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THE COROID AND KNAPPED STONE IMPLEMENTS OF THE BATHURST DISTRICT.

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(Figures 1–48.)

In 1941 the late Mr. A. E. Ivatt presented to the Australian Museum a collection of one thousand eight hundred stone implements from New South Wales sites, including a splendid series that he had gathered in the Bathurst district during a long occupation of Glanmire Station, which is about five miles from the town. In this paper, the fourth of a series analysing New South Wales industries, the trimmed uniface pebble, coroid, and knapped implements are described.

Bathurst is situated on the southern tableland, an area of undulating pastoral and farming country. The implements were collected on the grassed and ploughed fields, and beside the numerous creeks that flow through Glanmire and neighbouring properties. They are from a large numer of localities, too numerous to mention here, scattered throughout the district.

Materials.

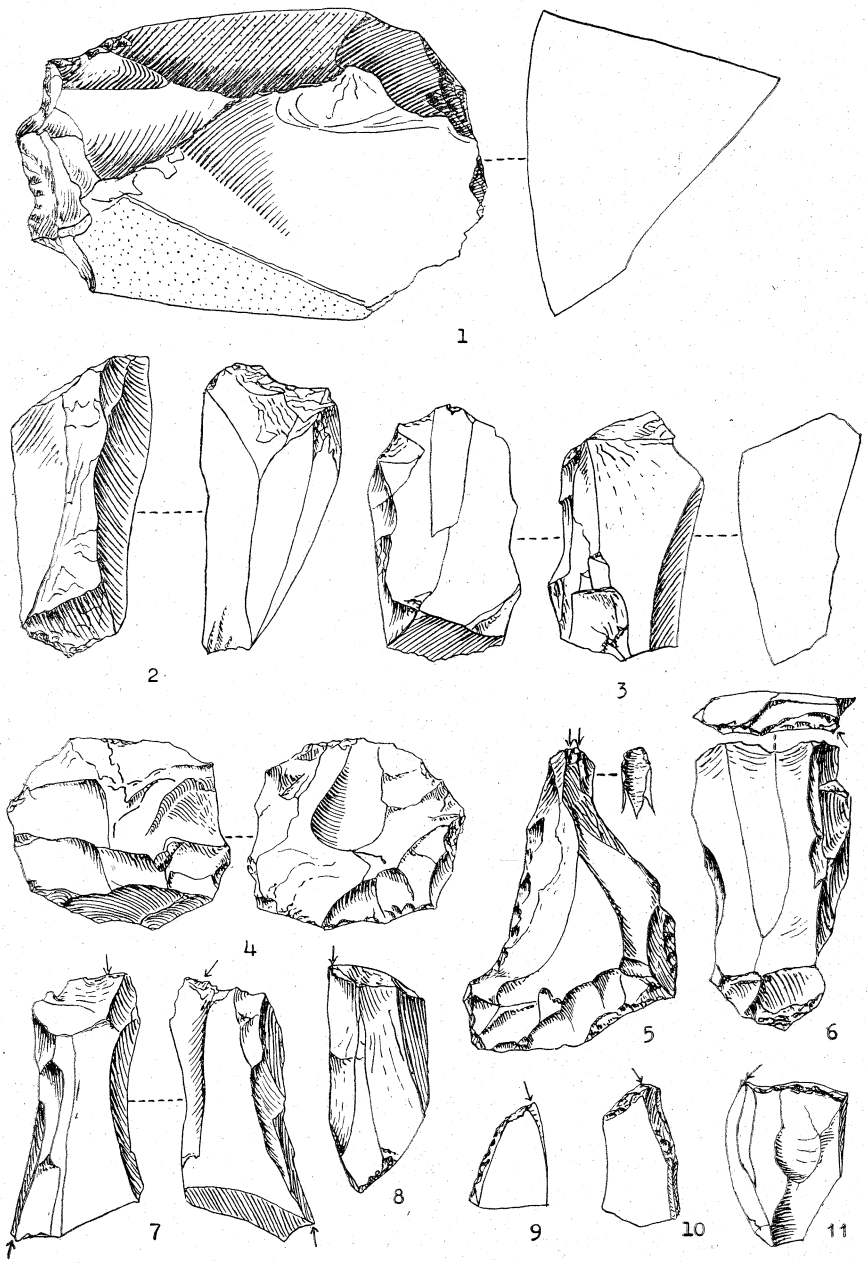
The predominant materials are a quartzose rock, fine to coarse grained, and chert, both varying in colour from light to dark grey. Occasional pieces of flint and other materials have also been found.

Technique.

The plain and faceted butt techniques of knapping are both represented, and the latter appears to have been employed mainly for the production of blades. On the cores the striking-platforms were prepared by the usual methods, comprising the knapping of one or more flakes, the use of a natural crust surface, or a cleavage face on a block; sometimes flake-scars served as additional platforms. The knapping face is at an angle varying from 70° to 90°, is sometimes as low as 65°, and commonly in the vicinity of 80° to the stiking-platform. Prismatic cores displaying convergent flaking predominate, and a minority of cores bear irregular parallel knapping.

During an examination of the cores, Mr. H. V. V. Noone selected a number of specimens upon which he has supplied the following note: "Among pieces of nuclear form from the Bathurst district are fifteen blocks and flakes which are worthy of special attention as they may have served for the production of small blades, in fact, as a kind of secondary nuclei. On these pieces (Fig. 3) is found a striking-platform (some specimens show one at each end) by means of which small blades have been detached from one or both margins. Most of these blades would be of triangular section, similar to primary burin spalls, so that in their production it is possible that advantage was taken of the more or less long straight edges of the side margins of the blocks or flakes, and they were utilized as fracture guides. Such a method would obviate the preparing of a suitable knapping face on an ordinary nucleus, or the formation thereon by trimming of a guiding ridge such as was sometimes employed in producing the *bondi* point, and would therefore be an ingenious labour-saving device in the obtaining of the required narrow bladelet. Something of this kind has been noticed in the Bandarawelian culture of Ceylon, whilst flakes and blocks have been found in the Woakwine industry of South Australia which likewise appear to have been used for the production of small blades. Some of these particular pieces resemble the *nucleiform* (prismatic or polyhedric) form of burinate tool, whilst others like the *double-scaled* burinate could be used as a kind of groover."

Most of the knapped pieces are squat, thick flakes, the outstanding type among which is the *arapia* (Figs. 12–22). The latter is rectangular, semi-discoidal and discoidal in shape, and is usually thick with a steep-faced working edge. The bulb of percussion is not prominent or is lacking on many of the implements because some of the materials used have fractured along flat cleavage surfaces. The inner platform angle is from 100° to 125°, is sometimes as low as 95° and as high as 135°. Trimming



Figs. 1-11.—1, *Worimi*. 2, Core with a faceted striking platform at both ends. 3, Secondary nuclei. 4, Biface discoid core implement. 5-8, Nucleiform burinates. 9-10, Bevel-scaled burinates. 11, Concave-scaled burinate. (Two-thirds natural size.)

and retouch are similar in character to such work on the south coast of New South Wales (McCarthy, 1943, 130), and at Singleton (McCarthy and Davidson, 1943). Although blades are uncommon, there is one type up to 8 cm. long with a faceted butt and untrimmed edges. Punch-type flake fabricators are well represented.

Artefacts.

The 593 implements comprise 88 cores, 4 cores used as implements, 48 coroids, 2 biface coroids, 6 uniface pebble implements, 28 blocks, 1 *worimi*, 2 cleavers, 33 *bondi* points, 5 geometrical microliths, and 439 normal flake and blade implements (including 14 *elouera*). They were collected indiscriminately over a long period, and represent a fair sample of the local industry; their analysis is given for comparison with those of the south coast and Singleton sites. It will be noted that the side and end, double side, double side and end, semi-discoidal and discoidal scrapers in the normal flake and blade series are more highly represented at Bathurst than in the above two areas. Other points of interest are the low numbers of uniface pebble implements, *bondi* points, geometrical microliths, and *elouera*. These differences might be explained by the fact that Bathurst is in the vicinity of the western boundary of the *bondi* point culture and the eastern boundary of the western cultures of which the *arapia* is a feature. The importance of coroids and blocks, and of concave, nosed and end scrapers is noteworthy. Knives are well represented, but cleavers are as scarce as elsewhere.

I. Coroids	
Cores (87)	
One striking platform	27
Two striking-platforms at opposite ends	43
Two or more platforms at angles to one another	15
Conical	1
Discoid	1
Cores used as implements (4)	
Coroid implements (48)	
Straight to convex edges	15
Concave	7
Nosed	5
Burinate (nucleiform)	19
Biface	2
Uniface pebble implements (6)	
End	—
Lateral	1
End and lateral	3
Uniface	1
Split-pebble	1
II. Blocks (29)	
Straight to convex	11
Concave	5
Nosed	12
Worimi	1
III. Cleavers (2)	
IV. Normal flake and blade implements (439)	
Elouera	
type 1	5
type 2	3
type 3	6
Utilized	4
Scrapers	
Side	77
Side and end	19
Double side	31
Double side and end	33
Semi-discoidal	15
Discoidal	21
End	
distal	27
butt	16
double	1
Concave	
lateral, lateral and end	36
distal end	13
butt end	10
Nosed	33
Piercers	—
Burinate	
spalled	—
scaled	4
Knives	64
Serrated	1
Fabricators	
general	4
punch-type	16
V. *Bondi* points (33)	
Conformation	
left	23
right	10
Trimmed on single edge	
(*a*) distal end and plain butt	6
(*b*) distal end and butt	1
(*c*) distal end and faceted butt	4
(*d*) completely	9
Trimmed on two edges of thick margin	
(*e*) distal end and plain butt	—
(*f*) distal end and butt	2
(*g*) distal end and faceted butt	3
(*h*) completely	8
Butt	
plain	6
faceted	7
trimmed	20
Thin margin use	
knife	8
scraper	5
VI. Microliths (5)	
Geometrical	
trapezoid	—
segment	3
equilateral	—
isosceles	—
scalene	2

Normal flake and blade (71)	
Elouera	2
Side	20
Side and end	3
Double side	5
Double side and end	3
End	
distal	5
butt	7
Concave	5
Nosed	3
Knives	6
Utilized	4
Burinate	3

I. Coroids.

Cores.

Prismatic cores with two striking-platforms at opposite ends are in the majority, but those with one striking-platform are well represented. The angled platform group is in the minority. There is only one conical core, 6·5 cm. in diameter, but it is not of *horse-hoof* type. The semi-discoid core, 7 cm. in diameter, has a step-chipped concave edge at one end. Single platform pebble cores and tortoise cores are absent, but there are several globular examples in the irregular group. A large number of the cores are prismatic nuclei. Among the nuclei is a flattened, irregular biface discoid type (Fig. 4), sometimes bearing two opposed striking-platforms on the same or on opposite knapping faces, and a third platform, for which a flake-scar has been utilized, at right angles to the other two; some with four platforms have two series of narrow flake-scars at right angles to each other on both surfaces. These nuclei are skilfully worked to produce narrow bladelets until they are less than 1 cm. in thickness. There are four specimens in the collection: one has two, two have three, and one has four striking-platforms, which are faceted on three specimens. They are 3–4 cm. long. These nuclei occur on the south coast of New South Wales and at Singleton (McCarthy and Davidson, 1943, p. 213, fig. 77).

Two of the cores have two opposed faceted striking-platforms (Fig. 2). Cores with two opposed striking-platforms often display alternate flaking.

Cores used as implements.—The four specimens are irregular in shape, and all have concave working edges 2–3·5 cm. wide. The largest example is of *horse-hoof* type, with a crust striking-platform, its margin is trimmed all round and bears two concaves with battered edges due to fabricator use. 5–8 cm. long.

Coroid implements.

The implements described under this heading have a crust lower surface, but they form a distinct series quite different from the uniface pebble implements, which are also trimmed coroids.

Crown.—Those with straight to convex working edges comprise three end, three side and end, three double side and end, one semi-discoid, and one discoid (Fig. 20). The largest specimen is rounded, with a semi-discoidal trimmed edge, is flat on both surfaces, and is 4 cm. thick. Two of the discoids are rectangular with rounded corners, and one is round; one is 6 cm. long with a well used fabricator margin, curved upwards and 3 cm. long, at one end. 5–9·5 cm. long.

Those with concaves, which are 2–2·5 cm. wide, comprise two semi-discoids and two discoids 5–6 cm. long.

In the nosed series is a discoid, and one with a tongue-shaped trimmed margin bearing rounded noses. One is trimmed half-way along its margin from one surface and half-way from the other surface, and it bears a small triangular nose at one end. One has a triangular nose on both lateral margins. A ridge on the lower surface of one is polished from end to end as though from use. 4·5–8 cm. long.

Keeled.—A small series, comprising a side, double-side, double side and end, semi-discoid, and discoid examples. Two bear narrow concaves and one rounded noses on both lateral margins. 5·5–9 cm. long.

Uniface pebble implements.

One 9 cm. long has a trimmed semi-discoid lateral margin which is steep-faced and notched. One 13 cm. long is oval in shape, trimmed on one lateral margin and end

back to the middle of the upper surface, and it has a striking-platform on one end from which two flakes have been knapped. One 16 cm. long is irregular oval in shape, has a trimmed steep-faced edge along part of both lateral margins and on the rounded end.

There are three specimens trimmed all over one surface, but none of them is *sumatra*-type. Two have a central patch of crust on the upper surface, and trimmed working edges on various parts of their margins; they are 8 and 10 cm. long. One 13 cm. long is a semi-discoid trimmed all over one surface, and bears two concave working edges 2·5 and 4 cm. wide.

The split-pebble implement has a well trimmed lateral margin forming a long shallow concave edge, and the ridges on its upper surface are polished as though from use.

The poor series of uniface pebble implements, and especially the absence of the *sumatra*-type, indicate that it is not an important cultural factor in this area.

Biface discoids.—Two oval specimens 6 and 7 cm. long. They are not trimmed continuously round their margins.

II. Blocks.

Crown.—Those with straight to convex working edges comprise four side, one side and end which has the two trimmed margins meeting at a right angle, one discoid, and two oval or tongue-shaped with plain butt, one of which bears a notched margin (Fig. 16). Ridges on the inner face of three specimens are polished as though from use. 3·5–8 cm. long.

The concaves comprise one semi-discoid, and one tongue-shaped with untrimmed butt. The concaves are all 2 cm. wide. 7–8 cm. long.

There are six specimens bearing noses, comprising one side, four semi-discoids, one tongue-shaped with untrimmed butt (Fig. 17), and one discoid (Fig. 21), which is trimmed all round. Four bear one rounded nose from 0·5 long by 1 cm. wide to 1·5 by 2·5 cm. The discoid is 5 cm. long, bears three rounded noses bounded and separated by five concaves 1–2 cm. wide. 5–9·5 cm. long.

Keeled.—The trimmed margin on one is short and straight, and on the other is semi-discoidal. 4·5–5·5 cm. long.

Two bear two, and one three, concaves which are 2·3 cm. wide. They comprise a side, a pointed double side (Fig. 18), and a semi-discoid. 5–8 cm. long.

Five specimens bear noses which are all small, three rounded and two triangular. One has two triangular and one rounded noses separated by concaves on the one margin. The noses are up to 0·75 cm. long. Four specimens have side, and one a semi-discoidal, trimmed margins. 4·5–6 cm. long.

Worimi.—The one specimen (Fig. 1) is a splendid example, to all intents and purposes a very large *elouera*. It has three rounded noses, one 2 cm. and the others 1 cm. wide at the base, separated and bounded by four concaves; its butt end is notched along the outer edge, and its chord is smoothed and polished as though from use, but it is not ground. Half of one surface from the chord inwards is pebble crust. It is made of brown chert. 10 cm. long, 6 cm. wide, 5 cm. thick.

Burinate (Figs. 5–8).—There are nineteen specimens of the type classified by Noone (1934, 84) as spalled, A, VI, nucleiform, with vertical spalls from margin and face and a horizontal platform. They form the finest series of burinates of one type yet recorded from New South Wales. They are all elongate. Ten of the burinate edges are formed by one spall, three of which have run the full length of the face and seven are foreshortened and end in a ledge; four are formed by from two to four spalls. Four have a burinate edge at each end of the same margin, and one (Fig. 7) at each end on opposite margins, thus making five doubles. 3–6 cm. long. There are two utilized spalled burinates, 2–3 cm. long.

III. Cleavers.

One is trimmed on one lateral margin and end, and one on both lateral margins and end. Both bear concaves from 2–3 cm. wide. 8 and 12 cm. long.

IV. Normal Flake and Blade Implements.

Cutting and scraping edges.

Elouera.—The three varieties of McCarthy (1943, 139–40, figs. 17–19) are evenly represented in the small series of *elouera*. A high proportion, nine out of fourteen, bear scraper trimming on the chord (Fig. 23), two of which are notched; the remainder bear evidence of use as knives on this margin. Several bear concaves on the thick margin, but none have a nose. Two in variety ii are trimmed on the thick margin at the distal end only. One unusual flat blade in variety iii is trimmed on both ends only, and has a knife-edge on the chord. One has a faceted butt. Two are less than 3 cm., the balance up to 5 cm. long.

Utilized.—All examples have both cutting and scraping edges on various parts of their margins. Two have faceted butts. One is a slender blade 8 cm. long, with one well-used saw-like lateral margin and end and a faceted butt. Four are less than 3 cm., the balance up to 8 cm. long.

Scraping edge.

Side.—Twenty are blades, but there are no abrupt trimmed bladelets among them. Two are segments with crust back. Three are trimmed on the inner face from the outer face, and nine have faceted butts. Twenty are less than 3 cm., the balance up to 9 cm. long.

Side and end.—Five are blades. The trimmed lateral margin and end meet at a sharp angle or in a rounded curve and form a corner which could have served as a nose. None has a faceted butt. Three are thick rectangular *arapia* (Fig. 15), and on one of them the ridges on its inner face are polished as though from use. Two are quartz thumbnail scrapers, 2·75 cm. long. Three are less than 3 cm., the balance up to 7 cm. long.

Double side.—Eighteen are blades. Eight of them, from 3·5 to 4·5 cm. long, are trimmed from the inner face on one margin, and from the outer face on the other margin, and one (Fig. 24) is trimmed from the outer face on both margins; attention has been drawn to this reverse method of using a blade (McCarthy, 1943, 142) on the south coast of New South Wales, and at Singleton (McCarthy and Davidson, 1943, p. 217, fig. 20), but no reason for it is known. One blade is quartz. Two are pointed. One is abrupt trimmed on both margins, but is only portion of a narrow blade. Two have faceted butts. They are all flat and thin except one, which is a thick *arapia*. Five are less than 3 cm., the balance up to 6 cm. long.

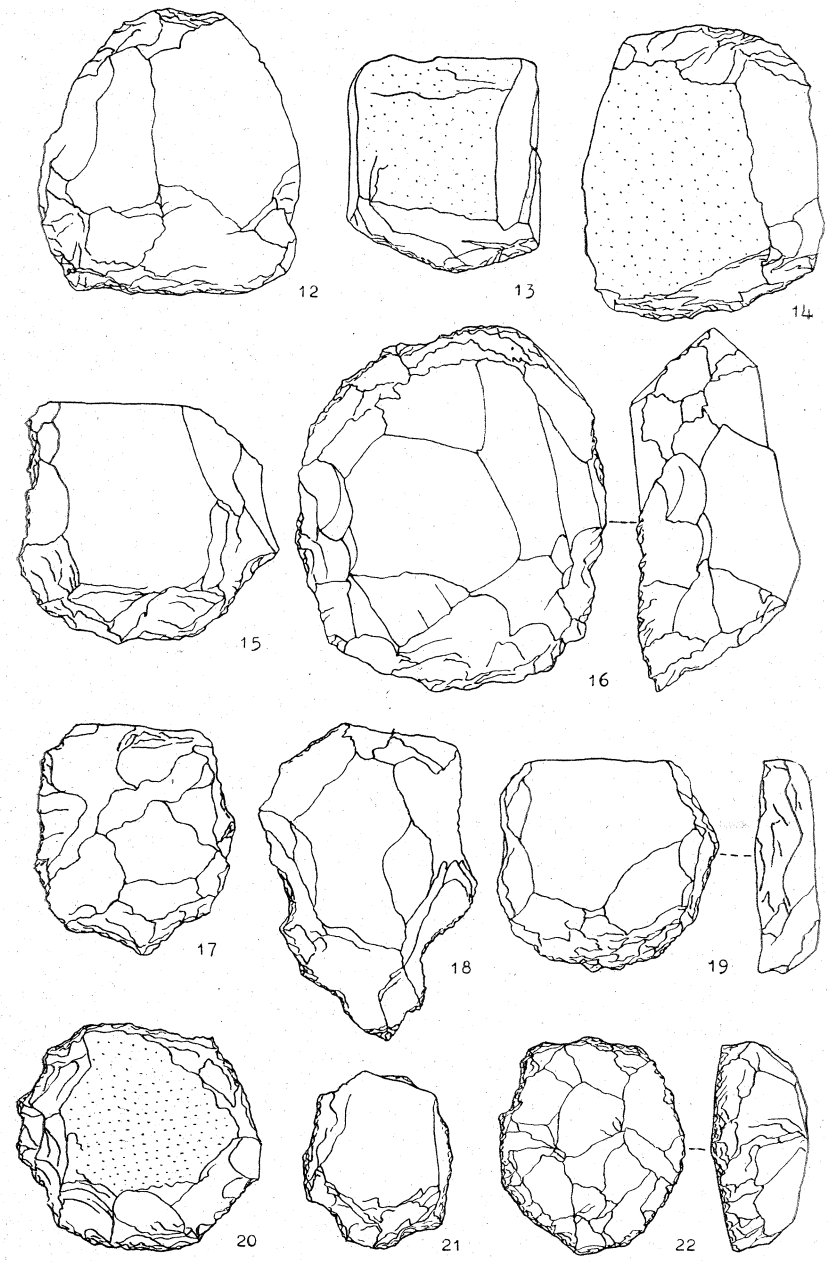
Double side and end.—A series of elongate and broad tongue-shaped blades, trimmed along both lateral margins and the distal end (Fig. 44). The plain butt varies from a rounded cone to a wide flat semi-circular platform, and none are faceted. All but three are *arapia*. Five are almost square flakes. Six are polished from use on the prominent ridges and bulb of percussion on the inner face, extending to most of the surface on two of them; one flat blade bears this polishing on the ridges of its outer face. Three tiny specimens are 2–2·5 cm. long. One (Fig. 47) is a thumbnail scraper, one an abrupt trimmed narrow bladelet, and one is pointed. The balance are 3·5–9·5 cm. long.

Semi-discoidal (Fig. 19).—This group differs from the preceding in one respect only, it is wider than long. The butt is flat, the trimmed edge is semi-discoidal. None have a faceted butt. The trimmed margin on two is in the form of a very broad rounded nose. All but one, which is thin and flat and 3·5 cm. wide, are thick *arapia* 5–7·5 cm. wide. One bears polishing as though from use on the ridges of its inner and outer faces, and one on its inner face.

Discoidal.—The majority are from oval (Fig. 22) to round in shape, but five are rectangular with rounded corners. Most of them are thick flakes, and only two show a prominent bulb of percussion. The ridges on the outer face of three, and the whole of the inner face of one, are polished as though from use. The butt is trimmed away on all examples to form a continuous working edge with the adjoining margins. They are 4·5–8 cm. in diameter.

Distal end.—In the straight-edged series the trimmed margin is transverse on eight, and oblique on five. One (Fig. 28) of the latter is a blade 3·5 cm. long and 2 cm. wide. They are an irregular group. Two are duckbill blades 2·75 and 3·5 cm. long. One is 2·5 cm., the balance up to 7 cm. long.

The convex-edged series also shows wide variation. There are five duckbill blades, one with a faceted butt, 3·5–6·5 cm. long. Two of the longest specimens have a narrow butt and broad trimmed distal edge 5 cm. wide (Figs. 12, 27). One blade has a narrow



Figs. 12-22.—*Arapia.* 12-13, Distal end scrapers. 14, Double end scraper. 15, Side and end scraper. 16-17, Double side and end trimmed blocks. 18, Keeled block with several concaves. 19, Semi-discoidal scraper. 20, Discoidal coroid. 21, Discoidal block. 22, Discoidal scraper. (Two-thirds natural size.)

trimmed end 1 cm. wide. One is trimmed from the outer face, and one has a notched edge. One (Fig. 13) rectangular flake is 5 cm. long and 4 cm. wide; its trimmed end is steep, and its inner face is polished as though from use. One is a carinate scraper 6 cm. long. Two are irregular flakes. There are two thumbnail scrapers; one 2 cm. long is of quartz, and one is thick with an abrupt trimmed end margin. The balance are up to 6·5 cm. long.

Butt-end.—This group includes an exceptionally interesting triangular series (Fig. 25) of fourteen specimens from 2·5 cm. long and wide to 4 cm. long and 5 cm. wide. All have a convex trimmed edge and were evidently gripped in use by the thin distal end, unless they were mounted in gum as adze-flakes, and resemble the *elouera* in having the working edge on the thick margin. All are trimmed on the inner edge of the butt-platform, most of them are steep-faced, and three bear concaves 1 cm. wide. Two similar specimens are trimmed on the outer edge of the butt-platform. Seven are less than 3 cm., the balance up to 5 cm. long.

Double-end.—One specimen (Fig. 14) of *arapia* type, oval in shape, step-chipped across the butt, with a trimmed convex distal end. 6·5 cm. long.

Concaves.

Lateral.—Thirteen have the concave on a thin margin, but it is worked back to form a thick strong edge on the majority of them, and nine have the concave on a thick margin. Three (Figs. 32–33) have a concave on each lateral margin, three two concaves on the one margin, and three (Fig. 34) have one concave adjoining the butt-platform. One of the latter is a thumbnail duckbill scraper 2 cm. long. The concaves are 1–3 cm. wide. Four are blades with faceted butts. Additional trimmed margins form three double-side scrapers, and two have knife edges. Four are less than 3 cm., the balance up to 7 cm. long.

Distal end (Fig. 31).—Five blades have concaves 1–2 cm. wide, and two have double concaves 1 cm. wide. Five are irregular flakes with concaves 1–3 cm. wide. One blade has a faceted butt, and one has a trimmed lateral margin. 4–6 cm. long.

Lateral and end.—Seven have one concave on one lateral margin and on the distal end, four have three or more concaves on various parts of their margins. One has a concave adjoining its faceted butt. One blade 7 cm. long has two concaves on the end and three on a lateral margin, and the other lateral margin is scraper trimmed. Five are blades and two are rectangular flakes. One is less than 3 cm., the balance up to 8·5 cm. long.

Butt-end.—Seven are triangular pieces with a thin distal end and a broad rounded trimmed edge across the butt, with the concave on the inner edge of one and on the outer edge (Fig. 26) of four of them. On the latter four, the faceted edge of the butt-platform has been developed into a concave, and there is a broad thick blade 6 cm. long of a similar type. The concaves are all 1 cm. wide except one, which is 3 cm. wide. Two have trimmed lateral margins, and one a distal end. 5–9 cm. long.

There are two *arapia* in the concave series.

Nosed.—The nose is rounded on twenty-three, and triangular on ten, of which three are narrow and of piercer type. None are straight-ended. Twenty-seven have one nose, and six have two or three noses. It is on a corner (Fig. 35) of the distal end on fifteen. Three are elongate pointed examples of the borer type similar to those from the south coast of New South Wales (McCarthy, 1943, 143, fig. 30) and Singleton (McCarthy and Davidson, 1943, p. 220). The nose is on a lateral margin on thirteen, on the distal end on one (Fig. 40), and on the butt-end on one. Three have noses on the corner and distal end. The majority have a concave on each side of the nose, exceptions being the pointed or corner varieties. Only three are blades, and five have faceted butts. One has a fabricator edge across its butt. Fourteen have additional scraper trimming on lateral and end margins. The nose projects 0·5 cm. from the margin on the majority, but up to 1 cm. on some specimens. One made of quartz is only 2 cm. long. Three are less than 3 cm., the balance up to 8·5 cm. long.

Piercers.—No examples in the collection apart from the three noted in the nosed group.

Burinate.—These are all of the scaled type and are classified according to Noone (1934, 84).

B, I, Bevel-scaled: Oblique line of scales opposed to vertical spall. Two excellent examples, both formed by single spalls. One (Fig. 10) is 3 cm. long, and one (Fig. 9) 2 cm. long is the end broken off a blade. On both specimens the trimmed edge is slightly concave.

One (Fig. 48) has a single spall on the inner face opposed to a skewed line of scales, and is of the "*burin plan*" or flat type. It is 5 cm. long.

B, V, Concave-scaled: concave line of scales opposed to vertical spall. One (Fig. 11) 3·5 cm. long formed by a short spall against a transverse concave edge.

B, VIII, Counter-scaled: scale opposed to scale. The burinate is at the end of a ridged blade. 3 cm. long.

Cutting edge.—Forty-five have one, and fourteen have two, knife edges on lateral margins. Fourteen have a saw-like edge on one margin, and only one has a serrated edge. The cutting edges vary from straight to semi-circular. Fifteen are blades with a faceted butt, and on the balance, half of which are blades, the butt is plain. Six are less than 3 cm., the balance up to 9 cm. long.

Smoothed edges and polishing by use.—A number of scrapers have the ridges on one or both surfaces polished, and in several instances this polishing covers most of the surface of the inner face. The *worimi* has its chord edge polished in a similar manner, and a triangular flake 6 cm. long displays smoothing on its chisel-like distal end, 2 cm. wide, which is trimmed on both facets. This polishing is obviously due to the manner and purpose for which these implements have been employed, and is not grinding such as we see on edge-ground implements. Attention has already been drawn to its occurrence on a limited number of implements from the south coast of New South Wales (McCarthy, 1943, 145). The cause of this polishing is not known. The late Mr. Ivatt suggested that it was due to the implements being used for scraping skins and incising designs on the inside of skin-cloaks.

Flake fabricators.—Sixteen specimens are of the punch type. Six have the fabricator edge at the distal end, and nine at both ends. Three are slender blades 5·5–6 cm. long. One is of quartz (Fig. 29). They range from six less than 3 cm. to a blade 6·5 cm. long and 4·5 cm. wide (Fig. 30), the latter being the longest punch type yet recorded.

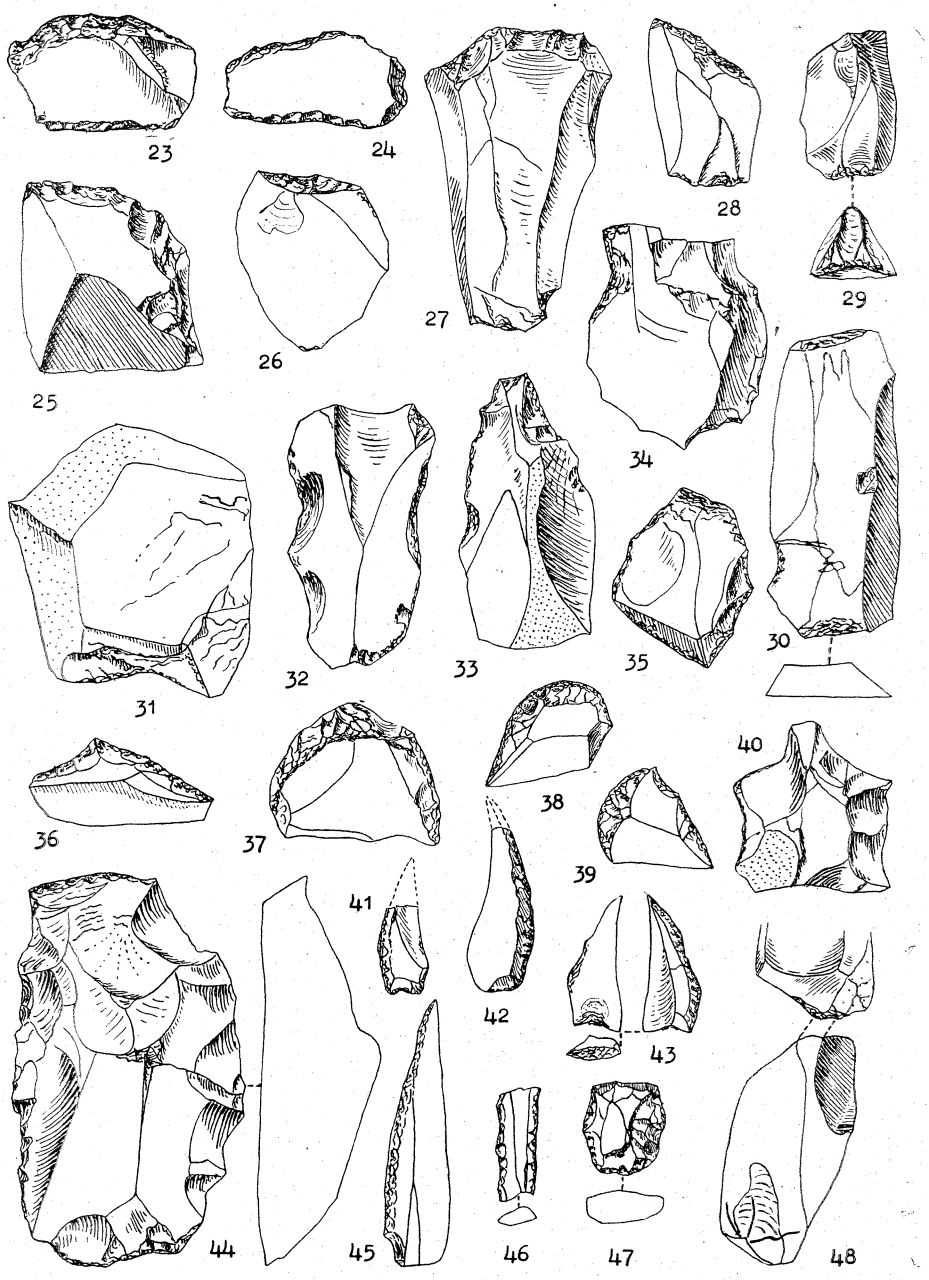
One has a lateral fabricator edge. One is irregular in shape, and battered on a number of its edges. One has a very thick battered butt end 5 cm. wide. One has several patches of battering on its oval margin. 4–6 cm. long.

Flake fabricators are thus more commonly represented in this area than at Singleton, but not as plentifully as on the south coast of New South Wales. In this respect attention might be drawn to the scarcity of geometrical microliths, *bondi* points, and *elouera* at Bathurst. The late Mr. Ivatt did not find any bone fabricators. Both at Bathurst and on south coast stations pebble and trimmed coroid hammerstones are abundant.

V. Bondi Points.

Although the series is a small one, it conforms in all respects to the *bondi* points of the south coast of New South Wales (McCarthy, 1943, 145–149, figs. 37–69), and Singleton (McCarthy and Davidson, 1943, p. 221, figs. 41–43, 45). Blades of triangular transverse section are more numerous than those of trapezoidal section. In width the majority are less than 1·5 cm., but two of 2 cm. are short and squat, and one of them is oblique trimmed. The majority are straight-edged on the thin margin, but five are in-curved or hook-like. Only two are rudder-shaped. The trimmed convex margin is convex on the great majority, and is straight on a few specimens only. The trimming is even and neat (Fig. 45). The butt where trimmed is rounded on the majority, but is straight on two (Fig. 42). The faceted butt is represented.

In the single-edged series two have a concave butt 0·75 cm. wide (Fig. 43), in each case worked by use into the inner edge of the butt-platform. One (Fig. 41) has a small rounded nose between two concaves on the inner edge of the butt-platform and toward the thin margin. One has a trimmed oblique distal end and lateral margin, both edges being slightly concave.



Figs. 23-48.—23, *Elouera*. 24, Double side scraper. 25-26, Butt end scrapers. 27-28, Distal end scrapers. 29-30, Punch-type flake fabricators. 31-34, Concave scrapers. 35, 40, Nosed flakes. 36, Nosed blade. 37-39, Geometrical microliths. 41-43, 45, *Bondi* points. 44, Double side and end trimmed blade. 46, Double side trimmed microlithic blade. 48, Bevel scaled and skewed burinate. (Two-thirds natural size.)

The majority have lost their tips, but none of the complete specimens is trimmed on the thin margin at the distal end. Scraper and knife edges on this margin are both present in the series.

Sizes: The following is an analysis of the lengths of the points: 0–2 cm., 2; 2–3 cm., 5; 3–4 cm., 11; 4–5 cm., 5; 5–6 cm., 4.

VI. Geometrical Microliths.

This is an unimportant group in the collection, being represented by three crescents and two scalenes. There are sixty-five specimens less than 3 cm. long among the normal flake and blade implements.

Segment.—One (Fig. 37), 3·5 cm. long, 2·5 cm. wide, is a large semi-circular example made from a faceted butt blade. One, 3 cm. long, is narrow and very thin. One (Fig. 38), 2 cm. long, is of the squat type.

Scalene (Fig. 39).—Two, 2·25 cm. long, have trimmed rounded margins.

Discussion.

N. B. Tindale and B. G. Maegraith proposed the name *arapia* for large flakes, roughly fashioned to a discoidal shape, with secondary trimming on portions of their periphery (1931, 281 and 286, figs. 6–7, 10–11). Their distribution embraced examples collected on Kangaroo Island, at Hawk's Nest, to as far north in Australia as Durham Downs in south-western Queensland. The specimens from the Bathurst district noted as *arapia* in this study agree so closely with those figured by the above authors that it has been considered advisable to retain the name for them in the block and the normal flake and blade groups, thus extending their distribution considerably eastward. They comprise end, side, side and end, double side, double side and end (or tongue-shaped), semi-discoidal, and discoidal varieties. The discoidal variety has had its butt-platform removed by trimming, which extends right round the margin; it is considered to be the ideal or standard form of *arapia*, just as variety iii of the *elouera*, which also has its butt trimmed to a rounded end, occupies a similar position at the head of the *elouera* series.

C. C. Towle described and figured (1935, 132, pl. vi, fig. E) the discoidal variety from far western New South Wales, and stated that "the presence of circular scrapers indicates the use of a superior material which could readily be retouched in that manner"; as I see it, the presence of discoidal scrapers is due to function and to the requirements of the workman rather than to the material used because the latter is of poor quality in many Bathurst specimens.

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