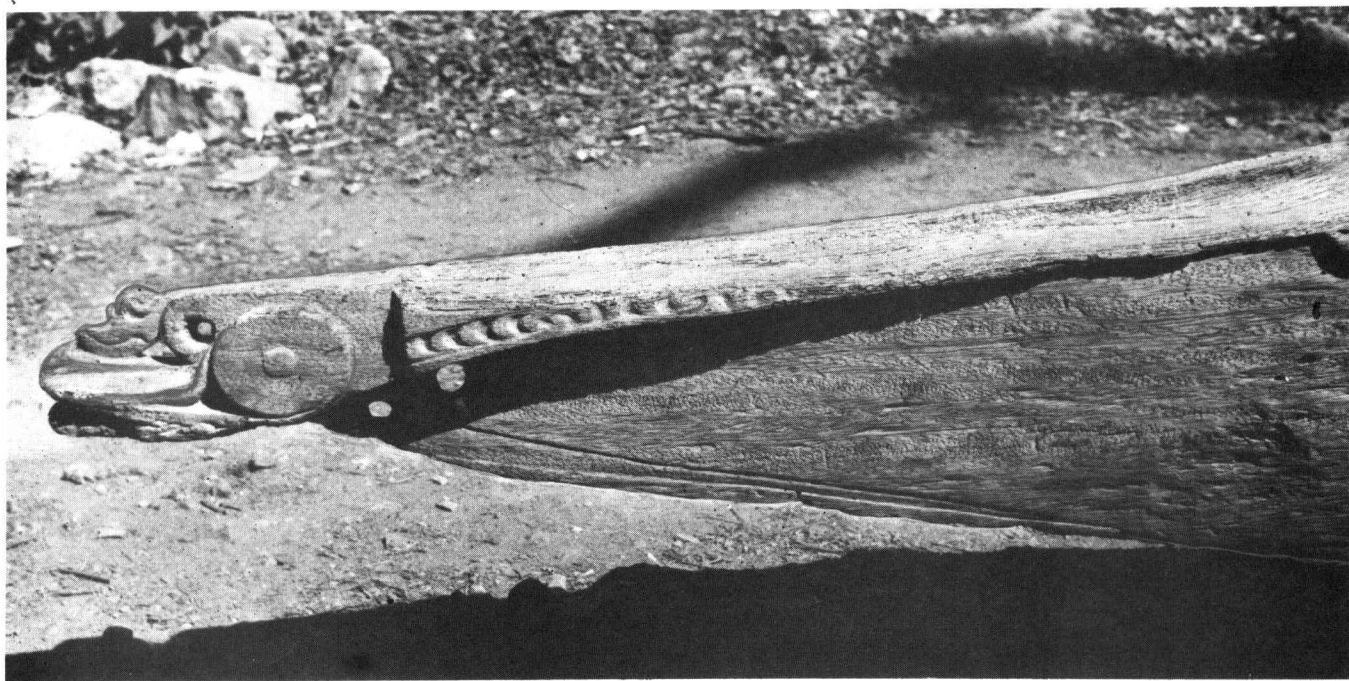


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Old canoe prow used for cave burial. Kitava Island, Trobriand Islands.

Photograph by Dr. Gerrits.

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A B S T R A C T S

SOME TASMANIAN CHTHONIID PSEUDOSCORPIONS. By A.J. Dartnall. Pap. Proc. R. Soc. Tas., 104, 1970 : 65-68.

Four species of pseudoscorpions of the family Chthoniidae are recorded from Tasmania. Two of these are cave dwelling forms and are new species. The type of Pseudotyrannochthonius tasmanicus Dartnall was discovered amongst organic debris in a discarded rubber glove about six feet above water level in a stream passage some 300 feet inside King George V Cave, Hastings, in southeast Tasmania. Other specimens were found in the main chamber of the cave, and under a log in wet sclerophyll forest outside the cave. The eyes are absent in all specimens. In the cave dwelling specimens a small pair of eye lenses are present, but in the forest specimen they are absent. Pseudotyrannochthonius typhlus Dartnall was found on moist sand and vegetable debris in Sennacheribs Passage, Georgies Hall Cave, Mole Creek, northern Tasmania. Another specimen has since been found in wood debris on a clay bank near the stream in Baldocks Cave, Mole Creek. In this species both eyes and eye lenses are absent. The author considers both P. typhlus and P. tasmanicus are most closely related to P. jonesi (Chamberlain), a cave dwelling species from New South Wales. Twelve Australian species of Chthoniidae are known, and six of these have been taken in caves. - A.M.R.

BAT-GUANO CAVE ENVIRONMENT. By J.A. Harris. Science, 169, 1970 : 1342-1343.

This note is in response to a suggestion by Poulson and White (Science, 165, 1969 : 971) that the relatively constant cave environment, together with the comparative simplicity of cave communities, facilitates the study of evolutionary and ecological problems. Harris has carried out research on a guano deposit 150 cm high in a chamber in Carrai Bat Cave, west of Kempsey, New South Wales. Between 1000 and 3000 bent-wing bats roost in the chamber from late January to June, and again from October to early December. The guano they produce supports a permanent community of bacteria, fungi, protozoans, nematodes, mites, beetles, flies, moths and spiders. Monitoring of the temperature of the cave air, and of the guano, at various depths up to 15 cm below the surface, between 29 September and 31 October 1969, showed a marked increase in temperature during this period, and revealed that the environmental variability associated with bat-guano communities is high.

Nursery caves of the two species of cave dwelling bats, Tadarida brasiliensis mexicana and Miniopterus schreibersii, also exhibit a high degree of environmental variability.

Harris stresses that bat-guano caves are not constant-temperature laboratories in which ecological studies can be carried out on simple animal communities, but they are invaluable for the study of isolated animal communities. - A.M.R.

RESEMBLANCES BETWEEN THE EXTINCT "CAVE GOAT"  
(EUTHERIA, BOVIDAE) OF THE BALEARIC ISLANDS  
AND PHALANGEROID MARSUPIALS

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Abstract

Information on the extinct "cave goat" (Myotragus balearicus Bate 1909) of the Balearic Islands is reviewed. Abundant remains of M. balearicus are known from various deposits of late Quaternary (including Regent) ages. It had only a single pair of lower incisors, in this respect resembling Australian herbivorous marsupials, especially the bare nosed wombats.

Introduction

My attention was drawn to Myotragus balearicus by illustrations and a description given by Kurtén (1968). The incisor peculiarities described were reminiscent of the Australian wombats and, to a lesser extent, other herbivorous marsupials. I was able to borrow specimens of Myotragus to make direct comparisons with marsupial specimens and the following remarks are based upon these comparisons and on study of the literature, especially the proceedings of a symposium on Myotragus held in Deya, Majorca, in 1965, published in Boletín de la Sociedad de Historia Natural de Baleares, v. 12.

The "Cave Goat"

Early this century, cave deposits in Majorca (Cuerda Barceló, 1966) yielded specimens of an aberrant bovid named Myotragus balearicus by Bate (1909) and described more fully by Andrews (1914) who commented on a resemblance of its lower incisors to those of kangaroos. Though referred to sometimes as the "cave goat", it may be more closely related to the chamois (Rupicapra) than to domesticated goats (Capra) - Andrews (1914), Crusafont Pairó (1966), Kurtén (1968).

Many caves on Majorca and Minorca are now recorded as containing remains of Myotragus balearicus as are a few alluvial and dune deposits on Majorca (Muntaner Darder, 1966). These remains in places are abundant, up to 100 individuals per cubic metre being recorded in one excavation (Graves and Waldren, 1966). The deposits containing Myotragus balearicus are all of

late Quaternary age, ranging from the time of the Holsteinian Interglacial into Recent, but prehistoric, time (Cuerda Barcelo', 1966; Kurtén, 1968; Waldren and Kopper, 1968a).

An older species of Myotragus (M. batei), probably of early Quaternary age, is described and illustrated by Crusafont Pairo' and Basilio Angel (1966). M. batei has three incisiform teeth in each dentary.

Figure 1 compares the right lower jaws of a modern feral goat (Capra hircus) from Western Australia (above) and Myotragus balearicus from Mallorca (below). The modern goat specimen represents a very young animal, with its last molar not yet erupted, 5 cheek teeth in use and 4 deciduous incisiform teeth. The Myotragus specimen, from an older animal, shows the fully adult, though little worn, lower dentition - 1 incisor and 4 cheek teeth.

Goats, like other bovids, have no upper incisors, but instead a tough pad of fibrous tissue with a horny covering against which four pairs of lower incisiform teeth produce their cutting action. Though farmers, veterinarians and others dealing with domesticated bovids commonly call all these lower teeth "incisors", only the three inner pairs are homologous with the incisors of other eutherian mammals, the outermost pair being modified canines (Lydekker, 1913).

Figure 1 shows three characteristics of Myotragus balearicus - it was small relative to modern goats, it retained only one pair of incisors and it had fewer cheek teeth (retaining only one premolar and three molars in each lower jaw) than a typical bovid.

Another characteristic of M. balearicus was that its metacarpals and metatarsals ("cannon bones") were very short relative to its other limb bones, relatively shorter than in any other bovid, living or extinct (M. Crusafont Pairo', personal communication).

Basilio Angel (1966) considers M. balearicus to have been a "troglophile" (his statements suggest that "trogloxene" would be more appropriate) because its remains are abundant in caves and occur far from the entrances; and while one might expect non-trogloxenic carnivorous mammals occasionally to penetrate deeply into caves, one would expect non-trogloxenic herbivorous mammals to do so only very rarely. Basilio Angel also points out that animals of all ages are found in cave deposits, suggesting that natural herds entered the caves and were there overwhelmed. Excavations in the cave of Muleta, northern Mallorca, reported by Waldren and Kopper (1968b) show some accumulations of well preserved, even articulated remains which would fit the concept of a herd overtaken by some sudden disaster such as a landslide, but also some jumbled accumulations suggestive of some other process at work. The question of whether or not M. balearicus was a troglloxene appears to me to be still open.

In at least one cave, associated remains of domestic goats, and small carnivores presumably introduced by man, and signs of human presence in the form of burnt bones, pottery and even glass, show that Myotragus persisted into the phase of human occupation of the Balearic Islands (Rafael Adrover, 1966; Graves and Waldren, 1966; Waldren and Kopper, 1968b).

It is suggested by Rafael Adrover (1966) and Basilio Angel (1966) that the extinction of M. balearicus was due to human occupation of the island; according to them Myotragus need not have been hunted to extinction, but perhaps was deprived of its customary pastures, forced to share its cave retreats with introduced mammals of comparable size, or preyed upon by introduced carnivores. Man made fires are not mentioned, but perhaps should be considered among others as possible extinctive agencies (compare Jones, 1968, and Merrilees, 1968, for Australia) in view of the delicate equilibrium between plant cover and climate in the Mediterranean region (Hugot, 1968; Frank, 1969), and the long continued use there by man of fire (Higgs, Vita-Finzi, Harris and Fagg, 1968).

#### Lower Incisors in Phalangeroid Marsupials and Myotragus

All Australian phalangeroid marsupials show only one pair of mandibular incisors, as implied in the group name Diprotodonta, now often recognised as of ordinal rank (Ride, 1964; Kirsch, 1968). In most species, the single incisor in each lower jaw retains an open root and continues to grow for some part of the individual animal's life, so that growth keeps up with wear. But eventually the root closes, growth ceases, and subsequent wear may reduce the incisor to a mere stump, as for example in the macropodids.

In the vombatids, however, except in the little known Tertiary Rhizophascolonus (Stirton, Tedford and Woodburne, 1967), not only the lower incisors but all other teeth continue to grow throughout the individual's life, and a balance is struck between growth and wear, which in vombatids appears usually to be heavy.

The incisor roots in Myotragus balearicus apparently also remained open throughout life (Andrews, 1914). In this respect, apparently only one other artiodactyl resembles Myotragus, namely the living South American camelid Vicugna vicugna (Miller, 1926). However, late closure of some tooth roots is recorded for other bovids (May, 1964).

Thus, one would expect to find greater similarity between Myotragus and wombat incisors than between those of Myotragus and other Diprotodonta, and Figure 2 suggests this is so. Figure 2 compares a left lower jaw representing the extinct King Island wombat (Vombatus ursinus) with right lower jaws of Myotragus balearicus from Majorca and a western grey kangaroo (Macropus fuliginosus) from Western Australia.

Figure 1. Right lower jaws of modern goat (above) and fossil "cave goat" (Myotragus balearicus) from Majorca. Compare four incisiform teeth (arrowed) in modern goat with single incisor (arrowed) in Myotragus. Modern specimen (West. Aust. Mus. M 6784) is from a young animal in which last molar not yet erupted; Myotragus specimen (B.M.N.H. M/10964) has its full complement of lower cheek teeth - two less than full complement in modern goat.

Figure 2. Left lower jaw of King Island bare nosed wombat (above) compared with right lower jaws of Myotragus balearicus (middle) and western grey kangaroo (below), to show similarity in incisor form, and presence of only one incisor in each. The Myotragus specimen (B.M.N.H. M/10963) probably represents an older individual either than the wombat (West. Aust. Mus. 68.9.73) or the kangaroo (West. Aust. Mus. 65.12.224). All specimens fossils.



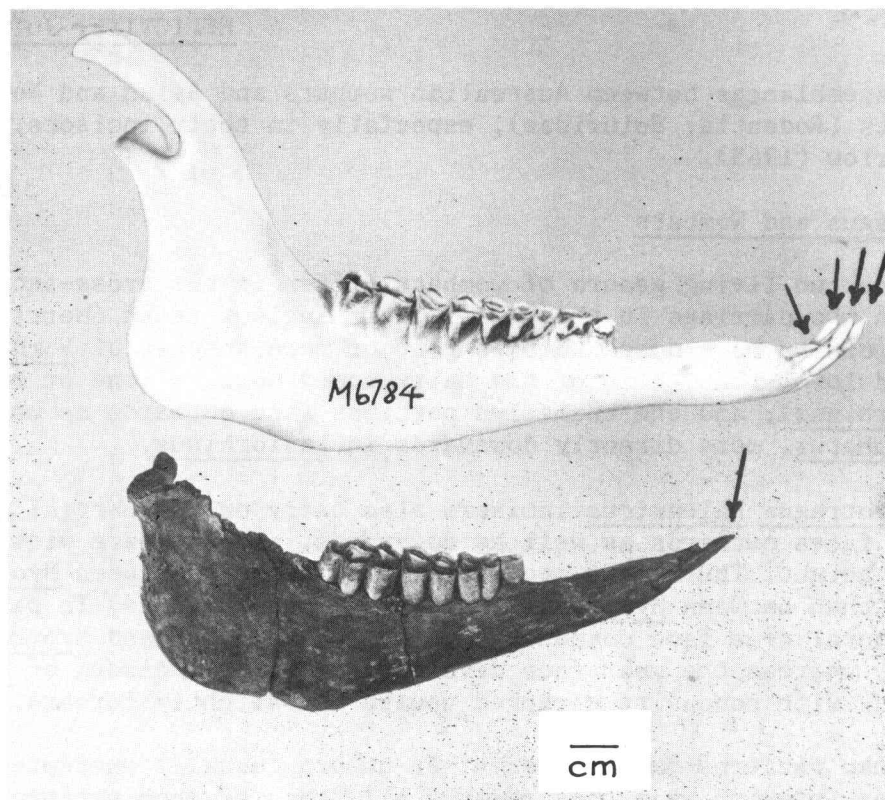


Figure 1

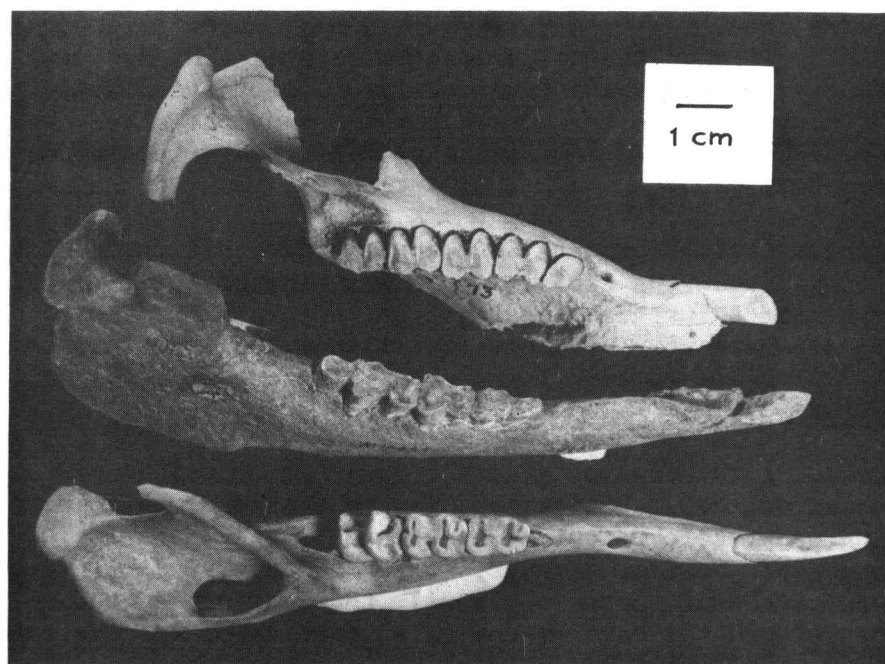


Figure 2



Resemblances between Australian wombats and Asian and North American marmots (Rodentia, Sciuridae), especially in their incisors, have been noted by Marlow (1965).

### Myotragus and Wombats

The two living genera of wombats differ in the cross-sectional shape and in the carriage in the jaw of their incisor teeth (Merrilees, 1967). Those of the bare nosed wombats (one or more species of Vombatus) are broader and lower than those of the hairy nosed wombats (one or more species of Lasiorhinus), and the enamelled portions face outwards as well as downwards in Vombatus, more directly downwards in Lasiorhinus.

Myotragus balearicus incisors also carry only a partial enamel cover, which faces outwards as well as downwards, and they are wide in relation to their height. Thus there are closer resemblances between Myotragus and Vombatus than between Myotragus and Lasiorhinus incisors. In particular, a horizontal wear face commonly develops on Vombatus and Myotragus lower incisors whereas the wear face developed on lower incisors of Lasiorhinus is curved, with concavity directed upward and slightly forward.

Cusp patterns may be present on unworn (usually unerupted) teeth in species in which wear soon removes all trace of such pattern - for example, Lawrence (1941) cites examples in rodent incisors. The teeth of very young wombats show such a cusp pattern, which is removed very early (Merrilees, 1967). The cheek teeth in very young wombats are "selenodont", that is small crests of half moon shape lie lengthwise along the occlusal surface, as in the closely related koala (Phascolarctos) and less closely related (Kirsch, 1968) ringtail possum (Pseudocheirus). Selenodont cheek teeth are characteristic of bovids, and in this respect Myotragus is typical of the family (see Figure 1).

Andrews (1914) comments on the great variability in Myotragus and suggests it was evolving rapidly up to the time of its extinction, though this matter requires further investigation, according to Crusafont Pairó (1966). Wombats also are very variable (Merrilees, 1967) and may be evolving rapidly.

### Discussion

According to Crusafont Pairó (1966) the conspicuously short metacarpals and metatarsals of M. balearicus can be viewed as an adaptation to mountain dwelling observable to some extent in the Rocky Mountain goat (Oreamnos) and other such bovids. However, Kurten (1968, 1969) points out that the European cave bear (Ursus spelaeus), the Florida cave bear (Tremarctos floridanus) and the cave hyaena (a subspecies of Crocota crocuta) also show shortened metacarpals and metatarsals, so that possibly the shortening in M. balearicus is related to cave dwelling habits.

There may or may not be some necessary connection between persistent growth and reduction in number of incisors, but it is interesting that not only Myotragus, Vicugna and vombatids, but also all the rodents and lagomorphs show both phenomena.

Reduction in incisor number appears to have been a rapid phyletic development if indeed Myotragus batei can be regarded as an early Quaternary ancestor of the late Quaternary M. balearicus. There has been much debate about whether a similar incisor reduction in some of the South American caenolestoid marsupials implies close relationship with Australian phalangeroid marsupials, or whether this is a case of convergence (Ride, 1962). Analogy with Myotragus lends some support to the view that incisor reduction in caenolestoids and phalangeroids could be convergent.

The form of the incisors in Myotragus balearicus is suggested by Freudenberg (1914) to have been an adaptation to stripping the tough bark of ericaceous plants, by Andrews (1914) to getting lichens and mosses off rock surfaces, and by Basilio Angel (1966) to digging, clearing away obstacles, or as weapons. All these suggestions appear reasonable, indeed all conceivably could operate together.

In both living genera of wombats, incisors are reduced in number and open rooted, but the wear patterns on the incisors are typically so different in detail that it is difficult to understand how such similar animals could use their incisors so differently. Furthermore, the wear patterns are far from constant within one species, even within one population, which strengthens the suggestion that these incisors serve several purposes. At all events, it may be noted that wombats are burrowing animals (Marlow, 1965; Ride, 1970), feeding outside their burrows, but returning to them for a considerable proportion of their time, in these last two respects possibly resembling Myotragus. They are said (Troughton, 1965) to gnaw tough roots with their incisors.

Reduction in number of cheek teeth is characteristic of Myotragus compared with other bovids, but not of wombats compared with other phalangeroids. Myotragus more closely resembles the rodents in this respect.

#### Acknowledgments

I am grateful to Dr. A.J. Sutcliffe (British Museum, Natural History) for the loan of Myotragus specimens, to Mr. W.H. Waldren (Deya Archaeological Museum, Majorca) and Professor M. Crusafont Pairo' (University of Barcelona) for their advice; to Miss Margaret Maslen (Western Australian Institute of Technology) for translations from and into Spanish; to Mrs. J.K. Porter (Western Australian Museum) for taking the photographs here reproduced, and to Mr. J.L. Bannister (Western Australian Museum) for his criticism of an earlier draft of this paper.

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#### A B S T R A C T

CAVE COLLEMBOLA OF NEW GUINEA COLLECTED BY THE EXPLORER'S CLUB OF THE NANZAN UNIVERSITY. By Riozo Yosii. Contr. Biol. Lab. Kyoto Univ., 23, 1971 : 77-79.

In 1970, members of the Nanzan University in Nagoya (Japan) collected collembola from caves at Chuave near Goroka in east New Guinea. The material is of interest as nothing is known about the cave collembola of New Guinea. Amongst the material is a new species Sinella (Coecobrya) papuana Yosii from Chuave Cave and Van Mendela Cave between Gembame and Komboko; Pseudo-sinella yosiana Salmon from Chuave Cave near Goroka and now known from both Singapore and New Guinea; and Pseudoparonella sp. from Guruma, Membiki, Komboko. - A.M.R.

FURTHER CAVES OF KITAVA, TROBRIAND ISLANDS, PAPUA

C.D. OLLIER\*, D.K. HOLDSWORTH\*\*, and G. HEERS\*\*\*

In a previous paper (Ollier and Holdsworth, 1970) we described the island of Kitava and many of the caves on the island. This note supplements that account and describes caves and related features discovered during a brief expedition to the south of the island (Figure 1) in 1971.

Kitava is a coral island with a number of terraces and reaches a height of 466 feet. There is a central depression in the top of the island, the site of the lagoon before the reef was uplifted. Some caves are associated with the rim of the island, a few occur on mid-slopes, and others are found along the sea cliffs. Many of the caves have been used for burial of human remains, sometimes associated with pots, clam shells or canoe prows. Canoe prow burials are reported here for the first time. Some caves are associated with megalithic structures and legends of the origin of the various sub-clans (dala) of the island.

Kousuma (Figure 2)

Kousuma is the name of a cave on the land of Moileta north of Lalakaiwa village. The main entrance is a steep-sided cylindrical collapse hole about 15 feet deep, but a side passage leads to a smaller entrance to the south-east. The entrance chamber descends steeply, with a rubble-covered floor for the most part, and then a number of unclimbable rifts are found. One large rift reaches the surface and a shaft of light illuminates the cave. A minor passage to the east leads to a climbable slope, which leads to a lower cave and associated chambers. This part of the cave has extensive and fairly spectacular stalactites, though there are few stalagmites and little flowstone on the floor.

A number of bones, including skulls, testify to cave burials. Some bones are encrusted with dripstone. The Rev. Ralph Lawton of Losuia collected a fragment of pottery with indented ornament from this cave on one occasion, and also an implement of polished quartzite.

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Kouya (Figure 3)

This is a depression elongated roughly east-west and about 15 feet by 10 feet. About 50 years ago Kouya was a cave, and an old man called Yamoi from Lalakaiwa village can remember it being filled in.

The cave is about 500 yards northwest of Lalakaiwa village. The cave is a bwala (legendary place from which the ancestors of the sub-clan or dala emerged), but there are conflicting legends about this one. Yamoi believes the first woman to emerge was called Bokaimwau; Dauya, who lives at Okabulula, says that Ilayuwa was the first woman to emerge.

Fifty-four feet from Kouya at the base of a large tree is a stone, foreign to Kitava, called Inabulula, which was used by the first people of this dala to bring calm in times of rough weather (the coast near Lalakaiwa is very rocky and dangerous). About 120 yards to the northeast is a group of megaliths such as are commonly associated with bwala sites.

Although there are many stories of filled-in caves, especially where there is no cave at bwala sites, Kouya is of particular interest as it is the first example we have come across where this really happened.

Bokaulawola (Figure 4)

This cave is located about 400 yards from the megaliths near Lalakaiwa village. It is a roughly circular cave about 15 feet in diameter and opening to the west. It is a low rock shelter on the inside of the rim of the island.

Bokaulawola is the old burial place of the Milakaiwa dala from Kouya. The cave now contains four skulls and various other bones, a clam shell which was overturned with many bones underneath it, and fragments of pottery.

Busikaraga

(Busi means go down; karaga means parrot in Kiriwina language, although there are no parrots on Kitava.)

This is a real cave rather than the usual rock shelter used for cave burial. It is situated in the mid-slope of the island east of Lalela. Intense flowstone deposition obscures almost all the original rock surface, and entry to the cave is gained by weaving a corkscrew path through the narrow gaps between columns and stalagmites. A lot of stumpy stalactites have grown around roots. At the time of our visit the formations appeared to be dead. However, they may possibly revive in very wet weather. This cave contains no pots or bones.



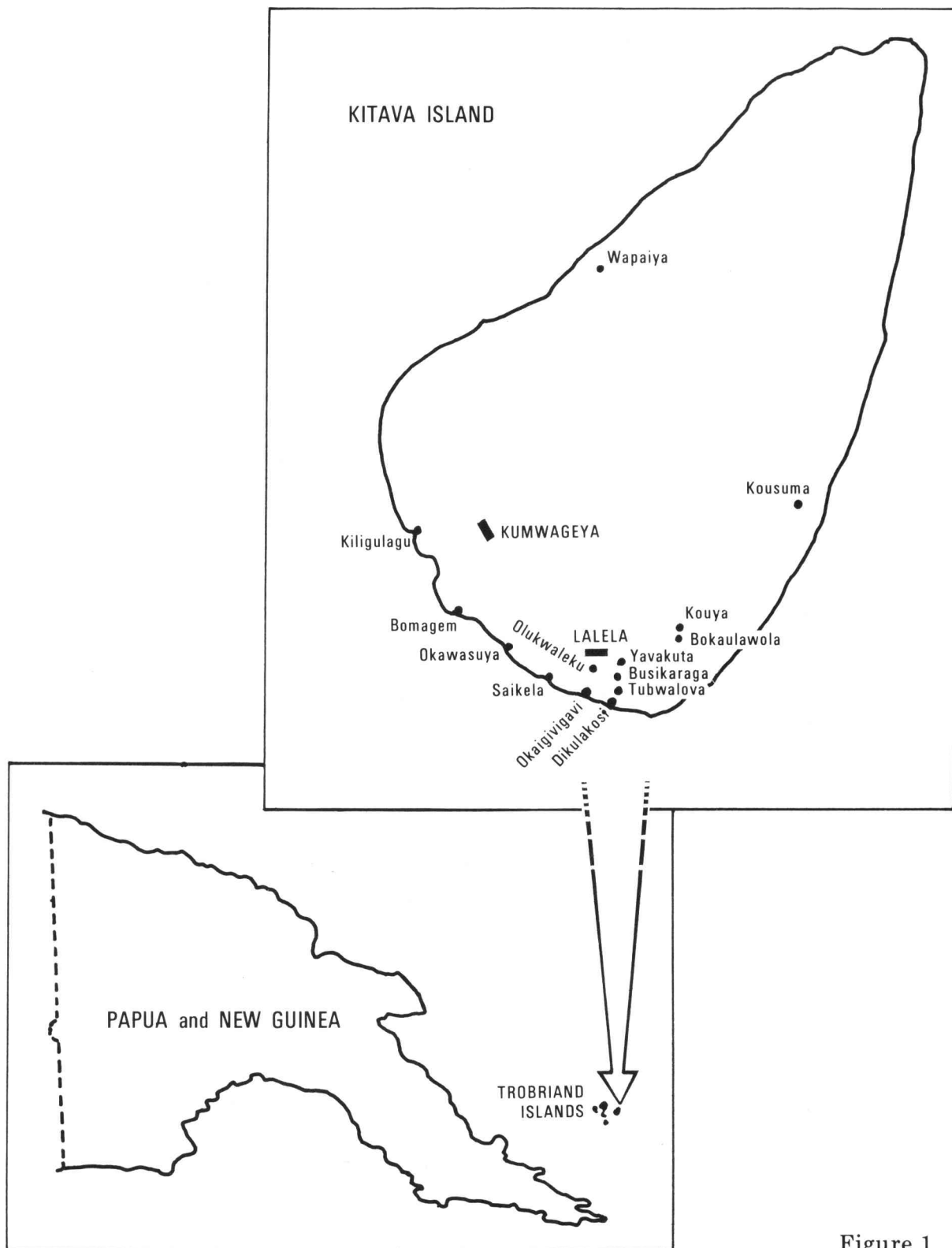


Figure 1

Yavakuta

This is a small cave close to the rim of the island on the sea-facing side, east of Lalela. It consists of little more than irregular pockets in the cliff face, but has a roof of stalactites, and some columns dividing the cave into sections.

Many bones are present, including skulls. Pottery fragments are of the ancient type, suggesting that cave interments took place a long time ago.

A canoe prow also has been used in one cave as a container for bones. Our informants said that this was an old prow, but we are inclined to think it is not of very great antiquity. There is no longer any trace of white paint, but red paint is still present. (See photograph.)

In a small cave about 50 feet beyond the canoe cave there was an even more remarkable interment. Remains of a wooden box about 18 inches long and 3 inches wide were found, with half-mortice joints. Questions later revealed that a wartime burial took place in a box, probably an ammunition box.

Olukwaleku

This cave occurs close to the rim of the island on the inner side. It consists of many small ledges, with many bones and some clam shells. Two pots have been taken recently from this cave. They were described to us as black, rather conical pots, and in fact sounded like Amphlett pots. However, since no Amphlett pots have been found in any of these caves before, we think they are probably old pots of an unusual type. One pot was intact, the other broken.

Tubwalova

This is a small hole in rock which holds water. It is about 3 feet across, and is used to soak leaves from the coconut palm for two days. These are used in the manufacture of grass skirts.

Wapaiya

In the middle of this village two new cave openings appeared earlier this year (1971) after heavy rain. A large disc of earth collapsed, almost as a whole, leaving a cylindrical hole about 9 feet in diameter and 6 feet deep. The walls expose a deep terra rossa soil with little soil structure or horizon differentiation. A little to one side of this large hole is a smaller, irregular hole leading down to a small irregular solutional passage in limestone. It would have been intriguing to investigate these new caves, but the natives have tried to fill them with rubbish, and entry would have required extensive digging. (See photograph).

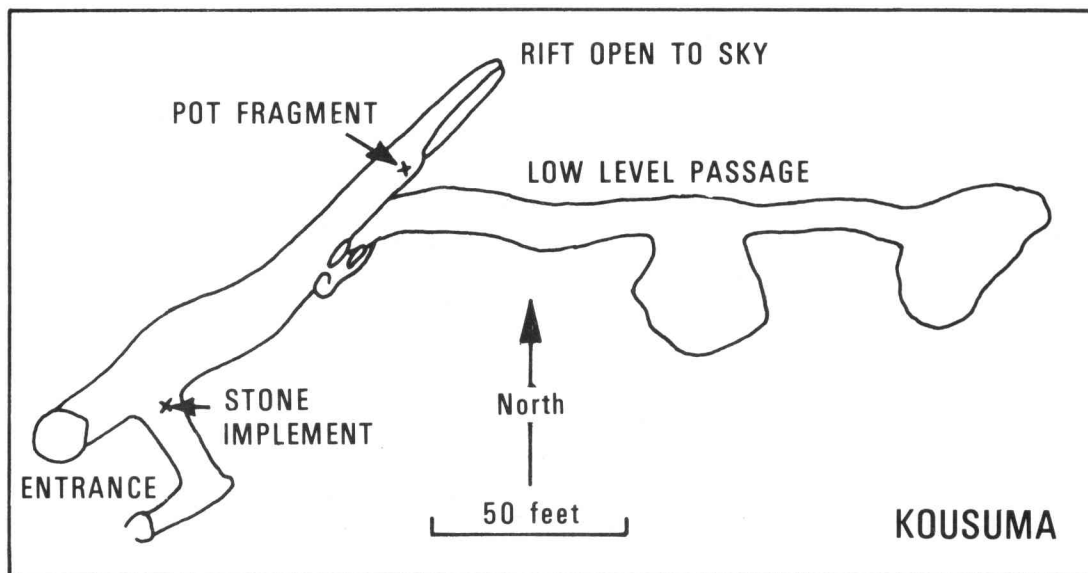


Figure 2

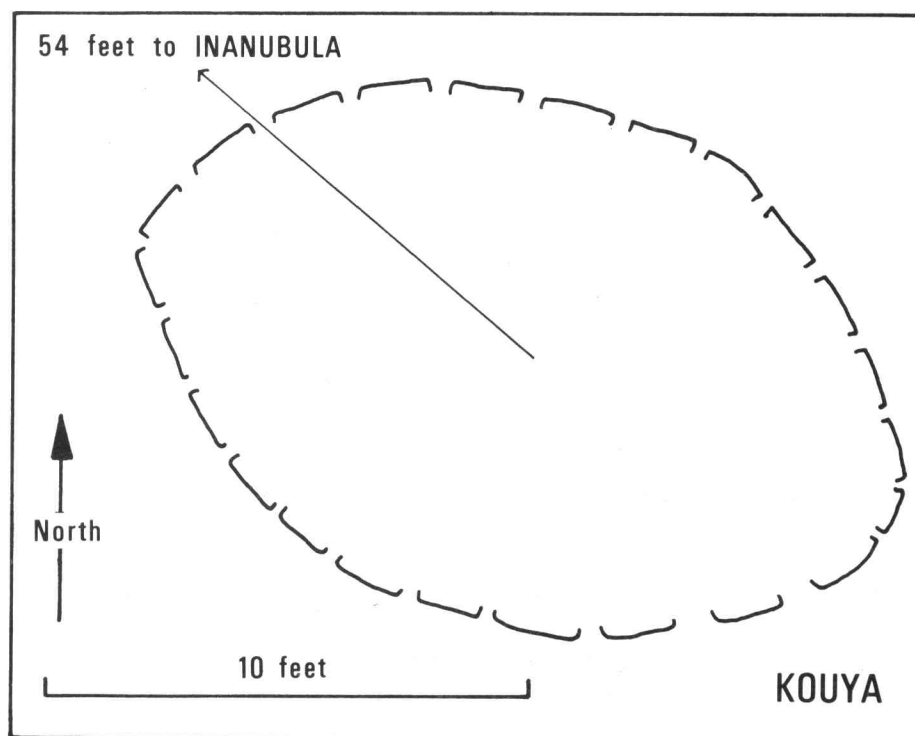


Figure 3

### CAVES IN THE SEA CLIFFS

A number of caves, ledges and rock shelters have been used as repositories for human bones. The following list of sites is in sequence from the coast near Kumwagea to the coast east of Lalela.

#### Kiligulagu (Figure 5)

This is a sea-cliff cave near Kumwageya, about 25 feet above sea level, in which there are remains of many burials. There are virtually two storeys, a high and low level, not interconnected. Of particular interest are the burials in canoe prows. Canoe prows were cut off and used as containers for bones. The canoes were from Kitava and appear to have been old. One intact prow remains on a very inaccessible ledge, and fragments of wood that were possibly canoe remains are present on another ledge. Two canoe prows were collected by Dr. Gerrits some time before our visit.

Some limb bones have been partly inserted into small holes in the cliff face so that they stick out. It seems probable that this is a feature of later desecration rather than an original burial feature.

Another interesting feature is the presence of bones painted red (probably ochre). It seems that in the days of tribal fighting a party of men from Wawela came to fight members of the Lukwasisiga clan from Okabulula. One man hid in the cave of Inakebu (described by Ollier and Holdsworth, 1970) which provides an admirable ambush.

When the Wawela men followed him he killed them one by one, until the remainder were so reduced in number that they gave up their attack and fled back to Kumwagea, where they were killed. Their bones were placed in the burial cave along with other bones, but to distinguish them from the local people the bones were painted red.

#### Bomagem

A small shelf about 6 feet above sea level. A few bones of Kitava people are present. There was also one canoe prow, but this appears to be a chance find. The prow is modern (it has a nail in it) and there is no indication that it ever contained bones.

#### Okawasuya

This is a small shelf 20 feet above the sea. Bones and a clam shell are present. There used to be a canoe prow, but this has been collected by Dr. Gerrits.

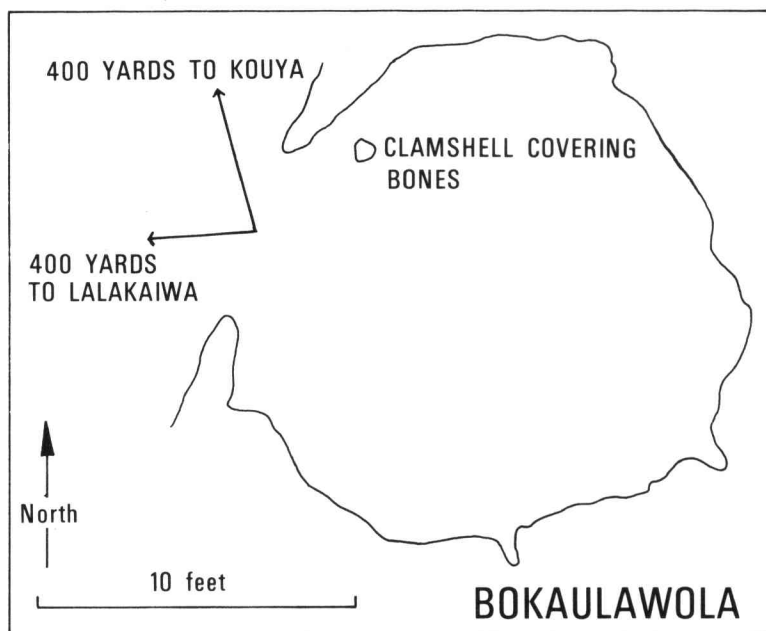


Figure 4

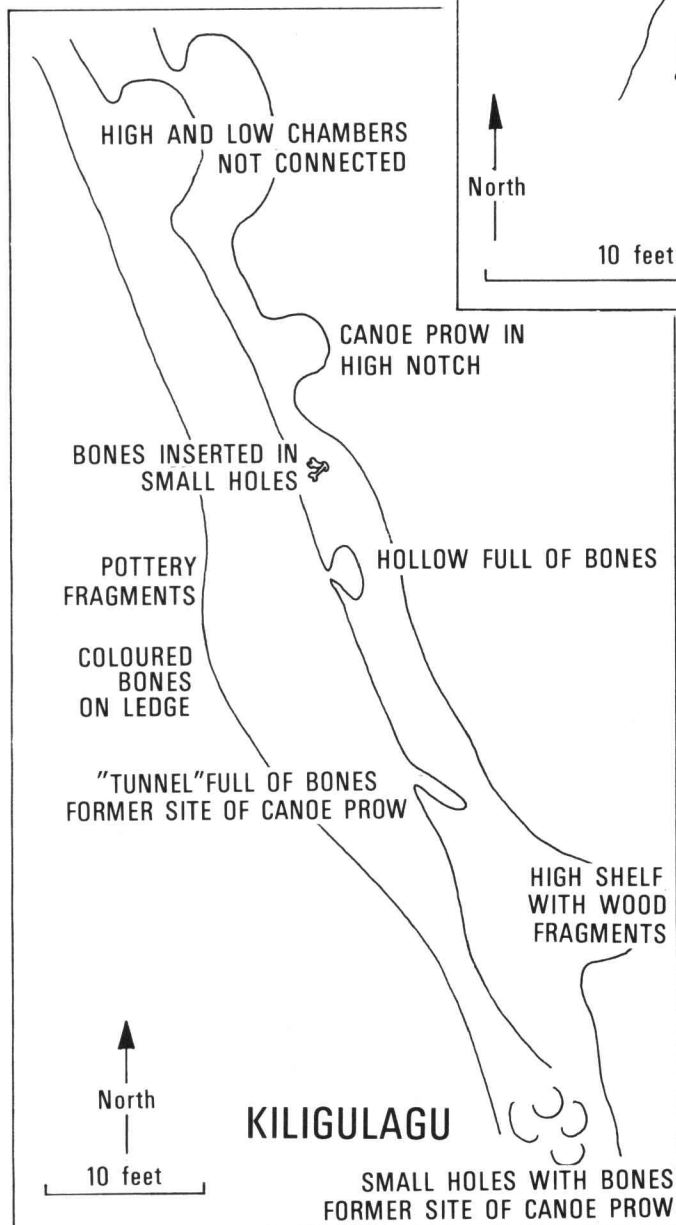


Figure 5

Saikela

This is a small shelf 10 feet above sea level. A few bones are present, said to be of people from Kumwagea.

Okaigivigavi

This is a small shelf about 10 feet above sea level, undercut and inaccessible without a pole or ladder. A few bones are present and there used to be a canoe prow, since collected by Dr. Gerrits.

Dikulakusi

The nearest village is Lalela. The name is given to several small caves and shelves about 25 feet above sea level in the sea cliffs. Many bones are present, including vertebrae, ribs and pelvis bones. In most cave burials we have seen these bones are usually absent, and it may be that some entire bodies have been placed in this cave rather than the usual bundle of bones brought in for secondary interment. On the other hand, there was one small slot that contained many skulls so close together that they must have been put in separately without any container, and separate from the remainder of the skeleton.

DISCUSSION

The observations made on this expedition support in general the conclusions drawn on our earlier visit. However, we have added two main observations.

Cave burials in canoe prows have not, so far as we know, been reported before. The canoe prows appear to be old, and different in style from those of presentday canoes, but expert opinion on this matter must await future work.

The caves described here have similar geomorphic features to those described previously. The initiation of new collapses at Wapaiya is a valuable observation, as very seldom does one have the opportunity to see the actual beginning of cave formation by collapse. The small amount of collapse contrasts with the formation of Kwaivau Sopi on the island of Kailuana, where a cenote formed very rapidly (Ollier, Holdsworth and Heers, 1971).

Kouya is the only cave among those described here which is a bwala - a mythical place of emergence of the ancestors of a sub-clan. The cave is possibly associated with a nearby group of megaliths on land called Molisilasi, and with a magic stone called Inabubula, 54 feet northwest of Kouya, which was used by the first people of the sub-clan to bring calm weather in times of storms.



Above. New collapse, Wapaiya.

Right. Canoe prow, Yavakuta.

Below. Cave guides in Kousuma .





Our expedition to Kitava coincided with the Kula voyage - a ceremonial trade voyage. Except for the very old, very young, blind or crippled, all the men of Kitava were away on the voyage. We used women and children as guides (see photograph). Although some old men were quite helpful, we possibly failed to learn all the legends of the caves.

Acknowledgment

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A B S T R A C T

THE BRUSH-TAILED ROCK-WALLABY (PETROGALE PENICILLATA) IN WESTERN VICTORIA.  
By N.A. Wakefield. Vict. Nat., 88, 1971 : 92-102.

Evidence is presented of past occurrences of Petrogale penicillata in western Victoria - fossil remains at Byaduk Caves, faeces at Mount Arapiles, and old literature references to living animals in the Grampians. The Byaduk specimen, a skull, was found in Bridge Cave on rocks in the cavern behind the bat chamber. Details are given of the discovery of a surviving colony in the Grampians, and of observations of three members of the colony. The habitat is described, and results are given of an assessment of food of the local rock-wallabies, based on study of samples of faeces. Other mammals occurring in the colony area are noted, and assessment is made of the extent and numerical strength of the rock-wallaby occurrence. Suggestions are made for conservation of the Grampians' rock-wallabies.

- A.M.R.