

## A REVISED TYPOLOGY OF (SOUTHERN) NEW ZEALAND ADZES

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## A REVISED TYPOLOGY OF (SOUTHERN) NEW ZEALAND ADZES

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THIS paper provides a suggested revision of the standard typology of the adzes of New Zealand, as published by Skinner (1938 and 1943). Its immediate purpose is to make known, in advance, what I consider to be a simpler but no less comprehensive regrouping of Skinner's ten Types and sixteen Varieties, and in terms of which I propose in the near future to describe the numerous adzes excavated from the Moa-hunter site at Wairau, Marlborough, New Zealand. The revised scheme should not be considered as hostile to Skinner's classification; on the contrary, it has been submitted to him and has his approval. I wish to make it clear that I believe Skinner has established the validity of all the varieties he figures, but consider his grouping of those varieties into types somewhat subjective, so that his scheme is too complicated to commend itself to the student in the field. The present typology is based on the nature of the cross-section of the adze, and so distinguishes four types: tanged-rectangular; rectangular without tang; triangular; and inverted-triangular. I do not include adzes of circular section as an additional type, as I believe the so-called circular forms from New Zealand represent modifications of the tanged-rectangular or inverted triangular adzes. The revision should be largely conveyed by the line-drawings.

The advantage of an accepted classification of the adzes of the New Zealand area may be realized best from its bearing on the classification of the related adze cultures of tropical Polynesia. As the largest marginal Polynesian group, and the one with the most varied resources in forest-timber and differing rock-formations, New Zealand can match virtually every adze type recorded from Polynesia; it not only possesses in great numbers and highly developed forms the adzetypes characteristic of the earlier marginal Polynesian exodus, but also the incipient prototypes of the later patterns elaborated in such central areas as Samoa, the Cook islands, and the Society islands. Only Pitcairn, of tropical Polynesian groups, can approach and sometimes excel the range of New Zealand adze-forms, but generally speaking New Zealand has inherited all the ancestral patterns.

It follows then that the student of New Zealand adzes should attempt to provide in his typology a key simple enough, but at the same time elastic enough, to be readily employed by the student of any one of these related adze cultures. Thus the student of Cook and Society islands adzes would certainly ask for a general category or type, covering adzes of triangular section, apex downward. My disagreement with Skinner's present typology is that our student would find such adzes at widely scattered points in his current classification; first as Variety C of Type 1, and hob-nobbing with adzes of quadrangular section; next in the coffin-shaped variety as Type 7; and finally without tang or grip as Type 8. Yet all these adze-types are essentially one family or category; they all differ markedly from

Skinner's general Type 1, by the intersection of the back and front along edges instead of sides; they all exhibit a cross-section which is triangular (apex downward), or sub-triangular. If the student were studying the adzes of the Marquesas, he would find need for a general group to include adzes in which the cross-section is in the form of a triangle, as before, but this time reversed so that the apex is upward. Here he would find a general Type 4, able to accommodate the majority of Marquesan adzes of the general pattern, but in Skinner's classification he would not find the broader-bladed variant grouped as a variety of Type 4, rather as an independent Type 9. Also a not uncommon small gouge or chisel of essentially the same cross-section would be found as another independent Type 6. I have quoted, then, no fewer than five Types (4, 6, 7, 8, and 9), and one Variety (Type 1, C) which may be reduced to two. Of these two Types advocated Skinner's classification provides one (4) which is here utilized to group all adzes with cross-section in the form of a triangle, apex upward, and to meet this the obvious plan is to look among Skinner's remaining Types for some Type which could be classified as a Variety of an already formulated Type. Reading the Types from the beginning, the first of these is Type 3, assigned to cover a well-marked group of tangless quadrilateral adzes (the Samoan pattern) distinguished by the front being markedly narrower than the back. As Type 2, however, has already been formulated to cover tangless quadrilateral adzes of two Varieties, it is logical to include old Type 3 as a Variety of 2, thus freeing 3 to group the Cook island pattern of triangular adzes, apex downward (notably 1, C, 7 and 8). All Types beyond 4 have thus been elimated by re-grouping except Nos. 5 and 10. Type 5 is seen to be essentially similar to Varieties 1, D and 1, E and like these, peculiar to Southland. This leaves the laterally- or side-hafted adzes (Type 10) essentially a distinctive type, and virtually peculiar to New Zealand. This becomes then Type 5, in the revision, so that the original Types are reduced from ten to five without any essential loss, and indeed with advantage.

As the proposed classification is essentially a revision of Skinner's. it is largely based on adzes found in the South island, and essentially on adzes worked in stone materials typical of the South island culture: flinty baked argillites from Nelson-Marlborough, the material of adzes found down the east coast as far as Otago, and the west coast as far as the Haast river; fine-grained basalts of similar physical nature from the adze-maker's point of view, in that they respond to a skilful flaking technique; and a range of coarser-grained resistant materials, common in Southland and Otago, which demanded products modified to some extent by a greater need of hammer dressing. It does not cover some local Varieties, or even Types, distinctive of nephrite and greywacke although Skinner has well shown (1943) that many of the most specialized patterns which were relatively easy to produce in the materials above, could be and were occasionally rendered in nephrite and greywacke. Finally it does not cover the North island, except by including one readily distinguishable North island type, Variety B of Type 2. While Skinner's typology was founded on adzes from the Murihiku area, which he extended to include the east coast as far as South Canterbury, and, somewhat arbitrarily, the whole west coast, the present revision is based with one exception on adzes found in the northern area of the South island. Thus many of the adzes figured are from a recently-discovered cache of twelve adzes of Moa-hunter type found at the mouth of the Hurunui river by Mrs. A. Gillanders and published with her permission. Some also are from the Moahunter type station at the Wairau bar, housed as the J. R. Eyles Collection in the Canterbury Museum. This extends Skinner's valuable conception of Otago-Southland as a unique Southern culture area to include the whole of the South island as the distinctive area, and Otago-Southland as a local modification of it.

Each diagram is based on a known adze, and it will be noted that I have been unable to isolate any Variety or Type not covered in Skinner's series of drawings, and that the sole ground of difference is in the grouping of Varieties and Types.

For the minimum essential terminology necessary to descripe adzes, I follow in the main the joint standard set by Buck, Emory, Skinner, and Stokes (J.P.S., vol. 39, 174-80). In this the adze is described from the point of view of an observer holding at arm's length a hafted adze with cutting edge downward and haft away from The surface immediately under his gaze is the face or front, the opposite surface carrying the bevel is the back, the sides are the planes connecting the two. The face of the adze is further divided into two regions: the upper end, concealed by the lashing, is called the butt, the lower visible portion the blade. The end-surface of the butt is termed the poll. When the lashing is removed it is seen that the butt is often not distinguishable from the blade, so that the definition of the two areas remains arbitrary. In Polynesian adzes, however, the butt is often converted into a grip or tang, by the reduction of its upper and lateral surfaces below the plane of the blade and sides. This provides a useful lashing hold for attachment to the haft, particularly in large adzes. When describing this feature in an adze the term grip is used in preference to tang; when referring to adzes with a grip, I prefer to use the adjective tanged.

Theoretically one should employ the term adze-head, to distinguish the unhafted adze. As Polynesian adzes are normally devoid of a haft when described, students prefer the simpler adze, as adze-head might be confused with the poll, the butt, or other technical regions.

Plates 1 and 2 cover four (or five) Varieties of Skinner's well established Type 1: Essentially the type of tanged, broad-bladed massive adzes with quadrangular section, thick in Variety A, sometimes with two well-defined lugs or horns on the poll; thinner and spade-shouldered in Variety B; in Variety C characterized by the presence of lugs or shoulders where the tang meets the blade; and in Variety D, long and narrow-bladed and with a tendency toward a rounded section.

The important horned variety of 1, A is shown front and side view in Fig. 1. This adze is boldly conceived on a massive pattern, with the front, back, and sides intersecting almost at right angles, great depth between front and back, and great width of blade. The back never exceeds the width of the front, and is generally somewhat less in width. This is part of the mechanism for ensuring the maximum width of the cutting edge. The grip is strongly marked, and reduced by bruising which is so applied as to emphasize the outer corners of the poll into a pair of lugs, as decorative as they are useful. In unfinished adzes of this type, at a stage prior to bruising, these incipient lugs are often recognizable.

New Zealand examples of the Variety are seldom as markedly concave on the back as those found in Polynesia, and the example figured is more concave than most.

Locality: Hurunui mouth; material: baked argillite; collection: Mrs. A. Gillanders.

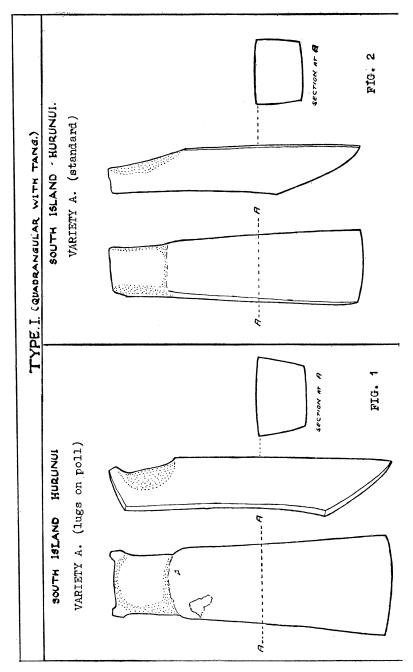


Plate 1.

Length, 284 mms. (11 3-16"); depth, 55 (2 3-16"); cutting edge, 100 (4"); weight, 5 lbs. 2 ozs.

Fig. 2 shows the Variety proper, that is, without lugs. The general characteristics are essentially similar. The grip, as here, is often less deliberately reduced than in the horned Variety, and often conveyed by the angle at which the butt is set to the blade, a feature characteristic of Hawaii.

Locality: Hurunui mouth; material: baked argillite; collection: Mrs. A. Gillanders.

Length, 260 mms. (104"); depth, 50 (2"); cutting edge, 75 (3"); weight, 3 lbs. 13 ozs.

Among the Wairau adzes are two small tanged adzes of quadrangular section, but with so little depth between front and back that it was impossible to provide the grip by reducing the butt below the level of the blade, consequently this was effected by reducing the butt laterally to form what one might call a spade-shouldered grip. This type has no place in Skinner's classification (unless under Variety A) so that I propose to distinguish it as Variety B of Type 1. Skinner's Variety B comprized adzes identical with Variety A, except for a lesser thickness between front and back. I feel that this distinction, based only on size, is too subjective in application, and liable to be differently interpreted by each student.

The figure (Plate 2, fig. 1) shows that in Variety B as here defined the butt and the blade are in one plane, and not divided by any shoulder. This is important in distinguishing the class from Variety C (below). Adzes of this Variety are rare in the normal range of stone materials, as thin plates were difficult to strike off except in baked argillite, and do not become common until the nephrite era. Not very important in New Zealand, the Variety is almost exactly paralleled by the spade-shouldered celt of Burma and Cambodia, while the modern Malay shapes his iron adze in similar fashion for hafting.

The specimen figured was found near the Moa-bone cave, Sumner, one of several caches (now scattered) of argillite adzes of Moa-hunter type, probably left by the earlier occupants of the cave.

Locality: Moa bone cave, Sumner; material, baked argillite; Canterbury Museum collection.

Length, 163 mms.  $(6\frac{1}{2}")$ ; depth, 14 (9-16"); cutting edge, 77  $(3\ 1-16")$ ; weight, 0 lbs. 13 ozs.

Fig. 2 shows Variety C, grouped by Skinner as Variety A, and previously recorded in New Zealand only from one Southland specimen. Its peculiar shape may be explained as the result of the attempt to get the greatest width of cutting edge, by reducing the sides below the face so that they slope away to a distinctly narrower back. It thus acquires some of the characteristics of the triangular-sectioned Type, and like these is tanged not only by reducing the butt below the level of the blade, but by reducing it laterally as well. This leaves prominent lateral projections on the butt shoulder which are deliberately worked into artistic lugs.

The description above applies more particularly to Skinner's boldly-conceived Green Hills specimen, than to the example figured here (Plate 2, fig. 2) which is rendered in coarse Canterbury plains greywacke with an inhibiting effect on its final shape. A comparison with Skinner's figure (1943, A, fig. 2) makes it clear, however, that the Canterbury craftsman was working to the same mental pattern as his Southland relative, and might have achieved the same result in the

same material. The comparative success of the Canterbury experiment incidentally confirms strikingly Skinner's main thesis, in his discussion of adzes of central Canterbury greywacke, that these were fashioned by bearers of the Southern adze culture in its purest form, and that the key Types and Varieties were generally copied or attempted. This Variety is peculiar, as far as present records go, to the South island in New Zealand, and beyond New Zealand to Pitcairn. The only other example of the Variety known to me was found at Pahia, Southland, by Mr. E. A. Sorensen.

The adze figured is one of a cache found at Teddington at the head of Lyttelton harbour. The only three adzes from the cache which I have seen are of Canterbury greywacke, and one may assume that the collection was lost by a party of Plains dwellers venturing over Gebbies pass into the head of the harbour.

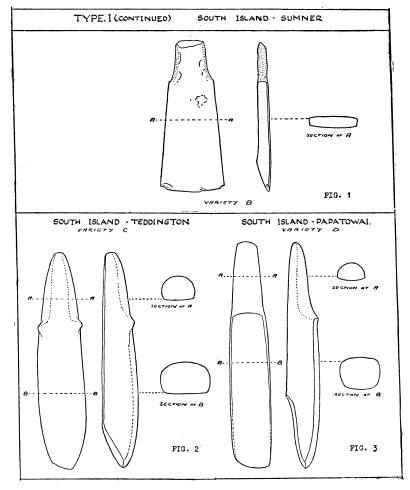


Plate 2.

Locality: Teddington, Banks peninsula; material: greywacke; Manson Collection.

Length, 245 mms. (95%); depth, 42 (15%); cutting edge, 42 (15%); weight, 2 lbs. 2 ozs.

Variety D (fig. 3) is virtually peculiar to the Southland region in New Zealand, and its variation from A and B (above) is possibly a function of the stone material, a resistant stone demanding much hammer-dressing. The tapering rounded poll, and the rounded rectangular form of cross section may be explained as an attempt to render in a hammer-dressing technique, a pattern originally flake dressed. Its presence in Pitcairn, however, discounts such hasty local generalizations or rationalizations.

The Variety is used here to absorb Skinner's D, E and Type 5. Locality: Moa-hunter camp, Papatowai, South Otago; material: greywacke; Collection: Otago Museum (Teviotdale).

Type 2: Essentially the type of tangless, medium bladed adzes with quadrangular section. This is shown in its three Varieties in Plate 3. Varieties A and B follow Skinner, while his Type 3 is included as Variety C.

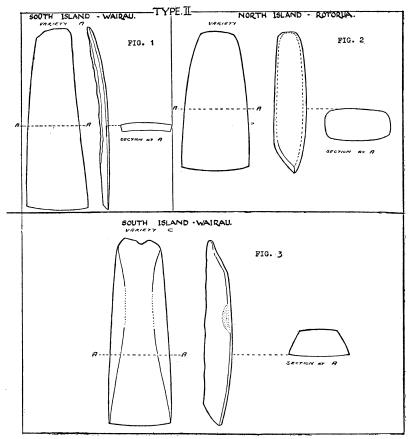


Plate 3.

Variety A (fig. 1) is essentially an offshoot of Type 1, the absence of a tang or grip being largely due to its small size, and is culturally sharply distinguished from Variety B, which is normally common in cultures where Type 1 is absent. The example figured is somewhat thinner than the norm, which is better represented in Skinner's figure. It was selected, however, to demonstrate the point that when an adze has little depth between front and back, the provision of a grip by deliberate reduction becomes virtually impossible, so that the absence of a grip in small, thin adzes is an expected feature. In many of the small adzes of the Variety, the butt is not ground, or it may be set at a decided curve back from the blade so that the grip is incipient.

The Variety is the standard form of small tangless adze in the South island, and in the Polynesian adze cultures demonstrably diffused from Tahiti. The great majority of tangless adzes from the North island are classified with the completely different Variety B, which ranges north and west from New Zealand through Tonga, Fiji, Futuna, etc.

Locality: Moa-hunter camp, Wairau; material: baked argillite; Collection: J. R. Eyles, Canterbury Museum.

Length, 115 mms.  $(4\frac{1}{2}")$ ; depth, 14 (9-16"); cutting edge, 28  $(1\frac{1}{8}")$ ; weight, 0 lbs. 2 ozs.

Variety B (fig. 2) is so characteristic of the North island of New Zealand that it might well be called the North island type. It has probably never reached the southern portions of the South island, so that Skinner's example is hardly typical. It is essentially the product of a persistent hammer dressing and grinding technique on coarse-grained, resistant stone materials, of the andesite rather than the basalt type if volcanic, but often of other materials not favoured in the Southern culture. Its rounded edges, and its cutting edge forming the wedge-like apex of back and front surfaces which are longitudinally mutually convex or straight, reflect this technique, and differentiate it from Variety A. These adzes range in size to quite large specimens in the North island, and are thick enough for a grip or tang to have been deliberately reduced so that the absence of that grip is here significant. They are completely ground, a trait certainly strongly marked in New Zealand, although no less in Cook islands, but the completely ground tangless adze as here takes on a suggestively Melanesian appearance.

Locality: Rotorua; material: diorite; Collection: Canterbury Museum.

Length, 80 mms. (3 1-8"); depth, 21 (13-16"); cutting edge, 43 (1 11-16"); weight, 0 lbs. 5 ozs.

Variety C (fig. 2), well called the Samoan type, is rare in New Zealand, but its occasional presence in the South island, the Cook islands and Pitcairn is a reminder of the variety of adze impulses inherited by marginal Polynesian outposts. The cross-section is subrectangular, from the deliberate reduction of the sides to slope inward from a broad back to a narrower face (the reverse of Type 1, C). The purpose is apparently to reduce the width of the blade, but to increase its entering capacity. In Samoa and surrounding groups the Variety is rarely completely ground, which still further decreases the need for a tang. The Wairau example is more completely ground, and has been bruised only at the junction of butt and blade to provide a grip for the lashing. Skinner figures a large and characteristic specimen in baked argillite from an adze-cache of Moa-hunter type at the mouth of the Haast river, South Westland.

Locality: Moa-hunter camp, Wairau; material: basalt; Collection J. R. Eyles (Canterbury Museum).

Length, 117 mms. ( $4\S''$ ); depth, 22 ( $\S''$ ); cutting edge, 45 ( $1\S''$ ); weight, 0 lbs. 8 ozs.

Type 3: Essentially the type of edge-sided, medium-bladed adzes, sometimes tanged, with triangular section, apex downward, typified by Skinner's 1, C, and including his Types 7 and 8.

The New Zealand forms are rare and largely confined to the South island, where they date back to Moa-hunter deposits. Compared with the later developed elaboration of the form in central Polynesia, notably the Cook and Society islands, the New Zealand forms represent the ancestral types and are frequently sub-triangular in section rather than

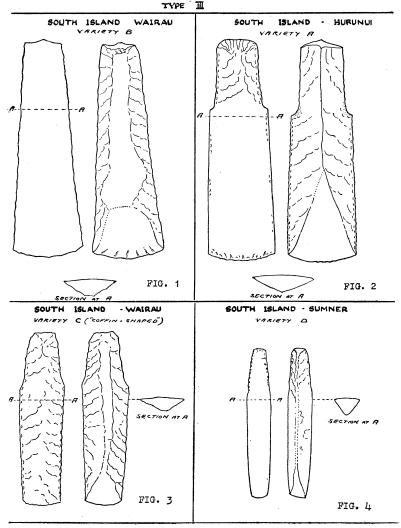


Plate 4.

full triangular. Thus, instead of the section representing the intersection of the lines of the front and two sharply sloping sides, it is comprized by the intersection of the moderately convex line of the face and the strongly concave line of the back, which does not yet appear as two sides. The Type may be rapidly distinguished from all others in New Zealand by the fact that the front is bordered by edges rather than sides. The four Varieties are shown in plate 4.

Fig. 2 (Variety A) represents a massive broad-bladed, but typically shallow example. The plan of construction aims at the production of the broadest, and the thinnest, blade which could be rendered in a free stone. The sides are reduced so sharply from the outer edges of the face, that they just succeed in remaining two separate sides, and almost classify as a concave back.

The adze is naturally laterally or waist-tanged, as in 1, C, but is not deep enough for the grip to be reduced as well from above, as in the Cook and Society islands.

This represents Skinner's 1, Variety C, and is distinctly more shallow than the example figured by Skinner. This thinness, however, assists in demonstrating the relationship with Variety B.

Locality: Hurunui mouth; material: baked argillite; Collection: Mrs. A. Gillanders.

Length, 315 mms. (12 $\S$ "); depth, 38 (1 $\S$ "); cutting edge, 100 (4"); weight, 3 lbs. 8 ozs.

Variety B (fig. 1) is seen to be essentially Variety A without the grip. The example figured is unfinished, but Skinner's finished Haast cache example also reveals no grip, the absence of which can be taken as typical. The cross-section is sub-triangular, and consists of the intersection of two rather than three lines. The few rare examples of this type are associated with Moa-hunter camps or caches. This replaces Skinner's Type 8.

Locality: Moa-hunter camp, Wairau; material: baked argillite; Collection J. R. Eyles (Canterbury Museum).

Length, 271 mms.  $(10\frac{3}{4}")$ ; depth, 30  $(1 \ 3-16")$ ; cutting edge, 87  $(3\frac{7}{4}")$ ; weight, 1 lb. 12 ozs.

Variety C (fig. 3) has been aptly termed coffin-shaped by Skinner. It differs from Variety A only in the sharp tapering away of the sides below the butt shoulder to converge at a narrowed blade, a feature which is remarkably constant. The same silhouette may also be found in triangular adzes of the Cook islands. The back is often strongly concave longitudinally. The size is normally medium to small. It replaces Skinner's Type 7.

Locality: Moa-hunter camp, Wairau; material: baked argillite; Collection: J. R. Eyles (Canterbury Museum).

Length, 253 mms. (10"); depth, 32 (14"); cutting edge, 55 (24"); weight, 1 lb. 9 ozs.

Variety D (fig. 4) probably represents a chisel rather than an adze, and is only included because it represents a natural transition from Variety C and because it is known chiefly from deposits of comparable age. Its resemblance to Variety C is best noted by measuring its width at the faintly defined butt shoulder. As in C this will be found to exceed the width of the cutting edge.

Locality: Moa-hunter burial ground, Sumner (Haast); material: baked argillite; Collection: Canterbury Museum.

Length, 222 mms. (8 11-16"); depth, 26 (1 1-32"); cutting edge, 26 (1 1-32"); weight, 0 lbs. 11 ozs.

Type 4: Essentially the type of tanged, narrow-bladed adzes, with triangular section, base downward, to include Skinner's Type 4 as

typical (Variety A), his Type 9 (Variety B) as aberrant, and as Variety C the hog-backed gouge (Skinner's Type 6). Popularly known as hog-backed the Type is widely spread in Polynesia, and had obviously a specialised purpose, although its distribution cannot be explained in terms of that purpose. Within New Zealand it is common in the South island, rare in the North, except for a pocket in the North cape—Coromandel region, an essentially marginal distribution. Its shape might be explained as that of Type 3 reversed; here the back is broad, and the sides slope sharply upwards and inwards to converge in a ridge near the butt shoulder, gradually widening down the blade to terminate in a never wide cutting edge. Examples are shown in plate 5.

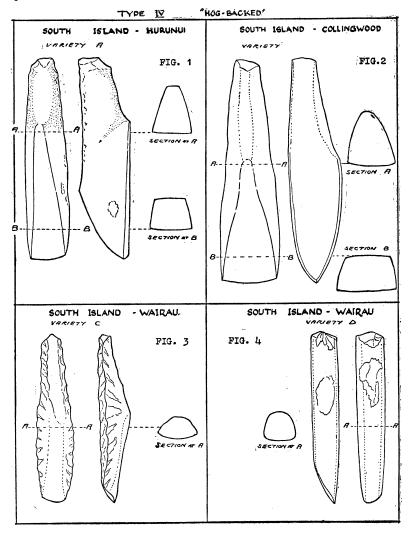


Plate 5.

Fig. 1 (Variety A) typifies Skinner's Type 4. This is a large adze, moderately broad in the cutting edge. In profile the Type resembles 1, A but the front view shows the narrow wedge-like face diverging to its narrow cutting-edge. The section towards the butt shoulder is virtually triangular, towards the cutting-edge sub-rectangular. The back is concave longitudinally, the bevel steep, and the tang or grip well marked by a bold reduction of the terminal ridge running towards the poll.

Locality: Hurunui mouth; material: baked argillite; Collection:

Mrs. A. Gillanders.

Length, 292 mms.  $(11\frac{1}{2}")$ ; depth, 69  $(2\frac{3}{4}")$ ; cutting edge, 50 (2"); weight, 4 lbs. 5 ozs.

Fig. 2 (Variety B) is after Skinner (Type 9) but comes from Collingwood, which is outside the Murihiku area. It is distinguished from Variety A not only by the wider cutting-edge but by the tendency for the plane of the front to converge sharply downward from the butt shoulder to meet the plane of the back, thus halving the depth of the bevel. There is a strong resemblance in both these respects to the broad-bladed hog-back from the Marquesas, and Skinner set it up as a separate Type for this reason. The precise resemblance is somewhat obscured in the Collingwood example, by the evidence of manufacture largely by a hammer-dressing technique.

Locality: Taupata, Collingwood; material: greywacke; Collection:

Otago Museum.

Fig. 3 (Variety C) may be characterized as a hog-backed gouge, rather than an adze, and New Zealand examples are generally small, though larger ones occur in the Marquesas. It appears in early Moahunter associations in the South island but like Variety A is also rendered in the presumably later discovered nephrite. Replaces Skinner's Type 6.

Locality: Moa-hunter camp, Wairau; material: baked argillite; Collection: J. R. Eyles (Canterbury Museum).

Length, 120 mms.  $(4\frac{3}{4})$ ; depth, 19  $(\frac{3}{4})$ ; cutting edge, 19  $(\frac{3}{4})$ ;

weight, 0 lbs. 3 ozs.

Type 5: Essentially the type of laterally hafted adze, popularly known as the side-hafted adze. In profile and cross-section the Type is not unlike Type 4. Thus the back of the adze comprizes a broad base, above which the sides converge sharply to a ridge or edge, which terminates in a boldly-formed bevel in the axial plane, instead of in the transverse adze plane. The implement, however, remains clearly an adze. In this specialized and deliberate form, the Type is confined to New Zealand where its distribution is strongly Southern. For its manufacture it demands above all a material readily flake-dressed, and the eleven examples known to me from North Canterbury, Marlborough, Nelson, and Westland are all of baked argillite, though a fine-grained basalt should also be suitable. I do not regard as valid the nephrite example figured by Skinner (1943, B) and I doubt if the Type could be rendered in nephrite. The greywacke example, from the Sorensen collection, and probably from Canterbury (Skinner, ibid.) has much stronger claims to be regarded as the Type, and its somewhat indeterminate cross-section is doubtless a function of the material.

The illustration (plate 6) represents a large, boldly conceived and well-finished example from the Hurunui cache. The back is concave longitudinally as in Types 1 and 4, the strongly-marked grip, as in Type 4, is proof of the "axe" position of the hafted blade. An unusual feature, probably due to the large size of the blade, is noted in the view from above, where the butt and the blade are seen to be set at a

marked angle laterally.

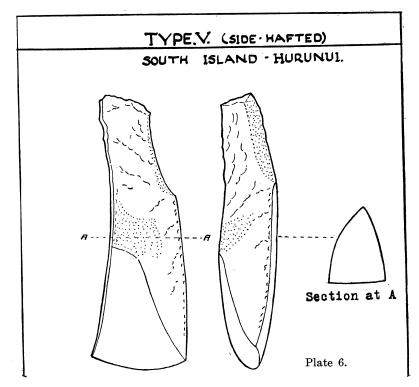


Fig. 4 shows a further variety which has some claims to be regarded as a Variety additional to C. Variety D is rare, and known to me only from Wairau and Motukarara of sites north of the Waitaki. The Otago Museum collection includes examples from Shag valley, Allan's beach and Catlins. The complete grinding and absence of a grip are characteristic. The cross-section is not so obviously a modified hog-backed section as in the Motukarara example.

Locality: Moa-hunter camp, Wairau; material: baked argillite; Collection: J. R. Eyles (Canterbury Museum).

Length, 128 mms. (5 1-16"); depth, 23 ( $\S$ "); cutting edge, 16 ( $\S$ "); weight, 0 lbs. 4 ozs.

Locality: Hurunui mouth; material: baked argillite; Collection: Mrs. A. Gillanders.

Length, 276 mms.  $(10\frac{3}{4})$ ; depth, 97  $(3\ 13-16)$ ; cutting edge,  $(3\ 13-16)$ ; weight, 4 lbs. 0 ozs.

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