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# The Material Culture of the Cook Islands (Aitutaki)

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# Worked Stone Implements

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| [Fig](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d5-d6.html" \l "BucMate-fig-BucMate200a). 179.—Band finish, basket rim | *W. Revell-Reynolds* | [200](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d5-d6.html" \l "n230) |
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| [Fig](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d8-d7.html" \l "BucMate-fig-BucMate308a). 269.—*Anga* fish trap | *W. Revell-Reynolds* | [308](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d8-d7.html" \l "n338) |
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# ntroduction

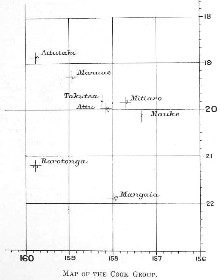
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## Introduction.

### The Cook Islands.

The Cook Islands proper are situated between the 18th and 22nd parallels of south latitude, and the 157th and 160th meridians of west longitude. They comprise eight islands: Rarotonga, Mangaia, Atiu, Mauke, Mitiaro, Aitutaki, Takutea, and Manuae (Hervey).



Map of the Cook Group.

Takutea and Manuae are small. Manuae and Te-Au-o-Tu are enclosed in one reef, and were originally named the Hervey Islands by Captain Cook on his second voyage. The name of the Hervey Islands is frequently applied to the Cook Group.

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The above islands are usually referred to as the Lower Group, to distinguish them from the Northern Group, both groups having been annexed and placed under the New Zealand Administration in 1900. The Northern Islands are Palmerston, Suwarrow, Danger (Pukapuka), Manihiki, Rakahanga, and Penrhyn (Tongareva).

Both groups are administered from Rarotonga, Judge H. Ayson being the Resident Commissioner. The population of the Lower Group is about 7,791. Of late years it has shown a slight increase.

The Royal Mail steamers running between Wellington and San Francisco call monthly at Rarotonga, both coming and going. During the winter months a Union Steam Ship Company's boat calls at Rarotonga and the various Islands of the Lower Group to ship fruit.

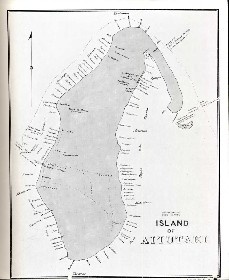
### Aitutaki.

Aitutaki is the most northern island of the Lower Group, and is 140 miles north of Rarotonga. The wharf at Arutanga is located by Admiralty chart as Lat. 18° 52' 32? and Long. 159° 46' 30?. The island is surrounded by a barrier reef, which on the south-east is five to six miles away from the land. Within the lagoon on the east are several islets, whilst on the south-east is the isolated islet of Maina, associated with the history of Ruatapu. The area of Aitutaki is 3,900 acres, and it contains a population of 1,373.

There is a ridge of hills on the west, which rises to a height of 360 feet. The soil is fertile and produces the best fruit in the group. The passage through the reef on the west side, known as Te Rua-i-kakau, admits the use of whale boats in loading cargo, and thus gives Aitutaki a commercial advantage over all the other islands except Rarotonga.

There are seven villages: Amuri, Ureia, Arutanga, Reureu, and Nikaupara on the west, and Vaipae and Tautu on the east. Arutanga is the seat of administration, and has a wharf which is opposite the boat passage referred to above. All the villages are on the coast, except Vaipae and Tautu, and all present a neat, clean, and picturesque appearance. Formerly the villages stood back on the high ground, but the population shifted down after the advent of Christianity.

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South Pacific  
Cook Islands   
Island  
of  
Aitutaki

[page break](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n22) [page xix](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n23)

The people are Polynesians, and possess all the cheerfulness, kindness, and unstinted hospitality of their race. They have not been spoilt by the commercial side of civilisation.

### Historical.

The discoverer of Aitutaki was Ru-enua. In Havaiki, he noted that the valleys were crowded and the hills were covered with people. With his four wives, four brothers, and twenty unmarried *tapairu* women of high rank, he set sail in the canoe, Ngapua-Ariki, to seek a new home. As various dangers were encountered, he allayed the fears of his crew by confidently stating, "We shall not die. Am I not Ru, the man who was girdled with the red belt of chieftainship and who knows the things of the air and the things of the sea." During a storm, after the sky had been obscured for some time, he thus addressed the Sea-god. Tangaroa—

"O Tangaroa, in the illimitable spaces of the unknown,   
Clear away the clouds by day,   
Clear away the clouds by night,   
That Ru may see the stars in the sky,   
To guide him to the land of his desire."

On the sixth day of the voyage, and the *ootu* night of the moon, Ru sailed in through a passage in the reef on the north-east side of the island now known as Aitutaki. The passage was named Ootu, from the night of their landing. A sacred place, or *marae*, was built and named Te Hautapu-o-nga-Ariki. The island was named Utataki-enua-o-Ru-ki-te-moana. The name was derived from *utauta*, a cargo, and *taki*, to lead. It refers to Ru leading the valuable human cargo over the sea. Another name given to the island is Ararau-enua-o-Ru-ki-te-moana. *Ararau* is to search for land at sea with a canoe, and the name applied to the island refers to Ru's search on the ocean. The first name was shortened to Aitutaki, and the second to Araura. Araura should be spelt as Arahura, and it is difficult to see how it is connected with *ararau*. The meaning of *ararau* is significant of a period when many voyages of discovery were undertaken. All true Aitutakians trace their descent back to one or other of the twenty *tapairu* women of high rank who accompanied Ru.

The second voyagers of note were Te Erui and his brother Matareka. Te Erui set out from Havaiki in the canoe Viripo. An unexpected hurricane, *hurihia*, dismasted [page xx](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n24)his vessel, but he managed to get back to Havaiki. On being told by a priest that the cause of the disaster was due to the naming of his canoe, he immediately built another canoe. The vessel, on the advice of the priest, was named Te Rangi-pae-uta, and the two masts were named after the gods Rongo and Tangaroa. Thus, with divinity sitting in the belly of his sail, he braved the sea once more in his quest of land. He landed on the west side of Aitutaki, at a point on the reef known as Te Rua-karae. Here he was opposed by one of Ru's descendants, who said, "Tera te moana uriuri o Hiro. Haere ki reira kimi henua ai." ("There lies the purple sea of Hiro. Go there to seek land.") The request went unheeded. After slaying various opponents, Te Erui cut a channel through the reef with his adze, Haumapu, and finally settled down at Reureu. The channel which is credited to Te Erui's engineering ability is Te Rua-i-kakau, the boat passage which has been such an inestimable boon to Aitutaki. The various historical spots mentioned are shown on the map of Aitutaki.

Ruatapu, the third voyager of note, came from Taputapuatea to Rarotonga, and then successively to Raro-ki-tonga, Mauke, and Atiu. During these voyages his canoe had the name of Te Kareroa-i-tai. At Atiu, the canoe name was changed to Tuehu-moana, and in it he sailed to Manuae and then Aitutaki. At Aitutaki he sailed through a passage near the north end, called Kopua-honu, and renamed, after him, Kopu-o-Ruatapu. He is credited with having brought the cocoanut and the flowering plant known as *tiare maori*. After quarrelling with his son Kirikava over fishing nets, he came on to Ruatea, near Black Rock. From there he attracted the attention of the *ariki* Taruia by means of certain toys, and they became friends. He excited the curiosity of Taruia with tales of the islands he had visited, and finally persuaded the *ariki* to accompany him on a voyage to see the beautiful women of the islands (*nga wahine purotu o nga motu*.) Ruatapu purposely sailed before Taruia was quite ready, and to the latter's appeal to wait he called back, "I will go on to Rarotonga and be on the beach to welcome you in." On the other side of the islet of Maina, at a spot called Rau-kuru-aka, Ruatapu purposely capsized his canoe, Taruia shortly afterwards appeared, and to Ruatapu's appeal to wait until he had righted his canoe, he replied with no small satisfaction, "No; I will go to Rarotonga and be on the beach [page xxi](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n25)to welcome you in." Ruatapu waited until Taruia was out of sight. He then righted his canoe and, returning to Aitutaki, he had himself made *ariki* of the island. Ruatapu is a well-known Maori ancestor of similar parentage, and with whom a canoe-sinking incident is also associated in tradition.

Whilst chronology is outside our scope, it may be mentioned that Ruatapu lived at about the period of the coming of the great Hawaiki migration to New Zealand in 1350, approximately. Taruia was a contemporary of Ruatapu. From Taruia to Te Erui some genealogical tables give 13 generations. This would take Te Erui back to somewhere about the year 1000 A.D., whilst Ru-enua preceded him again.

There were other voyagers of note who marked their achievements by naming various places on the reef, the lagoon, and the island. Incidents in the history of the first three were represented dramatically to the author, with the accompaniment of song and dance. Thus the village of Amuri played "The coming of Ru" and "The fishing quarrel between Ruatapu and his son," whilst the village of Reureu danced "The song of Te Erui's adze." Such dramatic representations help to preserve the history of the past, and, being uninfluenced by European stage managers, they interpret the true spirit that moved the old-time voyagers to dare and succeed.

### Language.

The speech of Aitutaki is a dialect of the Polynesian language. It is very similar to that of New Zealand, and, except for a word here and there, both branches can readily understand each other. Maori seems to have retained more of the older words in active use. These were readily recognised and understood by the older people of Aitutaki, though a different word was in common use in their own dialect.

The early missionaries, who introduced writing, unfortunately did not represent the H sound in the alphabet they prepared, owing to its not being well aspirated. A similar error occurred in the spelling of Maori place names in parts of New Zealand. A case in point is Wanganui, which should be Whanganui. Mr. Stephen Savage, who has been for many years with the Cook Islands Administration as Interpreter and Registrar of the High Court and Native [page xxii](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n26)Land Court, agrees with me that the H sound has been wrongly left out of the written language. In the dictionary that he is compiling he proposes to put in the H where it is pronounced.

The Cook Islanders pronounce the H in much the same way as the Maoris of Taranaki and Whanganui. It is not so well aspirated as in other parts of New Zealand, but it is nevertheless present, and should be written. That an error has been committed in the past is no just reason for perpetuating it. It is only fair to the inhabitants that their language should be represented as correctly as possible.

In the intensive study of the Polynesians, students of comparative etymology have enough difficulty, without being led astray by errors in the written words that have received the sanction of usage. Words with an H sound have nothing to distinguish them in the spelling from similar words that are without the H sound. There is not even a comma to mark where it should be. The following table of a few examples will draw attention to this anomaly.

Aitutaki words, without the H, and with the sounded but unspelt H.

|  |  |  |  |
| --- | --- | --- | --- |
| **As now spelt.** | **Meaning.** | **Correct Ponnunciation [sic: Pronunciation].** | **Maori Equivalent.** |
| Aa. | What? | Aha. | Aha. |
| Aa. | To feel. | Haha. | Whawha. |
| Aae. | To tear. | Hahae. | Hahae. |
| Ai. | Coitus. | Ai. | Ai. |
| Ai. | String figures. | Hai. | Whai. |
| Ai. | Fire. | Ahi. | Ahi. |
| Aiai. | Evening. | Ahiahi. | Ahiahi. |
| Oa. | Canoe topside. | Oa. | Oa. |
| Oa. | Friend. | Hoa. | Hoa. |
| Oonu. | Deep. | Hohonu. | Hohonu. |
| Kakau. | Handle. | Kakau. | Kakau. |
| Kakau. | Clothing. | Kakahu. | Kakahu. |
| Pai. | Voyaging canoe. | Pahi. | Pahi. |
| Paraaraa. | Flat. | Paraharaha. | Paraharaha. |
| Tairi. | Fan. | Tahiri. | Tawhiri (to fan) |
| Ua. | Rain. | Ua. | Ua. |
| Ua. | Female. | Uha. | Uha. |
| Ua. | Fruit. | Hua. | Hua. |
| Ua. | Thigh. | Huha. | Huha. |
| Vaa. | Mouth. | Vaha. | Waha. |
| Vaine. | Woman. | Vahine or Wahine. | Wahine. |

It will be noticed that the Maori Wh sound is represented in Aitutaki by the H. Who could tell from the appearance of *Aa* that it represented the Maori word *Whawha?* The Maori causative *Whaka* is represented by the written *Aka*, which should be *Haka*.

[page xxiii](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n27)

A further example of the unnecessary difficulty that may arise is seen in the words *Aso* (Samoan), *Kaho* (Maori), and *Kao* (Aitutaki). All have the same meaning—the elements in the framework of a house to which the thatch is attached. *Aso* and *Kaho* are identical in derivation, because it is known that the Samoans have dropped the K and changed the H into S. The identity of *Aso* with *Kao*, however, is not so evident until we know that *Kao* should be written as *Kaho*.

Another error likely to occur is that students, from a comparative study of words, may think that an H has been dropped from a part of a word where it never really existed. Large1 has stated that the forepart of a canoe is called the *aumi* in the Cook Islands. Because the join that fixes the forepart of the hull to the main hull in the large Maori canoes was called the *haumi*, it was held that the two words were identical. But the *aumi vaka* means the bow of the canoe, as opposed to the stern, *muri vaka*, and never means the join. The Maori *haumi* means the join, whether for the bow end or the stern. Conjecture as to the change of meaning in two supposedly identical words would be saved if the Cook Islands H were written in its right place. Then, instead of *aumi* being *haumi*, it would be correctly written as *aumihi*. Between *aumihi*, the bow, and *haumi*, the join, there is no connection either in meaning or in derivation.

Another difficulty is that a word may be accepted as it is written because the meaning suits. The canoe of Ru-enua ran aground on a sandbank inside the Ootu channel. The bank was named Tai-moana. Without the services of an historian, this name would be accepted as correct and appropriate. The meaning of *ocean tide* would be taken to indicate that it was due to the tide that the canoe grounded. The correct pronunciation, however, is Tahimoana, and records the fact that the crew disembarked to scrape or sweep away the sand to re-float the canoe. Instead of *ocean tide*, the word meant *the sweeping away* (*of sand*) *in the sea*.

After consultation with Mr. Savage, various old men in Aitutaki and Rarotonga, and the Ven. Archdeacon H. W. Williams in New Zealand, the H has been written in the words in which in my opinion the sound occurs. In place names and proper names I did not care to make the [page xxiv](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n28)change, but have left it for official investigation. In some cases, however, the H has been inserted in some proper names and gone into print, before corrections could be made. Readers acquainted with the present written language of the Cook Islands have only to leave the H out to recognise the words in their old form. The question of representing the H by the' was duly considered. This signifies the glottal closure in which the sound is suppressed and the letter representing it is elided. It is held, however, that the H sound is actually present in the Cook Islands dialect. The sound of the word for *flat* is more truly represented by *paraharaha* than by *para'ara'a*.

### The V Sound.

In some words the written V is sounded distinctly as W. Such are the words *vaka* and *vahine*, which are pronounced as *waka* and *wahine*. In other words the V is distinctly sounded as V. Mr. Savage holds that the W sound was originally used in all cases, and that the change to V occurred through the influence of religious teachers from Tahiti. As Archdeacon Williams is of the opinion that V was the original sound in the Polynesian language, I have not ventured to make any alteration in these pages.

### Maori.

The inhabitants of the Cook Group call themselves Maori as do their kinsmen in New Zealand. As, however, the term Maori has been definitely associated in ethnological literature with the New Zealanders, it is used in this connection in these pages to avoid repetition of the longer term.

### Scope of the Work.

In historical traditions Rarotonga is probably the richest island in the group. For material culture, however, the loss of the pandanus removed facilities for studying the very important Polynesian craft of plaiting, as well as the technique of the pandanus house roof. Mangaia has peculiarities in material culture that prevent it from being regarded as typical of the Cook Group. It requires special attention to itself. Of the remaining two larger islands of the Group, Aitutaki and Atiu, the choice of the type island was decided by the Union Company's inter-island boat not calling at Atiu on its first run after my arrival in Rarotonga. In this all too brief [page xxv](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-front-d9.html" \l "n29)expedition, Aitutaki furnishes an introduction to the material culture of the Cook Islands. This work can only be regarded as an introduction. The comprehensive study of the group must of necessity be based on field work in each island. Apart from individual local differences of a minor nature, different islands have retained elements of the common culture that have disappeared in others. Thus Atiu and Mauke have specimens of the double canoe that have completely vanished from the other islands of the Group. This work therefore deals almost entirely with the material culture of Aitutaki as a type island of the Cook Group. Where material has been lacking in Aitutaki recourse has been made to material available from Rarotonga. The unforeseen necessity of seeing these notes through the press in New Zealand before leaving to take up further Polynesian research work with the Bishop Museum, Honolulu, has prevented the author from searching all the published literature that may bear on Aitutaki, or from endeavouring to obtain information regarding artifacts from Aitutaki that may be in other museums beyond that of Auckland. The excuse is offered in all sincerity that this work is an introduction to a subject that could only be so dealt with after a five weeks' residence on one island. So little was known in detail regarding the material culture of the Cook Group that it was felt that the publication of the present data would serve a useful purpose in providing material for the present intensive study of the Polynesian race.

At the end of each chapter there is a brief comparison with New Zealand. The points enumerated are merely the main points that have struck the author. Comparisons have been particularly made with New Zealand because the Cook Islanders are the nearest neighbours to New Zealand. Furthermore, tradition and genealogical tables link them and the Society Islanders as the nearest of kin to the Maori. Lastly, in work undertaken for the Board of Maori Ethnological Research, it is natural that the subject should be viewed from a New Zealand angle. Detailed comparisons with other Polynesian areas have been avoided, on the principle that the comparative study of the elements of Polynesian culture should await the completion of the survey of areas that is being carried out by the Bishop Museum.

### Worked Stone Implements.

The worked stone implements seen in Aitutaki consisted of adzes, chisels, and pounders.

#### Adzes.

Adzes, though picked up near the old village sites when cultivating, were scarce, owing to several visitors of distinction having preceded me. Only five were obtained, but a fine hafted specimen is in the Auckland Museum, whilst Mr. H. D. Skinner sent notes and diagrams of five specimens in the Peabody Museum, Harvard. As the Aitutaki adzes seen are similar to those of Rarotonga, the opportunity was taken of examining over 50 adzes in Mr. Wix's collection in Rarotonga. With a number collected and those in the Auckland Museum over a hundred Rarotongan adzes were examined.

*Terminology*. Elsdon Best,[3](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn14-255) in describing in 1912 the stone implements of the Maori, was the first to attempt a descriptive terminology of Polynesian adzes.

R. Linton,[2](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d2.html" \l "fn13-212) in his work on the Marquesas, uses *poll* in the same sense as Mr. Best, but *outer* and *inner* instead of *face* and *back*.

H. D. Skinner,[4](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn15-236) in describing Moriori adzes in 1923, suggested alterations in terminology. He abandoned Best's use of the term *blade*, substituted *front* for *face*, and omitted *butt shoulder* as unnecessary. He dropped *butt end* and substituted *grip*, which he defined:—"The grip is constituted by the shaping of the front and sides to hold the binding by which the adze is attached to the haft. It is a feature, not a region, and is absent from several types of adzes." He states that Dr. H. S. Harrison wished to [page 214](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n244)substitute *tang*, but as *tang* already had a rather specialized meaning, he retained *grip*.

Linton uses the word *tang* in the same sense as Dr. Harrison, for he says, "The tang is formed by chipping away a portion of the upper end of the outer surface. It cannot be distinguished on the inner surface. In some of the triangular specimens the sides of the tang are also chipped away, giving the blade a slight shoulder, but this is not a common feature."

Though both Harrison and Linton seem to regard *tang* as a region, Skinner's contention that it is unsuitable because it has come to convey a special feature must be upheld. This feature is the extra chipping or working of the sides, and makes it comply more with the usually accepted meaning of a projecting shank or prong, such as the piece forming an extension from the blade or analogous part of a table knife or fork, file, chisel, or the like, to connect with the handle. Skinner, however, states that his *grip* is a feature, and not a region. Therefore neither *grip* nor *tang* are suitable terms to replace Best's *butt end*, which denotes a region. The *butt end* occurs in all adzes, and *grip*, denoting that the butt end has been shaped to hold the binding, does not. *Tang* is a still further modified *grip*.

In view of the few Aitutaki adzes examined, it seems presumption to suggest a terminology, but such is necessary, even in describing one article. Therefore, in this work

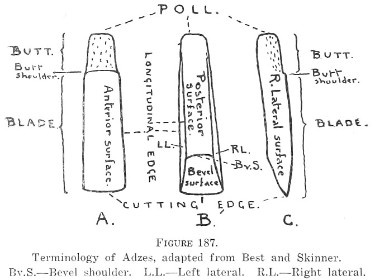


Figure 187.  
Terminology of Adzes, adapted from Best and Skinner.

Bv.S.—Bevel shoulder. L.L.—Left lateral. R.L.—Right lateral.

[page 215](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n245) the following terms will be used, with the adze upright as if to commence work, [Fig. 187](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate214a).

*Adze*. The *adze* is the stone implement without handle or lashings.

The adze may be regionally divided into the *butt* and the *blade*.

*Butt*. The *butt* is the upper part of the adze, which is covered by the lashing when the adze is hafted.

The *butt* is fitted to the *foot* of the handle and lashed in position. The junction between the *butt* and the *blade* may or may not be distinguished by shaping.

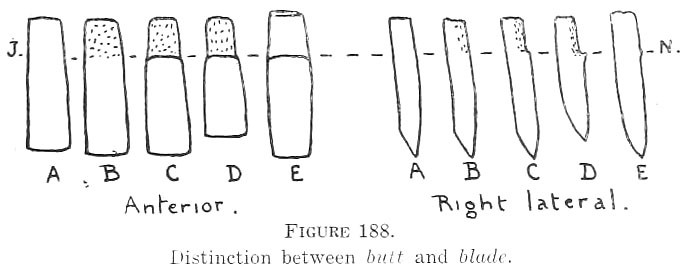


Figure 188.  
Distinction between *butt* and *blade*.

In [Fig. 188](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate215a), the parts of the adzes above the line JN are the *butts* and the parts below are the *blades*.

In A all the surfaces of the *butt* are ground equally and are continuous with those of the blade. The junction may be judged approximately, but cannot be defined with accuracy unless the adze is hafted.

In B, the butt is pecked to form a *grip* for the lashing.

In C, the butt is clearly defined by shaping the anterior and lateral surfaces to form a well-defined *grip*. The shaping of the anterior surface of the butt thus forms a *butt shoulder* across the anterior surface of the adze, and accentuates the junction between the butt and the blade.

In D the condition is similar to C, but the *butt shoulder* is still more accentuated by the upper margin of the anterior surface of the blade being raised into a ridge. See lateral view of D.

In E, the butt surfaces are equally ground with those of the blade, but a raised transverse ridge forms a *butt shoulder* to prevent the blade working up under the lashing.

*Blade*. The *blade* is the lower part of the adze which is free of the lashing to the handle.

[page 216](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n246)

Anteriorly, the blade projects down from below the lashing, and posteriorly, from beyond the lower part of the *foot* of the handle, which is known as the *toe*.

*Poll*. The *poll* is the upper end of the butt.

The poll is really the superior surface formed by the exposed cross section of the butt. It may be rough and irregular, or it may be well defined by the clean cut edges of the adjoining surfaces. It may be chipped level or even ground level, as in some Cook Islands adzes. Examples are known to exist where the surface of the poll was ornamented with spirals.

*Cutting edge*. The *cutting edge* is the sharpened transverse lower end of the blade.

In the usual type of adze, with a true adze cutting edge, the cutting edge is made by grinding a bevel surface posteriorly to meet the anterior surface of the blade at an angle less than a right angle. In all adzes, whether metal or stone, the anterior surface of the blade must have a longitudinal convexity to prevent the adze from digging in and going deeper than desired. Any convexities or extra material above the required plane in the timber can be subsequently pared down, but any concavities below the desired plane, due to digging in, cannot be restored. In most adzes, the longitudinal convexity of the anterior surface is accentuated towards the cutting edge. Besides a general accentuation, there is a sharper accentuation close to the edge, which is due to the method of finishing off the grinding of the cutting edge. When the cutting edge is formed by grinding the bevel surface posteriorly, there are fine irregular particles that project, forward from the edge and form a *burr*. The anterior surface bounding the cutting edge is then rubbed on or with the grinding stone to remove the burr and prevent the cutting edge from being too fine and thus more liable to chip. Though the anterior surface of the blade enters into the bevel angle to form a cutting edge, it is the surface that is ground posteriorly that has the greater claim to the use of the term *bevel* as a region. It will be referred to as the *bevel surface*, instead of *bevel*, to distinguish it from other bevels that are formed by the inclination of other surfaces. Thus adzes that are quadrangular in section, and in which the anterior and posterior surfaces are unequal in width, have four longitudinal [page 217](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n247)edges which form bevels. Thus, in [Fig. 189A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217a), the two anterior longitudinal edges aa form acute angles, and are

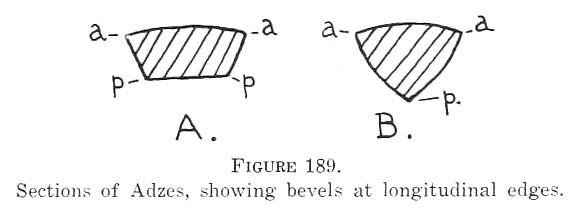


Figure 189.  
Sections of Adzes, showing bevels at longitudinal edges.

thus *under bevels*, whilst the two posterior longitudinal edges pp form obtuse angles, and are *standing bevels*. Similarly, in adzes that are triangular in section, [Fig. 189B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217a), the two anterior longitudinal edges aa and the posterior longitudinal edge p form *under bevels*. For regional description it is thus necessary to define *bevel surface*.

*Bevel surface*. The *bevel surface* is the surface that is ground posteriorly to form the cutting edge.

The bevel surface is regionally antipodal to the poll surface. It is the exposed section of the lower end of the adze, but the true lower cross section has been chipped and ground away to form an inclined plane, which takes its place. The bevel surface is really a postero-inferior surface as opposed to the superior surface formed by the surface of the poll. The *bevel surface* thus shares the general characteristics of the cross section of the adze, being quadrangular or triangular, as the case may be, [Fig. 190 A and B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217b).

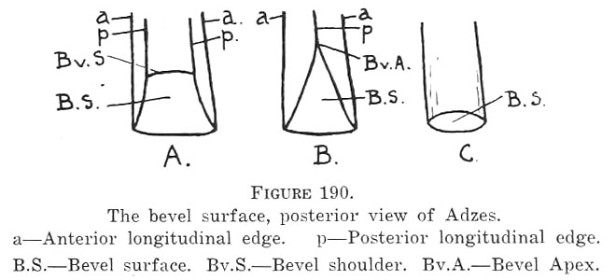


Figure 190.  
The bevel surface, posterior view of Adzes.  
a—Anterior longitudinal edge. p—Posterior longitudinal edge.

B.S.—Bevel surface. Bv.S.—Bevel shoulder. Bv.A.—Bevel Apex.

In some chisels, and in Melanesian adzes, where the longitudinal edges are not defined, or are rounded off, the bevel surface will of necessity be more or less elliptical, [Fig. 190C](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217b).

[page 218](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n248)

*Bevel shoulder*. The *bevel shoulder* is the line where the bevel surface and the posterior surface meet. See Fig, [190A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217b) and [191A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate218a).

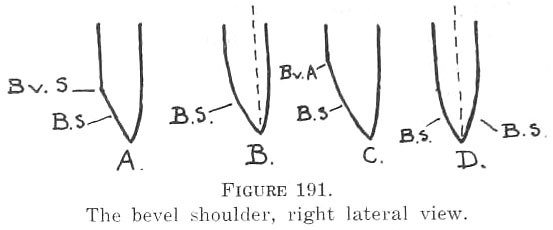


Figure 191.  
The bevel shoulder, right lateral view.

In cases where the bevel surface merges gradually into the posterior surface the bevel shoulder does not exist, [Fig. 191B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate218a), and the posterior limit of the bevel surface is not defined. In adzes that are triangular in section, with an anterior surface, there can be no true bevel shoulder, as there is no posterior surface. It disappears to the point at the apex of the triangular bevel surface where the converging posterior-lateral surfaces meet at the posterior longitudinal edge. Figs. [190B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217b) and [191C](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate218a). For convenience, this point may be termed the *bevel apex*, Bv.A.

The definitions of *bevel surface* and *bevel shoulder* apply to the true adze forms. They cannot apply to adzes that are termed *axe-form* by Mr. Best,[3](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn14-255) for there is an equal anterior bevel, "thus bringing the cutting edge into the axial centre of the blade." See [Fig. 191D](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate218a). Here the anterior and posterior bevel surfaces merge gradually into the anterior and posterior surfaces of the blade and as Best states, there is no sharply pronounced shoulder visible on either surface, save in rare cases.

*Butt shoulder*. The *butt shoulder* is a definite line of demarcation between the butt and the blade, formed by a raised ridge on the anterior surface of the adze, by shaping the anterior surface of the butt into a *grip*, or by a combination of both. See [Fig. 188E. C, and D](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate215a).

The line is in almost all cases convex towards the butt. The term was used by Best,[3](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn14-255) and discarded by Skinner[4](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn15-236) as unnecessary. In the Cook Islands adzes, it is a very characteristic feature, and is more useful than *bevel shoulder*, which Skinner retains. In some adzes it is not present.

*Grip*. As defined by Skinner, p 213.

[page 219](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n249)

Whilst not defining *tang*, we may say that it has come to signify a specialized *grip*, and should not be regarded as synonymous with *butt*.

*Surfaces*. Three different writers have used the terms *face, front*, and *outer* for the same surface. We will add a fourth, and call it *anterior*. For *back* or *inner, posterior* will be used, and for *sides, lateral* surfaces. The terms suggested may be longer, but they are capable of more exact usage. They are used in anatomy, where exact position is essential, and they have stood the test of time in spite of attempts to alter them. They are also capable of being combined.

If an adze triangular in section is described, the base forms the anterior surface. From the back the other two sides of the triangle are to be seen, [Fig. 192A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate219a). How are they to be described? Of the two surfaces which meet in the middle line posteriorly, how much is *back* and how much is *side?* Using the anatomical terminology in describing a bone, we would say that there are two postero-lateral surfaces that meet in the middle line. If the adze is hafted

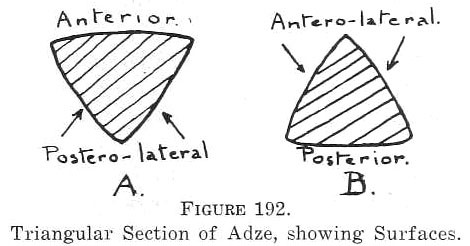


Figure 192.  
Triangular Section of Adze, showing Surfaces.

in the reverse manner, as is said to have been done for certain uses, the altered terminology indicates the change. The base is then the posterior surface, and the sides form antero-lateral surfaces meeting in the middle line, [Fig. 192B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate219a). The apex of the triangle in A forms a posterior longitudinal edge, and in B an anterior longitudinal edge.

*Longitudinal edges*. The *longitudinal edges* are the longitudinal edges formed by the meeting of two surfaces. See Figs. [187](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate214a) and [189](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate217a).

Thus in adzes which are quadrangular in section there are four longitudinal edges; two antero-lateral edges formed by the meeting of the anterior surface and the two lateral surfaces, and two postero-lateral edges formed by the meeting of the two lateral surfaces and the posterior surface.

[page 220](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n250)

In adzes triangular in section there are three longitudinal edges; two antero-lateral edges formed by the meeting of the anterior surface and the two postero-lateral surfaces, and one posterior edge formed by the meeting of the two postero-lateral surfaces, or one anterior edge and two postero-lateral edges if the adze is reversed.

These edges are usually well defined on the blade, and are important in distinguishing Polynesian adzes from Melanesian. In the latter there are usually no longitudinal edges. The longitudinal edges of the blade are usually continuous with those of the butt, except in adzes with well-formed grips. Here the two antero-lateral longitudinal edges of the butt are on a different plane, owing to the shaping of the anterior surface, and they are usually rounded off in shaping the anterior part of the lateral or postero-lateral surfaces to form the grip. The postero-lateral or posterior edges are seldom modified in shaping the grip.

*Section*. The *section* of an adze is a cross section of the blade above the bevel surface, unless otherwise specified.

Adzes that are triangular in section through the blade above the bevel surface are quadrangular through the bevel surface.

*Width*. The *width* is the transverse measurement.

*Thickness*. The *thickness* is the antero-posterior measurement.

#### Types of Adzes.

The Aitutaki adzes, like those of the other islands of the Cook Group, are well made and pleasing to the eye. They are ground on all surfaces, and polished when the material will take a polish. The surfaces of the butt are usually ground and polished equally with these of the blade, except the parts that are shaped for a grip. In one adze, [Fig. 194A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a), the *grip* was polished equally with the blade. This feature was also observed in some Rarotongan adzes. In some the surface of the poll was ground level. They form a great contrast with the rough surfaces of the Marquesan adzes figured by Linton[2](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d2.html" \l "fn13-212).

The adzes seen will be classified according to *cross section*, which seems the most fundamental structural condition that influenced shape.

[page 221](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n251)

#### A.—Adzes Triangular in Cross Section.

(1.) Triangular in cross section, with base anterior.

This division forms by far the commonest type in the Cook Islands. Linton says they are characteristic of the south-eastern Polynesian area. Of the six Aitutaki adzes, five were of this type, and in Skinner's five three were triangular.

In the characteristic form the base of the sectional triangle lies anteriorly. The three main surfaces of the adze are thus anterior and right and left postero-lateral.

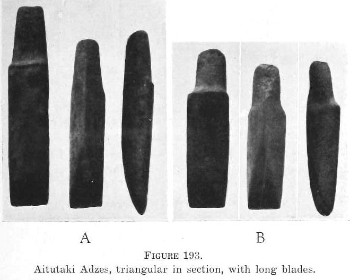


Figure 193.  
Aitutaki Adzes, triangular in section, with long blades.

The *anterior surface* is definitely divided by a well-formed *butt shoulder* into the lower quadrilateral blade surface and the upper butt surface, which is shaped into a *grip*. Posteriorly, the *postero-lateral surfaces* meet in a well-defined median *posterior longitudinal edge* in the upper part of the adze, and are separated in the lower part by a well-defined triangular *bevel surface*.

The above general characters can be seen in the adzes figured, which are shown with an anterior, posterior, and right lateral view. This order is observed throughout. In some of the series of three views the adze is not always of the same size, owing to its having been reproduced from photos. taken in different focus.

[page 222](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n252)

The *butt* is shaped to form a *grip* by working the *anterior surface* and the adjoining parts of the *posterolateral surfaces*. The *longitudinal edges* bounding the anterior surface of the butt are thus rounded off. The *posterior longitudinal edge* is well defined and continuous with that of the blade. The *poll* may be rounded or almost pointed, but it is usually a well-defined superior triangular surface that may be chipped level, or even ground.

The *butt shoulder* is formed by the shaping of the anterior surface of the butt and the rounding off of the longitudinal edges. It is a characteristic feature of these adzes.

The *blade* has a quadrilateral anterior surface, bounded laterally by the longitudinal edges, above by the butt shoulder, and below by the cutting edge. It is usually wider at the cutting edge, but it may be of even width throughout, or even narrower at the cutting edge. The anterior surface has both a longitudinal and a transverse convexity. The former is accentuated near the cutting edge, and the latter near the longitudinal edges. The postero-lateral surfaces of the blade are continuous with those of the butt, except in the anterior parts of the latter that have shared in the shaping of the grip. The surfaces are convex antero-posteriorly.

The *triangular bevel surface* is another characteristic feature. The base of the triangle is formed by the cutting edge, and the sides by the oblique edges where the bevel surface meets the two postero-lateral surfaces of the blade. The apex is formed by the three surfaces meeting at the posterior longitudinal edge. This point regionally represents the bevel shoulder of quadrangular adzes. For convenience, it has been referred to as the *bevel apex*. The bevel surface is usually concavo-convex. It is concave transversely at and near the cutting edge, where it follows the transverse convexity of the anterior surface of the blade. It may be a marked feature that extends posteriorly on the bevel surface. It is due to extra grinding in the mesial line with a hone. See the cross sections through the bevel surface in Figs. [196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b) and [198](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate229a). When the bevel surface is ground level transversely there is a downward convexity at the cutting edge. The convexity of the bevel surface is longitudinal and is accentuated near the cutting edge. See [page 223](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n253)the right lateral views in the various figures, where the bevel surface is on the left.

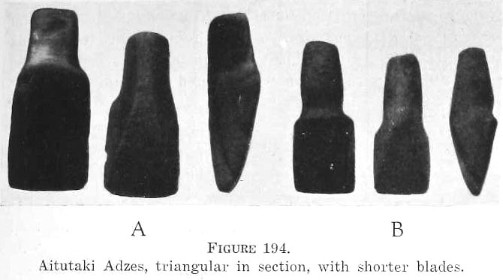


Figure 194.  
Aitutaki Adzes, triangular in section, with shorter blades.

*Variations*. The above description applies to most adzes of this type, but there is great variety, not only in size, but in the proportion of the various parts to each other.

|  |  |
| --- | --- |
| (1.) | Longitudinal axis of butt and blade.  Instead of the butt being in the same longitudinal axis as the blade, it may have a posterior inclination of varying degree. This accentuates the general anterior convexity of the adze, [Fig. 194A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a). |
| (2.) | Relative length of butt and blade.  The butt may be short as compared with the blade, [Fig. 193](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a). In long-bladed adzes, it is natural for the butt to appear relatively short. When the butt reaches its maximum length of utility, it is unnecessary to keep on increasing it in proportion to the increasing length of the blade. In spite of this, however, some butts are shorter with long blades than in others with blades of lesser length. The dimensions of the adze in [Fig. 193B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a) are shown in [Fig. 196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b). The butt may even be longer than the blade, Fig. [194B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a) and [195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a). It is natural that with short blades the butt should be relatively long. There must be sufficient length of butt to provide secure hafting.  In many adzes the relative shortness of the blade is due to re-grinding the bevel surface, to sharpen or to get rid of gaps. An early writer states that the wood-workers in Tahiti had water and a sharpening stone beside them, and they were constantly re-sharpening their tools. Every [page 224](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n254)    Figure 195. Aitutaki Adze with butt longer than blade.  time an adze is sharpened the blade is shortened. The time must sooner or later arrive when the adze blade is too short to be useful. It is cast aside as a reject. Years later, when the villages of the stone age period have disappeared, it is picked up and gets into circulation, to cause conjecture amongst archaeologists. Each one has to be examined carefully before it can be decided whether it came from the refuse heap or the tool shop. Probably an occasional reject escapes the censor and enjoys the unsought honour of figuring as a new type. |
| (3.) | Relative width of the butt shoulder and the cutting edge.   |  |  | | --- | --- | | (a.) | Most adzes are wider at the cutting edge. The amount of increase in width per length, however, varies considerably, and naturally alters the appearance of the adze. [Fig. 194A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a).    Figure 196. Aitutaki Adze, long blade, narrower at cutting edge, bevel surface, concave transversely.  [page 225](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n255) | | (b.) | The width may. be the same throughout, Fig. [194B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a) and [195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a). | | (c.) | The cutting edge may be narrower, [Fig. 196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b). This is by no means an uncommon feature. Of 40 Rarotongan adzes examined for this feature, 13, or 32 per cent., were narrower at the cutting edge. This feature usually occurs in the long, narrow adzes, with a marked transverse concavity on the bevel surface. |   The above characteristics are shared by the long Aitutaki adzes, [Fig. 19](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d1-d5-d2.html" \l "BucMate-fig-BucMate017a), and the unground Rarotongan adze, [Fig. 197A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate225a). For comparison, the principal measurements are given as follows:—   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  | **Length** |  | **Width** |  | **Thickness** | **Length** | |  | Total | Butt | Blade | B.S. | C.E. | B.S. | Bv.S. | | Aitutaki, [Fig. 193B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a) | 150 | 45 | 105 | 39 | 33 | 33 | 75 | | Aitutaki, [Fig. 193A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a) | 250 | 80 | 170 | 51 | 46 | 43 | 93 | | Rarotonga, [Fig. 197A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate225a) | 264 | 100 | 164 | 56 | 55 | 57 | 104 |   B.S.—Butt shoulder. C.E.—Cutting edge. Bv.S.—Bevel surface.  The thickness is taken just below the butt shoulder, and the length of the bevel surface from the cutting edge to the bevel apex.    Figure 197. Rarotongan Adzen, not quite finished by sharpening or polishing.  The other adze, [Fig. 197B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate225a), is also unground and unpolished. It has a marked butt shoulder ridge, and the blade is wider at the cutting edge.  [page 226](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n256) |
| (4.) | Proportion of width of blade to length of blade.  The proportion is naturally noticed best by a view of the anterior surface of the blade. The blade may be long and narrow, [Fig. 193](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a), or short and wide. [Fig. 194](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a). If the half of the added width of the blade at the butt shoulder and the cutting edge is taken as the mean width, we may get a blade width index expressing the proportion of width to length. Thus in the long narrow blade in [Fig. 196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b) it is 34.2, whilst in the short stumpy blade in [Fig. 195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a) it is 78. |
| (5.) | Treatment of the butt.  A characteristic feature of the triangular adzes is the shaping of the butt to form a *grip*. This is done by working down the anterior surface of the butt. Whatever the primary processes may be, the surface is left roughened by grinding to give better support to the lashing, or any material that may be laid over the surface before the lashing is applied.  The working of the anterior surface of the butt places it on a different plane to the anterior surface of the blade, and thus creates a *butt shoulder*. This assists in preventing the blade from working up under the lashing when a blow is struck. That the butt shoulder came to be regarded as more important than the roughened surface is indicated by the fact that in some triangular adzes, [Fig. 194A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a), the anterior surface of the shaped grip is polished equally with the blade. It may be that in the method of hafting to be described, the roughening of the anterior surface of the grip was not necessary to give additional security to the lashing. In good adzes, the grinding down was primarily to provide a butt shoulder, and the surface was left rough, not to give security to the lashing, but because it was concealed by the lashing. Some more energetic craftsmen polished the surface.  As the butt continues the triangular cross section of the blade and. the base of the triangle forms the anterior surface, the grinding down of the anterior surface naturally reduced its width. The reduction in width was further increased by rounding off the longitudinal edges that are formed on either aide with the postero-lateral surfaces of the butt. The shaping and grinding on these latter surfaces extended posteriorly for varying distances. It is usually just enough to round off the longitudinal edges. The posterior parts of the postero-lateral surfaces, as far as the posterior longitudinal edge, share in the polish of the [page 227](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n257)same surfaces of the blade. They are continuous with them. There is no ridge or shoulder to break the continuity. In polishing the upper part of these surfaces on the blade, the rubbing of necessity encroached on the butt surfaces, and the craftsman made a job of it by continuing the polishing to the poll. It is rarely that the grinding or roughening extends over the entire postero-lateral surfaces of the butt, but such occurs in the large Aitutaki adze, [Fig. 193A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate221a).  Variation occurs in the amount of grinding immediately above the butt shoulder. In some cases it is slight, and the surface slopes back gradually to the plane of the anterior butt surface. In other examples a groove is ground, which may extend slightly on to the postero-lateral surfaces. Again, this groove may have a downward inclination as in Figs. [195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a) and [196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b). This serves to throw out the corners formed by the butt shoulder with the longitudinal edges of the anterior surface of the blade. It is this appearance in adzes from other regions that gave rise to the term *shouldered celt*.  The butt normally narrows towards the poll. In some cases the narrowing is more accentuated than in others. Thus in triangular adzes the butt is narrower than the blade, and suggests the use of the term *tang*. Attention is again drawn to the fact that this appearance is primarily due to grinding away of the anterior surface of the butt, which forms the base of a triangle. If, in the so-called tanged adzes reported from other areas, such as Cambodia, the appearance is primarily arrived at by working away the lateral surfaces, the method of manufacture must be considered in drawing comparisons. So also must the cross section of the adze. |
| (6.) | Treatment of the butt shoulder.   |  |  | | --- | --- | | (a.) | Absence of butt shoulder: Adzes without a distinct butt shoulder form the exception. They are usually rough, and have an unfinished appearance. Such a one is the Rarotongan adze on the extreme right of [Fig 199](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate230a). | | (b.) | Butt shoulder from shaping the grip: Attention has been drawn to the variations that occur in the grinding of the surface immediately above the butt shoulder.[page 228](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n258) | | (c.) | Transverse ridge on blade: In a fair number of adzes the upper margin of the anterior surface of the blade has been ground so as to leave a transverse ridge, [Fig. 197](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate225a). In the examples seen, this was always associated with the shaping of the grip. It further accentuates the butt shoulder, and thus further aids in preventing the adze from slipping up under the lashing of the handle. The transverse ridge without any shaping of the butt is seen in the quadrangular adze, [Fig. 203](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate234a). | |
| (7.) | The bevel surface.  The bevel surface is usually approximately straight transversely, but is generally concave at the cutting ridge. This tranverse concavity may be very well marked and extend over the bevel surface as far as possible. See cross section in [Fig. 196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b). |
| (8.) | Posterior longitudinal ridge. |

In the usual type of adze, the blade is longer than the *bevel surface*. The bevel surface thus meets the posterior longitudinal line of the blade at some point below the level of the butt shoulder. See posterior view of [Fig. 196](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224b). A cross section of the blade above this point thus shows a typical triangle, with the apex formed by the posterior longitudinal edge.

In some cases, where the blade is short and thick, the bevel surface may be longer than the blade, [Fig. 195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a). In other words, the bevel surface does not meet the posterior longitudinal edge on the blade at all, but at some point above the level of the butt shoulder, and thus on the *butt*. A cross section of the blade, taken even at the shoulder, passes through the bevel surface. The section, instead of being triangular, is thus quadrangular, [Fig. 195](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate224a). The section of the butt, however, shows the apex formed by the posterior longitudinal edge, but the other two angles of the triangle are rounded by the shaping of the grip. The adze, however, is so obviously of the triangular type that it may be treated as a variation, and not a sub-type. It is important, as it indicates what may happen to form a subtype.

In [Fig. 198](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate229a), the bevel surface would practically reach the posterior longitudinal edge at about the level of the butt [page 229](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n259)shoulder, but there is no longitudinal edge. The posterior longitudinal edge has had the edge ground away, and is thus represented by a narrow posterior surface. This has been partly due to the posterior inclination of the long axis of the butt from that of the blade. The result has been that in grinding the upper part of the bevel surface to the required plane, the posterior longitudinal edge has been ground for a longer distance than usual. The adzemaker has then finished the adze off by rubbing out the rest of the posterior longitudinal ridge. The type adze is shown

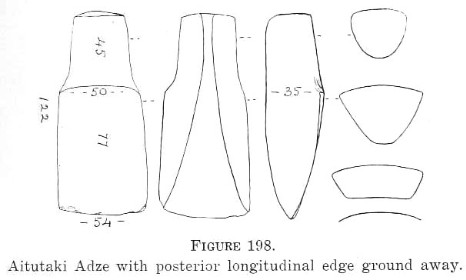


Figure 198.  
Aitutaki Adze with posterior longitudinal edge ground away.

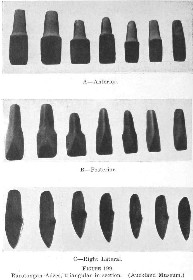
in [Fig. 194A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate223a), whilst the dimensions and cross sections are shown in [Fig. 198](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate229a). Though slightly quadrangular, both in the blade and the butt, the adze is still so obviously of the triangular type that it remains a variation and not a distinct type.

The triangular adze has been described by Linton as the south-eastern type, "characterised by a triangular or subtriangular cross section, a relatively thin blade with a long bevel and a more or less distinct shoulder where the blade meets the tang."

Skinner, in his classification of adze types, has placed the triangular adze in Type V. To admit Cook Islands adzes into this type the words "undeveloped grip" as a characteristic feature would have to be altered.

Fig. 199 shows a number of well-made Rarotongan adzes that are triangular in section. The variation already alluded to is very obvious. The adze on the extreme right has no shoulder or grip, and is the only poorly-made adze of the series.

[page 230](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n260)



A—Anterior. B—Posterior. C—Right Lateral.

Figure 199.  
Rarotongan Adzes, triangular in section. (Auckland Museum.)

A good example of a triangular adze from Mangaia is shown in [Fig. 200A](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate231a). It has a broad blade, and the grip shows more shaping than usual. Roughening also extends over the whole of the postero-lateral surfaces, except for a narrow strip at the posterior longitudinal edge.

The adze [Fig, 200B](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate231a), has a long blade, which narrows to 6mm. at the cutting edge. The anterior surface is well defined, as well as the butt shoulder and grip. Posteriorly, [page 231](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n261)

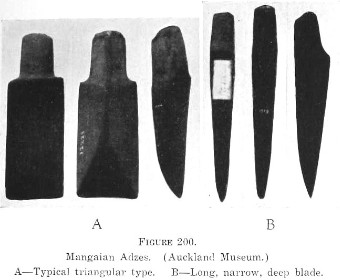


Figure 200.  
Mangaian Adzes. (Auckland Museum.)

A—Typical triangular type. B—Long, narrow, deep blade.

the mesial posterior longitudinal edge has been ground off to form a narrow posterior surface. The marked feature is the narrow cutting edge and the depth at the butt shoulder. A similar one in the author's possession is mounted in a ceremonial peace adze handle. The stone is very black and highly polished. The type may be ceremonial. The measurements in millimeters are:—

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | **Length** | **Width** | **Thickness** |  |
|  | Butt | Blade | Total | B.S. | C.E. | B.S. |
| Mangaian Adze, A - | 52 | 124 | 176 | 61 | 62 | 40 |
| Mangaian Adze, B - | 47 | 157 | 204 | 27 | 6 | 38 |

B.S.—Butt shoulder. C.E.—Cutting edge.

(2.) Triangular in cross section, with base posterior.

An unfinished Rarotongan adze in the Auckland Museum is shown in [Fig. 201](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate232a). It is the largest in the collection. There is no butt shoulder or grip, though something might have been done when the implement was ground down. The adze is triangular in section through the butt and the blade, the base being posterior. The axis of the blade is convex longitudinally. Towards the lower end, the anterior longitudinal edge, which forms the apex of the triangular section, broadens out into an anterior surface which runs out to the sides of the cutting edge. This surface is thus triangular, and extends for 124mm. [page 232](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n262)

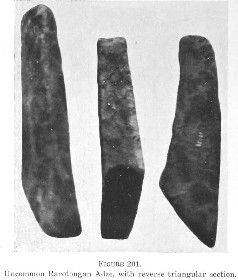


Figure 201.  
Uncommon Rarotongan Adze, with reverse triangular section.

from the cutting edge to its apex. The posterior surface is flat transversely, and is defined by two lateral longitudinal edges, the poll above and a bevel shoulder below. The surface is markedly concave longitudinally. This posterior concavity is more marked than the anterior convexity, and thus ends in a prominent bevel shoulder. See lateral view in [Fig. 201](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate232a). The width at the bevel shoulder is 63mm., and the quadrilateral bevel surface narrows to the cutting edge, which is 45mm. in width. From cutting edge to bevel shoulder it is 122mm.

The total length of the adze is 337mm. The width at the poll is 49 and the thickness 54. At the bevel shoulder the thickness is 63mm.

When trimmed up, the adze would have probably corresponded to the Marquesan *toki kouma* type described by Linton[2](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d2.html" \l "fn13-212). It is probable, also, that in sharpening the cutting edge might have been rounded off, and thus corresponded to the Maori triangular adzes described by Best,[3](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn14-255) which [page 233](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n263)he considered performed the functions of a heavy gouge, though hafted as an adze.

A broken specimen from the Kermadecs, now in the Auckland Museum, also shows the base of the triangle posteriorly. The grip is well formed and the anterior mesial ridge rounded off. The blade is well polished. There is an anterior projection at the poll.

#### B.—adzes, Quadrangular in Section.

Of the Aitutaki adzes seen, one was a distinct quadrangular type. In Rarotonga two other types were seen.

|  |  |
| --- | --- |
| (1.) | The type implement, seen in Mr. Wix's collection of Rarotongan adzes, is shown in [Fig. 202](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate233a).    Figure 202. Rarotongan Adze, quadrangular in section Type I.  The butt (in this instance) is longer than the blade. It is shaped into a grip by working the anterior surface and the adjoining parts of the lateral surfaces. A distinct butt shoulder has been formed. The blade is convex longitudinally and transversely, and narrows towards the cutting edge. The posterior surface is much narrower than the anterior. It widens out towards the lower end and merges into the bevel surface there being no bevel shoulder. The bevel surface is convex longitudinally and distinctly concave transversely. See section through bevel surface, [Fig. 202](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate233a). The two lateral surfaces are convex transversely.  The general appearance reminds one of the triangular adze, Type I. The cross section of the blade, near the butt shoulder, shows that the bevel angle made by the lateral surfaces with the anterior surface is much the same as in the triangular form. But the stone was not thick enough to allow the lateral surfaces to meet as indicated by the dotted lines in the upper section, [Fig. 202](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate233a). The adze was [page 234](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n264)only 26mm. thick, instead of being over 30mm., as in the triangular adzes of similar width.  Here we have a further stage to that in [Fig. 198](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate229a). Not only has the posterior longitudinal edge been removed, but a considerable part of the apex of the triangle. Both adzes are 50mm. in width across the anterior surface near the butt shoulder. In the thicker adze, with a depth of 35mm., the two sides almost meet. For practical purposes it became triangular in section, in the thinner adze the lateral surfaces were shaped in the same manner for 26mm., but as they could go no further, the adze remained quadrangular.  This type may be regarded as being derived from the triangular form. Type I. The adze-maker used the same methods in shaping, but he finished with a narrow posterior surface instead of a mesial posterior longitudinal edge, because his material was not thick enough.  If the adze becomes thinner, the posterior surface becomes wider. The posterior surface may be further widened by making the angles of the lateral surfaces with the anterior surface greater. Then we approach more    Figure 203. Aitutaki Adze, quadrangular in section, Second Type (in Auckland Museum).  [page 235](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n265) nearly to the usual form of Maori adze that Skinner classified as Type I. One of the Aitutaki adzes seen by him was described by him as of this type. |
| (2.) | The second type of quadrangular adze was collected in Aitutaki, Figs. [203](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate234a) and [204](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate235a).  The adze is characterised by four well-marked longitudinal edges, separating four surfaces. There is a distinct butt shoulder, formed by a transverse ridge across the anterior surface of the adze. The ridge distinguishes the butt from the blade. The distinction would otherwise be impossible, as all the surfaces of the butt are as equally ground and polished as those of the blade. The butt narrows towards the poll, and the longitudinal edges that define the posterior surface, though distinct, become more rounded off.    Figure 204. Dimensions of Aitutaki Adze, quadrangular in section, second Type.  The blade increases slightly in width to about half-way down, and then narrows towards the cutting edge. It has both a longitudinal and transverse convexity. The bevel surface is markedly concave transversely, and merges into the posterior surface without a bevel shoulder. The posterior surface is much narrower than the anterior and it narrows towards the poll. The lateral surfaces are markedly convex transversely. The line of the cutting edge is concave posteriorly.  [page 236](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n266)  The adze is well made and well finished. It is marked by its thickness, being 44mm. immediately above and below the transverse ridge forming the butt shoulder. The ridge itself is 3mm. above the surface of the adze.  This adze has no affinity with the triangular form. There was more than sufficient material to develop the triangular form had it been desired. The cross section of a typical triangular adze of the same width across the anterior surface has been superimposed upon the cross section B in [Fig. 204](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate235a) and dotted in. The desire to keep the extra mass of material to add weight is thus rendered obvious. It makes the adze a distinct type, with a different principle of construction to the triangular adze. It fits in best with Skinner's[4](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "fn15-236) Type VII, which he rightly regards as an intermediate between Types II and III. One of Skinner's series of Aitutaki adzes suggests the above, but it is much smaller and of medium finish. |
| (3.) | The third type of quadrangular adze was not seen in Aitutaki; the specimen shown in [Fig. 205](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate236a) was collected in Rarotonga. No other specimens were seen in the Rarotongan adzes examined, but Makea Ariki informed me that he had seen adzes of this type dug up in the new cultivations.    Figure 205. Rarotongan Adze, quadrangular in section, Third Type (in Auckland Museum). |

This adze is more like the quadrangular type seen in New Zealand. It has four well-marked longitudinal edges. The four surfaces of the butt and blade are equally polished [page 237](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n267)and continuous. There is no butt shoulder, and nothing to distinguish the butt from the blade. The anterior surface is convex longitudinally and transversely. The longitudinal convexity is accentuated near the cutting edge by a ground facet, which has not been polished. The posterior surface, whilst narrower than the anterior, is relatively much wider than in the two quadrangular forms described. This factor alone makes it approach more nearly to the usual New Zealand types in general appearance. The posterior surface is fairly straight longitudinally, but convex trans-versely.

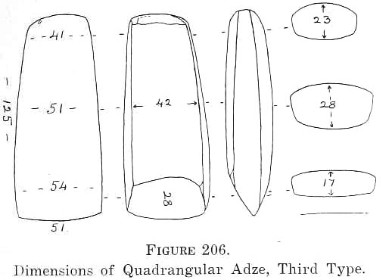


Figure 206.  
Dimensions of Quadrangular Adze, Third Type.

The lateral surfaces are narrow and well defined. Thus the right lateral view in [Fig. 206](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate237a) shows up the transverse convexity of the anterior and posterior surfaces. The bevel surface is fairly straight transversely, except for a slight convexity where it meets the lateral surfaces of the blade. It is also fairly straight longitudinally, except close to the cutting edge. There is thus a well-defined bevel shoulder for the first time in the quadrangular adzes described. Owing to the grinding of the anterior facet having removed the middle part of the anterior transverse convexity of the blade, the cutting edge is fairly straight transversely. There is however, a convexity downwards which clears the corners.

The feature of Type 3 as against 2 is its comparative thinness and the appearance of the bevel shoulder. This type of adze, from not having the butt shaped into a grip, falls in to Skinner's Type II.

[page 238](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n268)

#### C.—Transitional Forms.

|  |  |
| --- | --- |
| (A.) | —The rough adzes from Mr. Wix's collection shown in [Fig. 207](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate238a) are interesting as showing the effect of the triangular adze technique on relatively thin pieces of    Figure 207. Transitional Types, Rarotonga.  stone, as shown by the cross sections. The three examples have all been shaped by chipping away the lateral parts of the butt to form grips.  Anteriorly (upper row of figures), A has no distinction between butt and blade, B has been chipped and pecked in parts, whilst C has a distinct butt shoulder. In A and C the blade narrows to the cutting edge, and in B it widens.  The sections are taken across the line a b in the upper row of figures.  Posteriorly (lowest row of figures), A and B have bevel surfaces with shoulders, whilst in C the bevel surface is continuous with the posterior surface.  The adzes are rough and not well finished, as the material was probably not worth it. They are roughly quadrangular in section, and though coming under the type of [Fig. 202](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate233a), the shape has been influenced by the thinness of the material. |
| (B.) | An unfinished adze from Rarotonga is shown in [Fig. 208](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate239a). The cutting edge is much battered, as if the [page 239](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n269)    Figure 208. Unfinished Rarotongan Adze (Auckland Museum).    Figure 209. Quadrangular Adze in a Mangaian Peace Adze Handle (Auckland Museum).  [page 240](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n270) implement had been used for hammering. The slightest indication of a median ridge indicates the posterior aspect of the implement. Its feature is its comparative thinness. If ground down and the sides shaped inwards posteriorly the adze is too thin for them to meet in a posterior edge. The adze would then fall into the quadrangular first type, [Fig. 202](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate233a). |

#### D.—Mangaian Quadrangular Adze.

The specimen figured in [Fig. 209](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate239b) is in the Auckland Museum. It is hafted in a ceremonial peace-adze handle, and looks suspiciously like a Maori adze. It is made of a very black stone. It is well polished and has a fine cutting edge. The longitudinal edges are clean cut, and there is not the transverse convexity of the surfaces seen in Type 3, [Fig. 205](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "BucMate-fig-BucMate236a).

The peace-adze handles, being peculiar to Mangaia, are made up to the present time for trade purposes. As adzes became scarce, they were sought for from other parts. The stone part did not matter, it was the handle that counted. I know of adzes being sent over to Mangaia from Rarotonga to be fitted to handles. Such adzes also formed suitable presents to visitors, and there are a large number of modern made articles in circulation. Because the handle came from Mangaia, it does not follow that the adze associated with it belongs to the artifacts of that Island. The adze belonged to the late Lieut.-Colonel Gudgeon, of New Zealand and it is possible that he supplied the adze himself to be mounted. The matter is mentioned to show the dangers

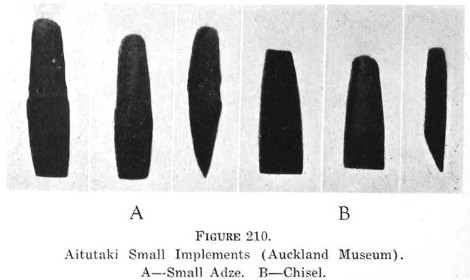


Figure 210.  
Aitutaki Small Implements (Auckland Museum). A—Small Adze. B—Chisel.

[page 241](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "n271) that exist. Lacking the pronouncement of a geologist, the adze remains queried.

[3](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "reference-to-fn14-255) Best, Elsdon, 1912, I.

[4](http://nzetc.victoria.ac.nz/tm/scholarly/tei-BucMate-t1-body-d6-d3.html" \l "reference-to-fn15-236) Skinner, H. D., 1923, I.