Stone Axes of Mount Hagen, New Guinea
Author(s): L. G. Vial
Source: *Oceania*, Vol. 11, No. 2 (Dec., 1940), pp. 158-163
Published by: Wiley on behalf of Oceania Publications, University of Sydney
Stable URL: https://www.jstor.org/stable/40327889
Accessed: 23-08-2019 21:48 UTC

# STONE AXES OF MOUNT HAGEN, NEW GUINEA

By L. G. VIAL

IN 1933 a patrol exploring the neighbourhood of Mt. Hagen in the Territory of New Guinea found a high plateau of wide fertile valleys which supported a dense native population totally unfamiliar with white men. The patrol brought back specimens of the stone axes used by these natives, and numbers have now found their way into museums and collections. These axes are of better design and workmanship than those used or formerly used by other New Guinea tribes.

Although the axes are found in the Mt. Hagen area, they are not made by the local natives, but by the people of the Jimi valley. This is a comparatively low-lying area to the north of the plateau, between it and the Bismarck Range, draining into the Yuat, a tributary of the Sepik River. Its inhabitants speak the same languages as the plateau tribes of the Wagi and Chimbu valleys, and some of them say that they originally migrated from the Chimbu. The Jimi valley is narrow, steep and densely timbered; the Wagi valley is wide, flat and grassy.

Government officers and missionaries have been working amongst the Wagi and Chimbu tribes since their discovery, and the people have modified their ways of life in some respects, though they are not yet "under control." The large amount of sea-shells and steel implements that has been brought to the plateau by officers and missionaries for use in trading for food has affected the economic system; formerly there was no steel and the quantity of shell entering each year must have been small, for it had to be traded from tribe to tribe from the distant peoples of the coast. The natives of the Jimi, however, have suffered little change. Apart from four or five exploratory patrols of a few days or weeks no government officers have worked amongst them, and no missionaries are allowed there. The stock of shell wealth has increased as the value of shell fell on the plateau, and some of them now have steel knives and axes. But they still make the "Hagen axes" and sell them, and there is no reason for supposing the method of manufacture differs from that used for generations.

In June 1938 and February 1939 I made patrols from Chimbu Post and saw the axes being made, and the accompanying photographs were taken then.

There are three main types of stone axes in use in the Wagi and Chimbu valleys—the ceremonial axe, known in the Kaman language as *kenduaubu* or *di kurugu*, depending on the colour of the stone blade; the ordinary axe for everyday use, called *di*; and the bride-price axe, called *gaima* or *kundun*, depending on its colour. *Gaima* or *kundun* axes are not made in the Jimi, but the other kinds are. *Kenduaubu* or *di kurugu* are the kinds known as "Hagen axes"; they show the best workmanship.

The Jimi natives say that there are only two quarries for the stone ; I visited one and saw stones from both being polished. Since one finds occasional ceremonial axes of different material, either there are other quarries, or else blades are not always made from quarried stone. I am inclined to the latter view because a man told me he found the stone for his blade by wandering along a creek bed. In nineteen axes examined only one was of a different stone, so it appears that most of the ceremonial and ordinary axes come from these two quarries.

The quarry visited was on the Ganz River, a tributary of the Jimi, at an altitude of 2900 feet. It was in forest country, with the nearest native village about three-quarters of an hour's walk and 1200 feet up a spur on the far side of the river. To reach the quarry the patrol forded the river with some difficulty, and climbed about a hundred feet up the slope on the other side. The guides, commenting on the difficulty of the river crossing, said that people seldom came to the quarry at this time of the year, because they obtained supplies of stone in the dry season, when the river was low.

The quarry was in a clearing on the hillside, and a water race led to the top of it to wash away ground and expose the rocks. Lower down there was only an inch or two of earth and loose rocks up to a cubic foot in size could be pulled out of a face about four yards wide and three feet deep. Chipped stone fragments lay everywhere. Two men selected stones, and after careful examination set them in the ground and hit them with rough approximately spherical stones of four to six inches diameter which they picked up. Sometimes the spherical stone was chipped to give it an obtuse-angled edge. This edge was brought down on the piece in the ground to split it lengthwise. When small flakes chipped off the original block the operator would pick them up, lick them, examine the colour and texture of the stone, and then continue with the work. It took one man fifty or sixty blows before he got a suitable slab from the original block. He was sitting cross-legged with the block in front of him and soon his shins were bleeding from cuts by the flying fragments. The other operator, a much younger man, got a good slab quickly, and holding it in his left hand, began chipping it with a smaller rough sphere of stone in his right hand, hitting it on the edge and chipping little pieces off. He had quite a good blade, seven inches long, chipped ready for polishing half an hour after arriving at the quarry. The process looked easy, as if anyone could do it. The older man was not so successful, taking longer to get a suitable slab, and having more difficulty in reducing it to the shape for polishing. When the young man finished the other stopped work also, as the salt bees of the forest were very troublesome, perhaps on account of the blood from the leg wounds. (The bees also made photography difficult by crawling over the lens and entering the camera when a film was being changed.)

Returning to the river, it was noticed that the ground below the quarry was covered with stone flakes, and the natives said it had once been worked over. Now it was forested. The quarry had apparently been in use for a very long time.

Men from a number of villages can visit the quarry and chip out stone blanks there and take them home for polishing. Men usually had several blanks on hand in

their villages, so it appears that a number are chipped out at once. According to my informants, all men of the villages in the area are able to make stone axes; the craft is not confined to a few men. All the processes of manufacture are also carried through by the one man, and there is no specialization.

All the villages and hamlets have their polishing "factories," the essentials of which are water and blocks of sandstone and a shady place to sit. Sometimes men worked by themselves beside a hole in the ground filled with rain water, sometimes six or eight men worked side by side on the banks of a small stream. Two races were noticed in the forest between villages, and the local natives with us said these carried water for axe polishing.

A number of men were seen at work polishing blades. The man sat beside his water-supply with blocks of sandstone propped up on the ground before him, and, dipping the stone blank in the water, held it in both hands and rubbed it backwards and forwards on the sandstone, stopping now and then to examine it and wet it again. In addition to the large pieces of sandstone there were some smaller pieces lying nearby which were apparently used for the final touches, though I did not see this.

Some of the finished blades are sold without handles, as anyone can make the handle. Handles for ceremonial blades are made from two pieces of wood of different kinds, one of which is later broken and the blade wedged between the broken pieces and packed with chewed sugar cane. The three pieces are held together by cane lashings. One must see these ceremonial axes to appreciate the excellent finish and decoration. Measurements of a good ceremonial blade are: overall length 27 cm.; greatest width (chord of arc of cutting edge), 13 cm.; least width, 4 cm.; greatest thickness of stone in line of greatest width, 0·7 cm.; in line of least width, 1·3 cm.

It takes from half an hour to all day to chip out a good ceremonial blank, depending on a man's luck and skill; the polishing takes about three days; the carving of the wooden handle a day; and the weaving of the cane binding and other decoration two days. So a first class ceremonial axe can be made in a week. An ordinary axe (*di*) would take less time, for the stone is smaller and thicker, and it could be chipped out more easily and the polishing is less accurate. The handle has none of the decoration of the ceremonial axe; it is held together by a rough bark lashing.

In May 1939 the quarry where blades are obtained for the bride-price axes (*gaima* or *kundun*) was found in previously unvisited country some miles south of Chimbu Post, at an altitude of 6500 feet on a spur above the Wagi River. The geological formation was interesting—Mr. L. C. Noakes, Assistant Government Geologist, later visited the quarry and commented as follows: "Shales partly calcareous, gently dipping, have been intruded by a sill of diorite, and neighbouring sediments have been altered to fine grey silicified slates and hornfelses. The natives were working jointed beds immediately underlying the sill, which had almost completely weathered to a brownish overburden through which in places the natives

had sunk shafts." We tried to find out why the natives had chosen that particular place to sink through the diorite to the rock they needed, but were unsuccessful.

Only one shaft was being worked, but there were the signs of twenty or more old shafts, now partly filled and choked with wild sugar-cane. The shaft was about thirty feet deep, cut in the side of the hill, and was well timbered to prevent the loose weathered diorite from falling in. Near the top grass thatching had been used to hold loose soil.

The land, I was told, belonged to the Dom Gondigu, and only Dom Gondigu natives worked it for blades. It is near their boundary, and their houses and gardens are a couple of miles away on more fertile ground in a safer position. The previous shaft had been abandoned when fighting broke out between the Dom Gondigu and the Era, and earth had slipped into the shaft and filled it. The present shaft was almost in the same place, in part clearing the old shaft and in part breaking new ground.

Eight natives lived in a small hut beside the shaft and for five months had been working at it. Their wives lived with the rest of the Dom Gondigu and brought food daily. When the patrol arrived the miners were feasting—the food was being taken out of the ovens made by filling a hole in the ground with heated stones. They told us that at last they had worked through the overburden, and expected to find suitable stone for blades on the next day, and that the feast was to celebrate the completion of that stage.

Next morning I went to the shaft again and watched the method of working. One man worked at the bottom, loosening the ground and stones with a sharp stick, scratching away a little at a time. It was shattered stratified rock, and usually broke into small pieces under the stick. When a larger piece was found he threw it against another and if it did not break it was put to one side for future examination of its possibilities for making a small work blade (*di*). The useless rocks were shovelled into baskets, which were piled on top of each other, nine of them. For shovelling he used his hands and a small wooden paddle a little larger than a hand. When all the baskets were filled, some of the eight men lifted them one by one half way up the steps leading into the shaft where others carried them outside and tipped them on the pile that had accumulated.

The miner working at the bottom of the shaft said that on the day before he had thought he was near stones that would make two good blades, but that to-day he found they were useless—the rock was too easily broken. They would have to go much deeper for the first suitable stone. It is clear why marriage axes are so valuable—a great deal of work is required to make them.

Suitable stones, when found, are stored, and on the decision to abandon the shaft the friends and relatives of the miners gather and feast. Signs of these feasts could be seen at some of the old shafts. The stones are distributed among men of the Dom Gondigu and neighbouring tribes, and are polished. The method of polishing is the same as that already described.

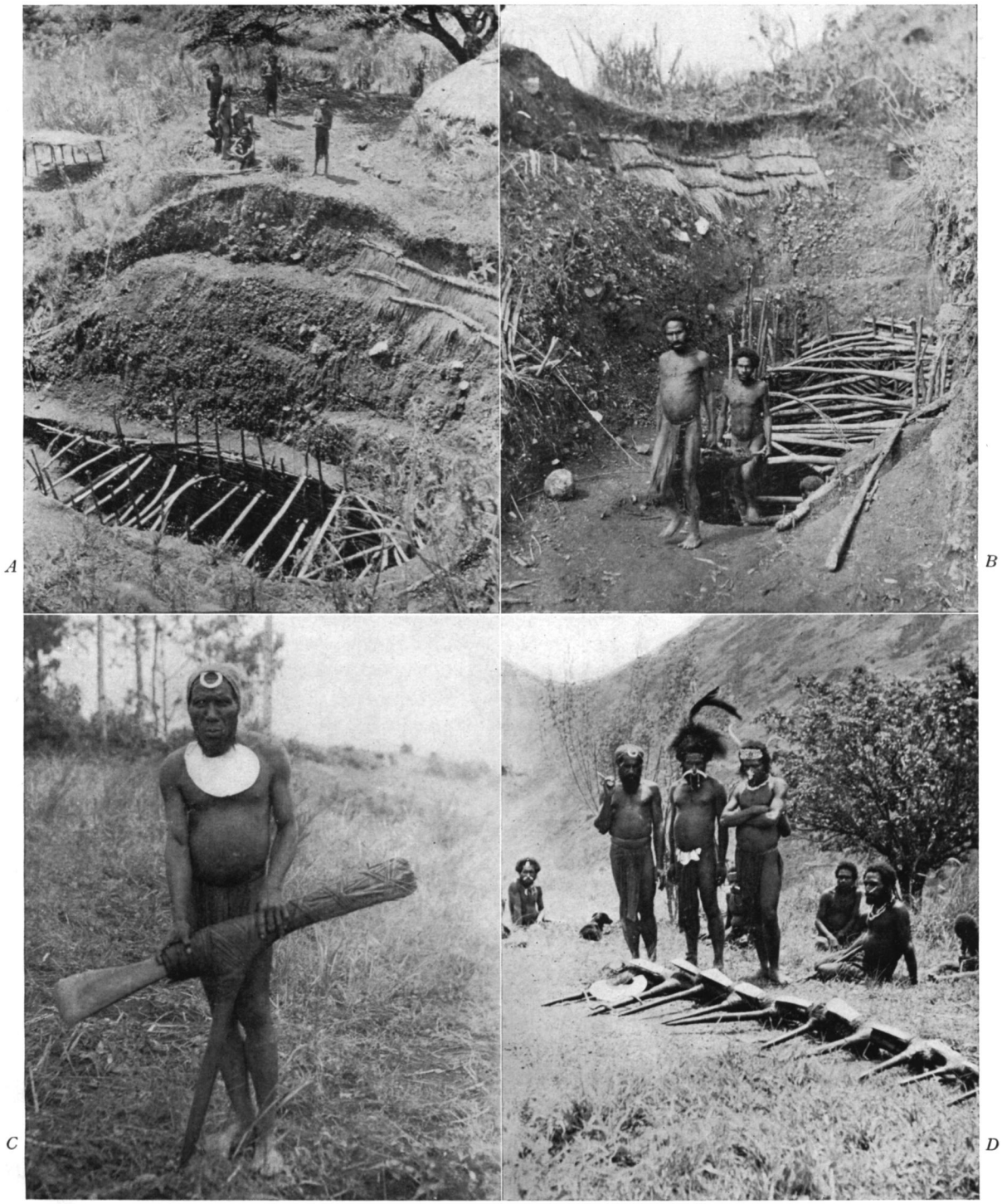
I understood the purpose of the quarry is to find stones suitable for bride-price axes, but in course of this many suitable for work axes are found and later polished. Most of the work blades used by the Dom tribes come from this quarry. The bride-price blade may be 45 cm. long and 15 cm. wide ; it is polished and sharpened, but not with the care used in making ceremonial axes. As far as I know it is never used for cutting. The blade is mounted in a crude wooden handle of great size which is usually black and shiny from being stored in smoky huts. The whole axe is so big that when it is being taken to a wedding often one man carries the handle and another the blade. Probably many of them are of great age.

The Jimi people exchange their axes for cowrie shells with the plateau natives, and the ceremonial axes then enter into a long round of exchanges. (What follows is the result of observations among the Kaman speaking people, who live in the Chimbu and part of the Wagi valleys.) When working in the fields and on ordinary occasions a man carries the work axe, but at ceremonies of all sorts, battles, visits to neighbouring natives, when courting, and whenever he wishes to make a display (which is often among these people) he carries a *denduaubu* or *di kurugu*, the ceremonial axe. At the dances associated with the great pig-killing ceremonies, when thousands of natives assemble, and at a ceremony called " the housing of girls," when girls of one tribe visit another, dancers often hold aloft ceremonial axes as they chant and shuffle. This axe is normally carried with its handle thrust through a man's bark belt. When men of hostile tribes are brought together in an attempt to settle some dispute, one sees them slip their ceremonial axes out of their belts and rest them on their shoulders, blades uppermost, so that they are ready for immediate use. A man finds little cutting work for his ceremonial axe—he may use it in battle, or may nick a length of sugar cane before breaking it. The blade is too fine for hard usage. The axe becomes important when he has to make a payment, after killing or assaulting someone, or when a bride-price is being collected. The payment for a bride consists principally of axes. (At one wedding sixty were counted, and twenty or thirty on several other occasions.) Three or four of these are the *gaima* or *kundun* (bride-price axes) and the rest are ceremonial axes. In all payments of axes they are laid on the ground in order of size, the blades pointing in the same direction.

The ceremonial axe seems to form a standard of value ; it forms a part of every large payment, and more than once the remark has been heard, " What, no axes ? " on the offering of a payment of shells, feathers and pigs during a discussion between parties to a dispute. Its main functions are in ceremony and payment.

The ordinary axe has neither of these functions, being used only for everyday work—felling trees, splitting them for fence stakes or firewood, carving, and cutting generally. The owners take out the blades and sharpen them when necessary, and in many of the creek-beds one notices the scoop-shaped depressions in the stones where blades are sharpened. When felling trees it is not uncommon for a blade to chip and be re-sharpened.

Although the work axe looks a crude and inefficient tool, it is surprising how quickly men can work with it. I watched a native making fence stakes. He



*A*. The Dom quarry.
*B*. Mouth of the Dom quarry: men carrying out a bucket of stone.
*C*. A bride-price axe.
*D*. A row of ceremonial axes: part of compensation payment after a killing.

selected a young casuarina about eight inches through and felled it. The axe was held in one hand. The natives are all good axemen, and are able to place their blows with precision. The work axe cannot cut across the grain as readily as a steel axe, and consequently the worker cuts a long scarf, shaving off a little at a time. With some kinds of trees many of these shavings adhere to the stump, which looks somewhat like an upturned shaving brush. The axeman lopped the branches, and taking an old fence stake, marked the trunk in lengths equal to it. He chopped through the trunk at the first mark, and started to split the log. After the second splitting blow he left the axe in the log, rammed the point of the old stake in the crack, took out the axe and put it in further along, and moved the fence stake, which acted as a wedge. When he reached half way along the log he stood on one split half and lifted the other, splitting the whole length. The two halves were then split with the axe alone, and split again until they were of suitable thickness. Then he sharpened one end and the first stake was made. The others came quickly after that.

The third type of axe, the bride-price axe, is kept in the men's club houses and taken out only for payments. Though used principally for bride payments, and called in pidgin by those of the Kaman who have learnt that language, " Ston bilong peiim meri " (stone for buying women), it is also seen at times as part of the payment made after killing a man.

It is interesting to watch the effect the introduction of steel is having on the Kaman-speaking people. In the tribes near the government and mission stations probably seventy per cent. of the men and youths possess steel. Any scrap of iron or steel is sharpened and fitted into a handle, making an axe. But the steel is replacing the work axe only—the ceremonial axe is carried for display, and payments are made with it and the bride-price axe, not with steel. It has been noticed that steel is used for fighting instead of the ceremonial axe, but that is a minor usage.

As far as can be ascertained the supply of axes is not diminishing ; certainly in the Jimi the industry seemed to be flourishing, and the natives there receive what to them are better prices than formerly, because of the greater quantity of shell among their customers. Probably the making of the work axe will gradually be discontinued, but the Jimi tribes will continue to make ceremonial axes for many years yet.

L. G. VIAL.