites 1 to 3 in relation tc the Capertee River. (After P. H. Walker).

Another fireplace 4 in. thick was encountered between boulders in section 6 which rested on the basal soil layer T. The main boulder was 4 ft. long, 1 ft. thick, and 1 ft. 6 in. high. An ash sample was collected from this fireplace. A wall of rocks occurred along the front of the cave floor at the 36 in. level, apparently pushed out from the interior by the Aborigines to make more space on the floor. It was somewhat similar to the row of boulders in the Lapstone Creek shelter (McCarthy, 1948).

One of the test holes dug by Mr. Norcross in site 3 (Section 6) was 10 x 6 in. in size, and was taken down 25 in. to the top of layer 5. It was filled with leaves and grass, in which a wooden knife-handle was found 2 ft. from the surface.

Bondaian Layers, 1-5

Ground-edge Axe

The three examples found comprise one of fine-grained basalt from layer 2, a well made biface coroid type 8 x 4.5 x 3 cm., oval section, with flat polished facets on the blade, percussion use along the sides and butt, and anvil marks on both upper and lower surfaces; one from layer 3 is a rectangular pebble axe 9.5 x 8 x 2.3 cm., bearing a few flake-scars on the edge of one surface, which is stained a buff colour and has a convex blade; and a flaked pebble axe, 9.5 x 9 x 3 cm., half oval in shape, made from a weathered lump of basalt roughly flaked along one margin and half of the other one, the convex blade being not quite centred, and the butt hammered heavily to a straight percussion face. Three flakes bearing typical axe blade grinding were found in layers 1 and 3 and are 4.5 and 5.5 cm. long. Two of the axes were found near the back wall of the shelter.

Cores

These are mostly of grey to cream and sometimes of black cherts, some are of quartz and many are irregular in shape. Cortex, flat, and dished platforms are all represented.

Among those with one platform, 16 are from 2.3 to 2.8 cm. long, the others being from 3.5 to 3.7, and three are from 8 to 10 cm. One is a flat sided slab 9 x 6 x 3 cm., and several other smaller cores of this local laminated chert are present. One is a controlled prismatic core, and there are 16 others of prismatic shape. There are three small conical cores. The biggest core is a rounded lump of chert 12 x 13 x 8 cm., with cortex top, dished platform, heavily stained and patinated, found at a depth of 3 ft. on the border between the Bondaian and Capertian culture phases. The remainder are irregular in shape. Six are knapped secondary cores from 3.5 to 6.5 cm. long, and another one, 9 cm., has a concave working edge. Three of the microlithic-sized cores are made of quartz. The flake scars on the majority of these cores are relatively small.

Fifteen of the cores with two platforms at opposite ends are from 2.3 to 2.7 cm. long; others of irregular shape are from 3.2 to 6 cm., one is 10 x 9 x 5 and one 7.5 x 4.5 cm. in size. Twenty-nine are of prismatic type, from 3 to 6 cm. long, one of which has deeply dished and crust platforms. Seven have faceted platforms. This group is mostly of small cores with narrow flake scars (probably for points and microliths) and some of them are difficult to separate from burins.

The cores with two platforms at right angles are bigger in size than those in the Bondaian phase of site 1. There is one 2.6 cm. and the others are from 3.5 to 10 cm., with one 10 x 6 x 5 cm. long. Cortex platforms are common in this series. There are three remnants, 2, 3 and 3.5 cm. long, with three platforms, and two poorly worked discoid cores, both knapped secondary nuclei, 4 and 6.5 cm. long, and an elongate core 8 cm., with alternate knapping.

Re-directing Flakes and Blocks

Out of the total of 94, the exceptionally large number of 57 came from layer 3. Some of these pieces are broad and thick, from 3 to 4 cm. long, but the great majority are narrow slivers from 2 to 8 cm. long. The trimming on some of them is finer than on the blocks and scrapers. There are nine blocks from 3 to 5 cm. long.

One from layer 6 is a sliver 7 cm. long, with very neat trimming on a convex edge, neater than that on any block or scraper in the Capertian phase of this site.

Coroids

A tabular lump, 3.5 cm. long, with three concaves from 8 x 2 to 23 x 4 mm., a quartz discoid 3.5 cm., with concaves 10 x 2 and 25 x 2 mm., an irregular lump of grey chert 10 x 6 x 3 cm. with a straight but notched edge.

A flat sided pebble 14.5 x 8 x 3 cm., with a vertically trimmed face all round, notched completely along its oval outline excepting at one end, and a trimmed oval pebble 16 x 9 x 1.5 cm., alternately and roughly trimmed along both lateral margins and one end, and used as a hammerstone on the trimmed end.

Coroid burins

In the spalled type there are 4 of (*c*) rectangular variety, of which one is a triple burin on a blade with two longitudinal and one transverse burins with single blow working edges 4, 6 and 8 mm. wide; two are on blades 4 and 4.8 cm. long, of which one has a re-struck working edge 3 mm. wide, and one is a flat piece 6 mm. long with three parallel spalls producing a working edge 20 mm. wide.

In the scaled type, one of (*d*), convex scaled, 5 cm. long, with a single spall 5 mm. wide, a trimmed convex distal end, and trimming just below the hinge of the spall scar; one of (*e*) concave scaled, on a flat faced piece of chert 4 cm. long with a single spall 7 mm. wide.

One combined spalled and scaled burin has two parallel spalls struck against a single spall at one end, with an edge 11 mm. wide, and a single spall struck against a scaled edge at the other end, with an edge 5 mm. wide.

The same range of burin varieties occur in sites 1 and 3. In site 3 the spall is knapped at the opposite end to the platform on 8, 10 are re-struck, nine have an additional trimmed edge on the implement, seven have two to three parallel spalls, and four are double ended.

Blocks

An irregular formless series, in which seven are of microlithic size, and the others from 3.2 to 8 cm. long. Many bear only casual use, with an occasional well-trimmed edge. One has a steep faced edge, one is trimmed on the inner face, and one is reverse trimmed on two adjoining long edges one of which bears two concaves 10 x 2 mm. in size. One pointed block 5 cm. long has a concave 15 x 2 mm., and a convex working edge, one has a concave 14 x 3 mm., one has two concaves 30 x 3 and 5 x 3 mm., one has a nose 10 x 4 mm. and a concave 18 x 3 mm., and one has two concaves 10 x 2 and 15 x 2 mm. One has a notched edge, two have corner trimmed working edges, one has a straight bi-faceted cutting edge 4.5 cm. long, and two are keeled. One is made of quartz.

Slice

One 10.5 x 9 x 3.5 cm. of grey chert is of cleaver type with a straight bi-faceted working edge 6 cm. long, and another straight working edge 7 cm. long. Another rough slice of grey chert 9.5 cm. long, with one long concave and convex working edges, and one 9.5 cm. with a concave 10 x 4 mm. on the corner of the trimmed distal end.

Blade

One 9.5 cm. long struck from the outside of a chert pebble, with light use on one lateral margin.

Scrapers

A somewhat formless series on which the proportion of measurable butt angles is low, blade shape is in higher proportion than flake, and the working edge is from straight to convex. Salient bulbs are uncommon.

Nineteen of the side scrapers are from 2 to 3 cm. long, three of them are quartz, the balance are from 3.2 to 7 cm. One is a thin flat-sided piece of laminated chert, one is used on the inner face, but the chipping or use generally is scrappy and haphazardly placed.

Eight of the end scrapers are from 1.7 to 3 cm. and the balance are from 3.2 to 8 cm. long. The working edge is convex on the majority, and straight on the minority. Five are of quartz. One is a neat tongue shaped blade, the others of irregular shape. Two keeled blades 6 cm. long have a trimmed oblique distal end. Six of the butt end scrapers are from 3.5 to 5 cm. long, one is a re-directing sliver 10 cm. long bearing a concave 75 x 10 mm. Nine of them are *Glanmire*-type keeled flakes tapering from the thick chipped convex butt to the thin pointed distal end, three of which are from 2 to 3 cm., and three from 3.3 to 3.5 cm. long. Four of the double ended scrapers are blades 5 to 6 cm. long, one 3.5 cm. has a trimmed lateral margin, and one 3.5 cm. is trimmed across a broken straight edge on one end.

Five of the side and end scrapers are from 2 to 3 cm. and the others are from 3.3 to 3.6 cm. long, with one 6 cm. and the biggest one 8.5 x 8 cm. One is a pointed blade, 6.4 x 4 x 2 cm., bearing the remnants of gum (probably beeswax) hafting. It was mounted so that one long margin projected from the gum. Half of this edge is heavily worked with step chipping which extends around one end for 1 cm. and most of the striking platform has been worked away as a result. Four of the double side scrapers are from 2.5 to 3 cm. and the others are from 3.5 to 6 cm. long. One is reverse trimmed. The longest one has two straight working edges. Three of the double side and end scrapers are reverse trimmed, and most of their working edges are straight.

There is an irregular semi-discoid scraper 4 cm. long, and a discoid 4 cm. long. One discoid 3.5 cm. bears small flake scars alternately knapped and is a core used as a discoid.

Tula Adze Slug

A typical example was found in layer 3. It is 3 cm. long, 1.5 cm. from butt to working edge, and is fire burnt.

Elouera

Although only a few specimens were found they were distributed through the deposit down to layer 5. They are from 3.25 to 8 cm. long. Two are use-polished on the chord, one of which is a shallow concave and the other a lightly trimmed edge. All of them are trimmed on one edge only of the thick back, and on one the trimming extends around the distal end. One is lightly faceted on both sides of the chord as though for cutting, and one has a trimmed chord. The biggest example is roughly shaped along the thick back, heavily used and use-polished on the chord.

Backed blades

Three narrow blades from 3.5 to 6 cm. long.

Knives

The majority are blades varying from thin and narrow to broad and thicker pieces, and several are flakes, of which eight are from 2 to 3 cm. long, the others being from 3.2 to 8 cm. The working edge, which is lightly faceted on the majority and lightly trimmed on one, is from straight to convex.

Saws

Ten are from 1.8 to 3 cm., the others are from 3.3 to 5 cm. long, thus being comparatively small flakes and blades. The saw is on a convex lateral margin on the majority, but it is on the distal end of two, butt end of one, oblique edge of one, is straight or concave on several others. It is 7, 10 (3), 15 (2), 20 (2), 25 (2) and 30 mm. long. One thick flake 2.1 cm. has the dentated edge on a notched end, one is a triangular flake 3 cm. with a nose-like saw-edged end, one with a dentated edge 25 cm. has obviously been broken off at each end, and one from layer 1 has incipient saw edges.

Concave

Eleven are from 2 to 3 cm. long, the others are from 3.5 to 7 cm. Most of the concaves are on lateral margins. One is a semi-discoid of quartz, 2.4 cm., a punch type blade 2.25 cm. has two concaves, one blade 5 cm. is double side and end trimmed and a similar one has the concave on the corner of a heavily faceted butt, one blade 2.5 cm. is a reverse trimmed double side and end scraper with a concave on the end, one is a butt end concave on a narrow keeled blade 3.5 cm., one is reverse trimmed with two concaves on each lateral margin.

Concave and Nosed

Three are from 2.5 to 3 cm. long, the others are from 3.5 to 7.5 cm. The noses are mostly rounded, but pointed noses occur sometimes combined with a round one. One has three pointed noses. One nose has a notched edge, and one has a concave 8 x 2 mm. on it, one blade has a broad nose right across its end, but on two examples the set of a tiny nose between concaves occupy only 1.5 cm. of the edge. Two have the nose on the distal end, one is a curved blade with a nose between two unused concaves on the distal end, three blades each have two noses separated by three concaves on the distal end, five have the nose on a distal corner with or without adjoining trimmed margins, one is a keeled blade 8 cm. with a notched straight end, pointed nose between concaves on a corner and a broad nose between concaves on a lateral margin.

Notched

Four are from 2 to 3 cm., the others are from 3.5 to 7 cm. long. The working edge varies from concave to straight and convex, it is on the lateral margin of the majority, on both lateral margins of one, and on the lateral margin and end of one. It occurs on both flakes and blades. One is a wedge-shaped blade 7 cm., one has a convex and a concave notched edges, one is a flat piece of local laminated chert 6 cm. with a notched concave edge 3.5 cm. long, one is an outside spall. The biggest one has a notched concave 40 x 5 mm. lateral margin, and the corner of its distal end is a rounded nose 40 x 20 mm. trimmed on the outer face of one side and the inner face of the other side, with a concave 20 x 5 mm. on the other margin.

Burins

Two of the spalled burins are of (*c*) rectangular spalled, both 3.5 cm. long. One has two parallel spalls with a working edge 4 mm. wide, the other has been re-struck three times and has a working edge 7 mm. wide, and the opposite lateral margin is trimmed on both examples. One is of (*d*) convex spalled, on a blade 5 cm. long, re-struck with a working edge 5 mm. wide. One is of (*e*), concave spalled, a double ended burin on a blade 4 cm. long, with a single spall 7 mm. wide at each end. Six are of (*g*) single blow spalled, two on blades and three on flakes 3.5 to 4 cm. long, three with a single spall from 3 to 7 mm. wide, two with two parallel spalls and a working edge 8 and 10 mm. wide.

Four of the scaled burins are of (*c*) rectangular scaled, one on a blade 4.5 cm. long with a single spall 4 mm. wide, one on a blade 5.3 cm., with an inward angled spall 7 mm. wide and slight trimming on the other lateral margin, one is on a re-directing sliver 6 cm., re-struck, with a working edge 8 mm. wide, one is a double-ended burin on a narrow blade 4.3 cm., one a single spall 10 mm. wide, the other with two parallel spalls 10 mm. wide. Seven are of (*e*) concave scaled, all on blades from 3.3 to 5.3 cm. long, five of which have a single spall from 6 to 9 mm. wide, one is re-struck with a working edge 4 mm. wide, and one is a double with a single spall working edge 3 and 6 mm. wide at each end of the scaled edge. The latter specimen has a trimmed distal end. Six are of (*d*) convex scaled, three of which are on narrow blades 4 to 5 cm. long, each with one spall from 2 to 9 mm. wide, but one has been re-struck, one is on an unusually big *Bondi* point 5.5 cm. long which has been re-struck, and two are on thick irregular blades 4 to 5.5 cm. long, one of which is a single spall 5 mm. wide, and one has two parallel spalls 8 mm. wide. One has a trimmed distal end.

One is a blade 5 cm. long, with a single blow spall 9 mm. wide at one end, and two single blow spalls 6 and 13 mm. wide against a scaled edge at the other end.

Fabricators

The great majority, 17, are from 1.8 to 3 cm. long, the others are from 3.3 to 4.5 cm. Twelve are bipolar struck blades. The working edge varies from lightly to heavily used, five have curved gouge-type working edges, sometimes combined with a lightly worked edge on the opposite end or lateral margin. One thin blade has a gouge-type edge on both lateral margins. The working edge is from 1 to 2 cm. long. Two nucleoid examples have gouge-type working edges.

Bondi Points

Unusual points comprise the distal portion only, 1.7 cm. long, of one whose chord is a concave working edge 10 x 2 mm., one with a dentated chord on which the teeth are small and not as definitely formed as on the flake and blade saws, one with a fully trimmed chord, one with the chord trimmed near the point, one with three

concaves 8 x 1 and 10 x 2 (2) on the chord, the butt half of a big point with two concaves 8 x 2 mm. on the butt and on the back, both worked back under the edge. In layer 5, five out of the seven points are from the 25 to 30 in. level, and the other two from 31-36 in.

There is one bi-marginal point, 3.5 cm. long, with a plain butt. It is yellow patinated and lacks its tip.

One hundred and sixty-six are from 1 to 3 cm. and 38 from 3.1 to 5.2 cm. long, seven are middle fragments, 33 have the tip and 20 the butt broken off, and 27 are yellow patinated.

Geometric Microliths

The 19 segments, 13 trapezoids and seven triangles are from 1.3 to 3 cm. long. The segments vary from elongate narrow (grading into the *Bondi* point) to broad semicircular shapes, and one has a trimmed chord. The trapezoids also vary from elongate to broad types, with either trimmed or untrimmed back, and one displays slight use on its chord. The triangles vary from elongate isosceles to broad equilateral shapes. Four have broken tips and four are yellow patinated. Many of them are equally as well made as geometrics from elsewhere in Australia and as a whole they form a very well developed series.

The oblique trimmed blades are from 2 to 3 cm. long.

Thumbnail Scrapers

These scrapers vary from thin concavo-convex to thicker types trimmed on the convex distal end, lateral margin or on both end and side. Four of them are discoids. One pointed flake is heavily used on the inner face. One is trimmed on three edges, with a concave 13 x 2 mm. on one. One is an unusually neatly made oval piece trimmed on both lateral margins and distal end. One is a quartz spall 1.6 cm. long trimmed on four straight edges.

Microlithic Burins

In the coroid type one is a double ended burin 2.2 cm. long with a single spall 8 mm. wide against a convex scaled edge at one end, and a single blow spall 6 mm. wide against a plain platform at the other end.

There are four burins of (*g*) single blow spalled, one a narrow prism 2.9 cm. long, re-struck, with a working edge 4 mm. wide, and three are of irregular shapes, from 2.2 to 2.8 cm. long, with parallel spalls 5, 10 and 20 mm. wide.

There are two of (*b*) bevel spalled, both with a single spall 3 mm. wide. They are 2.1 and 2.9 mm. long.

In the scaled type there is one of (*c*), rectangular scaled, a tabular blade 2.7 cm. long, re-struck with a working edge 7 mm. wide and trimmed distal end; four of (*d*) convex scaled, one on a flake 3 cm. long, three on tabular pieces 2.3 to 2.8 cm. long, all with single spalls from 3 to 6 mm. wide. One of the latter and the flake have trimmed edges; one of (*e*) concave scaled, 2.5 cm. long, with a single spall 5 mm. wide. On the opposite corner to the burin edge is a trimmed sharp point like a borer.

Gum-hafted Microlith

The head of the beeswax gum haft is 20 mm. long, 18 mm. wide and 13 mm. thick. Set in the middle of the top, and at right angles to the long axis, is a fragment of quartz 13 mm. wide and 2 mm. thick, projecting up to 4 mm. from the gum. The flake has a slightly rounded convex upper edge which shows no definite signs of use, and it would in fact, probably be discarded as a waste fragment if not so mounted. It is not a geometrical microlith, but it could have been used as a graver. There is a channel in the inner surface of the haft which shows quite clearly that it once held a thin rounded wooden handle 10 mm. wide and square ended.

Use-polished

There is only one narrow ridged blade 4 cm. long, and three of the *elouera*, bearing this kind of working edge.

Hammerstones

Pebble broken through the middle, 5 x 6 x 2.3 cm., one end of which has been used as a hammer and the other end has an abraded broken face. Part pebble 10 cm. wide and 2.8 cm. thick used around the sides. Pebble 10 x 8 x 5 cm., with one end flaked as a result of percussive use. These are all quartzite.

Shell ornament

A thin oval concave-convex piece of mussel shell, 1.8 cm. long, perforated at one end for threading on a string necklace. It is almost transparent and is stained a buff colour.

Patination

One hundred and thirty-five implements are stained from a yellow to a rich ruddy brown, and some also with manganese in all layers, there being 14 in layer i, 23 in ii, 36 in iii, 31 in iv and v.

Capertian Layers 6-11

Cores

Among the cores with one platform six are from 2 to 3 cm. long, and the others are from 3.2 to 9.5 cm., of which 20 in the bigger group are 5 cm. long. There is a mixture of flat and dished platforms, and cortex platforms are common, there being four out of seven in layer 9. Only two are prismatic in shape. Ten are made of quartz and are from 2.3 to 8.5 cm. long with both knapped and cortex platforms. Several cores have used concaves from 10 x 2 to 25 x 4 mm. in size, and two of the bigger ones, 20 x 4 mm., are heavily worked. One is a small core of black banded chert from layer 9 of which a flake was found in layers 3 and 6 above.

Although the two platforms are at the opposite end of the knapping face on 13, only two are prismatic in shape. One is 2.3 cm long, with a well used concave on the edge of the platform, and the others are from 3.2 to 8 cm, the biggest being 15 x 10 x 5 cm. Two are of quartz and are 4.3 and 7.5 cm. Those with two platforms at right angles are from 5 to 6.3 cm. long. There are seven with three platforms, from 4 to 7 cm. long, one is 11, and one is 9.5 x 8 x 5.5 cm. with three dished platforms.

Re-directing Slivers and Blocks

There is a notable decrease in the number of these flakes, accompanied by an increase in the relative number of bigger pieces in comparison with the slivers. The slivers are from 2 to 5 cm., and the blocks from 5 to 8 cm. long.

Coroids

A scanty series comprising a quartz pebble 9.5 x 6 x 3 cm. with knapping platforms at each end and a well used chopper edge on one lateral margin, and three smaller coroids, one of chert 4.5 cm. has a concave 15 x 2 mm. on the end, and two of quartz 3 cm. with convex, and a concave 8 x 3 mm., working edges.

Uniface Pebble Implements

There are five from layer 7. One is a chert pebble 10 x 12 x 4 cm., with a straight working edge diagonally across the middle, the balance of the pebble having been worked or flaked away. One is an almost rectangular hornfels pebble 13 x 7.5 x 4 cm., split through the middle lengthwise to produce a flat upper surface with a working edge 7 cm. long at the distal end which bears two concaves 20 x 3 and 10 x 2 mm. One is a quartz pebble 8.5 x 6 x 4 cm. with a concave 25 x 4 mm. on its lateral edge. One is a large slice from a basaltic pebble 7 x 7 x 3 cm. with a concave 20 x 5 mm. on its thick margin. One is a chert pebble 5.5 x 5 x 2.5 cm. with a broad convex nose-like working edge 20 mm. long. One from layer 8 is a pebble 11 x 6.8 x 5 cm., with a convex working edge bearing concaves 18 x 3 and 19 x 3 mm., and a nose 12 x 5 mm. Another one from this layer is a ferruginous pebble 10 x 5.5 x 2.8 cm., with an uneven and lightly used working edge.

Blocks

These are from 3.2 to 10 cm. long, with four of quartz from 3.5 to 3.7 cm. The working edge is on the distal end of 13, on the lateral margin of nine, and on the butt end of one. There are five elongate pieces and four are keeled. One is an oval core used as a block scraper on a convex nose-like corner 20 mm. wide. The concaves range from 5 x 2 to 13 x 4 mm., and trimmed noses from 10 x 1 to 10 x 6 mm., and both are common on these blocks. One has a concave 8 x 2 mm. beside two very small noses on one end, one is a semi-discoid with concaves 10 x 3 and 13 x 3 mm. alternating with noses 20 x 4 and 20 x 6 mm. on one edge, one has a concave 15 x 4 mm. beside a nose 10 x 5 mm. on the end, one is a reverse trimmed block 6.5 cm. long with a nose 20 x 5 mm. between two concaves 20 x 5 mm. on one edge and a nose 10 x 3 mm. beside a concave 15 x 2 mm. on the other edge. Three have long concave notched working edges, one has a short notched working edge, and one 8 cm. long has a notched concave 35 mm. long and a nose 20 mm. wide on a butt end corner.

There are two *worimi* choppers, both 8 x 7 x 6 mm., one made of chert and the other of quartzite. The former has a well used chord and is trimmed on both edges of the thick back.

Slices

One is a yellow patinated slice 12 cm. long, lightly used on one convex side with a used concave end 4 mm. wide. One is a dark chert slice 9.5 cm. long, well used on a convex side and on a concave end 10 x 3 mm. wide with a nose 5 x 5 mm. on the corner. One 11 x 9 x 4 cm. has a concave 20 x 3 mm.

Blades

One 13 cm. long, triangular in section, with slight use on one lateral margin, and one 7 x 7 cm., with a heavily used convex working edge faceted on both sides.

Scrapers

Blades are in slightly higher proportion to flakes in this series.

In the side scrapers four are fragments from 2.6 to 3 cm. long, the others are from 3.4 to 7 cm. Convex and straight working edges are evenly represented. Two are trimmed on the inner face. One is a blade 7 cm. long trimmed right along one lateral margin, three are quartz scrapers one of which has a convex working edge on a distal corner.

Among the double side scrapers is a pointed flake 7 cm. long, reverse trimmed, a blade 6 cm. long ends in a nose 10 mm. wide on the distal end, and the best example is a blade 6 cm. long with a spur dividing two well used working edges on one lateral margin. Two others are 4.5 and 7 cm. long.

Three of the end scrapers are from 2 to 3 cm. long, the others are from 3.2 to 7.5 cm. They are mostly irregular in shape. Thirteen have a convex and eight a straight working edge. One of red chert, and a keeled one of grey chert, are blades 7 cm. long. Two are made out of a hard black and white laminated chert, which occurs also in layers 3 and 6.

The side and end scrapers are mostly blades, two being spalls, and they are from 4.5 to 6.8 cm. long.

There are four good examples of semi-discoid scrapers from 3 to 5 cm. long, one made of quartzite and the others of chert.

The majority of the concave working edges are on the lateral margins of a mixture of flakes and blades, eight of which, including three of quartz, are from 2.2 to 2.8 cm. long, the others being from 3.3 to 6 cm. The butt end concaves are on flakes 2.5 and 3 cm., 3.5 to 6 cm., long, and one has two concaves.

The concave and nosed scrapers form an important group. They are mostly on irregular flakes and blades, with no consistent pattern of shape, of which six are from 2.3 to 2.5 cm. long, and the others from 3.2 to 8 cm. The concaves and noses are on the lateral margins of 28, the distal end of 42, and the butt end of three. The rounded nose predominates over the pointed one. From one to four noses, separated by concaves, occur on the one working edge and/or one end, and a tiny rounded nose between concaves on a lateral margin; a flake 4.5 cm. long has a rounded nose between concaves on two distal corners, and a convex notched working edge; a thick square flake of dark chert has three pointed noses separated by concaves, a triangular flake 7 cm. long has a large nose between concaves separating noses, one has a broad rounded nose and a pointed nose between three concaves, a discoid has five noses and five concaves, one flake has two pointed noses, one has a small pointed nose beside a saw-edged concave, a blade 8 cm. long has a large nose on both lateral margins which are reverse trimmed, and a Tasmanoid-like flake 6 x 6 cm. has three noses separated by concaves on the distal end. There are seven irregular and utilized flakes ending in a rounded or pointed nose, of which one blade 4 cm. long has a borer-like end, and there are three butt end nosed and concave scrapers.

There is a good series of notched working edges on flakes and blades from 3 (2) to 5.5 cm. long, on straight, long, shallow, concave and convex edges. One is a dark chert spall with a thick back, 6.5 cm. long, heavily notched along the chord.

Knives

Twenty-eight are on blades and 22 on flakes, of which eight are from 2.4 to 3 cm., and the others from 3.2 to 8 cm. long.

Saws

The finest examples of dentated edges from the Capertee deposits came from layers 6 to 10 in this site. A majority of them are irregular flakes but some are well-shaped blades. Five are from 2.5 to 3 cm. long, the others are from 3.2 to 7.5 cm. The dentated edge is from 1 to 2 cm. long on 22, 2.1 to 3 cm. on nine, 3.5 cm. on one 4 cm. on one, and 5.5 cm. on one. It is, therefore, quite short on the majroity, but is longer on the finest examples. It is on a shallow concave edge on six, a straight edge on seven, a concave edge on 15, and a combined convex and straight edge on one. Nine are fragments from bigger saws, a high proportion of breakages. One 4 cm. long from layer 9 has a dentated edge extending along the straight lateral margin and round both corners on the ends; one has two dentated edges, one has a very finely toothed concavo-convex edge, one blade has a convex dentated distal end, and the finest specimen, a pointed blade 7 cm. long, has a convex edge 5.5 cm. long and a concavo-convex edge 2 cm. long, both dentated.

Fabricators

Nine are made of quartz, one of which is a spall, seven are of punch-type used on one or both ends, and some of them are bipolar knapped blades. A chert example 6 cm. long from layer 7 has a working edge 4.5 cm. long. Two are from 2.5 to 3 cm. long, the others are from 3.5 to 6 cm.

Geometrical Microlith

A segment 3.1 cm. long, yellow patinated, from layer 8.

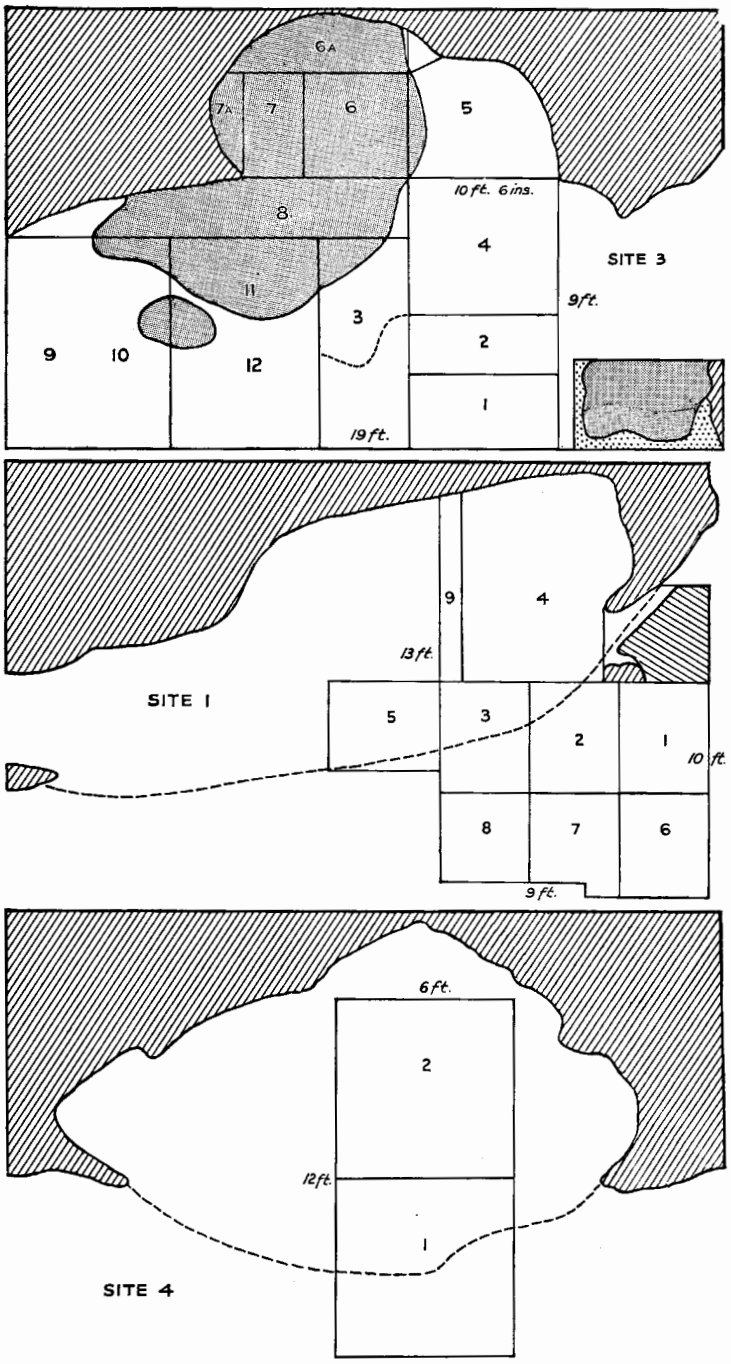
Hammerstones

A sandstone pebble 10 x 9 x 6 cm., used at both ends, and two quartz pebbles, 4 and 6 cm. long, broken by use.

SITE 4

This site is situated about 100 ft. up the ridge, at the top of a grassy slope, and above a broad terrace some 50 ft. above the river between sites 1 to 3 and Freshwater Creek. It is 16 ft. long, 4 ft. high, and 10 ft. from front to back. The floor slopes 1 ft. over the full length of the deposit.

The two 6-in. layers from 7 to 18 in. yielded *Bondi* points, none being found in the top 6 in. which is a loose sandy accumulation formed since the Aborigines left the site. At a glance the industry appears to be a mixture of Bondaian and Capertian, particularly the scrapers and cores, and is a good illustration of the continuity of the Capertian tradition in the Bondaian period. The whole of the implements are described as one Bondaian cultural assemblage because of the presence of *Bondi* points throughout the deposit.



Text Fig. 3.—Ground plan of sites 1 to 3, showing areas excavated.

Cores

In the cores with one platform one has a dished and two have flat platforms, and one has been used for scraping purposes on a trimmed convex edge. Two are 2.5 and 3 cm., two 3.4 and 7 cm. long. There are three prismatic cores from 3.7 to 6.3 cm. long, two of which have heavily faceted platforms. A core 6.5 cm. long has two platforms at right angles.

Block

A flat topped microlithic block 2.8 cm. long with a convex working edge.

Scrapers

These comprise a side scraper 4 cm. long on a flake lightly used; a reverse trimmed double side scraper on a blade 3.4 cm. long; a keeled blade 9 cm. long with trimmed convex distal end, and knife use on one lateral margin, and a convex butt end working edge on a thin flake 3.5 cm. long; a large re-used keeled blade 6 cm. long with concaves on both lateral margins, and a keeled blade 3.5 cm. long with a fresh straight working edge on one lateral margin, and on the other a nose between concaves all weathered from previous use.

Burren Slug

One 2.2 cm. long, heavily worked from both lateral margins towards the middle leaving a narrow central portion of the butt platform.

Knives

Three blades 3.5 to 9.5 cm. long, used on long margins and two flakes 5 and 7 cm. long used on an end edge.

Bondi Points

Two are exceptionally big points, one 5.5 cm. long with untrimmed butt end, and one of the same size lacking tip but well trimmed on one edge and across the straight butt. Three are from 1.9 to 3 cm. long.

Geometrical Microlith

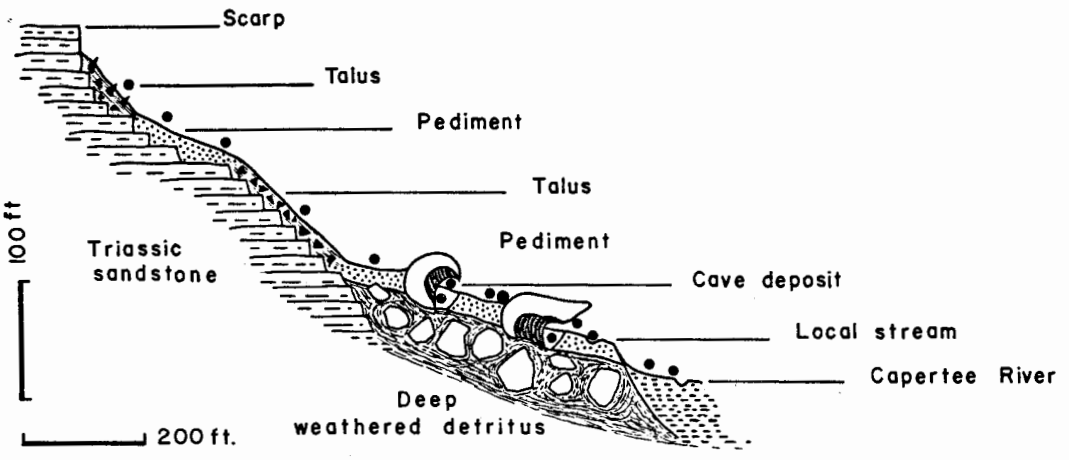
A broken trapezoid segment 1.7 cm. long.

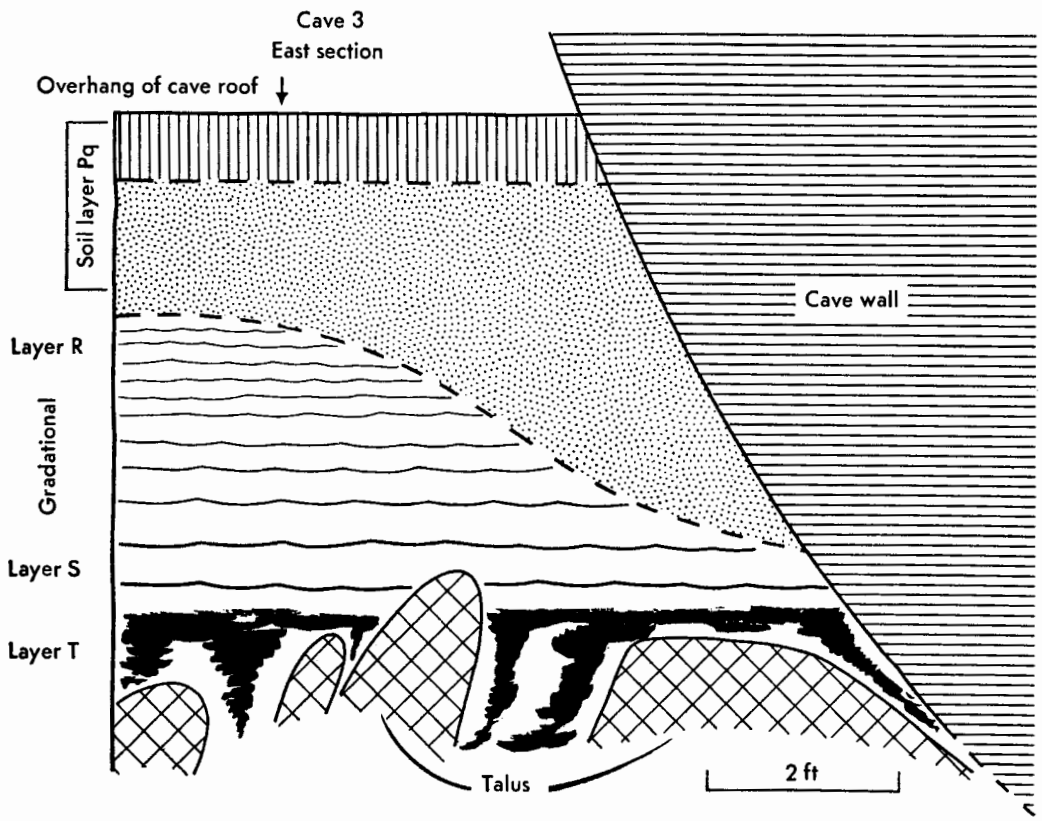
Hammerstone

A pebble of ferruginous sandstone 10 cm. long, with flake scars at both ends left by flakes removed by percussive use.

Bone Points

One is a bone 9 mm. in diameter at the butt which is rubbed on one edge at the point end to form the working edge, and a sliver has been removed from the other edge. One is a complete bone 7.5 cm. long rubbed on one facet to form an awl-type working edge.





Text Fig. 4.—The upper diagram illustrates a section of Capertee Valley, showing the various landscape features, and the places (shown by a black dot) sampled by Mr. P. H. Walker in his investigation of the soils. The lower figure shows the soils in the east section of site 3. The occurrence of stones is omitted except to show the position of the talus. This section is free of cave soil such as occurs in site 1, and the soil layers are generally conformable. (After P. H. Walker).

SITE 5

This shelter is a very big one, 100 ft. long, 35 ft. high, and 27 ft. from front to back. It faces the south-west and looks out over the very wide and flat top, like a small plateau, of a ridge situated between Umbiella and Running Creeks, east of Crown Station. It is an excellent shelter for habitation, with permanent water nearby, but there is a very stiff climb to it from Capertee Valley on the western side and the Aborigines may have approached it from another direction. The deposit is from 19 to 24 in. deep from the surface to rock bottom, and consists of grey ashy sand through which are interspersed three thin bands of clear sand weathered from the roof and walls, and layers of ash up to 2 in. thick, indicating discontinuous occupations of the site. The deposit is much disturbed by wombat burrows.

A trench 12 ft. long, 3 ft. wide and 2 ft. deep yielded the following Bondaian implements: four side scrapers on blades 3.4 to 4.4 cm., and one on a flake 2.3 cm., and five *Bondi* points from 1.8 to 2.6 cm. long. Implements are thus scantily represented in the deposit.

On the flatter portions of the back wall of this shelter is a frieze of 70 stencils which form several groups at the southern end and towards the middle of the shelter; some of them are just above the floor deposit, and as portion of these surfaces have weathered away it is probable that these lower-placed stencils were made before the shelter was occupied or before the deposit developed to any extent. The forearm is shown on several of the hand stencils. The stencils are as follows:—

Pale red human hands—right, 6.

Pale red human hands—left, 17.

Pale red human feet—6 in 3 pairs.

Dark red human hands—right, 5.

Dark red human hands—left, 8.

Dark red club—2. One 13 in. long, conical head 5 in. long.

Red hafted axe—One 13 in. long, with a big blade 8 x 7 in. in size.

Red boomerangs—Four from 26 to 29 in. long, curve shallow in relation to length, probably non-returning hunting boomerangs.

Red shields—Two 26 in. long.

Red spear—1.

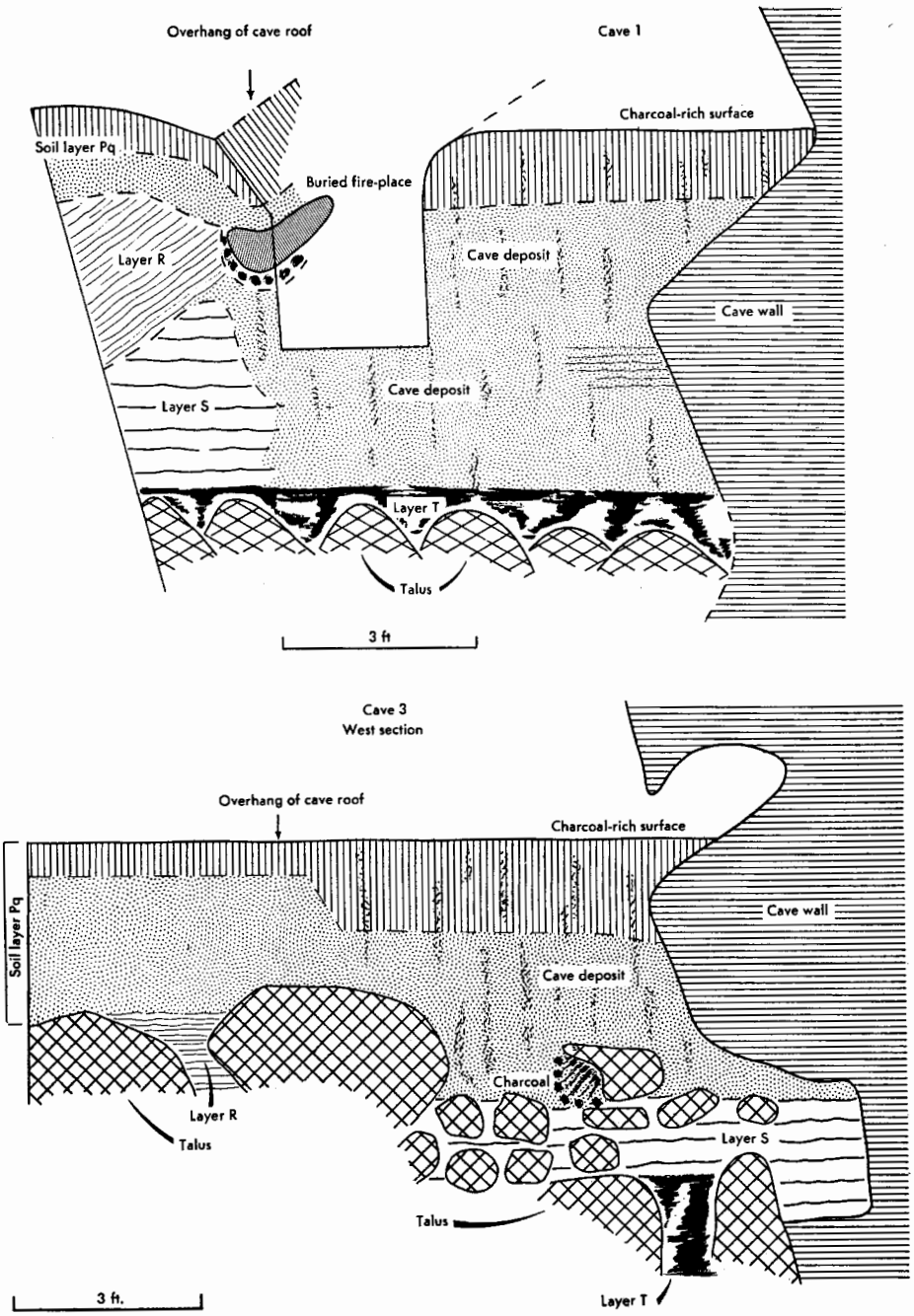
Red digging sticks—Two 26 and 31 in. long, 1 in. thick.

Red obscure figures—5.

White human hands—right, 4.

White human hands—left, 7.

At the northern end is a group of charcoal figures in which the interior of the body is infilled with closely drawn thick lines, which merge into solid areas on the limbs. These pseudo-silhouettes comprise a large figure, probably an anthropomorphic ancestral being or other spirit, 5 ft. 7 in. high and 2 ft. 4 in. wide, on which the lines are clearly visible down both sides but in the middle have been rubbed away by cattle sheltering in the cave; a human figure 3 ft. high; a koala 3 ft. high, and traces of three faded figures which include a fringe-like design 9 in. long.



Text Fig. 5.—In the upper diagram of the soils in site 1, the occurrence of stones is omitted except to illustrate the position of the talus boulders. The unconformities between soil layers are shown outside the cave, whilst inside the deposit has relatively homogeneous soil features. In the lower diagram, of the west section of site 3, the occurrence of stones is omitted except to show the presence of a stony layer just above the talus and the talus itself. A cave soil such as occurs in site 1 is evident towards the back of the section.

TABLE 3
Implement Frequencies

Implement	Site 1														Site 2	Site 3											Site 4	Site 5
	Bondaian						Capertian									Bondaian						Capertian							
	A	B	C	D	E	Totals	F	G	H	I	J	K	L	Totals		A	B	C	D	E-F	Totals	G	H	I	J	K	Totals		
	0-6	7-12	13-18	19-24	25-30		31-36	37-48	49-60	61-72	73-84	85-96	97-108		0-24	0-6	7-12	13-18	19-24	25-36		37-48	49-60	61-72	73-84	85-96		0-18	0-12
Ground Edge Axe	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	3	..	..	..	..	..	..	..	..
Ground Edge Axe Portion	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	3	..	..	..	..	..	..	..	..
1. Coroids—																												
Cores—1 platform	3	8	9	7	7	34	1	4	..	6	..	1	..	12	8	10	27	43	26	33	139	28	24	7	5	..	64	5	..
1 platform conical	..	..	..	..	5	5	..	..	..	..	1	..	..	1	..	..	..	2	1	..	3	..	1	..	..	..	1	..	..
2 platforms	..	7	7	2	2	18	..	2	2	2	1	..	..	7	5	3	11	32	19	11	76	4	4	4	1	..	13	3	..
2 platforms at angles	2	1	2	..	3	8	..	..	..	3	..	..	..	3	3	3	3	15	3	5	29	..	2	..	2	..	4	1	..
3 platforms	..	1	..	1	..	2	..	..	..	..	..	..	..	..	..	2	1	1	..	3	7	7	1	1	1	..	10	..	..
Alternate platforms	..	1	..	1	..	2	..	2	..	1	..	..	..	3	..	..	..	2	..	1	3	..	..	..	..	..	..	..	..
Irregular platforms	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	1	..	1	..	..	..	..	..	..	..	..
Remnants	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2	4	9	..	..	..	..	..	..	..	..
Redirecting slivers	5	5	7	9	4	30	..	..	4	1	1	..	1	7	14	8	14	57	5	5	89	3	..	1	1	..	5	..	2
Redirecting blocks	4	3	4	4	5	20	..	1	1	..	..	..	..	2	2	..	1	..	4	..	5	4	2	3	..	..	9	..	..
Fabricators	1	2	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Burins—spalled	..	1	..	1	..	2	..	..	..	..	..	..	..	..	3	1	..	2	..	1	4	..	..	..	..	..	..	..	..
scaled	2	..	..	..	1	3	..	..	..	..	..	..	..	..	1	..	..	2	1	1	4	..	..	..	..	..	..	..	..
Coroids General	2	3	2	1	1	9	..	2	..	..	..	..	..	2	..	..	3	..	..	3	6	..	4	..	..	..	4	..	..
Uniface Pebble	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	2	..	..	..	7	..	..
2. Blocks—																												
General	1	3	3	1	1	9	..	2	..	..	..	..	..	2	7	3	2	10	10	7	32	4	17	4	3	..	28	1	..
Keeled	..	1	..	..	..	1	..	2	1	..	..	..	..	3	5	..	..	2	..	3	5	2	8	..	..	..	10	..	..
Worimi	..	..	1	2	1	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	2	..	..
3. Slices	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	4	2	..	..	..	..	2	..	..
4. Normal Flakes and Blades—																												
Elouera	2	..	2	..	..	4	..	..	..	..	..	..	..	..	1	1	2	2	1	1	7	..	..	..	..	..	..	..	..
Scrapers: Side	1	14	5	2	1	23	1	4	..	7	..	..	..	12	10	17	13	33	7	7	77	18	15	2	5	1	41	2	4
Side and end	..	1	..	..	..	1	..	..	..	2	..	..	..	2	2	1	5	2	1	1	10	4	..	1	..	..	5	..	..
Double side	1	..	..	..	2	3	..	..	1	..	..	..	..	1	5	6	4	5	1	1	17	6	1	..	..	..	7	2	..
Double side and end	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	1	..	3	..	..	..	..	..	..	..	..
Semi-discoid and discoid	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	1	1	1	1	10	3	1	..	..	..	4	..	..
Distal end	4	3	..	4	3	14	..	2	8	..	..	..	..	10	5	6	2	14	8	13	43	13	3	2	3	..	21	1	..
Butt end	2	1	2	1	1	7	..	..	..	..	..	..	..	..	..	1	2	5	2	4	14	..	..	..	..	..	..	1	..
Double end	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	3	4	7	..	4	..	..	..	4	..	..
Butt end notched	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lateral edge notched	..	7	..	2	..	9	..	2	..	..	..	..	..	2	1	4	6	5	..	5	20	4	..	..	1	..	5	..	..
Concave—lateral	2	..	2	2	4	10	3	3	3	12	..	..	..	21	7	7	2	6	5	12	32	18	14	6	1	..	39	1	..
Butt end	1	..	1	1	2	5	..	1	..	..	..	..	..	1	3	1	1	3	3	..	7	3	1	1	..	..	5	..	..
Distal end	1	2	..	..	..	3	..	3	1	..	..	..	..	4	..	6	5	3	..	4	18	5	3	1	1	..	10	..	..
Concave and nosed	2	..	4	7	2	15	..	4	4	5	2	..	..	15	9	..	3	..	11	10	24	30	36	5	2	..	73	1	..
Backed blades	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	3	..	..	..	..	..	..	..	..
Burin—spalled	3	1	4	2	2	12	..	..	1	..	..	..	..	1	3	2	2	5	2	1	12	..	..	..	..	..	..	..	..
scaled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
combined spalled and scaled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Knife	14	4	21	8	14	61	1	6	8	..	8	1	..	24	10	5	6	11	11	10	43	16	30	12	3	..	61	5	..
Saw	..	..	..	..	1	1	2	..	2	..	..	..	..	4	..	8	1	2	4	6	21	12	22	5	3	..	42	..	..
Fabricator—One end	1	1	..	..	..	2	..	..	..	..	..	..	..	..	3	3	10	1	..	..	14	2	3	1	..	..	6	..	..
Two ends	..	..	1	1	..	2	..	..	..	..	..	..	..	..	..	3	..	1	1	1	6	2	2	..	..	..	4	..	..
Lateral	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	2	3	..	..	5	2	2	..	..	..	4	..	..
Lateral and end	1	..	1	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Adze Slug—*Tula* type	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
Adze Slug—*Burren* type	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
5. Bondi Points	19	24	25	17	16	101	..	..	2	..	..	2	1	5	57	26	65	168	52	7	318	..	..	..	..	..	..	9	5
6. Microliths—																												
Geometric: Segment	..	1	3	..	1	5	..	..	..	..	..	..	..	..	3	3	5	7	3	1	19	1	..	..	..	..	1	..	..
Trapezoid	..	..	..	2	5	7	..	..	..	..	..	..	..	..	6	..	2	6	4	1	13	..	..	..	..	..	..	1	1
Triangle	1	..	1	..	..	2	..	..	..	..	..	..	..	..	1	..	3	3	..	1	7	..	..	..	..	..	..	..	..
Hat-shaped	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oblique trd.	2	..	2	1	..	5	..	..	..	..	..	..	..	..	2	2	2	2	1	3	10	..	..	..	..	..	..	..	..
Thumbnail	3	..	4	1	1	9	..	..	..	..	1	..	..	1	3	1	1	3	1	..	6	..	..	..	..	..	..	..	..
Discoid	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	1	..	5	..	..	..	..	..	..	..	..
Burins: Discoid spalled	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	2	2	..	..	5	..	..	..	..	..	..	..	..
scaled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Flake blade spalled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	2	..	..	..	..	..	..	..	..
scaled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	5	1	..	..	..	..	1	..	..
Combined spalled and scaled	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
7. Percussion Stones—																												
Hammer—Pebble	..	..	2	..	..	2	..	..	..	1	..	..	..	1	..	..	1	..	..	1	2	1	3	..	..	..	4	1	..
Mortar	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
						402								148							2,002						483	37	12

The superimpositions are as follow: White hand over well preserved red hand; white hand over two well preserved dark red hands and shield; white hand over faded red hand; white hand (with three middle fingers together and separated from little finger) over red boomerang; red hands over faded red hands; red hands over two red boomerangs; dark red hand over red hand over red shield over red hand; black human figure over red hand; black koala over red hand. The sequence of colours, techniques and styles indicated is (1) stencilling in red was carried on for a long period; (2) white stencils are more recent than red stencils; black drawings are more recent than red stencils. The time relationship between the black drawings and the white stencils is not indicated in the superimpositions in this site.

The stencil of the hafted axe must have been made at or later than the middle of the Bondaian phase, when ground edge axes first appear in this area. There is no evidence in this site to indicate when stencilling ceased, or when the black drawings were made. As red and white, and black and white, phases of drawings succeeded the stencils in eastern New South Wales (McCarthy, 1962), it appears probable that the black drawings in this site were done in the Eloueran phase although implements of this phase do not occur in the floor. The shelter was thus occupied in the Bondaian phase, and visited in the Eloueran phase perhaps for ritual purposes.

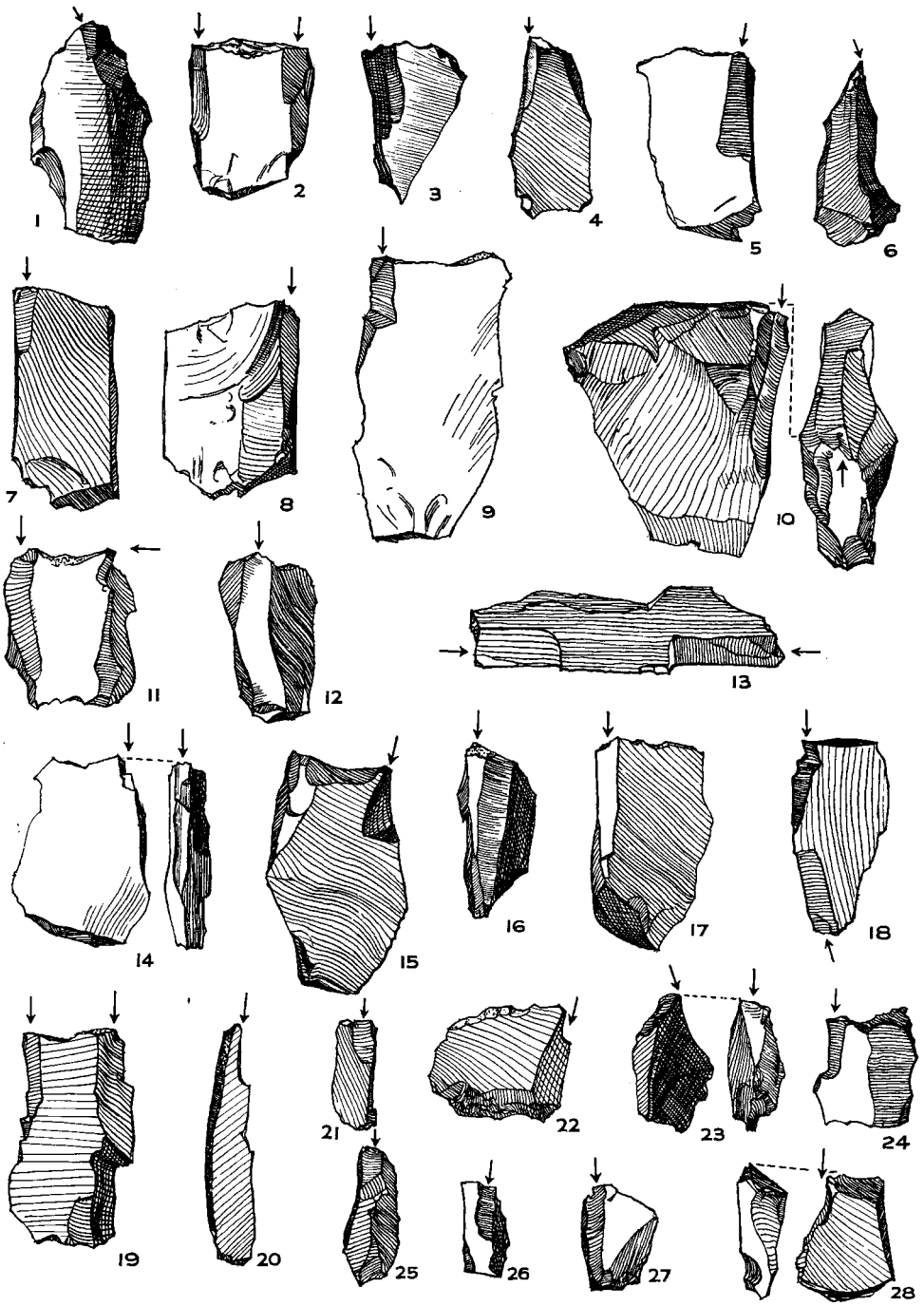
SITE 6

The Noola rock shelter was reported to me by Mr. N. Blunden in December, 1960. Stone implements, a charcoal sample and diagrams from a test trench dug by Mr. J. Bland, assisted by Mr. Blunden, for the Australian Museum, were sent to me in March, 1961. Mr. Bland reported that the deposit contained many layers of charcoal. It was then planned to excavate the site in December, 1961, but Mr. N. B. Tindale, Curator of Anthropology at the South Australian Museum, excavated the site in May. 1961, without consulting me and I had to abandon my plans to add this site to series 1 to 5 in my investigation of the archaeology of the Capertee Valley. Tindale published a paper (1961) on this site, which I have criticized (McCarthy, 1962, Tindale, 1962).

The shelter is 80 ft. long, 10 ft. high, 18 ft. from front to back, and is 300 ft. above the valley through which Bogee Nile Creek runs. It faces south across a terrace at the foot of a sandstone escarpment. On the eastern side is a spring of water about 80 yds. away. The test trench was 18 ft. long and 3 ft. wide. The deposit was only 9 to 12 in. deep for the first 9 ft., where it rested on a large slab of rock that had fallen from the roof, but it gradually deepened in the second 9 ft. The trench was taken out in 3-ft. squares and 6-in. layers to a depth of 5 ft. 10 in. only, and the end block, the deepest part of the deposit behind the fallen rock mass, was left undisturbed for the major excavation we planned but had to forego.

The following implements were recovered from the test trench of March, 1961:—

Layer 1, 0-6 in.: A secondary core, prismatic, with one dished platform, 4 cm. long, and a quartz core, 2.5 cm., with one flat platform; three punch-type fabricators, one double ended, 3.5 cm., with gouge working edges 1 and 1.8 cm. long, a small quartz one 1.5 cm. used on two adjoining edges, and one 2.2 cm. with working edge 8 mm. at one end; two side scrapers 2 and 3.2 cm., with convex edges; two side and end scrapers, one reverse trimmed, the other with a rounded nosed end and a pointed nose 4 x 2 mm. between very small concaves on the lateral margin; one double side scraper, 2.6 cm., reverse trimmed, and one 1.6 cm. trimmed on both sides of a pointed end.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Layer 2, 7-12 in.: A quartz core, 2.8 cm., with one dished platform, a black chert core, 3.2 cm., with one flat and one dished platforms, and two core remnants 1.7 and 2.3 cm.; two punch-type fabricators, 1.2 and 2.8 cm., one with working edges 7 mm. wide at both ends, the other with a gouge edge 2.5 cm. long at one end; a wide scraper 1.5 cm.; a segment 2.1 cm. heavily step chipped along the chord (like a small *elouera*); three *Bondi* points 1.3 to 2 cm.

Layer 3, 13-18 in.: One segment-shaped re-directing flake 2.3 cm.

Layer 4, 19-24 in.: A spalled burin of (*a*), central spalled, working edge 4 mm. wide, of quartz, and a flake, 4 cm., with a convex edge probably used as a knife.

Layer 5, 25-30 in.: A keeled discoid block, 5 cm. diameter, of quartz, with a series of 10 concaves from 3 x 1 to 15 x 3 mm., and seven noses from 3 x 2 to 2 x 1 mm., around the edge; and a quartz flake, 3.5 cm., with two concaves 10 x 3 and 13 x 3 mm. on one edge and two shallow concaves 7 x 1 and 7 x 2 mm. on the other margin.

Layer 6, 31-36 in.: No implements.

Layer 7, 37-42 in.: A core, 4.5 cm., of dark quartzite with two dished platforms at right angles; a quartz pebble, 5 cm., with flake scars at one end, probably a reject core; an outside spall flake, 4.5 cm., with a concave 14 x 3 mm. on one side, and a pointed flake, 3.2 cm., with a well-used concave 7 x 3 mm.

Layer 8, 43-48 in.: A double side scraper of quartz, 5.5 cm., reverse trimmed, with two concaves 10 x 2 and 10 x 3 mm., and a used convex edge, a quartz flake, 3.7 cm., with a rounded nose 7 x 3 mm. between concaves 7 x 2 and 10 x 2 mm.

Layer 9, 49-54 in.: A quartzite core, 4.9 cm., with one plain platform.

Layer 10, 55-60 in.: No implements.

Layer 11, 60-66 in.: A thin chert blade, 3.5 cm., with knife use on one long convex margin.

Thus, in the Noola trench, the specialized diagnostic implements were rare. Those found comprised fabricators in layers 1 and 2, a geometrical microlith and *Bondi* points in layer 2, to a depth of 12 in., and a burin in layer 4 (19-24 in.). In all other layers unspecialized cores, scrapers and knives were found.

A total of 3,084 implements were recovered from sites 1 to 5, and 35 from the test trench in site 6. In addition, some 1,500 waste flakes, blades and blocks were kept from sites 1 and 3, and a total count of section 9, site 3, revealed 283 implements to 2,237 unused pieces, indicating the richness of the sites.

←

Text Fig. 6.—*Burins. Macrolithic coroid type*: No. 1, single blow spalled (*g*); 2, concave scaled (*c*); 8, concave scaled (*e*); 10, combined scaled and single blow spalled; 11, rectangular triple spalled (*c*); 16, rectangular scaled (*c*); 19, combined spalled and scaled. *Macrolithic flake and blade:* 3, bevel spalled (*b*); 4, convex scaled (*d*); 5, rectangular scaled (*c*); 6, central spalled (*a*); 7, convex spalled (*d*); 9, rectangular scaled (*c*); 12, concave scaled (*e*); 13, combined spalled and scaled; 14, concave scaled, re-struck (*e*); 15, concave scaled (*e*); 17, concave scaled (*e*); 18, convex scaled (*d*); 20, convex scaled (*d*), a *Bondi* point with re-struck burin edge. *Microlithic burins: Flake and blade:* 21, rectangular scaled (*c*); 22, convex scaled (*d*); 23, convex scaled (*d*); 24, concave scaled (*e*); 28, counter scaled (*f*). *Coroid:* 25, single blow spalled (*g*), tabular shape; 26, bevel spalled (*b*); 27, combined spalled and scaled.

COMMENTS ON THE IMPLEMENTS

Bondaian Phase in All Sites

The cores with one striking platform are predominant, and those with two platforms, including prismatic types, are well represented. Conical cores, and those with alternate platforms, are extremely rare. Re-directing slivers and blocks are plentiful, indicating employment of a knapping technique in which the core platforms and working were well controlled.

The coroid implements and blocks are mostly unspecialized, and there are only four *worimi* blocks, all from site 1. Slices were found in sites 2 and 3 and are of minor interest in the assemblage.

A small number of *elouera* occur in sites 1 to 3 and they are limited to the Bondaian phase layers. Backed blades apart from *Bondi* points are rare.

Side scrapers are by far the commonest type in this group followed by the end, concave, concave and nosed working edges. It will be noted that the butt and double ended scrapers are unusually well represented. In the table every flake or blade with a concave working edge has been classified in this group to stress the importance, as I have pointed out previously (McCarthy, 1943 a-e, 1946, 1947, 1948, McCarthy and Setzler, 1960), of this working edge in Australian lithic industries.

Knives, defined as all flakes and blades with a use-fretted or delicately trimmed edge, are well represented in all sites but there is no specialized type among them.

The dentated saw edge is present in all layers of site 3, but did not occur in sites 2, 4 or 5 at all, while only one in layer 5 was found in site 1. It is thus comparatively rare in the Bondaian phase.

Flake fabricators, mostly of the punch or bipolar knapped type, are best represented in sites 2 and 3. They are limited to the Bondaian in site 1, and none were found in sites 4 and 5.

Only two worked-out slugs occurred in the sites as a whole, from sites 3 and 4. Their appearance in the top of the Bondaian phase indicates that the wearing down of hafted adze flakes to a slug was a comparatively late development in eastern New South Wales, and their scarcity suggests that this was not a common practice in the area. It also indicates that the differential diffusion of this practice in time and space on the vast continent of Australia will cause some reversals of stratification of specialized types of implements.

The *Bondi* points occur in large numbers in all sites, as the total of 318 from site 3, 111 from 1, 57 from 2, 9 from 4 and 5 from 5 indicate. They include all of the variations of shape, nature of butt, and extent of characteristic of this point (McCarthy, 1946). They grade into the microlithic segment in these sites. There is no evidence

TABLE 4

Sizes of Concave and Nosed Working Edges

Mm.	Bond.	Cap.	Mm.	Bond.	Cap.	Mm.	Bond.	Cap.	Mm.	Bond.	Cap.	Mm.	Bond.	Cap.
2 x 1	..	2	13 x 5	1	2	35 x 5	1	1	2 x 1	..	2	12 x 5	..	4
2	2	3	14 x 2	2	..	36 x 2	1	..	2	2	..	13 x 2	..	2
3 x 1	3	1	3	1	..	40 x 1	..	1	3 x 2	5	14	4	..	1
2	5	4	4	1	..				3	2	..	5	1	2
4 x 1	3	2	15 x 2	10	16				4 x 1	1	..	7	..	1
2	7	9	3	7	9				2	3	4	14 x 7	1	..
5 x 1	7	3	4	4	2				3	2	5	15 x 2	1	..
2	23	21	5	1	1				5 x 2	7	10	4	4	1
3	5	2	16 x 3	..	1				3	4	1	5	1	6
6 x 1	2	2	17 x 1	1	..				4	..	6	6	..	1
2	15	7	..	..	..				5	2	2	7	1	..
3	..	1	3	1	1				6 x 2	3	4	17 x 2	..	1
7 x 1	1	7	18 x 2	1	1				3	3	1	6	1	..
2	19	24	3	1	2				3	..	1	10	..	1
3	5	8	5	2	..				7 x 2	..	3	20 x 2	..	..
8 x 1	7	1	20 x 2	4	1				3	4	6	4	..	1
2	8	6	3	1	5				4	..	4	6	..	1
3	1	4	4	3	1				5	3	4	7	1	..
4	..	1	5	1	3				7	2	..	8	..	1
9 x 1	1	..	6	1	..				8 x 2	3	..	24 x 8	..	1
3	2	..	23 x 2	..	1				3	2	2	25 x 2	1	..
7	1	1	4	1	..				4	1	1	..	..	..
10 x 1	9	6	24 x 2	1	..				5	1	4			
2	42	38	25 x 1	..	1				8	1	1			
3	10	18	2	3	..				9 x 5	2	..			
4	2	5	3	2	1				10 x 2	5	1			
11 x 2	2	..	4	2	..				3	3	4			
3	3	..	5	1	2				4	3	9			
12 x 2	9	8	26 x 2	..	1				5	4	8			
3	2	2	30 x 2	1	1				6	..	2			
4	3	1	3	1	..				7	..	3			
13 x 1	..	1	5	1	..				8	..	1			
2	3	9	6	1	..				12 x 2	2	..			
3	2	3	8	1	1				3	2	2			
4	1	2	35 x 4	1	..				4	..	3			

The above analysis of concaves demonstrates that the great majority are 2 mm. deep, and that the commonest widths are 4 to 5, 7, 10 and 15 mm., with limits of 2 x 1 to 35 x 5 mm. These concaves would thus fit the spear and club shafts. The sizes of the trimmed noses show that the small 2 x 2 to 8 x 5 mm. are predominant, the 10 x 2 (-8) mm. sizes are common, and the limits are 2 x 1 to 24 × 8 mm.

to support Mitchell's claim (1961) that the *Bondi* point is a discarded scraper implement. Many are yellow patinated.

TABLE 5

Characteristics of Bondi Points

	Site				
	1	2	3	4	5
Left side trimmed	64	34	168	6	5
Right side trimmed	42	21	151	3	2
1 edge side trimmed	73	27	163	5	..
2 edges side trimmed	43	30	152	4	5
Butt—plain	51	23	81	4	4
do faceted	5	4	9	..	..
do Trimmed-pointed	11	7	41	1	..
do round	28	17	90	2	..
do straight	1	..	6	1	1
do oblique	..	..	1	..	..
do concave	1	..	..	1	..
do broken	11	7	23	..	..
Point broken	25	6	60	3	..
Partly trimmed	24	13	49	..	1

The left side trimmed points predominate over the right, the one and two edge trimmed types are equal, there is a low number of faceted butts, a high number of plain butts and of those trimmed to a pointed or rounded end. Other kinds of butts are rare, but partly trimmed points are common, most of them being trimmed at the point end, or the point and butt ends, and rarely at the butt end alone. Broken points are common as in other sites.

The geometric microliths, of which there are 39 from site 3, 10 from 3, 1 from 4 and 1 from 5, display a wide range of variation in the basic forms of segment, trapezoid and triangle represented, only one other, a hat-shape or very long segment, occurring. Oblique trimmed blades and thumbnail scrapers are well represented but discoids are rare. There is no evidence to support Mitchell's claim (1961) that the geometrics are discarded scraper implements.

Burins are particularly well represented in these sites, no less than 89 having been recovered, the largest series yet described in Australia. The dominant types are the spalled and scaled as in other eastern New South Wales sites (McCarthy, 1943 a-c, 1946, 1948) in the coroid, normal flake and blade and microlithic groups. The bec-de-flute burin is rare, and fluted burins are absent. Eleven of the burins described were sent to Dr. Miles C. Burkitt, in Cambridge, England, who accepted them as burins, and consultations were held with Mrs. T. Belleau-Kemp, now of Sydney, and Messrs. R. V. S. Wright and V. Megaw, University of Sydney, before the final selection was made. Although the same technique is employed on the cores for knapping the blades for making *Bondi* points, and some difficulty is involved in distinguishing cores

(especially of the prismatic type) from burins in the Bondaian culture, it should be pointed out that the burin spall is much thinner than the point blade, and on the burins many of the spalls do not run their full length; these two characteristics help to separate burins and cores. An examination of western New South Wales implements in the Museum's collection revealed an equally wide range of spalled and scaled burins in an industry in which the *Bondi* point does not occur, and on sites from localities in which the symmetrical *Pirri* point is extremely rare. The presence of burins in such large numbers throughout the Bondaian culture suggests a special usage for the implement, probably for incising designs on wooden weapons and implements.

The ground edge axe, of which three complete and three fragments (all bearing grinding) were recovered between 13 and 18 inches in site 3, represents the first appearance of edge grinding in eastern New South Wales. The pebble, flaked pebble and biface coroid types found are also three of the earliest axe types developed in Australia.

The percussion and abrading stones are poorly represented, which is a somewhat surprising result in view of the occurrence of a number of plant foods, prepared with these implements, in the valley, and also the rich stone industries in the sites.

As an awl and a broad pointed implement from site 4 were the only bone tools found in all sites, it is concluded that implements made of this material were of minor importance to the Capertee Valley natives.

The Bondaian phase is thus seen to be a much richer assemblage in the Capertee Valley, on the western side of the Blue Mountains, than at Lapstone Creek, on the eastern side. The addition of the ground edge axe, gum hafting, geometric microliths, saws, the abundance of burins and of bone fragments, widen the range of types and food resources recorded for this period. The tables of implements at the two sites reveal a very close agreement in the range and frequencies of types, in the abundance of cores with one and two platforms, redirecting flakes, side, end, concave and nosed scrapers, simple knives, burins, *Bondi* points and microlithic-sized implements, and in the scarcity of blocks, slices, *elouera* and use-polished edges.

Capertian Phase in All Sites

This phase was found only in sites 1 and 3, below the Bondaian phase.

The cores with one striking platform are the commonest, although those with two and three platforms are well represented. Re-directing slivers and blocks are present but not in as high a proportion to the cores as in the Bondaian phase.

Coroids are scarce, the outstanding type being the uniface pebble implements of which seven were found in site 3. Several of them are typical Kartan culture types as found on Kangaroo Island in South Australia (Cooper, 1943, 1960) and elsewhere in South Australia (Cooper 1959, 1961). Their presence between 37 and 60 inches (prior to the introduction of the ground edge axe in the Bondaian phase) indicates chopper use as shown by the battered working edge of one in particular. It is also in accord with their stratification in south-east Asia (van Heekeren, 1957) and central New Guinea (Susan Bulmer, 1961).

Blocks of all sizes occur in this assemblage, but two of *worimi*-type are the only specialized forms.

Side and distal end scrapers and the concave and nosed varieties predominate among the scrapers.

Simple knives, with use-fretted or delicately trimmed edges but of no particular types, are common and probably served as flesh cutters.

An outstanding feature of the Capertian is the saw with a carefully dentated edge. The dentations occur on concave, straight and convex edges, or on two of these combined on the one implement. The length of the saw edge varies from 1 to 5.5 cm., the short edge being more common, and their use cannot be conjectured apart from that of cutting. It was always believed that this edge was a comparatively late introduction into the Kimberleys of north-west Australia, whence it was thought to have diffused into the interior. It is widespread on surface camp-sites throughout western New South Wales, western Queensland, and westward across the continent. The discovery of this edge, however, in the Capertian proves quite clearly that its use goes back to our earliest industries.

Fabricators were used in this phase, but they are rare.

Five *Bondi* points were found in layer H, 49 to 60 in., layer K, 85 to 96 in., and layer L, 97 to 108 in., and a geometric microlith in layer G, 49 to 60 in., in site 3. The faunal cavities up to $\frac{3}{4}$ in. in diameter would appear to account for these tiny implements working their way down to such depths.

Four pebble hammerstones found in site 3 and site 1 establish this as the common type of percussion stone.

Comparison of Bondaian and Capertian Phases

The basic series of large primary flakes and blades, roughly chipped on the most suitable edge, on which concaves are also common, were used throughout both phases, but they are more abundant in the Capertian, in which they form the principal series of tools, than in the Bondaian. The trimmed nose is common to both phases with a very large number of them between 37 and 60 in. in site 3. Fabricators and simple knives are characteristic of both phases.

The cores, blocks and trimmed coroids show very little variation in both phases as they are mostly unspecialized forms, and the *worimi* is scarce in all of the sites. A few uniface pebble implements, however, are present in the Capertian but not in the Bondaian.

Although burins occur in both periods, they are in markedly greater numbers in the Bondaian, while the reverse is true for the saws which occur in greater numbers in the Capertian. The two adze slugs found both belong to the late Bondaian. Thus the presence of slugs, gum hafting and burins in the Bondaian indicates that a change in wood working and carving techniques took place in this phase.

Thirty-nine out of 407 Bondaian implements and 7 out of 147 Capertian implements in site 1, in which there were 56 out of 116 *Bondi* points, are of microlithic size, to which are to be added 29 geometrics; 138 out of 1,194 Bondaian implements, 46 out of 483 Capertian implements in site 3, which had 166 out of 318 *Bondi* points, are of microlithic size, to which are to be added 65 geometrics. The implements from these sites are thus bigger on the average than those at Lapstone Creek.

The two phases illustrate the history of stone working in eastern New South Wales from an early period of primary flakes, saws and uniface pebble choppers to a later period of elegant *Bondi* points, microlithic implements, the hafting of specialized and unspecialized types, and the appearance of the ground edge axe.

The later period, the Eloueran, which succeeded the Bondaian at Lapstone Creek (McCarthy, 1948), was not present in these Capertee Valley sites.

In considering the affinities of the two phases, it should be pointed out that as the saws of the Capertian and slugs of the Bondaian both came from the west, the Capertian could well be the industry that preceded the Tula culture (McCarthy, 1962 a-b) in the interior of the continent. For this reason I would link the Capertian with the Gambieran of the Coorong in south-east South Australia, an industry of great importance which Tindale (1957 a-b) has attributed wrongly to the Tartangan. The Tasmanoid affinities of the Capertian lie mainly in the occurrence of the trimmed nose, often multiple, on Clactonian-type primary flakes and blades, and a few long-edged side scrapers, but this industry is, on the whole, much cruder than both the Gambieran and Tasmanian. Dentated saws do not occur in Tasmania.

The introduction into the Capertee area of the *Bondi* point, geometric microliths, *elouera*, gum hafting, the elaboration of the burin and later the introduction of the ground edge axe, and the working back of adzes into discarded slugs, indicates contact with an important stream of culture diffusion whose direction is not as yet known. The points and the axe appeared abruptly at Lapstone Creek (McCarthy, 1948), and as both are known in northern New South Wales, and the point is not found in far western New South Wales, they would appear to have come from the north I prefer to regard these changes as being due to diffusion rather than to new waves of Aboriginal people.

Notes On the Unused Flakes

In the Bondaian phase most of the flakes have been struck from light-grey chert, but the cherts include blackish-grey, pink, and laminated kinds. Chert outcrops in horizontal Permian beds, which break up into flat-sided lumps, below the Triassic sandstones in various parts of the Capertee Valley. Grey and red quartzites, and quartz, are also present. A few complete, and some broken, pebbles of quartz, chert and quartzite were recovered together with flat-sided lumps of chert.

The majority of the unused flakes are irregular in shape, with a low percentage of well shaped blades. Blades and flakes with long edges are well represented but they are not of any standard pattern. Some are larger slices from 6 to 13 cm. long. The majority are yellow-stained and patinated, but those from the top grey ashy-sand part of the deposit, and from fireplaces, are grey-stained.

The diffused bulb is common, there being less than 100 with salient bulb among the hundreds retained. Fifty have a faceted butt which is more typical of this Bondaian phase than of the Capertian. A low percentage only have a bulb platform on which the angle could be measured.

The same range of materials was used in the Capertian phase. Blocks and lumps of local chert up to 13.5 cm. long, and of basalt and quartz up to 5.5 cm., slices from 8 x 6 to 9 x 9 cm., and blades from 6 to 11 cm., together with numerous fragments of quartz, a smooth water-worn pebble 7 cm., many large lumps of a soft red quartzite, and several flakes of a hard, glassy, grey quartzite, were found in these lower layers. Most of these pieces are yellow-stained and patinated, but in the fire-pit in section 8 to 12 grey-stained pieces were found. In the deeper layers some pieces bear a thick dark-orange patination. Forty-eight pieces bear a salient bulb, but there is also a low percentage of measurable angles in this phase. No faceted butts are present. The chert is suitable for use only as a freshly flaked edge, and it softens after detachment and exposure.

Technique

Although a Clactonian technique was employed mainly in knapping flakes and blades in the Capertian phase, and percussion trimming was used on the working edges of the blocks, slices and scrapers, it is well to note that pressure chipping was used in making the neatly dentated saws. Diffused bulbs are predimonant, and the faceted butt is unrepresented in this phase.

In the Bondaian phase the faceted core platform of the Levallois technique came into operation and is shown commonly on *Bondi* points and scrapers, and this might be said to be the only important addition to the knapping technique. Pressure trimming was additionally practised in shaping the *Bondi* points and the geometric microliths.

The table of butt angles suggests that there was an emphasis on a slightly higher angled butt platform in the Capertian than in the Bondaian phase. In the former the emphasis lies between 115 and 130 degrees, after which it drops suddenly to a peak at 142 degrees. In the Bondaian the main emphasis lies between 105 and 125 degrees, with a gradual drop away at each end to limits of 85 and 145 degrees. There is thus a complete agreement in techniques with the Lapstone Creek Bondaian period.

A complete count of waste flakes to implements was made in section 9 of site 3, with the following result:—

	Impls.	Flakes	Bone	Shell
Layer 1, 0-6 in.	68	1,240	19	8
2, 7-12	20	350	..	..
3, 13-18	72	536	2	..
4, 19-24	15	128	..	..
5, 25-36	24	360	..	..
6, 37-48	19	151	..	..
7, 49-60	41	397	..	..
8, 61-72	24	175	..	..
	283	2,237	21	8

There is thus a fairly consistent pattern and proportion of implements to waste flakes in the various parts of the deposit with the exception of layer 1. This was a section of yellow gritty sand from top to bottom and all of the implements and flakes are yellow-stained and patinated.

The faceted butt (of advanced Levallois type) ranges from 90 to 100 to 120 degrees in site 1, and from 85 to 90 to 117 in site 3, and is thus generally lower than the plain Clactonian butt angle. The *Bondi* point butt angles range from 90 to 118 with no peak, and fit in precisely with the angles of the blocks, slices and scraper, excluding all faceted butts in both cases. It is worth mentioning that a relatively low proportion of flakes and other knapped implements have butt platforms on which the angle could be measured, due to the use of laminated chert for many implements and to the knapping of flakes and blades haphazardly from the cores.

FAUNA

Site 3 yielded a considerable quantity of bone so broken up into fragments that it would serve no useful purpose to tabulate the number of pieces in each layer. There are very few complete bones, and they are small ones, all of the long bones having been split up, apparently to get the marrow, and, likewise, there are no complete mammal skulls as these were probably disarticulated to get the brain. Thirty-five mammal mandibles, and several lizard mandibles, were obtained from site 3, in which bone material was plentiful down to 36 in., scanty from 37 to 48 in., and absent between this depth and the bottom of the deposit at 84 in. Sites 1, 2 and 4 yielded a small quantity of broken bones which included two mandibles in site 2, and a quantity of fresh and well preserved bones which included seven mandibles in the top layer of site 4. No bird or fish bones are represented in any of the sites.

All of the bones belong to living species of animals, identified from the mandibles as follows:—

Site 3, *layer A*, 0-6 *in.*: *Trichosurus vulpecula* (Brush-tailed Possum), section 6; *Petaurus* sp. (Glider Possum), sect. 4; *Pseudochirus peregrinus* (Ring-tailed Possum), sects. 8-9; *Isoodon* sp. (Short-nosed Bandicoot), sect. 8; *Wallabia bicolor* (Swamp Wallaby), sect. 8.

Layer B, 7-12 *in.*: *Trichosurus vulpecula*, sect. 6; *Wallabia bicolor*, sect. 9.

Layer C, 13-18 *in.*: *Trichosurus vulpecula*, sect. 6; *Wallabia bicolor*, sects. 5, 6, 7, 8, 9; *Wallabia* sp. sect. 7; *Petrogale penicillata* (Rock Wallaby) sect. 6; *Isoodon* sp., sects. 7, 8.

Layer D, 19-24 *in.*: *Trichosurus vulpecula*, sect. 6; *Wallabia bicolor*, sect. 6, 11; *Pseudochirus peregrinus*, sect. 7; *Phascolomis mitchelli* (wombat), sect. 7; *Canis familiaris* (dingo), sect. 6.

Layer E, 25-36 *in.*: *Trichosurus vulpecula*, sect. 7; *Wallabia bicolor*, sect. 6, 7; *Wallabia* sp., sect. 4; *Isoodon* sp., sect. 6; *Pseudochirus peregrinus*, sect. 7.

Layer F, 37-48 *in.*: *Wallabia* sp., sect. 7.

Layer G, 49-60 *in.*: *Wallabia bicolor*, sect. 6; *Wallabia* sp., 6, 8; *Physignathus lesueurii* (Water Dragon), sect. 8.

Site 2 yielded mandibles of *Wallabia bicolor* and *Wallabia* sp. and one of *Trichosurus vulpecula*, and site 4 produced *Wallabia bicolor*, *Trichosurus vulpecula* and *Pseudochirus peregrinus*.

It is considered probable that the *Wallabia* sp. is *bicolor*, the material being insufficient to permit of a precise identification of the species.

It will be noted that eight kinds of mammals, and one species of lizard, are represented, among which the Swamp Wallaby, Brush-tailed and Ring-tailed Possums are the commonest, and as they both occur consistently through the layers containing bones it would appear that the principal flesh food of the inhabitants of the sites was obtained from these animals and that their economy was adapted to hunting them. Possums supplied meat, pelts for skin cloaks in the winter, and mandibles for tools, and were an important game in eastern New South Wales (McCarthy, 1957).

Notable absentees in the above list are the Big Grey or Forester Kangaroo, and the koala, both of which live in this valley, and the emu, which inhabited the wider part of the valley, above the junction of the Capertee and Running Stream. Whether it lived on the broader flats of the gorge in which the rock shelters are situated is

not known. Fragments of emu shells occurred in several layers of our trench in site 6, but none were found in sites 1 to 4 in the gorge, or in site 5. This would also indicate that the inhabitants of the gorge did not hunt in the wide upper part of the valley. The site 6 test trench yielded mandibles of *Trichosurus vulpecula*, *Wallabia* sp., *Macropus* sp., *Pseudochirus peregrinus*, *Phascolomis mitchelli*, and the moveable finger of a crayfish. Thus the Noola people added the emu and its eggs and the big grey kangaroo to their diet.

Eels, perch and crayfish inhabit the Capertee River but no fish bones occurred in sites 1 to 4. Mussels were collected from the river but not in great quantity as they may not have been abundant. Fragments of mussel shells occur to a depth of 30 in. in sites 1 and 3, but they were scattered through the deposit and did not occur in thick layers or batches. It is most probable that fish and crayfish were also eaten.

ACKNOWLEDGEMENTS

In addition to the many individuals who worked so hard to ensure the success of the excavations, my sincere thanks are due to the Division of Soils, Commonwealth Scientific and Industrial Research Organization, for its valued co-operation in permitting Mr. P. H. Walker, M.A., to investigate the composition and development of the archaeological deposits, and also for granting permission for me to use figures 2, 4-5 in this paper; the University of Sydney Rover Scout Crew for its sustained support of the field work, in which the discipline and efficiency of its members were deeply appreciated over a period of two years; Professors A. P. Elkin, M.A., Ph.D., and N. W. G. Macintosh, M.B., B.S., and Mr. R. V. S. Wright, M.A., of the University of Sydney; Mr. J. Golson, M.A., Australian National University, and Mrs. T. Belleau-Kemp, who read the manuscript and made many helpful suggestions about its presentation; Mr. B. J. Marlow, B.Sc., Australian Museum, and Professor R. G. Stirton, University of California, for identifying mammals, and Mr. H. G. Cogger, M.Sc., Australian Museum, for identifying lizards, from the bone material obtained; and the following members of the staff of the Australian Museum: Mr. R. O. Chalmers, A.S.T.C., for identifying stone materials; Mr. H. Hughes, for photographs of the implements in plates 2-14; Mr. D. Rae, for the drawings of burins in figure 6, and Mrs. E. Brown for figure 3.

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EXPLANATION OF PLATES

Plate 11.—Fig. 1: Site 1. Fig. 2: Site 3. *Macrozamia* palms in foreground. Fig. 3: Site 2. Fig. 4: The deposit in site 5, showing thin bands of clean sand accumulated from the cave roof during periods of non-occupation. Fig. 5: The west section of site 3, showing the large boulders of the underlying talus on left, and the boulder layer, to which scattered boulders found in the deposit had been added, on the right. Fig. 6: Average yield of flakes and implements from sieve in Bondaian layers of site 3.—Photos: Author.

Plate 12.—Fig. 1: Site 3, showing the height to which it was filled up to leave a small shelter at the end of Aboriginal occupation. Fig. 2: Portion of the working party on site 3. Fig. 3: As site 3 was excavated it was revealed to have been formed by a series of small cavities one above the other within the main cave. Fig. 4: The dark lines on the section exposed in the deposit mark the extent of the large ashy-grey fireplace area which extended to a depth of 54 in. Fig. 5: Fireplace in section 8 of site 3. Fig. 6: The wall of the deposit in the north-east corner of site 3 section 9, showing the ashy-grey layer at the top contrasting with the buff coloured deposit below, in which scattered boulders are visible.—Photos: Author.

Plate 13. Capertian, Site 1.—Fig. 1: Slice with notched edge. 2: Blade with notched edge. 3: Knife. 4: Notched side scraper. 5: Flat slab of chert used as scraper on one edge. 6: Scraper with well-used concaves on both lateral margins. 7: Flake with two rounded noses between concaves. 8: Notched end scraper. 9: *Elouera*-like segment. 10: Blade with unusually long trimmed nose, like a borer, between concaves on the distal end. 11: End scraper. 12: Double side scraper. 13: Saw. 14: Concave on end of quartz spall. 15: Concave and nosed scraper. 16: Keeled end scraper. 17: Keeled block with trimmed convex distal end. 18: Keeled end scraper with notched edge. 19: Concave and nosed block. 20: Small block with prominent pointed nose.

Plate 14, Bondaian, Site 1.—Fig. 1: Double side and end scraper, with an orange patination on outer and inner surfaces, a dark-grey and white patination on the trimmed edges. 2: Notched blade. 3: Scraper with rounded nose between concaves. 4: Scraper with small rounded nose between concaves. 5: Butt end concave and nosed scraper. 6-8: *Elouera*. 9: Double side scraper with pointed nose between concaves. 10: Side and end scraper. 11: Double side scraper, with concave. 12: Narrow thin blade with light trimming on one lateral margin, and a concave on the other, reverse-trimmed. 13: Concave side scraper. 14: Pointed blade lightly used as knife on both lateral margins. 15: End scraper. 16: Notched block of microlithic size. 17: *Glanmire*-type butt end scraper. 18: Side scraper. 19: Concave and nosed scraper. 20: Double side scraper, reverse trimmed, with concave working edge. 21: Coroid fabricator, discoid in shape and biface worked, used all round edge. 22: Side scraper. 23: Side and end scraper. 24-6: Fabricators.

Plate 15, Bondaian, Site 1.—Fig. 1: Two rows of *Bondi* points, showing variation in shape, length and trimming. 2: Two rows of geometric microliths including trapezoids, segments and triangles. 3-8: Oblique trimmed blades. 9-10: Backed blades. 11: *Elouera* lightly used on chord. 12: Narrow segment. 13: Double end scraper. 14-16: Thumbnail end scrapers. 17: (left) *Burren* adze slug. 17-20: Microlithic scrapers.

Plate 16, Bondaian, Sites 1 and 2.—Figs. 1-3: Keeled blocks well-used on both lateral margins and distal end. 4: Block, reverse trimmed, used on both lateral margins and end. 5: Block with notched working edge. 6: Alternately knapped core. 7: Pebble used as a hammerstone and mortar (on surface not shown). 8: Pebble used as hammer and anvil. 9: Pebble core with dished platform at one end.

Plate 17, Bondaian and Capertian Cores, Site 1.—Fig. 1: Slab of laminated chert with oblique working edge. 2: Uniface pebble implement heavily used on both ends and lateral margin. 3: Prismatic core with flat platforms at both ends. 4: Core used as scraper on both ends. 5: Re-directing flake with long, very neatly trimmed edge. 6: Core with dished and cortex platforms at right angles. 7: Core with dished platform at one end and a flat platform at the other end. 8: Prismatic core with dished platform at one end. 9: Conical core with dished platform at one end. 10: Core with two flat cortex platforms at right angles.

Plate 18, Capertian, Site 3.—Fig. 1: Large conical core, with dished platform. 2: Uniface pebble implement with working edge extending round both ends and lateral margin. 3: Conical core with flat platform. 4: Uniface pebble implement with oblique working edge across middle. 5: Core with dished platforms at both ends. 6: *Worimi* chopper heavily stained with manganese. 7: Core with one dished platform.

Plate 19, Capertian, Site 3.—Figs. 1-2, 4, 6, 8: Concave and nosed scrapers of Tasmanoid type. They bear from one to four noses between concaves on comparatively big flakes. 3: Blade with lightly trimmed edge, probably used as a knife. 5: Thick blade with notched edge. 7: Block with concave working edge. 9: Large flake with bi-faceted working edge similar so that of a fabricator. 10: Large flake with knife use on chord. 11: Blade with notched edges. 12-13: Side scrapers with notched edges. 14: Block with concave and nosed edge.

Plate 20, Capertian, Site 3.—Fig. 1: Concave and nosed scraper. 2: Concave and nosed block. 3: Concave and nosed double side and end scraper. 4: Concave and nosed scraper. 5: Side scraper with convex working edge. 6: Side scraper with well-used concave. 7: Semi-discoid scraper. 8: Side and end scraper. 9: Double side and end scraper with pointed noses between concaves. 10: End scraper (projection not used). 11: Quartz implement heavily used on one lateral margin, like a slug. 12: Concave side scraper. 13: Butt end scraper with two concaves. 14: Concave side scraper. 15-16, 18-24: Saws showing variety of blades and flakes bearing a dentated edge on convex, straight and concave margins. 17: Nosed end scraper.

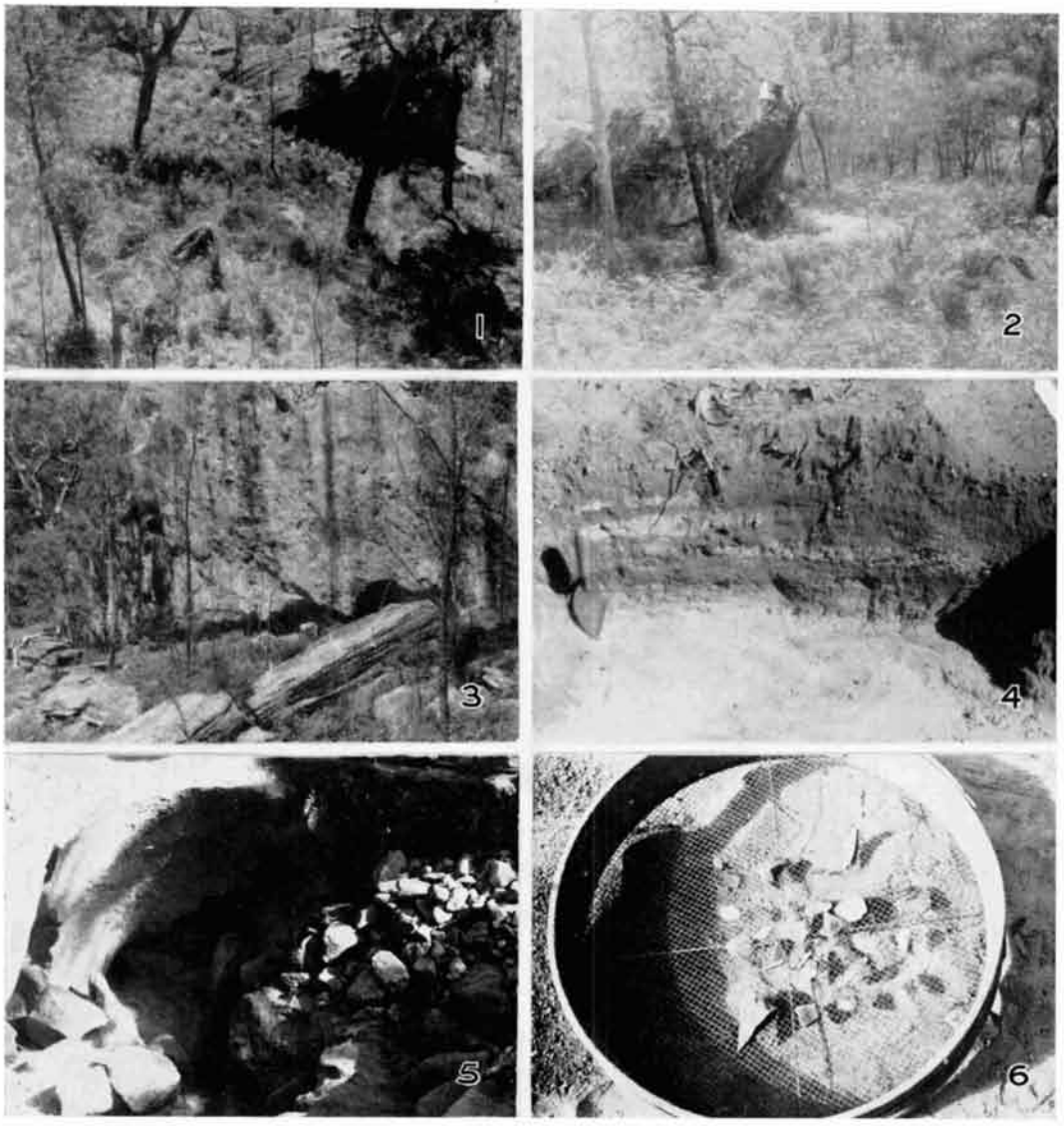
Plate 21, Bondaian, Site 3.—Fig. 1: Ground edge axe, flaked pebble type. 2: Ground edge axe, pebble type. 3: Quartz hammerstone. 4: Slice with trimmed convex distal end. 5: Ground edge axe, biface coroid type. 6: Block trimmed all round both lateral margins and one end.

Plate 22, Bondaian, Site 3.—Figs. 1-7: Blades and flakes with long trimmed working edges, some of which bear concaves. 8: Nosed scraper. 9: Notched scraper. 10: Side and end scraper. 11: Reverse trimmed side and end scraper. with two concaves. 12: Large *elouera*. 13: Double side and end scraper. 14: *Elouera*. 15: Flat chert side and end scraper. 16: Notched scraper. 17: Side and end scraper, reverse trimmed. 18: Microlithic *elouera* or segment, heavily used on chord. 19: *Elouera*, well-used on chord.

Plate 23, Bondaian, Site 3.—Fig. 1: Core with one flat cortex platform. 2: Microlithic prismatic core with platforms at right angles. 3: Prismatic core with platforms at both ends. 4: Core with one dished platform. 5: Small prismatic core with platforms at both ends. 6: Conical core with one dished platform. 7: Side and end scrapers. 8: Pebble hammerstone. 9: Side scraper, bearing portions of beeswax hafting, used as a flake adze. 10-11: Two narrow blades used as knives. 12: Fabricator with well-used gouge-type edge on its lateral margin. 13: Semi-discoid scraper. 14: *Tula* adze slug; 15: End scraper. 16: Side and end scraper, with convex ends. 17: End scraper. 18: Side and end scraper. 19: Notched scraper. 20: End scraper with narrow trimmed convex end. 21: Side and end scraper, with rounded nose between concaves. 22: Side and end scraper, with narrow nose on distal end. 23: Prismatic core remnant used as a fabricator at one end. 24: Double side scraper tending to being a *Burren* adze slug. 25-6: Double side scrapers. 27: Heavily-used side scraper.

Plate 24, Bondaian, Site 3.—Fig. 1: Saw from various layers. 2: Quartz flake hafted in beeswax. 3: Two rows of *Bondi* points. 4: Two rows of geometric scrapers, including a quartz discoid (second from left) and a neatly trimmed oval geometric (second from right). 6: Thumbnail scrapers. 7: Broad oblique trimmed blade. 8: Double side scraper with concave working edges. 9: *Burren* adze slug. 10: Microlithic scrapers. 11: Bone awl. 12: Pointed bone, probably part of a nose bone. 13: Small rounded portion of a mussel shell, carefully shaped, perforated at one end, probably part of a necklace or forehead band.

Sydney: V. C. N. Blight, Government Printer—1964



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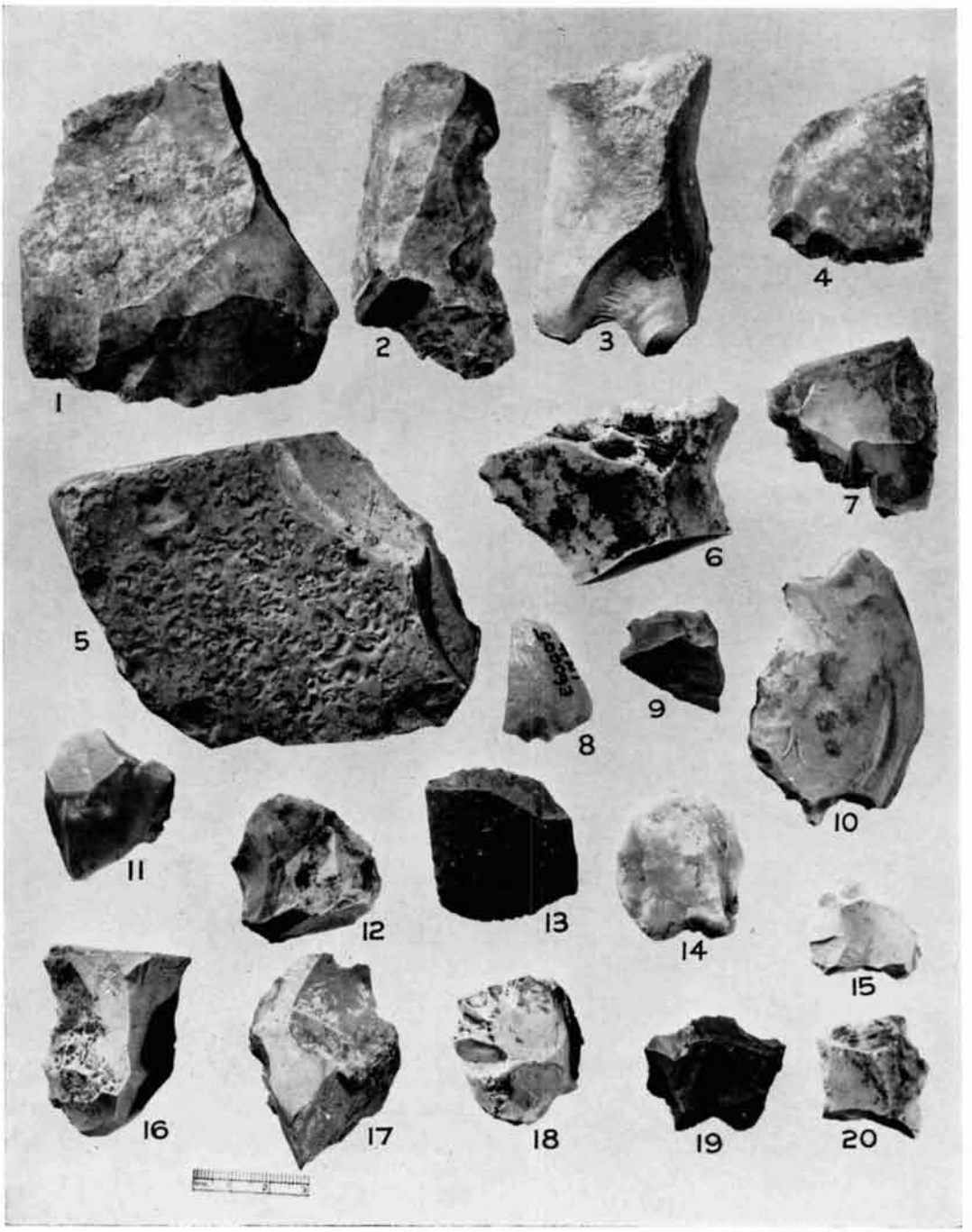
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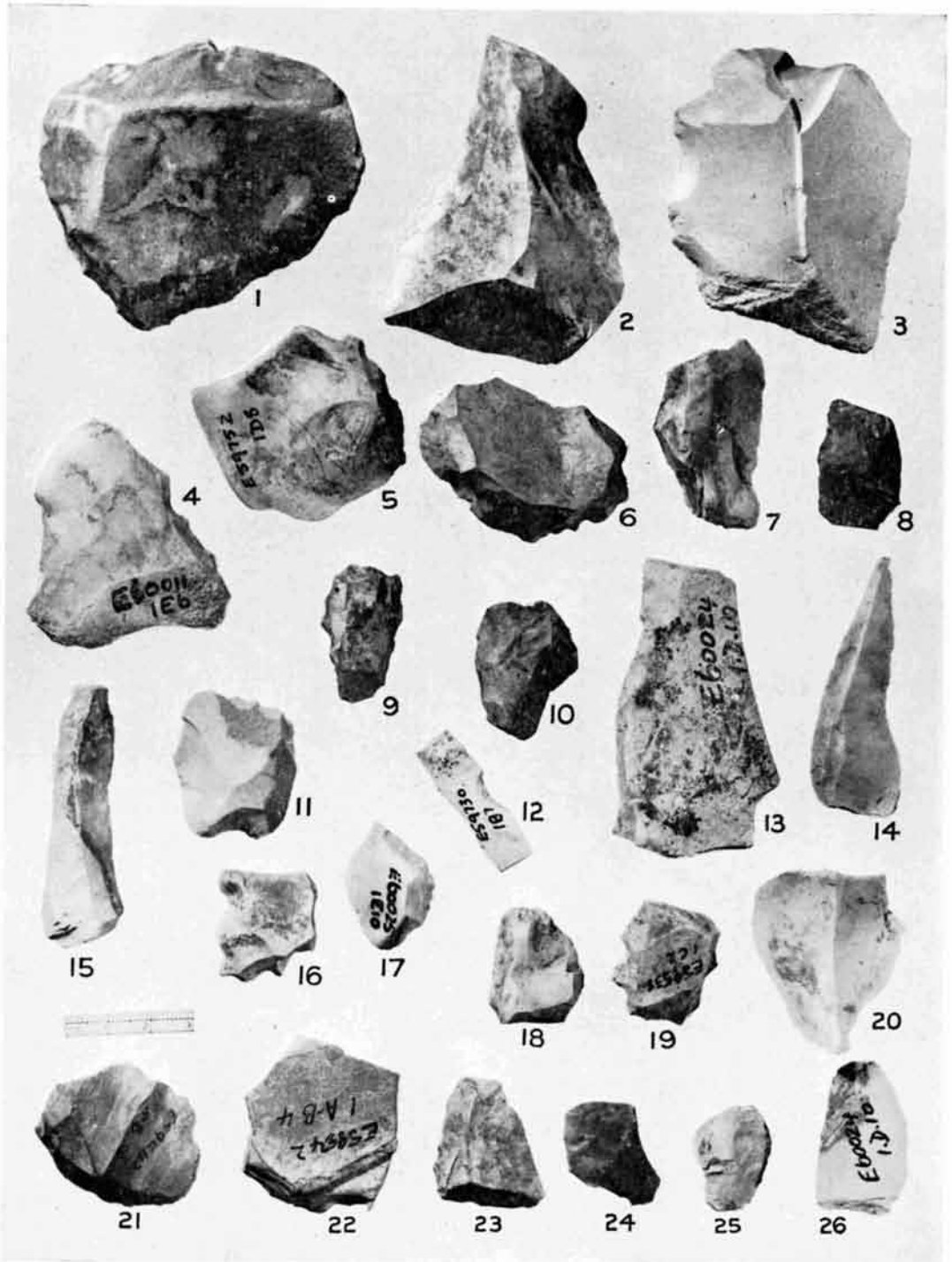
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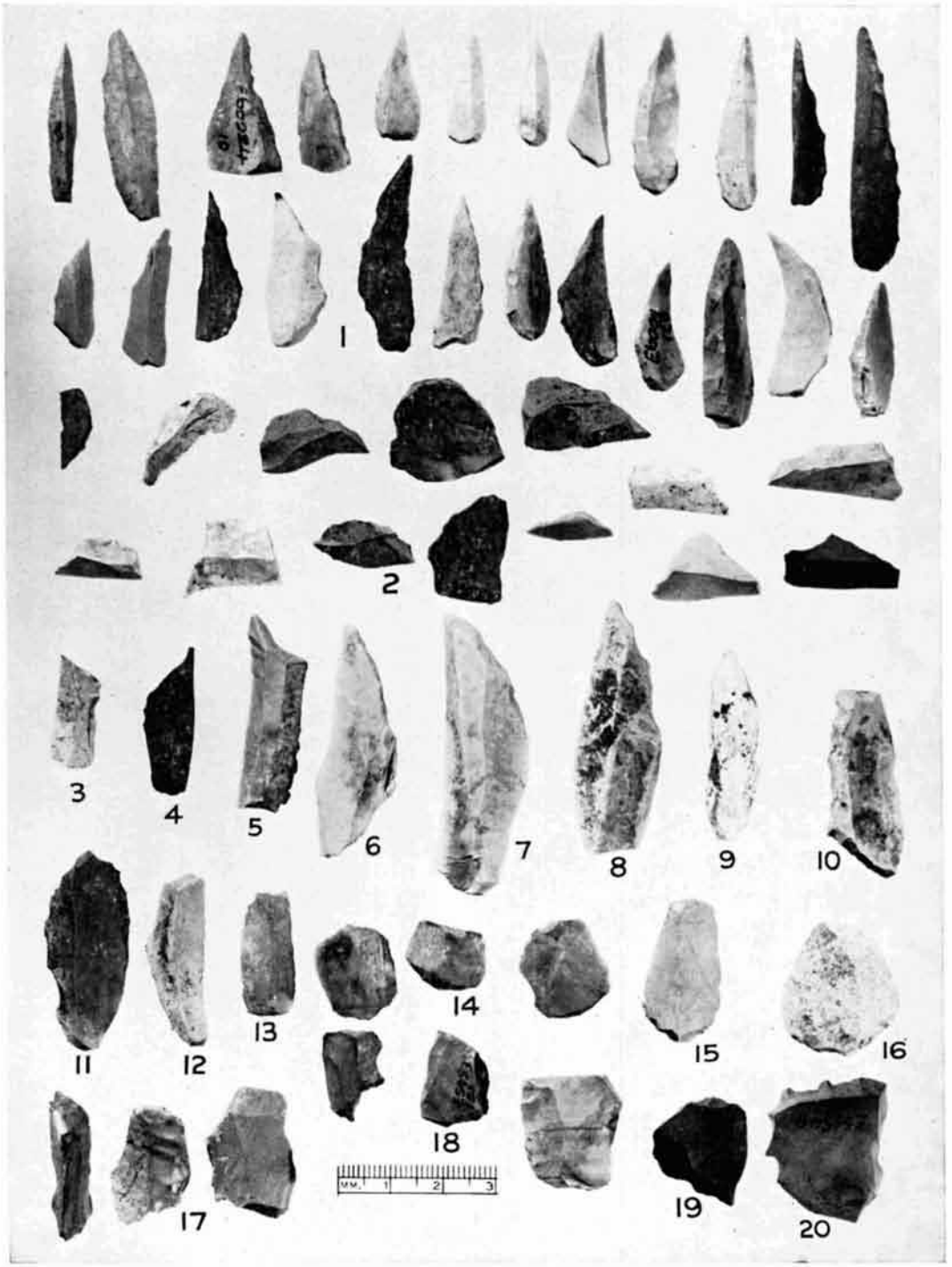
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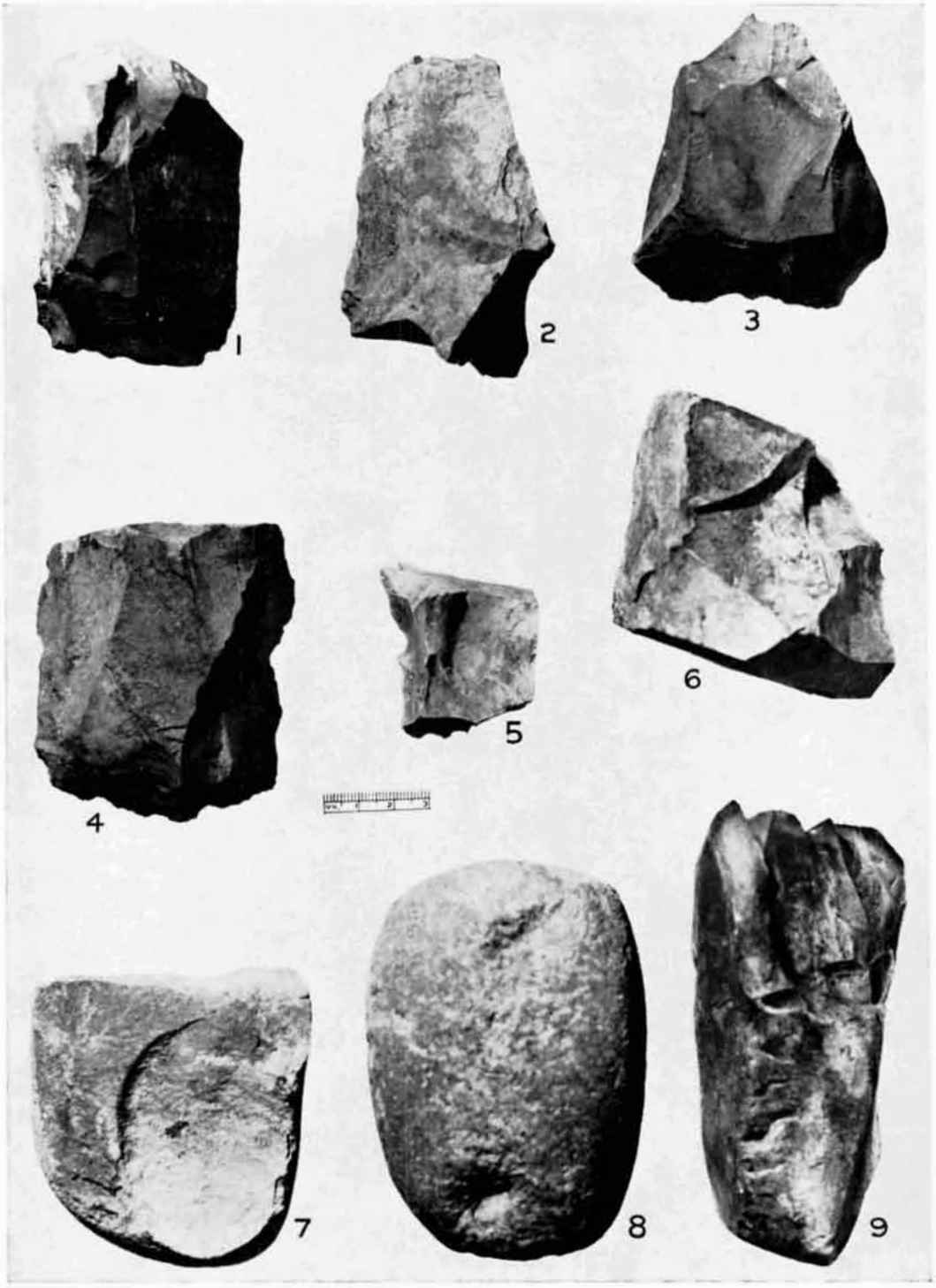
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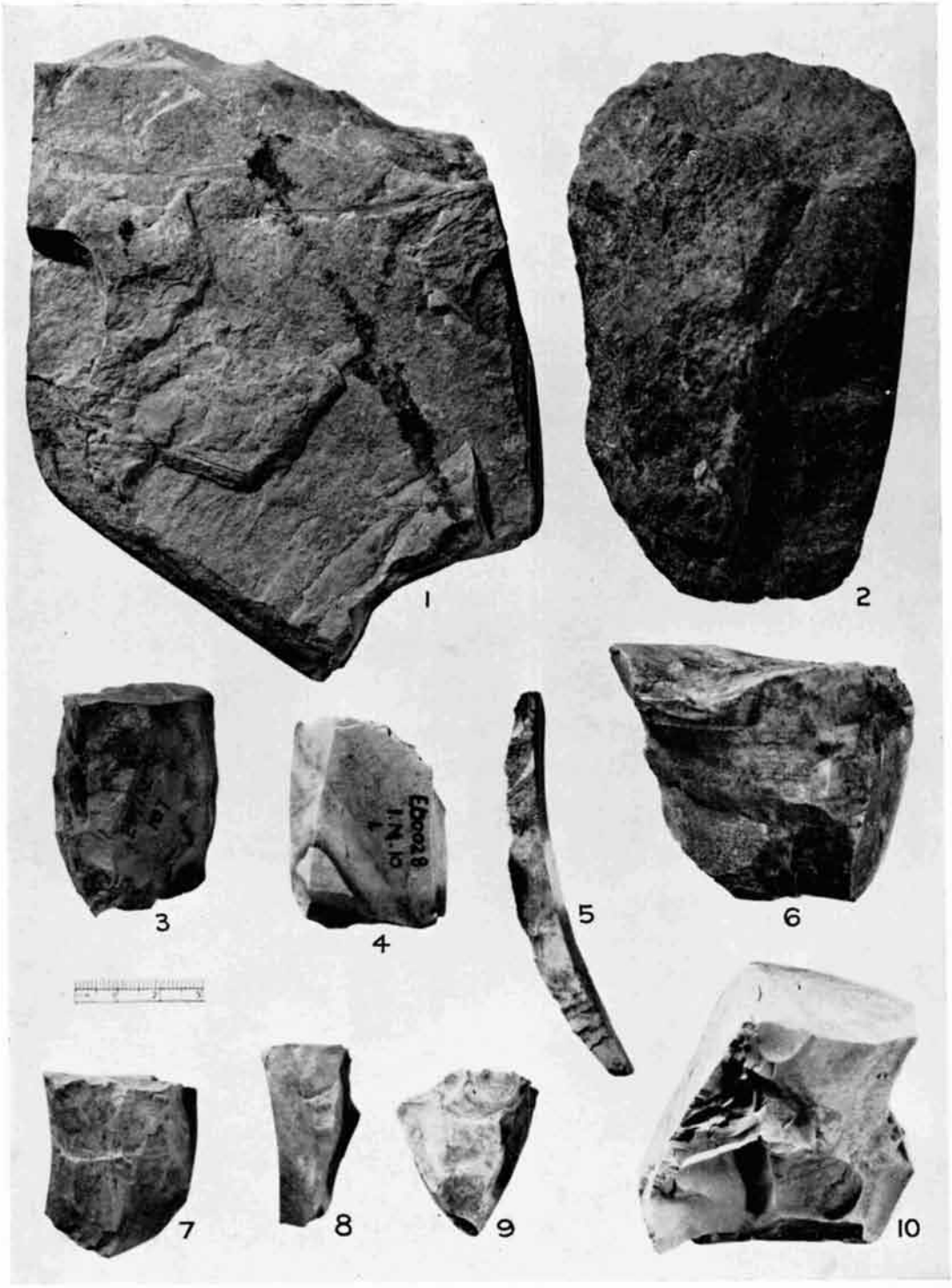
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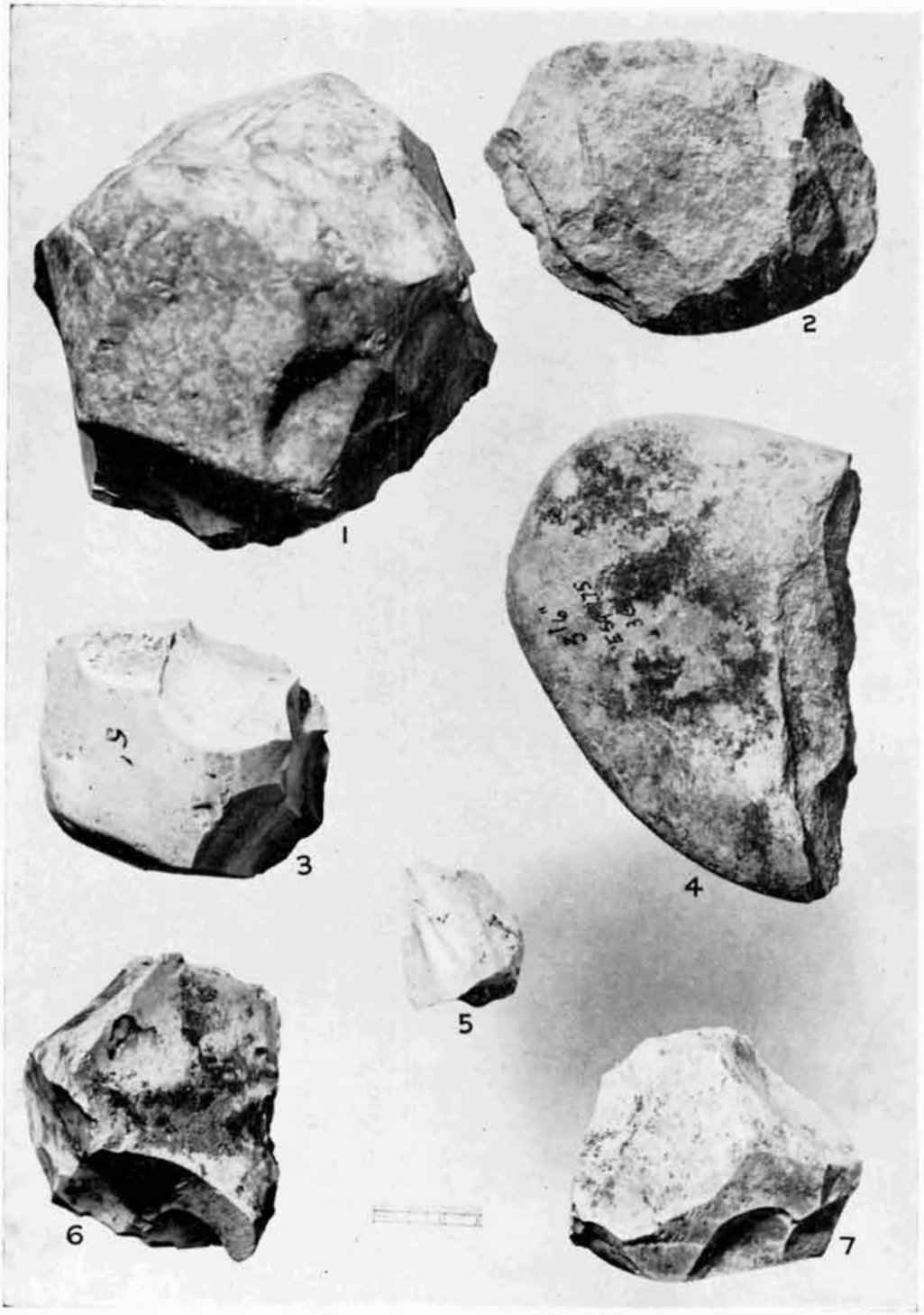
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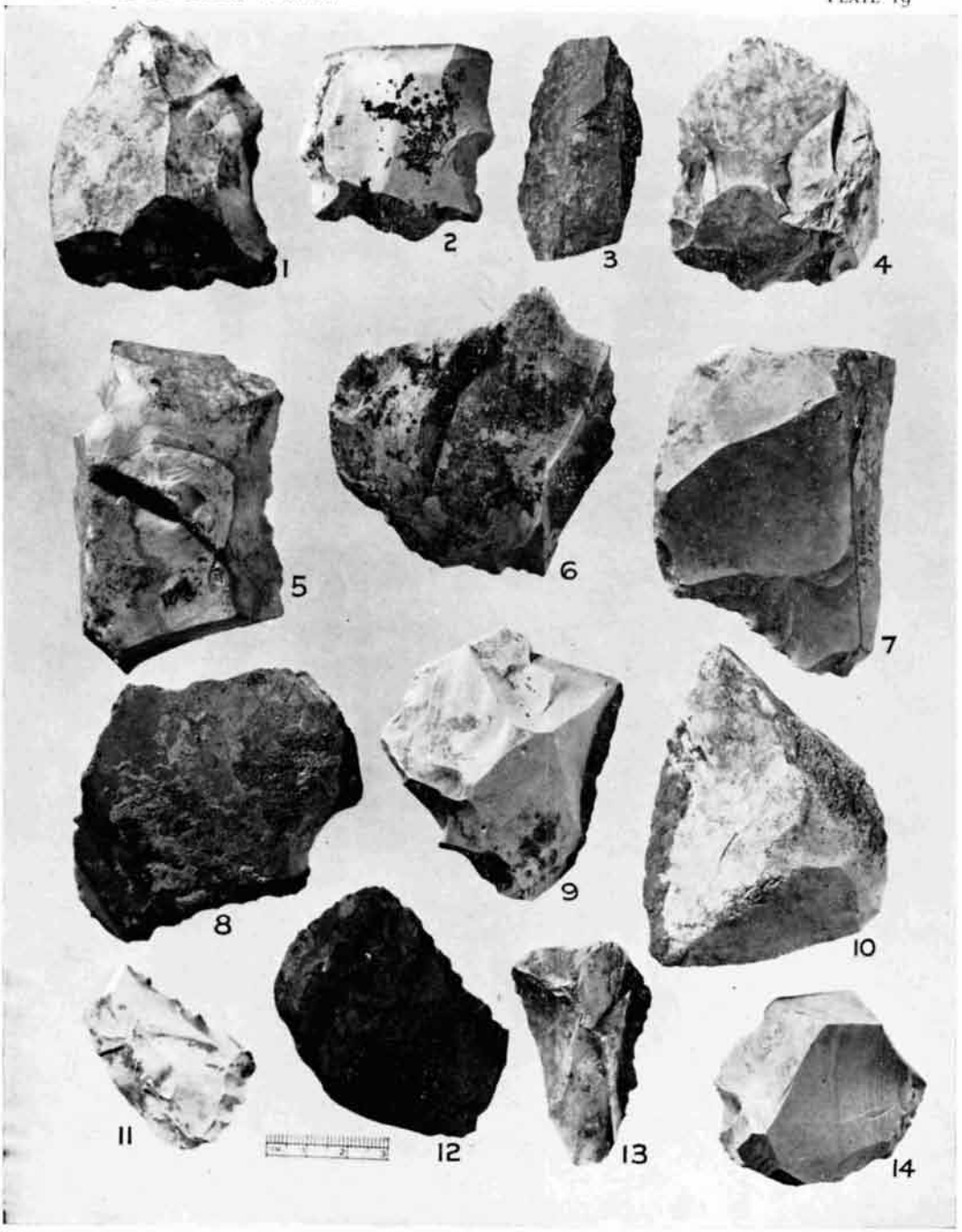
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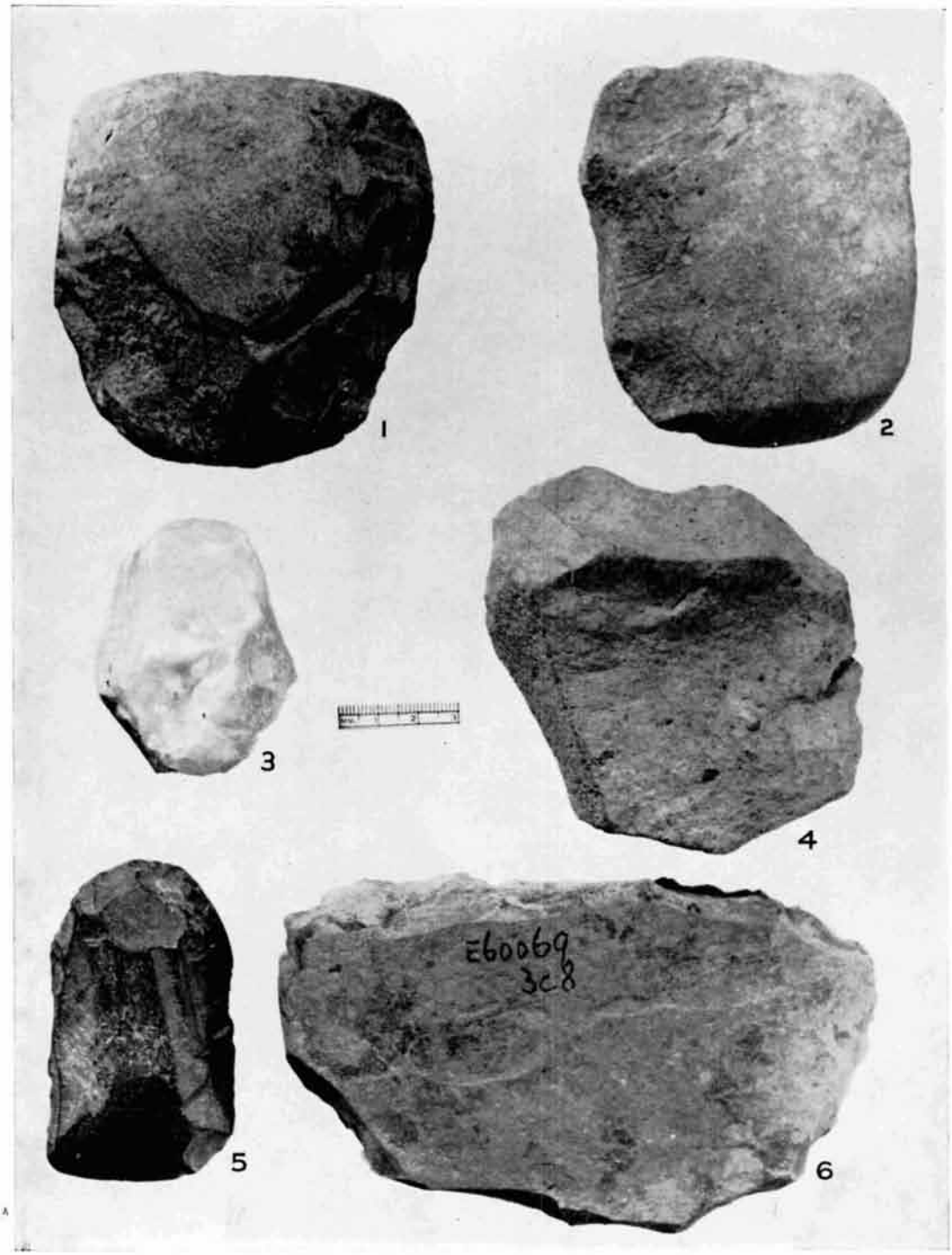
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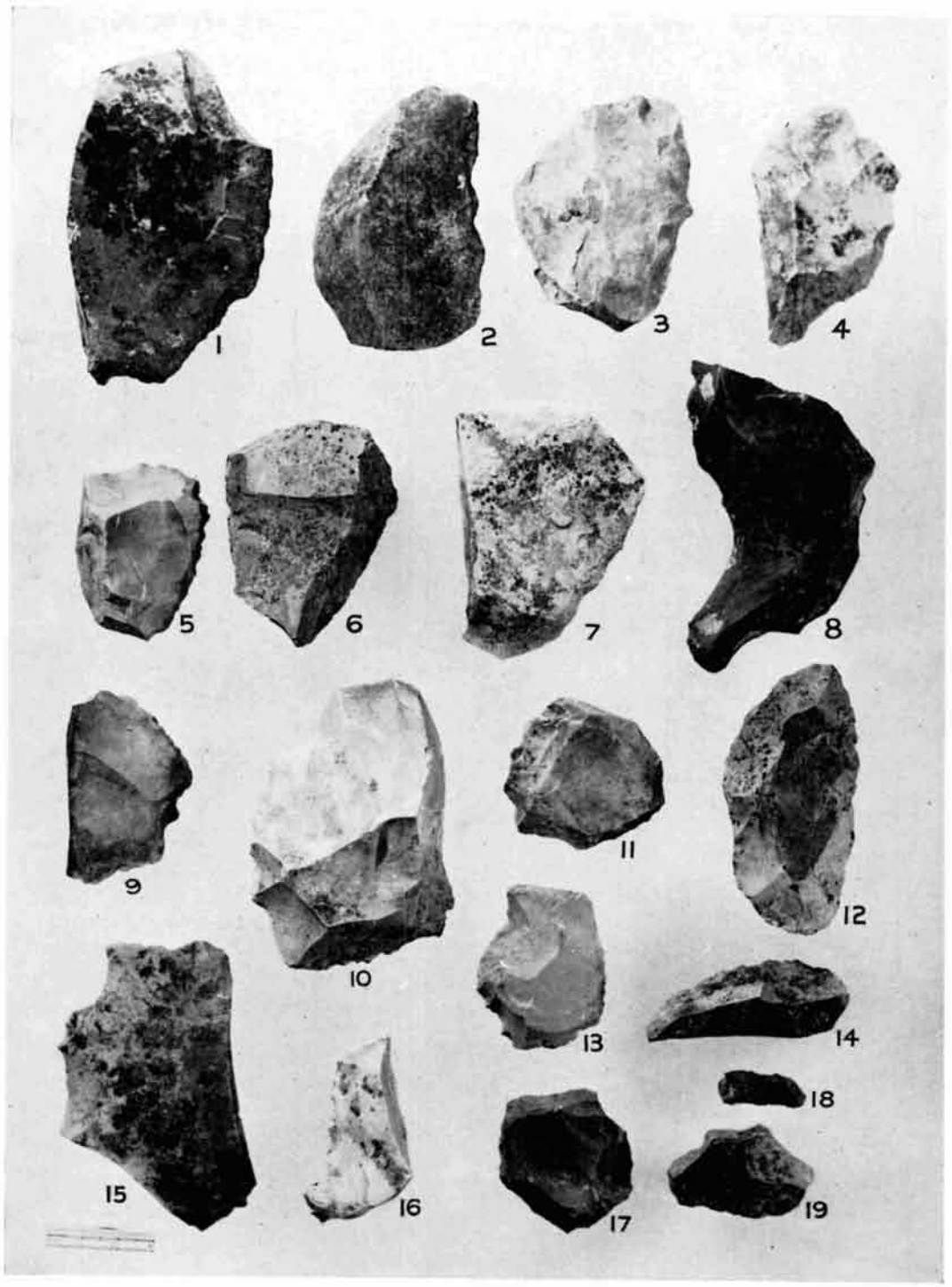
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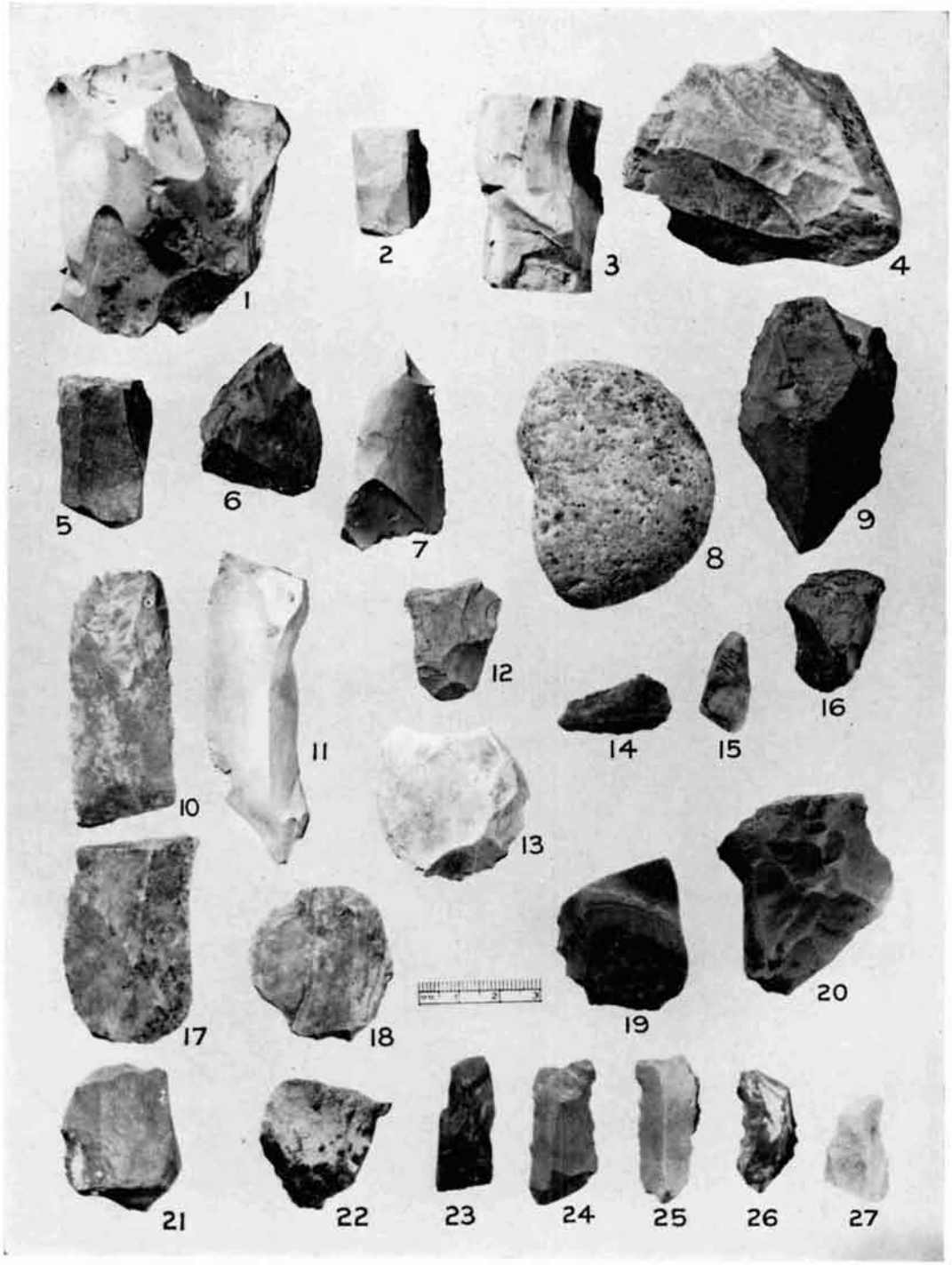
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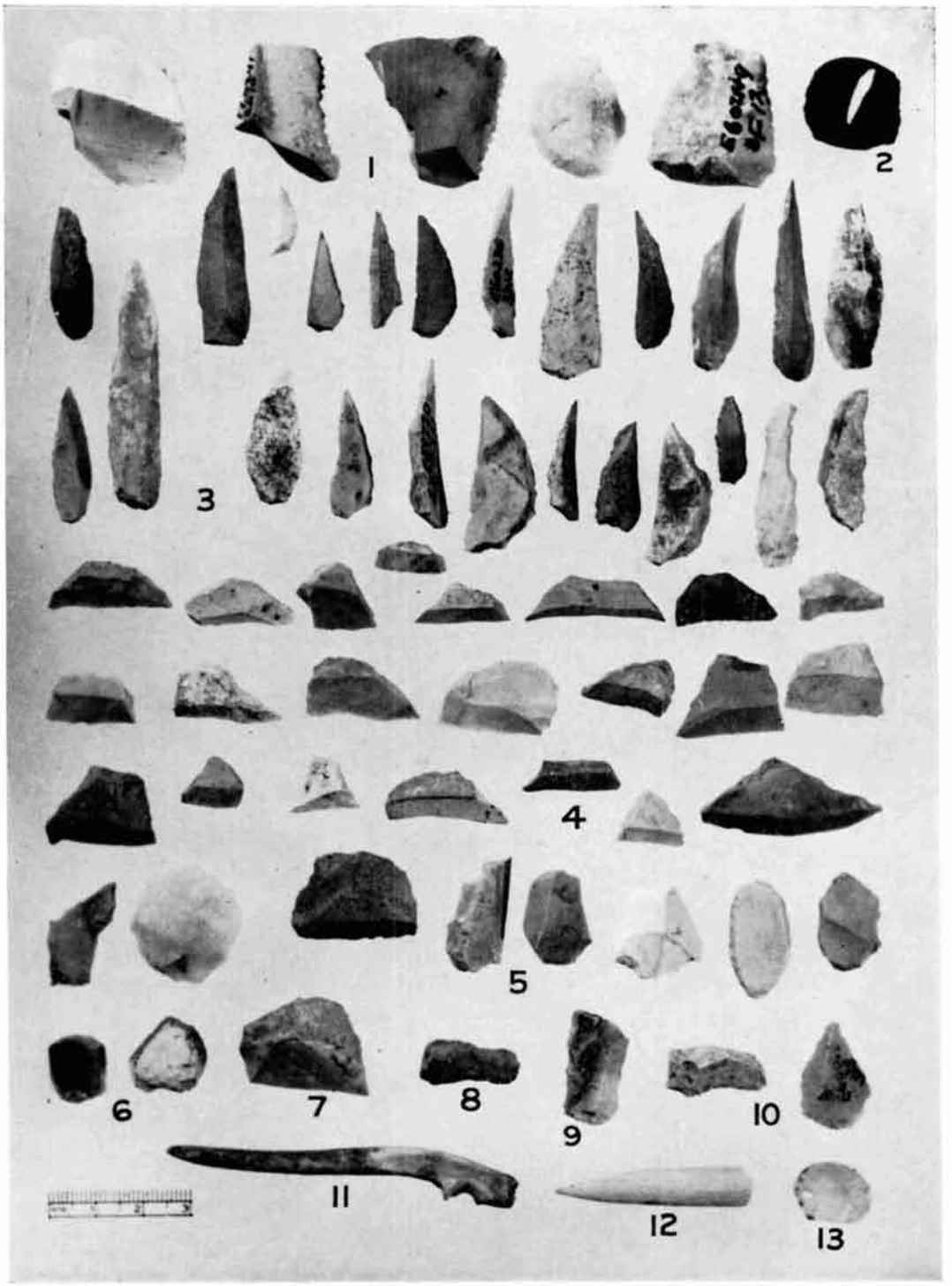
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