CHIPPED STONE TOOLS OF THE ABORIGINAL TRIBES EAST AND NORTH-EAST OF LAKE EYRE, SOUTH AUSTRALIA.

By

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(Communicated by R. W. Legge.)

Plates XXI.-XXIX.

(Read 12th November, 1928.)

Most of the tools picked up by collectors are worn out and have been discarded—it was so easy to make a tool that directly one failed to work satisfactorily it was discarded and a fresh tool made, a supply of stone material always being kept handy for this purpose.

Usually the younger blacks got the rough material from the quarries—these were usually in some exposed place, so the young men, who had all of the wild animal's dread of being caught out in the open, would batter off as much stone as they could carry and would take it to where the old men waited, in some sheltered place, sometimes in a hollow in the sandhills, sometimes in the shelter of a timbered creek. Here the rough stone was chipped up, all pieces that were suitable for tools were then taken to the main camp to be worked up, the rough flakes that were of useless shape were left lying on the ground, and the cores were also discarded, unless, as sometimes happened, the cores were of suitable stone from which to chip small knives; they were then taken into the camp to be used up.

These cores have been variously described as upright scrapers, as planes, as skin scrapers, and Tartar's Cap scrapers, but they are really only discarded cores from which it was no longer possible to chip useful tools.

When the stones reached the camp the flakes were sorted out. Some were suitable for use as tuhlas (chisels), others were suitable for kalara (scrapers), other narrow flakes with a fairly high keel and about three-quarters of an inch

wide were set apart to be made into pirries. They were all put away into different string bags, and were then worked up as required. Sometimes one man would specialise on one tool and would put in all of his time in making that one tool. As they were made he would drop them in the sand about his poonga (hut) and would dig them up when any were required for barter (for food or weapons). Hundreds, of course, were lost, but they took so little time to make that the loss of a few in the sand did not matter very much.

We will suppose that the Aboriginal craftsman wants to make a pirrie—from his bag he selects a flake, about 2 inches long by from half an inch to three-quarters of an inch wide—the flake must have a pronounced keel on the one side. Having selected the flake, he warms up the pitch on the end of his koondi (stick or handle on which tools are mounted for use) and fixes the flake firmly in the pitch with the keel at right angles to the koondi. Now with a hammer stone (kool-kee) he chips away the edge, striking from the flat side downwards towards the keel and round the blunt end of the flake. When the one side is flaked to his liking he warms the pitch and releases the flake and reverses it, by imbedding the side that he has just flaked in the pitch; he then chips this side in the same manner. It is then taken from the pitch and finally pointed up by pressure. For this he selects a worn-out scraper that has thickened up into a "bull-nose" through use; then, using a nether nardoo stone (umpa) for a table he puts the flat edge of the kalara (scraper) to the place on the pirrie that he wishes to press off and presses downwards. This is a very delicate operation—if he tries to take too big a piece the pirrie will probably break, but if he is successful the finished pirrie is the result. He will then just throw it into the sand and start on another one.

These pirries were used for fine graving work and occasionally were used as a drill, for drilling holes in Inkitcha (bullroarer) and for drilling holes in mussel shells, which were used as spoons for eating the Munyeroo paste. When used as a drill the pirrie was mounted in a small stick, never more than five-eighths of an inch in diameter, the one end was split and the pirrie was put in the split with the point projecting. It was then firmly bound with fibre string and was ready for use. If a hole was wanted in a wooden implement or utensil the spot to be bored was first charred with the pointed end of a glowing firestick, the pirrie in its stick was then rotated between the two hands

until the stone point had drilled out all of the charred wood, the firestick was then used to further char the hole and drilled out again with the pirrie, and so on until the hole was through. When drilling mussel shells the pirrie point was just pressed to the place where the hole was wanted and rotated between the hands until it bored through.

For use as graving tools they were mounted in pitch, made from almost anything of a gummy nature—wattle gum, mindrie gum, spinifex gum, beefwood gum, to mention a few—on the end of a curved stick called a koondi (the name really means curved), and the decorative marks on the boomerang or pirrha (woman's digging bowl) were made by holding the koondi between the two hands, with the pirrie point towards the body, and then lightly gouging out the marks, always working with the point towards the body.

The name pirrie means anything fine; a crack in the ground that a young plant makes as it breaks the crust is pirrie, a scratch is pirrie, the finger nails are Murra pirrie, and the toenails are tidna pirrie.

Pirries were never used as spear points. They were for one thing of the wrong shape, keeled on one side and flat on the other, would give a spear a very erratic flight. For another thing they were too small. When mounted as a spear head is mounted there would be only about half an inch of the pirrie protruding from the gum, or if bound on with sinew there would be only a very small point exposed, and finally the stone-headed spear was not known in this country. The Aboriginals of this country had only the heavy lance made of one piece of wood, usually mulga (called pirran-burra). The mission boys brought into this country from Hermannsburg by the Kopperamanna mission, introduced a form of light throwing spear, which was named kutchie, but even this had a hardwood head, made from mulga, or burra burra, and a shaft of lignum, but it never became popular. It was nearly always used by some visitors from the Arunta or Urubunna tribes.

Another stone that was used as a graver was known as Mernie wadna (literally, stout broken), principally for putting grooves about an eighth of an inch wide from end to end of a pirrha (digging bowl). This tool had a very high-keeled back and was chipped in a semi-circle at the back. The result in appearance was like a section of an orange, and if four of these were placed together they would make a complete ball—of course, they varied a lot,

some were longer than others and the points were more drawn out—in length they ranged from about an inch and a half long by about half an inch wide across the back to two and a half inches long. They never appear to be wider than about half an inch.

I had heard of this stone, but could never get a specimen, and so did not know what to look for in the deserted camps.

In June of this year (1928) Mr. and Mrs. R. W. Legge of Tasmania were staying with me. Mrs. Legge picked up several of these stones and submitted them to me for classification. They were of a type unknown to me, and I advised her that they were badly flaked worn-out tuhlas. Mrs. Legge, however, persisted in collecting a few and brought them in. That night we compared them and were forced to the conclusion that they were a new type.

The next morning I showed one to an old blackfellow, at least eighty years of age, and he immediately recognised them and told us the name and use of them. They seem to be very rare. I have been searching the old camps for this last month, but have only found one.

The old blackfellow has since shown me how they were made. A stone is selected that has a clean right-angle fracture, the points or ends are then chipped away with a coolkee until the semicircular back has been obtained. The points are the working parts so that very little interest is taken in the back, but in sharpening the ends to a point the back must of necessity be chipped back. A lot of skill is needed, as the whole thing very often shatters to pieces—I made two, under instructions from the old man, but three shattered to pieces just as I was feeling proud of them. The tool when finished was mounted on a koondi with mindrie or spinifex gum, and was used in the same way as the pirrie.

Kalara (literally, cutter or scraper) were mostly used as hand tools. They were made in the first place by using a flake as a smoothing tool to scrape off the roughness left after rough chopping with the tuhla. At first they were any keen-edged flake, but as they were used the edge flaked back and was chipped off if the stone was worth it, but when the edge or end had thickened up too much to cut effectively the stone was just dropped and another flake picked up. Kalara varied in shape, but a typical specimen was anything

from one and a half inches long by one inch wide up to four and five inches long by one and a half inches wide. These tools when found give one the impression that they have been chipped into shape before using, but really the symmetrical shape is only caused by attrition in use. Sometimes they were chipped back by striking on the edge with a koolkee, with the flat or cutting edge held uppermost in the hand—the resulting flakes made the so-called chipped backed knives. In *Savage Life in Central Australia*, page 90, I state that these tools were mounted in mindrie pitch and were used as gouges, but I find that the kalara merges into the tuhla, and what I then took to be kalara (scrapers) were really long tuhlas (chisels).

The tuhla was the principal tool used in weapon making, it was made from any stone that would flake right, that is with a thick back and a sharp cutting edge—an ideal shape is a semicircle with a bulb on the back at the base. A lot of care was shown in chipping and selecting these stones from the rough mudda (parent stone). I have seen a party of blacks with perhaps a hundred of these laid out for final selection, and after the whole lot had sat in judgment only about a dozen would be taken. Even after they were mounted on the koondi there would be a lot of fine chipping to get the ideal semicircular cutting edge, similar to a wood-turner's gouge. In use these were used with a chopping or adzing motion, the wood that was being worked either being stuck in the sand or clamped by both feet. As the tool became blunt in use the edge was flaked off with a koolkee until there was very little of the stone left. Some worn-out tuhlas that I have beside me are only about a quarter of an inch wide and two and a half inches across. These would be at least two inches from back to cutting edge before being put into use. Tuhla varied in size from about an inch, or even less, wide up to four inches across the cutting edge. I have found dozens of worn-out specimens of over three and a half inches wide, but only four perfect specimens have been found here by myself. These were found at Appatoonganie Lake and were enclosed in a rotten string bag. They measured over four inches across the cutting edge. I gave them to the late Dr. George Horne, and I believe that he passed them on to the National Museum. At this same lake I found about half a dozen specimens of a pirrie ranging up to five inches long by about an inch wide—these also were given to Dr. Horne. I am inclined to think that these gigantic tools were freaks that were made by one

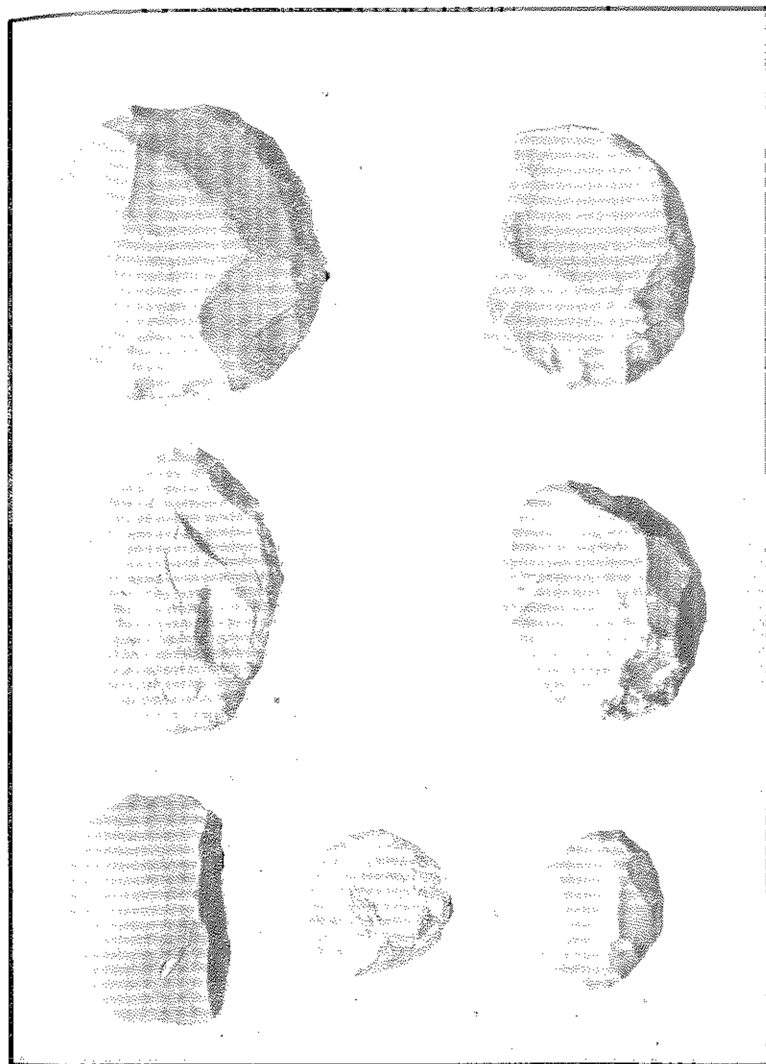
man, a blackfellow who for some time followed the fortunes of Neaylon Bros. of Neaylon's Swamp, near Mungeranie, and later on of Appatoonganie. At both of these places and nowhere else have I found anything approaching these in size. At Neaylon's Lake I found hundreds of chipped-back knives—it was plainly to be seen that they had been chipped off the tuhlas as they got blunt, a dozen or so flakes would be lying in position and could with a little patience be re-assembled to make up a blunt edge of a tool.

Chipped-backed knives, so called, were too small to be used for anything, but they may occasionally have been used to open a vein in the arm to get blood for ceremonial purposes. Any sharp pointed flake or sharp bone that happened to be handy was used for this purpose.

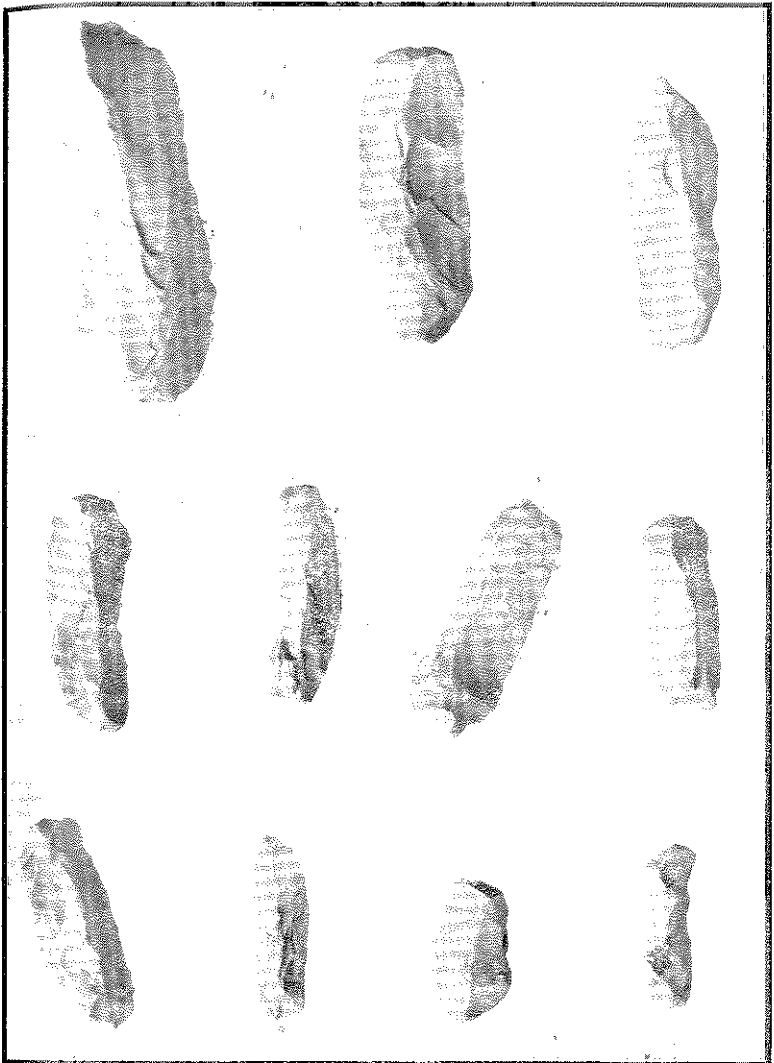
Knives (yutchawunta) were any sharp-edged flakes. The shape mattered little so long as they had a sharp edge. Anything with a hooked curve in it and over five inches long was usually set apart as a fighting knife, but for general purposes, as I have already stated, any sharp-edged flake was used. If the stone kept its edge it was mounted with a handle made of mindrie gum and emu feathers; if it lost its edge easily it was used for the purpose of the moment and cast aside. Knives were usually flaked off a parent stone that was firmly fixed in the ground. Certain places were dedicated to the various tribes and the one particular tribe was the only one that could get knives from that particular locality. The hammer stones were left lying where the last man had dropped them, but it was a point of honour to leave them. They might be wanted in a hurry some day. The idea of setting apart areas for one particular tribe was a device to keep the young men from fighting—it was almost inevitable that there would be a clash if young men of rival tribes or hordes met at a knife-flaking ground—and the old men did not like war, it meant too much discomfort and unrest.

Any flakes that came off in a leaf shape, rather thin with a keel and a thumb grip, were set apart for use as a circumcision knife—they were saved carefully for this purpose only. There was a lot of rivalry at a circumcision ceremony as to who could produce the best knife.

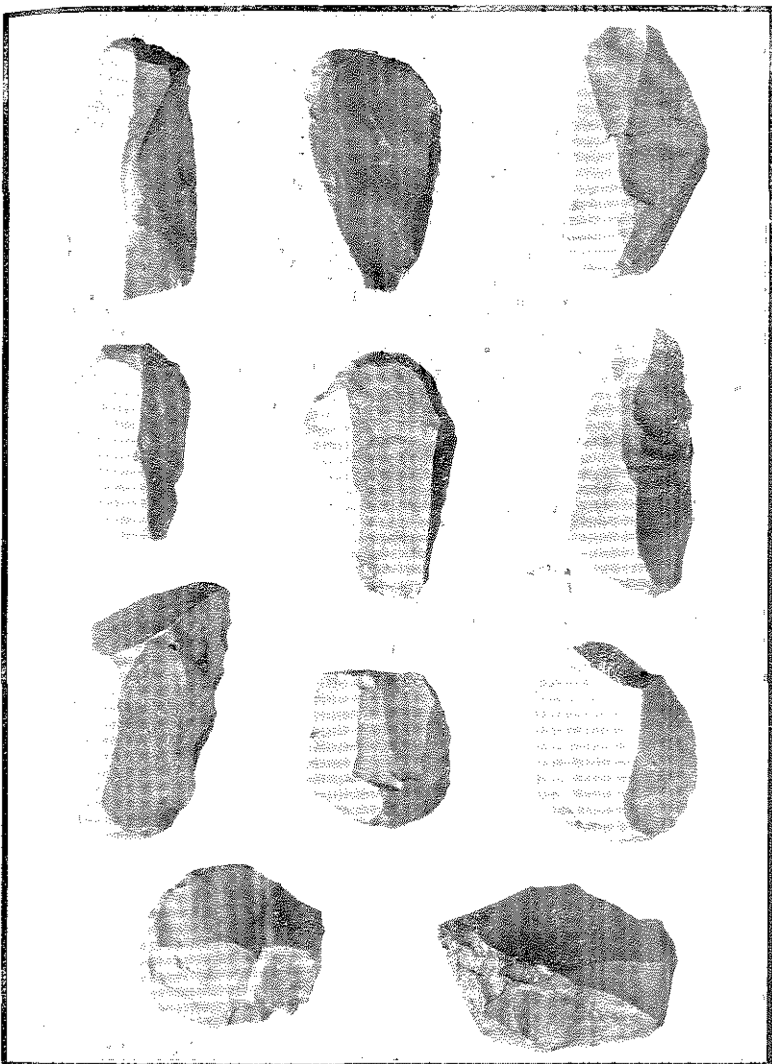
Small sharp-pointed flakes were used as pocket knives are used by white men. A flash young man would wear armbands of fur strung on each arm, and in these armbands he would have anything up to half a dozen fine knife flakes.



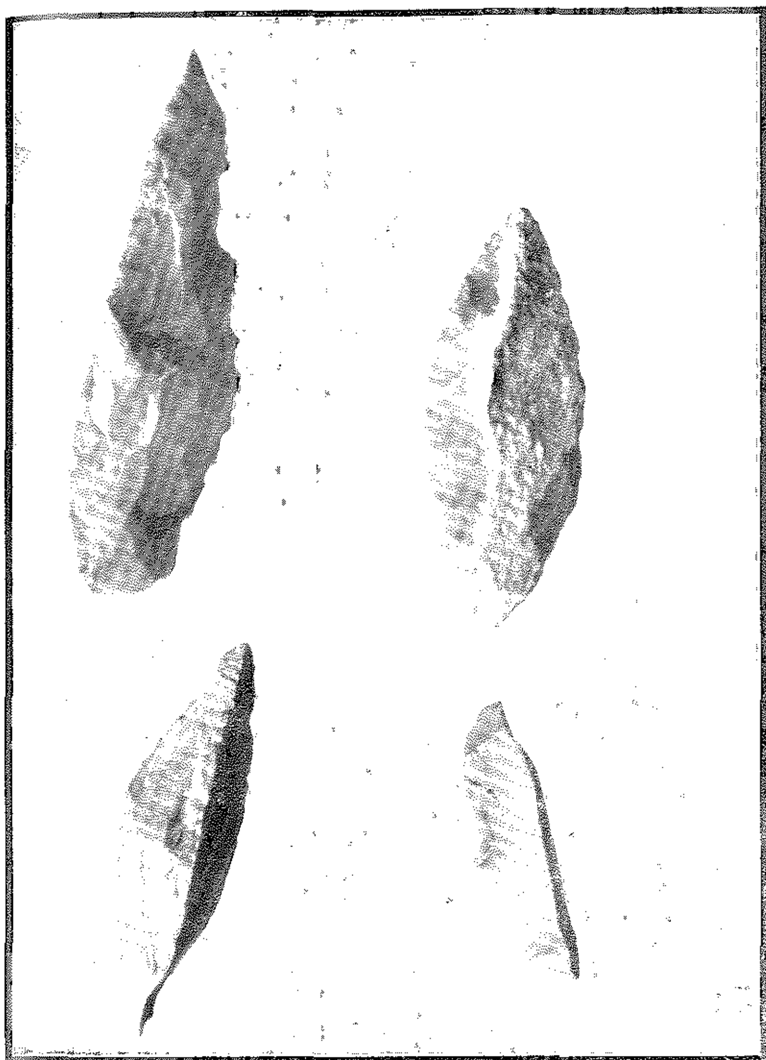
Figs. 1-7. Stone Implements from Lake Eyre District. Tuhla (chisels or adzes), hafted.



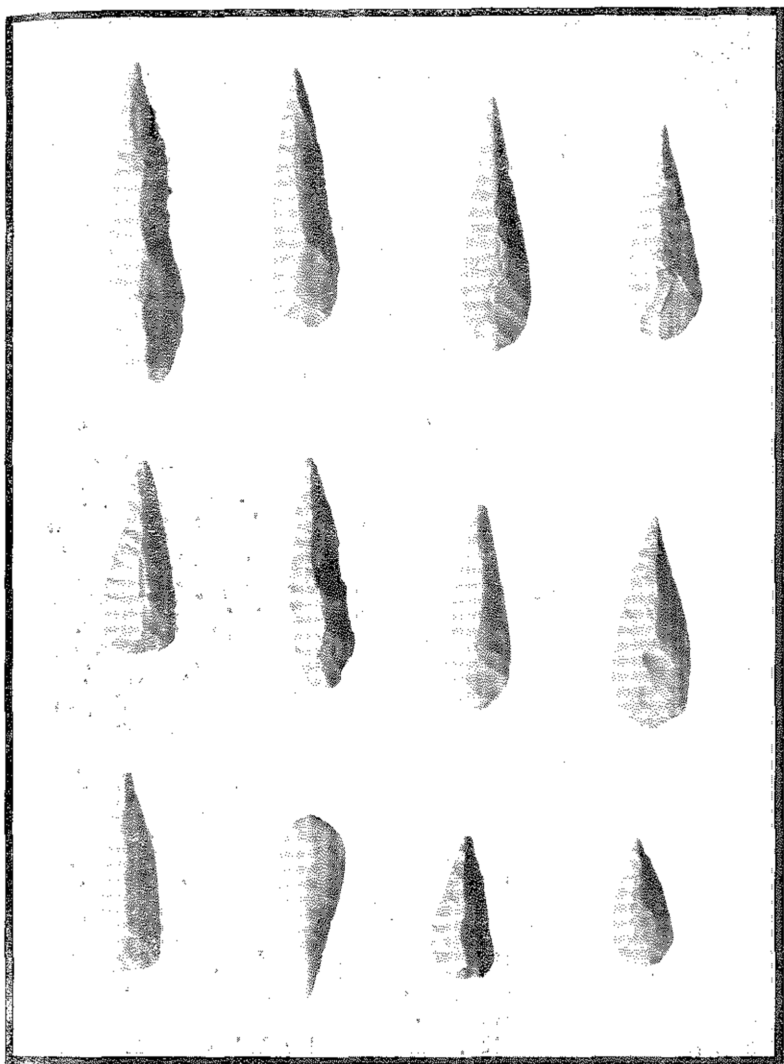
Figs. 8-18. Stone Implements from Lake Eyre District. Worn-out, discarded tuhla.



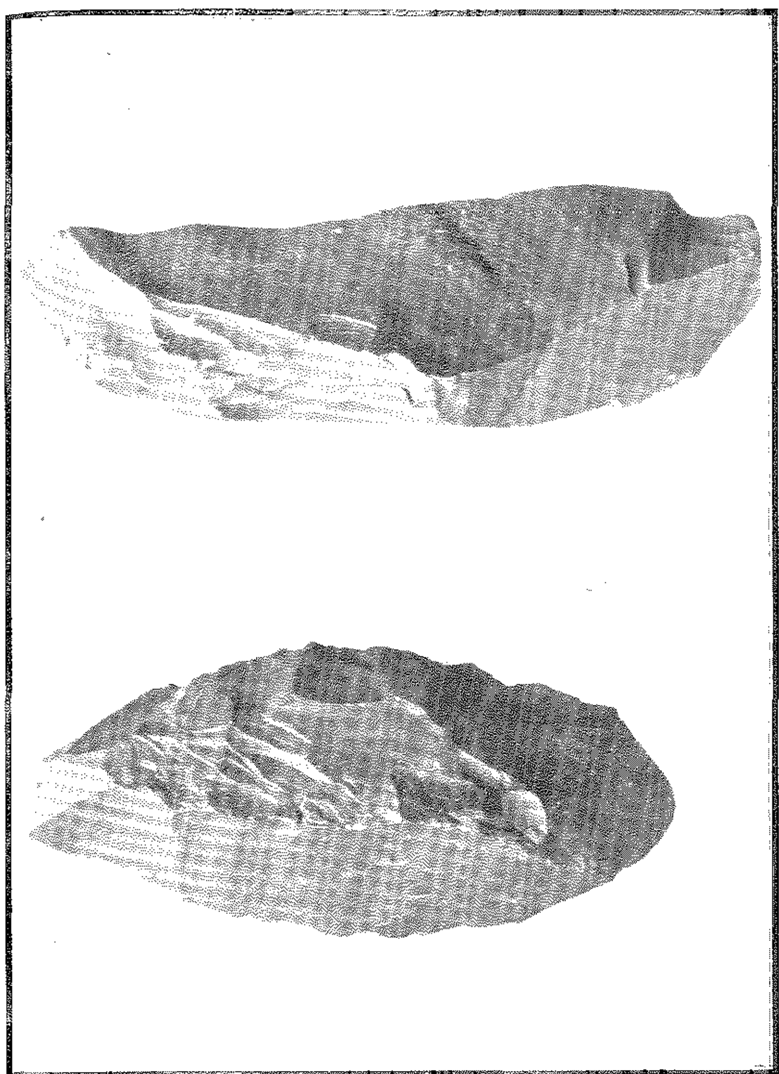
Figs. 19-29. Stone Implements from Lake Eyre District. Kallara (hand scrapers), not hafted.



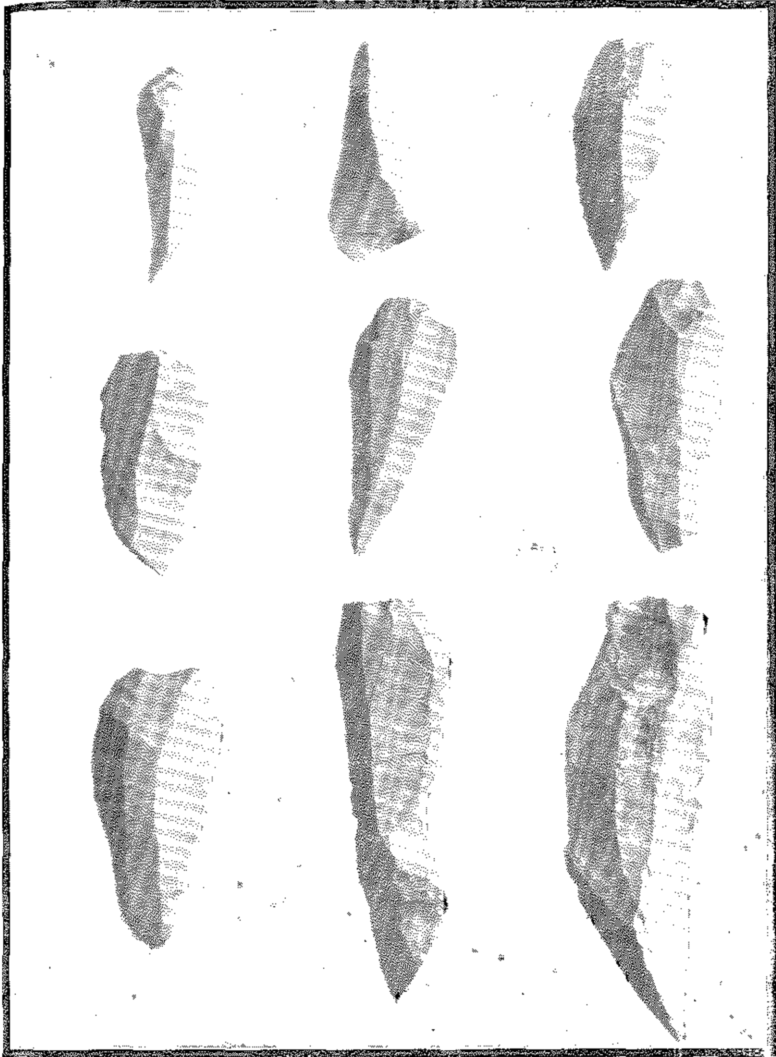
Figs. 30-33. Merna wadna, used also as gravers.



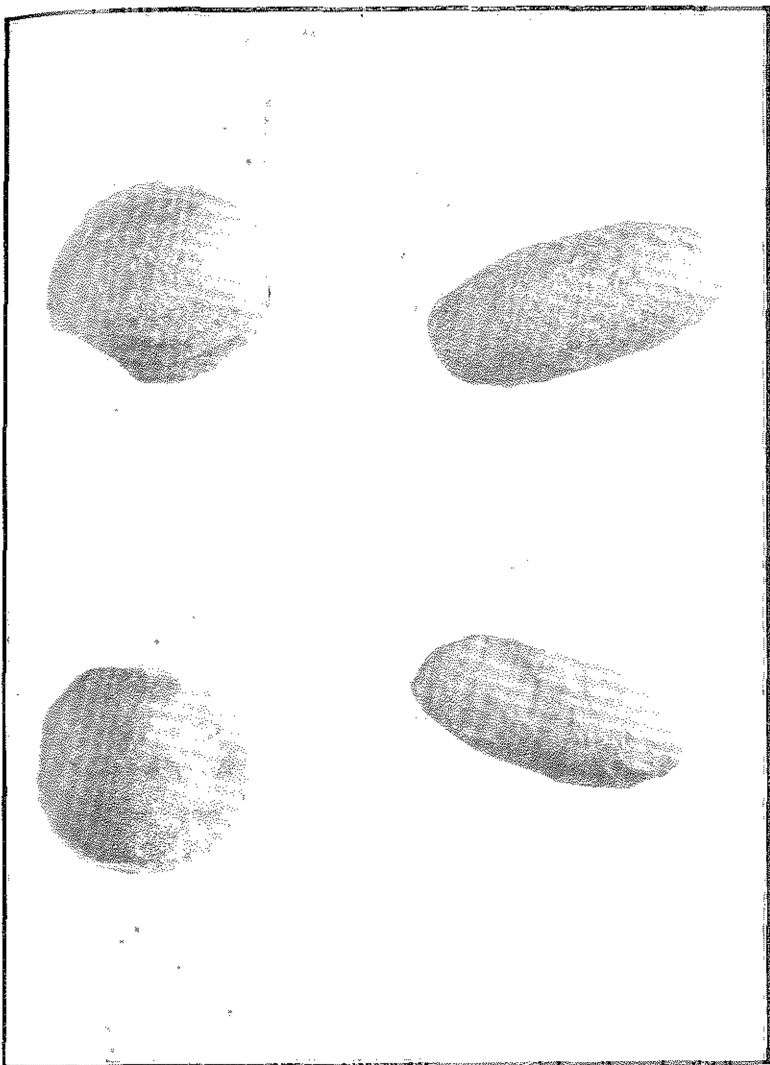
Figs. 34-45. Pirrie (12) (gravers), drill points, hafted.



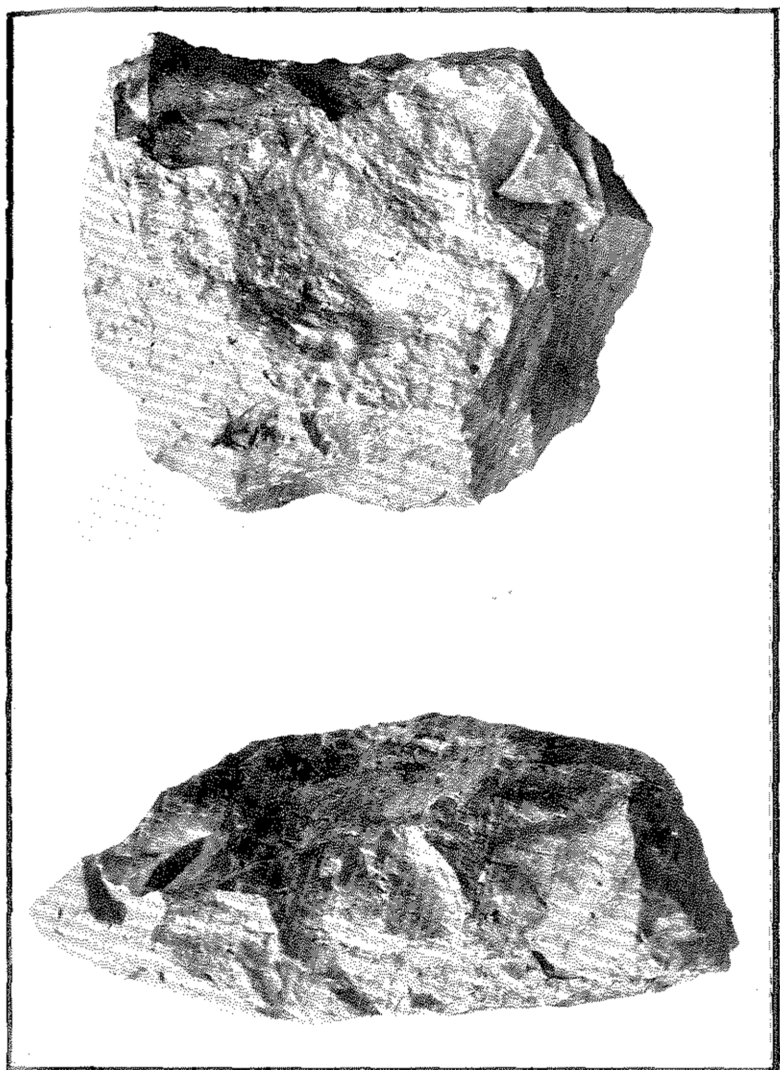
Figs. 46, 47. Vaginal knives.



Figs. 48-56. Knives, general and fighting.



Figs. 57-60. Aerolites (obsidian bombs). Called "Emu Eyes" by the natives, and were rolled or wrapped up into balls made of hair and fur string and pelted at Emus when they came into water.



Figs. 61, 62. Hand axe (R. W. Legge collection), Lake Eyre District.
Lower figure. Side view of same.

They would all be handled with mindrie gum and would sometimes be used as fighting knives. When using them for fighting the tribesman would place three of them in the palm of the hand with the points sticking out between the fingers. He would then close the hand and the three knives would stick out and would be used like claws. They were more feared than the large knives.

Another use to which these small flakes were put was to mark a body that had been killed by a kurdaitcha party to show that the man had been killed lawfully. When used for this purpose a string of feathers from the breast of the pink galah about six inches long would be attached to the flake with mindrie, and the flake would be pushed into the wound made by the spear man of the party. This practice is very similar to the use made of the small knife (kozuka) carried by the old Japanese Samurai.

In explanation, the kurdaitcha party always consisted of three persons and they were appointed as avengers when someone had committed an offence against tribal law. Each one was armed differently, and the duty of the first man, who carried boomerangs, was to bring down the offender; then the second man, or No. 2, had to spear him, then No. 3 had to finally kill him with a club. Directly No. 3 had battered the skull No. 1 would place the feathered knife in the spear wound and leave it there.

The Urubunna tribe differed slightly in the way they mounted the knife. They would use any rough flake, bound on to a stick about fifteen inches long together with a short tail of white fur, of late years made from the white tips of a rabbit's tail. This was left in the wound in the same manner as the smaller knife of the Wonkonguru.

Another type of knife was used for the corresponding operation on women to that of sub-incision on men. The one operation, that of sub-incision, made it necessary to perform an operation on the women. The knife that was used for this purpose was selected for its keen edge, it had to be thick on the back so that it would not cut upwards and injure a vital organ, the back was carefully chipped until it was too blunt to cut and the knife was then used and thrown away—it was very rarely used a second time.

An ideal shape for this knife was about 3 inches long and an inch and a half wide, slightly hooked on the cutting

edge and about three-quarters of an inch wide on the chipped back. These knives are very rare in this country—sub-incision was not generally practised.

The ground stone axe does not seem to have been generally used. A hand axe very like a gigantic tuhla seems to have been more favoured. These were so chipped that when held in the hand the cutting edge was at right angle to the line of the wrist when the tool was held firmly; it was used with a chopping downward motion.

There is no doubt that all of the tools were evolved from the simple flake. One cannot help noticing, when handling them in bulk, how the knife either develops into the pirrie or the scraper, the scraper in turn merges into the tuhla. It would be a simple matter to pick up a series that would show the process of evolution.

The use of stone tools must have been before the Moora era as they have no Moora to represent the stone tools. Anyone who did or discovered anything for the benefit of the tribes became a Moora at death, such as the man who introduced fire, or the man who discovered the boomerang, or who introduced circumcision, but I have never discovered a single stone tool Moora.

The cylindro-conical and conical stones were the emblems of the Mooras. They were usually in pairs and were held by the oldest descendant of the original Moora. They were supposed never to be taken away from the home place of the Moora, but his descendant had the keeping of them. They were usually buried in the sand, so that it often happened that when the holder of a Moora died the burial place was not known, and as no one but the lawful owner knew what Moora they represented, they became valueless. They were always treated with respect and left severely alone, because they might represent some wicked Moora who would punish anyone who meddled with them. The pairs usually consisted of one stout stone and one thin stone. The thinner one always represented the female element. If the holder wished to intercede with the Moora he would grease the stones—if he wanted something for a woman, he would grease the male stone with a mixture of fat and red ochre; if he wanted help for a man he would anoint the female stone. The male stone would never help or intercede to a man, but would exercise all of its virtue or strength for a woman, and the female element responded in the same way. The holder of a Moora had a very real power over the tribe.

I had the Moora who once held all of this country. He was the Moora who discovered the use of red ochre, and I could and still can command any one of the local branch of the Wonkonguru to do anything I like, and I will have the assistance of all of the old men here to enforce my order. So long as I hold the Red Ochre Moora I represent the head of that totem or murdu.

We are at present suffering from the most severe drought, and the old men frequently suggest that I should anoint my Mooras with red ochre to get them to send rain.

The Aboriginals of this part did not use skin rugs or make use of skin (except for skin water bags), but 25 years ago I lived among the Kokatha and Parnkalla blacks over about Tarcoola and along the coast from Port Lincoln to Fowler's Bay on the west coast of South Australia. These people used skin rugs, but did not use any stone tools in the preparation of them. The skin was torn off the animal, not cut off, there was never any flesh adhering, the skin was pegged out with wooden pegs in some shady place until dry, and was then sewn into the shape required with a bone awl and animal sinew. When the rug was completed it was scored across diagonally in opposite directions—so that it made a diamond pattern—with an opossum or rabbit's tooth set in grass-tree gum. Of course a stone knife was used to make an opening in the skin so that the hunter could get his fingers in to pull the skin, but the knife was never used to cut the skin off the body.