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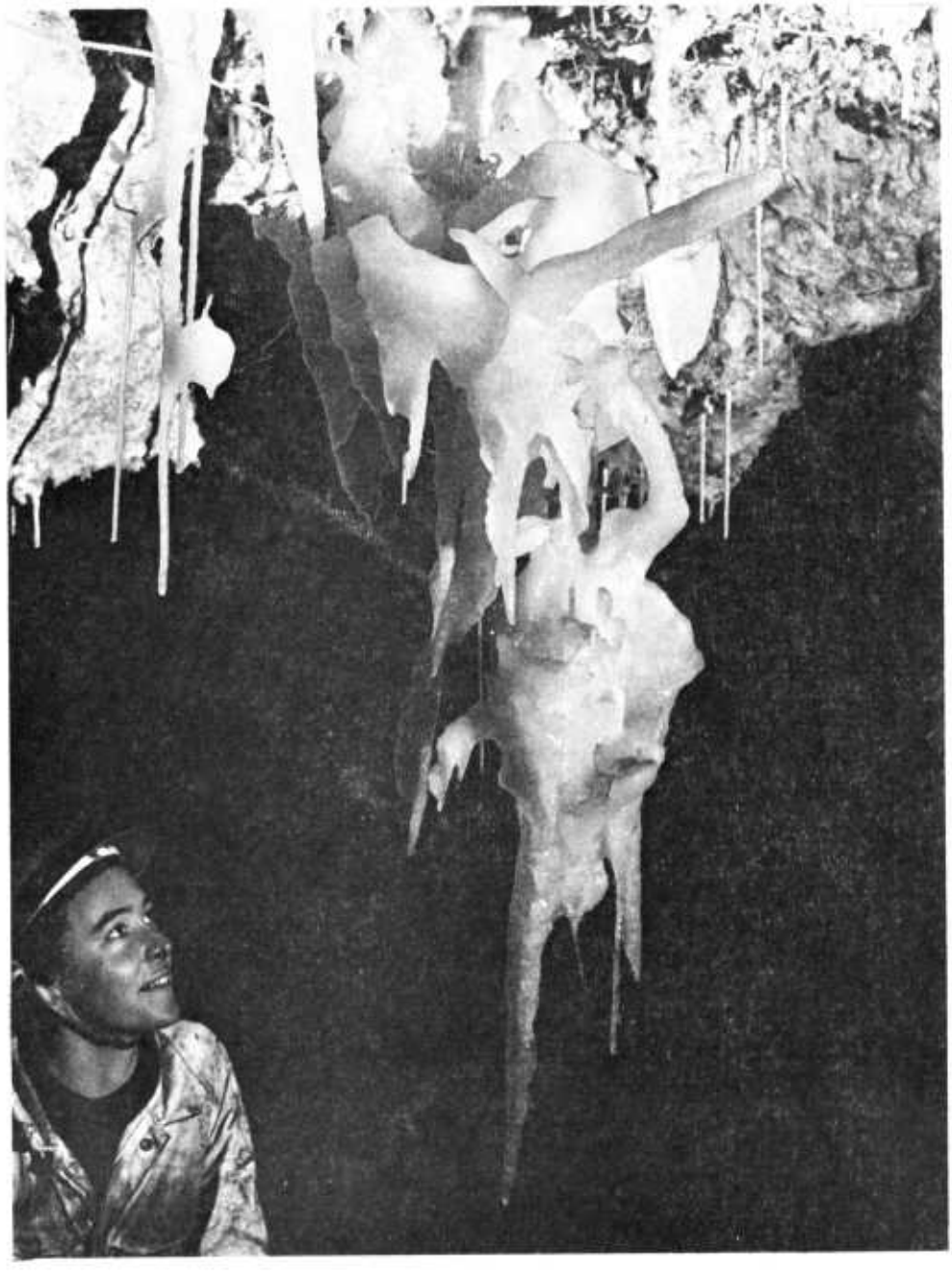

"The Epstein Sculpture", Easter Cave, near Augusta, W.A.

Photo — D.C. Lowry

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Edited by Edward A. Lane and Aola M. Richards

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CONTENTS

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ABSTRACTS AND REVIEWS

A NEWLY DISCOVERED BONE-BEARING DEPOSIT IN LABYRINTH CAVE, NEAR AUGUSTA, WESTERN AUSTRALIA. By D. Merrilees. West. Aust. Nat., 11 (4), 1969 : 86 - 87.

Fossil teeth and bones have been discovered recently in a lithified cave earth and on the floor in the "Wombat Warren" in Labyrinth Cave, near Augusta, Western Australia. The specimens include a wombat tooth, possibly of the extinct species Phascolomys hacketti; teeth of the extinct kangaroo Sthenurus occidentalis or S. brownei; a bone fragment of an unidentified bird; part of the jaw of a macropod; the left mandible of the koala Phascolarctos sp.; part of a tooth of the extinct Marsupial Lion, Thylacoleo sp.; a practically complete skull, mandible and part of a femur of the Tasmanian Devil, Sarcophilus harrisii; and bones of the Short-nosed Bandicoot, Isoodon obesulus. Since publication, post-cranial fragments of a very large echidna, similar to that known from Mammoth Cave, Western Australia, have been recognised also (Pers. Comm.).

Labyrinth Cave is only the third south-western site reported to carry a mixture of existing and locally or completely extinct marsupial species, the other two sites being Mammoth Cave and Strong's Cave. - A.M.R.

ECOLOGICAL STUDIES OF TUNNEL CAVE, MT. ECCLES. By Kay L. Johnson, G. McK. Wright, D.H. Ashton. Vict. Nat., 85, 1968 : 350 - 356.

This paper is the result of a study by ecology students from the Botany School, University of Melbourne. A general description of Tunnel Cave is given, followed by information on the temperature, relative humidity and light intensity. No attempt is made to study the cave fauna, but the flora is studied in detail. This consists of filmy ferns, mosses, lichens and algae and is best developed in areas of the wall which are damp and have a veneer of decayed rock and pockets of deeper clayey soil. The furthermost limits of vegetation are reached at 80-90 feet from the entrance at very low light intensities. Roots, presumably of the Manna Gum, Eucalyptus viminalis, occur in the basalt roof and walls of the cave at depths up to 58 feet. They are absent near the mouth of the cave, sparse at 40 feet, and copious in the inner section where the humidity is very high and water drips from some roots. Thus in times of drought these trees are able to draw on moisture supplies in the basaltic matrix of the crater. This is important in understanding much of the ecology of the area. - A.M.R.

COOLEMAN AND RIGHT COOLEMAN CAVES, KOSCIUSKO NATIONAL PARK, AND THE SHIFT OF RISINGS

J.N. JENNINGS

Australian National University, Canberra, A.C.T.

Abstract

The Cooleman-Right Cooleman system is an abandoned, nearly horizontal outflow cave of shallow phreatic nature, modified by breakdown. It lies just inside and parallel to a gorge wall of Cave Creek. This relationship, and others like it here, are attributed to a greater water input into the limestone along the lines of dissection of Cooleman Plain rather than to the mechanical effects of slope retreat such as Renault has favoured.

This outflow cave has been replaced as the major rising of this karst by the Blue Waterholes a short distance down valley; shallow incision of the valley has accompanied the shift of the rising. This down valley movement does not seem to be explicable by removal of overlying impervious beds in this direction to expose more limestone but by a displacement of the main artery feeding the risings in the course of the deepening of underground karst development as a result of incision. However, this displacement is not more favourable to the emergence of the underground drainage of the Plain as a whole. The downstream shift of the rising therefore remains problematic.

Discussion favours interpretation of Cooleman Cave entrance as a secondary breach into the outflow cave previously emerging at Right Cooleman entrance, aided by lateral erosion of the surface stream, but it is recognised that the evidence is far from conclusive.

Introduction

Though both caves have obvious entrances on a well trodden way, Cooleman Cave was explored by stockmen in the late 1830s whereas the less comfortably penetrated Right Cooleman showed no sign that it had been traversed prior to caving club activity of the last decade and a half in the area and certainly passage from the one to the other had not been made until a few years ago.

The system is of modest size, with a total passage length of about 380 m (1,250 feet), and it is simple of form. Nevertheless, its evolution and general relationships are not completely free from problems and have sufficient systematic significance to be worthy of discussion.

Description

The system (Figure 1) is essentially one horizontal cave passage, mainly 3-6 m (10-20 feet) wide, running parallel to and just inside the northern, left bank wall of the gorge of Cave Creek upstream of the alluvial flat immediately above the Blue Waterholes, the perennial source of that river. This wall only approaches verticality near Cooleman Cave entrance. The intermittent Cave Creek bed lies 3 m (10.5 feet) below Cooleman Cave floor inside its entrance and 6 m (19 feet) below Right Cooleman at its entrance about 210 m (700 feet) downstream.

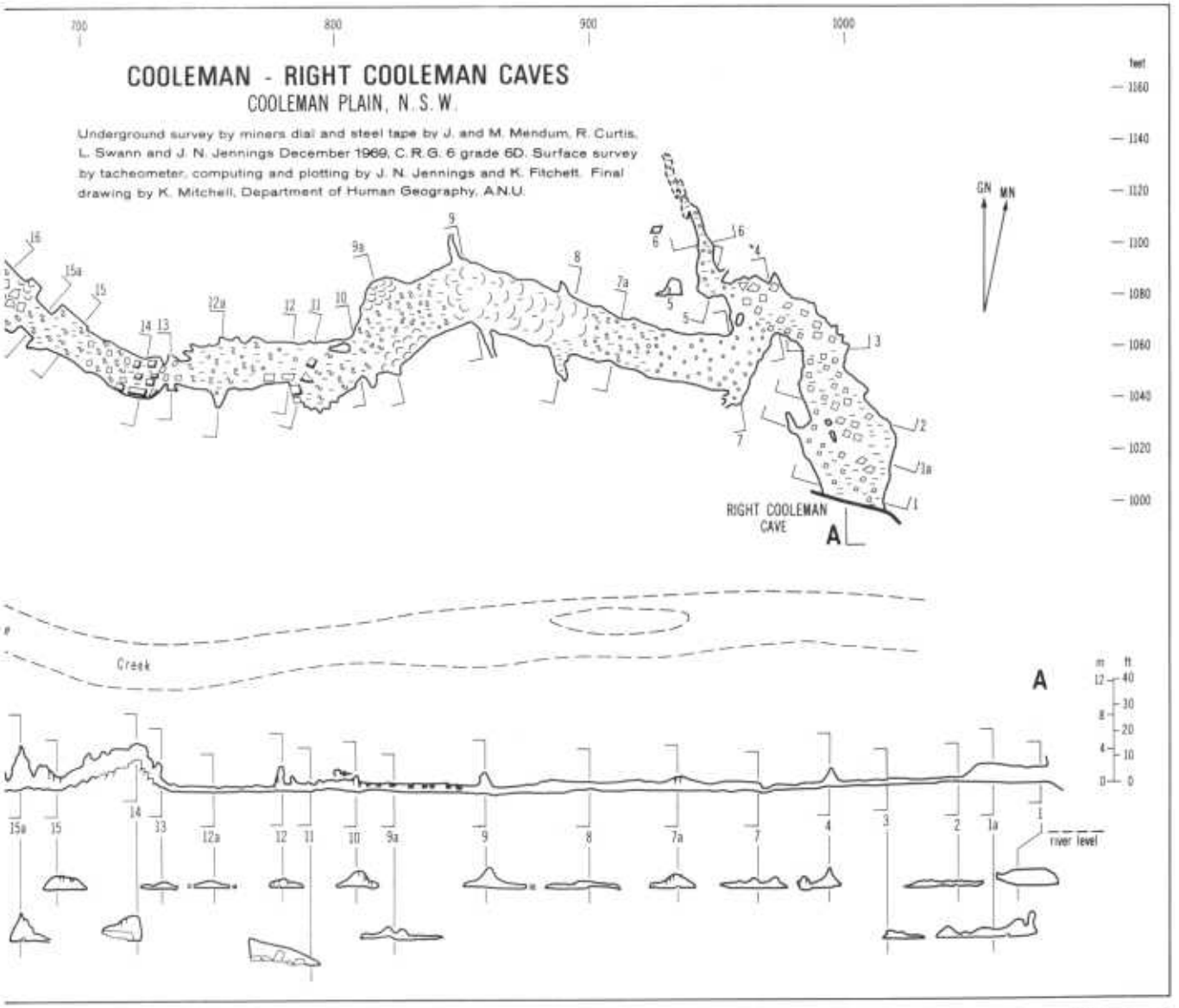
There is no stream in the cave nowadays, only small pools of seepage water here and there after wet weather. There is a good deal of speleothem development on roof, walls and floor but not much of this is very active at the present time either. Calciting of most rockfall in the cave indicates cave collapse is infrequent as well.

At the western, upstream end of the system there are two more or less equal-sized branches which unite after about 30 m (100 feet). Both begin in breakdown rooms, with rockpiles rising to straight fractured western walls, which lie in virtually the same plane and separated by only 6 m (20 feet) of rock. The form of the roofs reflects the dip of the beds (e.g. Xsct 42). From the bottoms of the two rockfalls the cave floor drops only 0.6 m (2 feet) all the way to the entrance chamber of Cooleman Cave, the roof also staying level with minor irregularities such as fissures along joints (e.g. Xsct 36a) and a blind shaft over 9 m (30 feet) high (Xsct 40). Generally there is 1.5-2.5 m (5-8 feet) headroom. A short branch about 15 m (50 feet) west of the entrance chamber has a small opening through to daylight in the gorge cliff.

The entrance chamber is fairly spacious with the roof rising to over 6 m (20 feet) as a result of breakdown (Xsct 31a), though most of the rockfall has been removed. The entrance is a double one, with a surviving rock pillar; bedding dipping to the east and vertical jointing together define the shape of the entrance.

Cooleman Cave east of the entrance is wider and lower than to the west all the way to the small junction with Right Cooleman. Close to the junction there is something of a maze of small crawlways in bedrock, indicated by the common designation of this part as the "Wombattery".

The tight way through into Right Cooleman has been enlarged a little artificially but leads immediately into the most spacious part of the entire system. Here the roof is irregular through collapse, with heights up to 6 m (20 feet); there are some joint-defined flat walls and an undulating rockpiled floor (e.g. Xsct 21a). There is some attractive calcite decoration here but not all the floor material is so coated, in particular about Xsct 18 there is some fresher rockfall beneath a roof of corresponding freshness.


700
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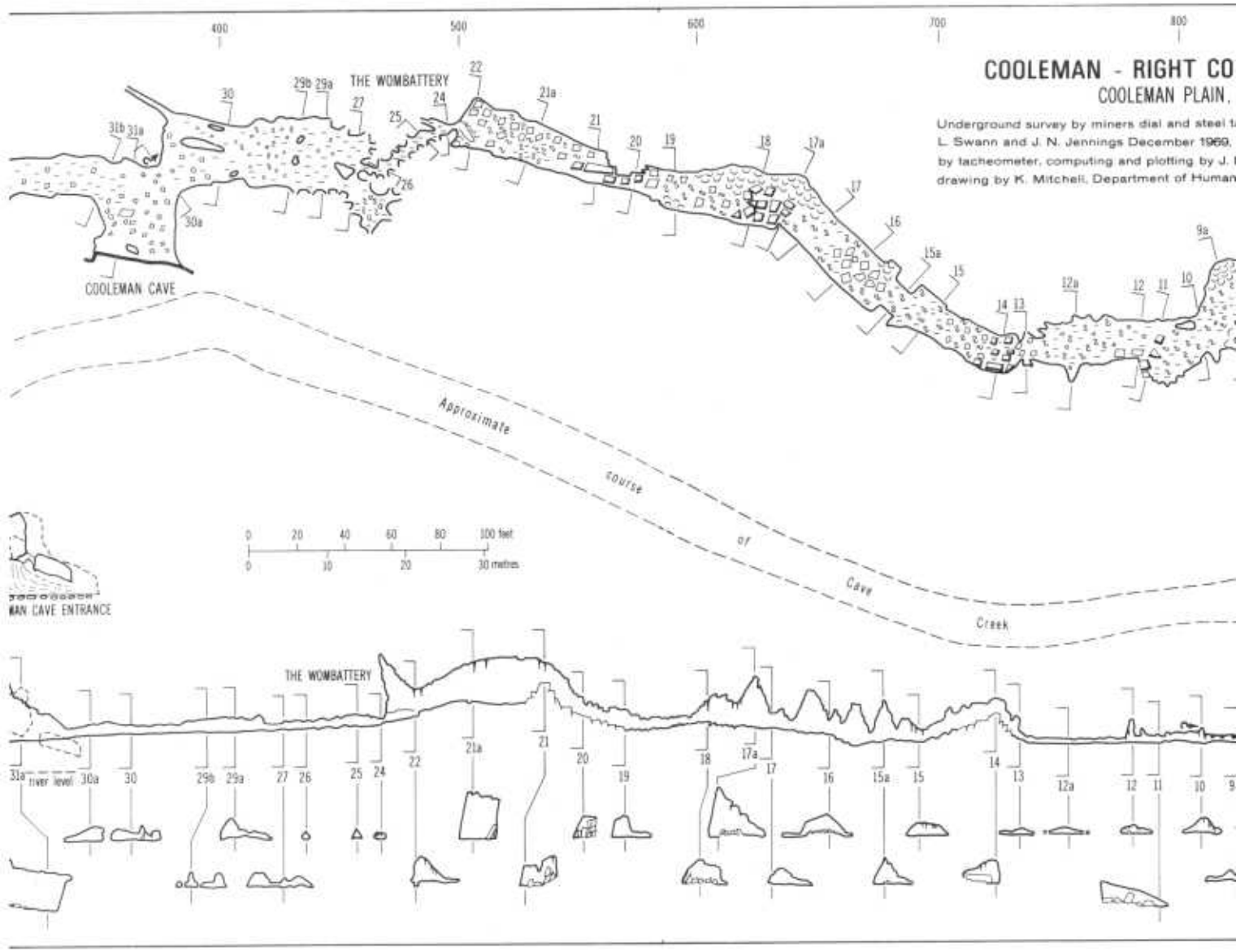
COOLEMAN - RIGHT COOLEMAN CAVES
COOLEMAN PLAIN, N.S.W.
Underground survey by miners dial and steel tape by J. and M. Mendum, R. Curtis, L. Swann and J. N. Jennings December 1969, C.R.G. 6 grade 6D. Surface survey by tacheometer, computing and plotting by J. N. Jennings and K. Fitchett. Final drawing by K. Mitchell, Department of Human Geography, A.N.U.
feet
1160
1140
1120
1100
1080
1060
1040
1020
1000
GN
MN
RIGHT COOLEMAN CAVE
A
Creek
river level
m
ft
12
8
4
0
40
30
20
10
0

Figure 1


400
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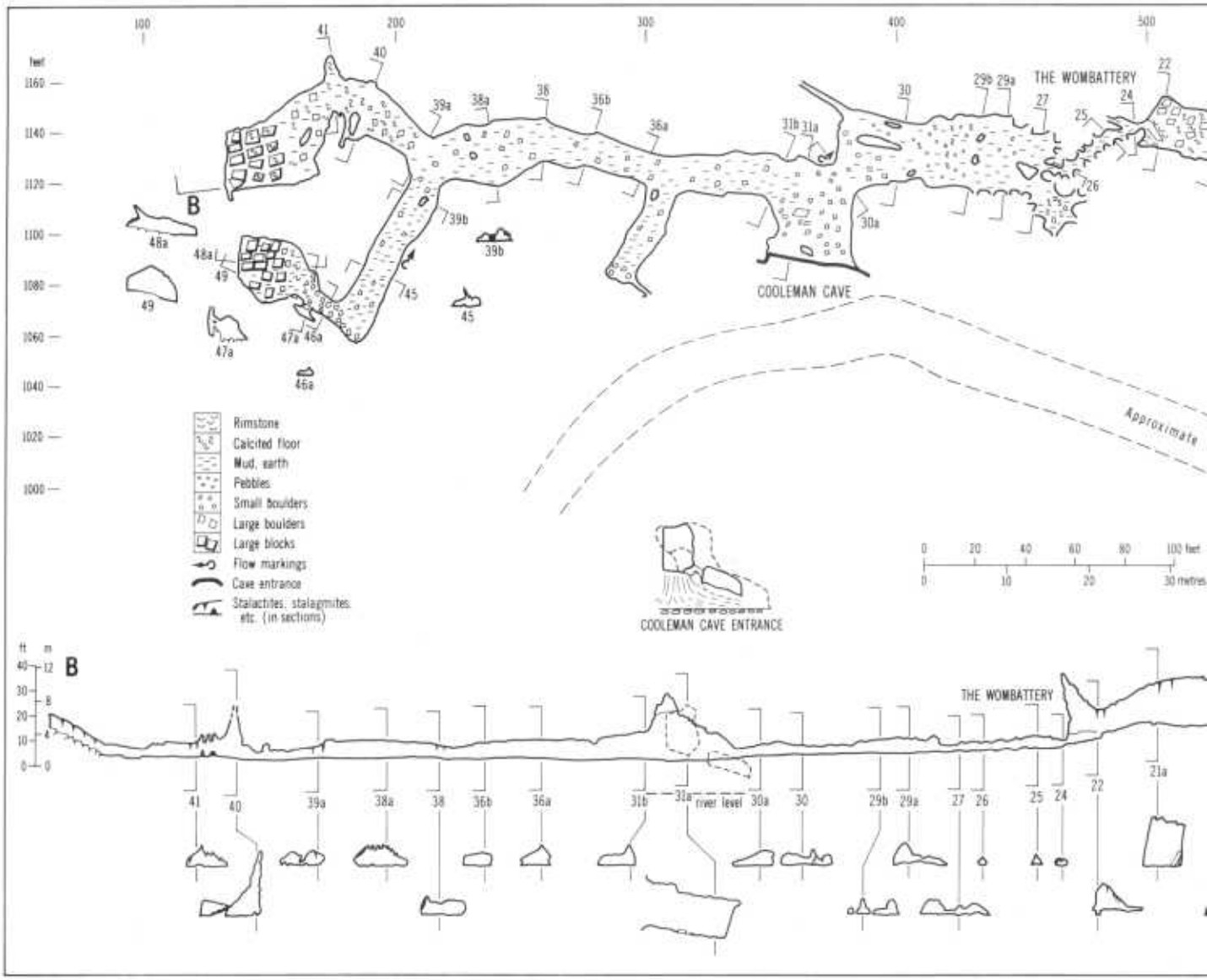
COOLEMAN - RIGHT CO
COOLEMAN PLAIN,
Underground survey by miners dial and steel t
L. Swann and J. N. Jennings December 1969.
by tacheometer, computing and plotting by J.
drawing by K. Mitchell, Department of Human
THE WOMBATTERY
COOLEMAN CAVE
Approximate course of Cave Creek
0 20 40 60 80 100 feet
0 10 20 30 metres
MAN CAVE ENTRANCE
THE WOMBATTERY
river level


100
200
300
400
500
feet
1160
1140
1120
1100
1080
1060
1040
1020
1000
41
40
39a
38a
38
36b
36a
31b 31a
30
29b 29a
27
25
24
22
THE WOMBATTERY
B
48a
48a
49
49
47a
47a 46a
46a
39b
39b
45
45
30a
26
COOLEMAN CAVE
Approximate
Rimstone
Calcited floor
Mud, earth
Pebbles
Small boulders
Large boulders
Large blocks
Flow markings
Cave entrance
Stalactites, stalagmites etc. (in sections)
COOLEMAN CAVE ENTRANCE
0 20 40 60 80 100 feet
0 10 20 30 metres
ft m
40 12
30 8
20
10 4
0 0
B
THE WOMBATTERY
41 40 39a 38a 38 36b 36a 31b 31a river level 30a 30 29b 29a 27 26 25 24 22 21a

The final 100 m (330 feet) of the cave to the Right Cooleman Cave entrance is very low, generally 0.6-1.2 m (2-4 feet) high, apart from fissures along cross-joints which also indent the walls a little (e.g. Xsct 9). However, the cave is broader here, mostly 6-9 m (20-30 feet) wide. It rises very slightly to the entrance. A tight branch, penetrable with difficulty, comes in from the northwest about 30 m (100 feet) from the entrance. Elephant's feet stalactites and muddy gours distinguish the middle part of this very low section. Near the entrance the roof is a little higher but the cross-section remains low and wide.

Discussion

This dominantly low, flat cave, in parts crudely elliptical (e.g. Xsct 8) and virtually horizontal, has the general character of an abandoned shallow phreatic cave, destroyed in part by collapse in the middle and blocked by collapse at its head. Though its plan is much influenced by several sets of joints, its horizontal profile disregards structure since the Silurian Cooleman Limestone here dips 30-45° to the ESE. Roof pendants occur at several points along the system. The presence of allogenic river gravels from the igneous ranges around Cooleman Plain is not incompatible with a shallow phreatic nature, since parts of Murray and River Caves (Jennings and others, 1969; Jennings, 1969) are normally waterfilled and yet actively transmitting coarse allogenic gravels. Flow markings are still discernible at three points, indicating flow from the western end to the eastern. Again, there is no incompatibility with formation by vigorous shallow phreatic flow, which is in some ways more allied hydrodynamically to vadose activity than to deep phreatic conditions.

The location of the cave just inside the gorge wall and virtually parallel with it is matched by the courses of New Year and Frustration Caves, active but smaller caves, similarly related to the western slope of the small valley in which they are located on Cooleman Plain. Renault (1967) claimed that certain cave developments close to and parallel with steep, rocky slopes are caused by pressure release in valley walls through unloading as a result of surface denudation. No sheeting parallel to the valley walls is to be seen and the form of the cave is not such as is to be expected from the influence of such sheeting, neither in the low, flat primary parts nor in the middle collapse section where vertical jointing is dominant.* The two collapses at the head of Cooleman Cave are at right angles to the valley side and may be related to a possible fault transverse to the valley here. The more likely explanation for the parallelism between cave and valley here is that the valleys are favoured zones of water intake into the limestone and cave development along the valleys is prompted by concentration of underground circulation close to them. This is consistent with the broader

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* Renault does not postulate such sheeting influence, it is true, but it seems a reasonable corollary of his hypothesis.

observation that cave development on the Plain is correlated with the zone of dissection in it (Jennings, 1967).

Right Cooleman entrance is only about 180 m (200 yards) in a straight line from the Blue Waterholes, the present outflow point for the underground waters of nearly the whole Plain (Figure 2). The springs of the Blue Waterholes are mainly in the northern, left bank of Cave Creek as is the Cooleman-Right Cooleman system. The small low cave at the Cliff Foot Rising of this group of springs looks like the end of a shallow phreatic cave. The inference is obvious therefore that the Blue Waterholes have taken over the role which formerly belonged to the now abandoned cave and that there is likely to be a similar cave behind the present springs.

The Cooleman-Right Cooleman system lies 10 m (33 feet) above the level of the Blue Waterholes. Cave Creek has thus cut its channel down modestly since, or during, the takeover of the one outflow by the other. Such incision without shift of course might on first analysis be expected to have caused retreat of the major rising up the valley system. This expectation rests on the idea that whilst being cut down, the talweg might, with the aid of prior phreatic preparation, tap an upstream portion of the master cave feeding the old rising.

However this has not happened, the outflow point has shifted downstream. Gèze (1958) in an analysis of the relations between underground and surface drainage lines postulates that this kind of shift is normal where underground drainage is taking over from surface streams without major departure of course, as is the case here. Nevertheless, Gèze does not explain how this is supposed to happen nor does he provide instances in this paper.

In the case under consideration, the downstream shift cannot be explained (as it may in some cases) by the valley degradation exposing limestones farther down valley than before. It is true that the overlying impervious Blue Waterhole Beds reach down to a level only 15 m (50 feet) above Cave Creek less than 400 m (440 yards) downstream from the Blue Waterholes (Legg, 1969) and the contact between the two rock formations does not appear to be a very simple surface in some parts of the Plain, either because of erosion of the limestone prior to deposition of the later beds or as a result of subsidence of the latter as a result of subsurface solution of the top of the limestone. Nevertheless, there is no reason to doubt that the small incision involved in the shift in the location of the outflow has occurred entirely within the Cooleman Limestone so that this simple explanation cannot be accepted here.

It seems that the assumption must be made that the incision has been accompanied by karst development reaching deeper into the limestone than it did when the Cooleman-Right Cooleman system functioned, and in so doing a fresh line of the major underground artery developed north and east of the previous one and captured the supply west of the collapse heads of the abandoned cave. The North Branch of Cave Creek which drains the northern section

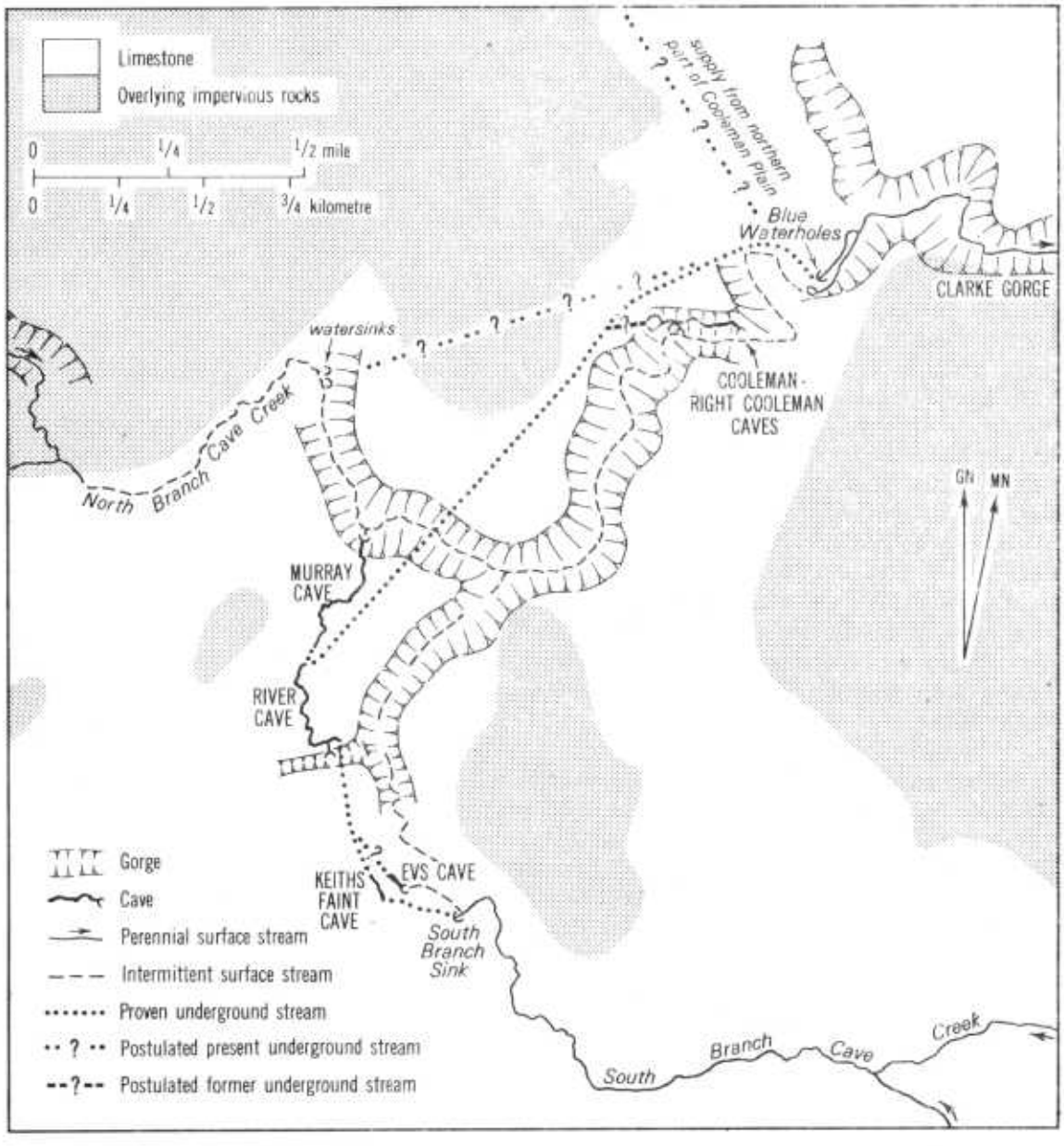
Limestone
Overlying impervious rocks
0 1/4 1/2 mile
0 1/4 1/2 3/4 kilometre
supply from northern part of Cooleman Plain
Blue Waterholes
CLARKE GORGE
watersinks
North Branch Cave Creek
COOLEMAN - RIGHT COOLEMAN CAVES
GN
MN
MURRAY CAVE
RIVER CAVE
KEITHS FAINT CAVE
EVS CAVE
South Branch Sink
South Branch Cave Creek
Gorge
Cave
Perennial surface stream
Intermittent surface stream
Proven underground stream
Postulated present underground stream
Postulated former underground stream

Figure 2

of Cooleman Plain frequently sinks within that section. Water from this direction could be responsible for the development of the more easterly rising at the Blue Waterholes. However, when the North Branch flows farther down its surface channel round the central hills south of Coolamine Homestead, much water sinks at two points in its left bank in the big bend at G.R. 689997 (1/50,000 Sheet 8626-IV Currango) north of Murray Cave. The Blue Waterholes lie farther away from these sinks than Cooleman and Right Cooleman Caves. Similarly there is no apparent advantage in this downstream shift of the risings for the water from the southern half of the Plain. This is gathered into River Cave, leaving the lowermost part of the former surface valley of South Branch waters dry near its junction with the North Branch gorge. River Cave formerly fed Murray Cave, which emerges into the North Branch above the junction of the two valleys (Jennings, 1967). Nowadays this outflow point functions only as an occasional flood surplus and the normal onward flow of River Cave heads eastwards from the inner end of Murray Cave. Given this trend, Cooleman-Right Cooleman lies in between River Cave and the Blue Waterholes. The underground connection between the latter two probably crosses under the North Branch gorge upstream of Cooleman-Right Cooleman and passes west of that system to link up with the new artery outflanking the old outlet to reach the present rising. As the discharge of the southern plain must, on the basis of area and rainfall, be at least equal to that from the northern plain, the new outflow point does not appear to be more advantageously placed than the old in relation to the Plain as a whole. To resolve this difficulty it will be necessary to learn more about the pattern of underground circulation feeding the Blue Waterholes.

The second problem of the Cooleman-Right Cooleman Caves system attaches to the relationship between the two entrances. Given the size of Cooleman entrance, it is unlikely they could have functioned simultaneously for long. The question of their order of formation arises. Did Right Cooleman entrance replace Cooleman entrance in a succession of downstream shifts of the rising to its present location? Or did Cooleman Cave entrance form later and divert the upper part of the underground stream to the surface at this more upstream point, with a later leapfrogging of the rising to the most downstream position at the Blue Waterholes? Bedrock is exposed below Cooleman Cave entrance but this does not preclude lateral erosion prior to stream incision at the level of that entrance, which might narrow and weaken the barrier between the cave and the gorge. This could cause capture of the upper part of the cave here; solution and collapse would then produce the entrance and entrance chamber. The floor of Right Cooleman near its entrance is only 0.6 m (2 feet) lower than that in Cooleman entrance chamber and there is also a slight westward fall of 1.2 m (4 feet) from the junction between the two caves back to Cooleman entrance. These facts are congruent with the notion that the outflow stream originally flowed to Right Cooleman, then Cooleman entrance formed and captured the stream and this lowered the floor of Cooleman Cave a little after Right Cooleman ceased to function. However, these differences of level are too small and primary rock floors are not

exposed sufficiently for these features to prove conclusively that this sequence was indeed the evolution of the system. In any case uphill sectors are normal to shallow phreatic caves. The alternative hypothesis demands that Cooleman Cave ceased to function in favour of a stream passage farther inside the plateau which fed Right Cooleman somewhere in the middle collapse section where it is now concealed. This explanation involves more postulates and has still less evidence in its favour. The idea that Cooleman entrance has breached a pre-existing cave is therefore preferred without it being possible to claim that was certainly the course of events. For this problem also discovery of the whereabouts of the master cave feeding the Blue Waterholes could be decisive.

Acknowledgments

John and Mary Mendum, Roger Curtis and Lou Swann helped greatly with the cave survey and Keith Fitchett with the surface survey. The latter also helped with computing and plotting. Mr. K. Mitchell did the final drafting. I am grateful to them all.

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ABSTRACTS AND REVIEWS

NIAH CAVES OF BORNEO. By N. Cameron. Geographical Magazine, 40 (8) : 649 - 655. 1967.

A popular-level, well-illustrated and interesting account of a visit to the Niah Caves, approximately 50 miles east of Miri in Sarawak. A description and plan shows the would-be visitor how to get to the caves. Cameron describes the caves and the native industries based on collecting the edible nests of swiftlets (Collocalia). By climbing poles, up to 200 feet long, to reach the roof, the natives dislodge the nests with scrapers; or they edge about cat's cradles of laced bamboo 100 feet or more above the floor in the search for nests. These nests are particularly favoured by the Chinese.

Another native industry carried out in the caves is the collection of bat and bird guano which is sold as bulk fertiliser at Miri. However, its use is slowly being supplanted by the use of artificial fertilisers.

The author visited many of the caves including Kain Hitam high up the cliff face. This cave, also known as the Painted Cave, has wall paintings of boats crammed with people, of strange figures with their arms in the air as if drowning and crying "Help!"; paintings of cock-fighting - the popular sport of Borneo today - and stylistic scorpions. Within the cave also is a subterranean river, and nearby a few "lost and pathetic little boats of wood. The boats of the dead, ossuaries of perhaps a thousand years ago." Describing the Painted Cave in its jungle setting, its two entrances softly lit by filtered light, the author says that this cave must be one of the "most ravishing natural beauties" of all South-East Asia. - E.A.L.

THE RHAPHIDOPHORIDAE (ORTHOPTERA) OF AUSTRALIA. PART 8. TWO NEW SPECIES OF PARVOTETTIX RICHARDS. By Aola M. Richards. Pacific Insects, 12 : 1 - 8. 1970.

Two new species of Parvotettix Richards are described. P. rangaensis Richards occurs in a limestone cave near Ranga on Flinders Island. P. domesticus Richards occurs in the backyard of a Hobart residential property, Tasmania. A key is given for the species of Parvotettix. The possible origin for the genus and the current distribution of the species are discussed. - A.M.R.

CORRECTIONS

In the paper, "Lake Level Fluctuations in Cocklebiddy Cave, Nullarbor Plain, Western Australia" (Helictite, 8 (3) : 58 - 62. 1970), the author wishes to correct the position of Cocklebiddy Cave on page 58 to Latitude 31° 58' S, Longitude 125° 55' E. In the same paper, on page 61, the Editors inadvertently left off the Figure 3 vertical scale the unit measurement of lake level fluctuation (cm).

CAVE PAINTINGS FROM KITAVA, TROBRIAND ISLANDS, PAPUA

*C.D. OLLIER and **D.K. HOLDSWORTH

* Canberra College of Advanced Education, A.C.T.
** University of Papua and New Guinea, Boroko, Papua

Kitava is the most easterly island of the Trobriand group. It is an uplifted coral atoll, oval in plan, with a maximum diameter of 4½ miles. The centre of the island is swampy and surrounded by a rim that reaches a height of 142 m. Caves occur in various parts of the rim and several have been described in a previous article (Ollier and Holdsworth, 1970).

One of the caves, Inakebu, is especially important as it contains the first recorded cave drawings from the Trobriand Islands. Inakebu is situated on the inner edge of the island rim at the north-eastern end of the island. Map 1 shows the location of the cave on Kitava Island. Map 2 is a plan of the cave, surveyed by C.D. Ollier and G. Heers. The location of the cave drawings is shown on the plan.

Inakebu is a "bwala", that is a place where the original ancestor of a sub-clan or dala is thought to have emerged from the ground. The bwala tradition is common throughout the Trobriands and neighbouring islands. It has been described by many writers on the anthropology of the area, and was summarised in Ollier and Holdsworth (1969). The people believe that if they enter such places they will become sick and die. Until November, 1968, no member of the present native population had been in the cave, though there is a rumour that a European had entered it about 20 years before, but turned back owing to lack of kerosene. It must be admitted that this tale sounds rather like the stories one hears in Australia that Aborigines were afraid of the dark caves and therefore did not go into them. In fact, the many discoveries in the Nullarbor Plain caves show that they did, and the cave drawings in Inakebu show that someone has been in this cave. The point is that it does not seem to be the present generations who entered the caves but earlier ones; people from "time before" as they say in New Guinea.

The first known European to enter the cave was Gilbert Heers, a trader in copra and shell who lived on the nearby island of Vakuta. He went into the cave on 8 November 1968 accompanied by Meiwada, head of the sub-clan associated with Inakebu, who had never been inside before. Heers and Meiwada investigated the two outer chambers but then turned back because they had only poor lights. They returned with better light on 15 November. Since they had not become sick or died, they then found seven other men willing to accompany them. They found the narrow opening leading to the final chamber,

and discovered the drawings. None of the men, many of whom were quite old, had ever seen the drawings or heard any mention of them before.

The drawings are the only indication that people had previously been in this deep chamber. There are no ashes or soot marks, no footprints, and no pottery, bones or shells such as are commonly found in other Trobriand caves, though bones and shells occur in the chamber near the entrance.

With one exception, the drawings are all on the same sort of surface, a clean bedrock surface on cream coloured, fairly dense and uniform limestone, with a suitably rough texture. Generally the surface has a slight overhang, and so is protected from flows or dripping water. On surfaces with dripstone shawls or stalactites, the drawings were always placed between the trickles, on the dry rock. We have found no examples that have been covered by a film of flowstone. The one drawing on a flowstone column is also still on the surface and not covered by later deposition. A film of later deposit would be good to show the age of the drawings, but since the drawings appear to have been deliberately located on dry sites the lack of cover does not indicate that they are necessarily young.

There are stencil outlines of three hands, a few small patches of ochre which do not seem to have any form, numerous drawings in black line, and one small engraving.

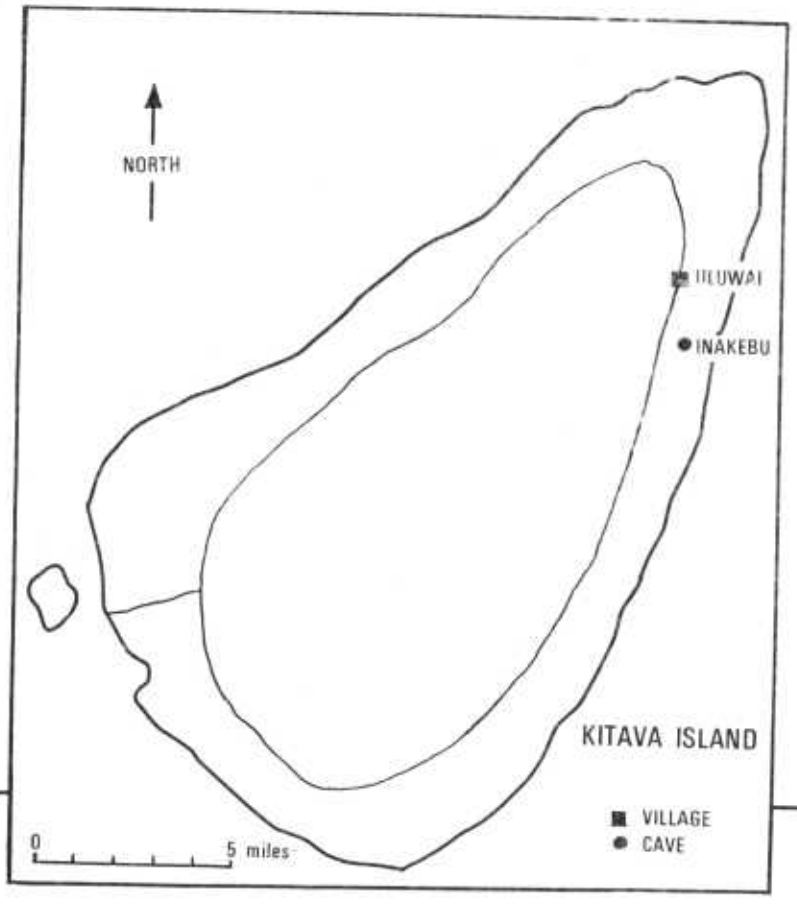
The Hands

Three outlines of hands were found on one site. They are all done with a stipple technique, probably by blowing a spray of pigment and spit through almost closed lips - "blowing a raspberry" technique. They are dark brown to black in colour, but fainter than most of the line drawings.

The hands are between 6½ in. and 7½ in. from the tip of the middle finger to the wrist, and 3½ in. across the palm. Unless the artist has deliberately set out to trick us, all the hands are mutilated; two of the hands have thumbs missing and the other the little finger. A little practice shows that these mutilations could not have been simulated by bending back a finger or thumb - the most frequently suggested form of trickery - because such a process does not leave stumps of the required shape. All the hand stencils are on the same face of rock within two or three feet of each other, but are in no particular pattern or arrangement. The hand stencils and the apparent mutilations appear to be exactly like those reported from Australian aboriginal sites, from European cave art (Lane and Richards, 1966), and from elsewhere in New Guinea (White, 1964).

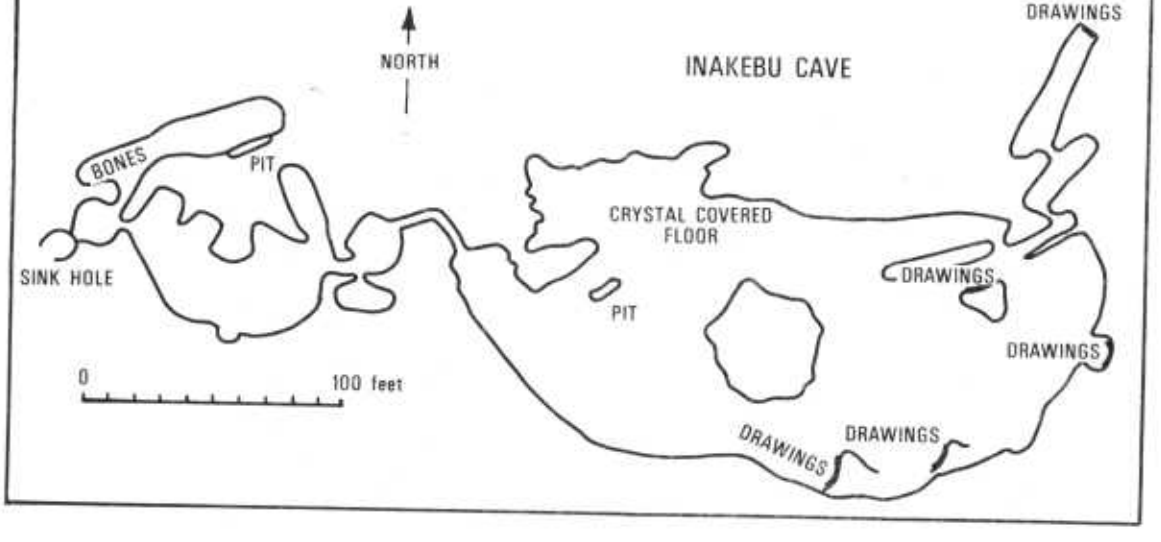
The Ochre Patches

Only two or three small patches of red colour were found in the cave, each about four inches across. One makes a V and the others are of inde-


NORTH
ILUWAI
INAKEBU
KITAVA ISLAND
VILLAGE
CAVE
0
5 miles

Map 1

Map 2


NORTH
INAKEBU CAVE
DRAWINGS
BONES
PIT
SINK HOLE
CRYSTAL COVERED FLOOR
PIT
DRAWINGS
DRAWINGS
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DRAWINGS
0
100 feet

terminate shape. It is of interest that pigment rather than the black clay was used, but we have no idea for what purpose. The patches of ochre are always in a high position above the other drawings, and never in a prominent place or amongst the drawings. See Plate 2.

The Line Drawings

Most of the line drawings have been made by drawing with the finger on the wall, probably using the black mud from the floor (See Plates 1 and 3). Analysis shows the mud has an organic matter content of 3.8%. Children have now vandalised parts of the cave, and by writing their names with the black mud showed that such a simple technique works. It also showed that newly applied mud could be recognised by smear marks and finger prints which are absent from the old drawings. The latter even have some hair-line cracks apparently due to drying, which would be virtually unfakeable. Three of the drawings have been either recently drawn or "retouched". The lines are much thicker than those on the other drawings, and there are the tell-tale smear marks and finger prints. Numerous mud-painted names occur on a rock close to these drawings. Since they appear to be in the same style and of the same objects (whatever they may be) as the genuine old drawings, we think children have probably drawn over the lines of a genuine drawing, and so they are to that extent genuine. Mr. Heers is also sure that the drawings were present when he first saw the cave art, though he did not have time to pay particular attention to the paint texture.

The present inhabitants of Kitava have no idea what the drawings represent. We have shown copies of the drawings to a number of educated Trobriand Islanders, but they have no information to offer either, so we are left to draw our own conclusions.

Some of the drawings are quite obviously of fish, and we could even suggest that one looks rather like a swordfish or sawfish (Figure 1), and another is possibly a shark (Figure 2). The drawing of a turtle also requires little identification. Beyond this, more imagination is required and identification can only be speculative.

We think that many of the "shapes" indicate fish, in a rudimentary form, and that the fish have "arrows" or "spears" sticking in them (Figure 6, for example). Unlike many other cave paintings in New Guinea and elsewhere, there is no attempt to depict human forms although the "spears" in the animals probably indicate their presence. The drawings could indicate some sort of "fishing magic", like the hunting magic practised by many peoples in the past, and well known from early cave art. By drawing a fish and spearing it, the fisherman hoped that by symbolic magic his actual catch might be improved. To make this suggestion more plausible we have arranged the drawings in order of degree of fishlikeness.

Some drawings are clearly not fish. One may be an adze (Figure 23), an-

other a snake (Figure 19), one a jellyfish, and others simply baffle us. It must also be admitted that the stylised "fish" with arrows may equally well represent funeral pots, canoes and paddles, shields and spears, or many other things. Since the drawings are often on irregularly sloping or overhanging surfaces, no significance can be attached to the way up.

There seems to be no order in the arrangement of the drawings. They do not form groups, but there is no accidental superimposition. The drawing of the turtle (Figure 18), apparently having one leg chewed by a "monster", we at first thought was an accidental superimposition, but we found an identical drawing in another position. Could it be a picture of hunting turtles with the aid of lampreys?

Some of the drawings are fainter than others. This might be due to greater age, though it is not clear why black mud should fade, or they may have been drawn with a more watery suspension.

We were not able to record all the drawings by scale sketches, but the majority are recorded, including most of the different designs. The photographs give a better indication of the nature of the vaguer drawings.

The Engraving

We did not see the engraving, but Mr. T.J. Ward, the then hotel-keeper at Losuia, Kiriwina Island, who visited the cave early in 1969, reports that he found one example fairly close to the entrance to the main chamber. His drawing of it is shown in Figure 25. This is a sketch and not an accurate tracing, but it matches closely a common motif found on Wanigela pottery and on some megaliths (P. Lauer, pers. comm.). Wanigela is on the mainland of Papua and has had trade connections with the Trobriands for a long time and up to the present. Wanigela pottery is found in the Trobriands, but much of the old pottery found in Trobriand caves is of a different pattern. It may be significant that the engraving is not found deep in the cave amongst the other drawings; it could have been left by a later visitor who did not venture in as far as the fish drawers and hand-stencillers.

Affinities of the Art

The drawings, hand stencils and engraving all seem to tell a different story. The engraving matches a common motif in Wanigela art; the hand stencils are similar to hand stencils produced throughout man's artistic history in a wide range of localities; but the drawings are unlike anything else described.

A number of papers and articles have described cave art and art in general in the New Guinea area (See references). Nothing described before bears any resemblance to the Inakebu drawings. This must put us on guard for a possible hoax and, unfortunately, we were unable to find any evidence, such as

flowstone cover, to prove antiquity of the drawings. On the other hand, the association of the drawings with apparently genuine hand stencils and an engraving in the only art-bearing cave discovered in the Trobriands (and about 30 caves have been explored), the differences between the drawings and present-day Trobriand art, and the apparent futility of perpetrating a hoax in the remotest reaches of a cave where chances of subsequent discovery were small, together suggest that the drawings are the genuine art of a former people.

A number of features of cave burials, megaliths and legends found elsewhere in the Trobriands suggests the possibility of a former race of people in the islands with somewhat different customs from the present Trobrianders (Ollier and Holdsworth, 1969). Perhaps the drawings are associated with this early people, though it is surprising that only one cave should have been painted.

What we have, then, is a series of drawings of unknown age, by unknown artists, and generally of unknown objects. We can only hope that future discoveries will make this enigmatic art more comprehensible.

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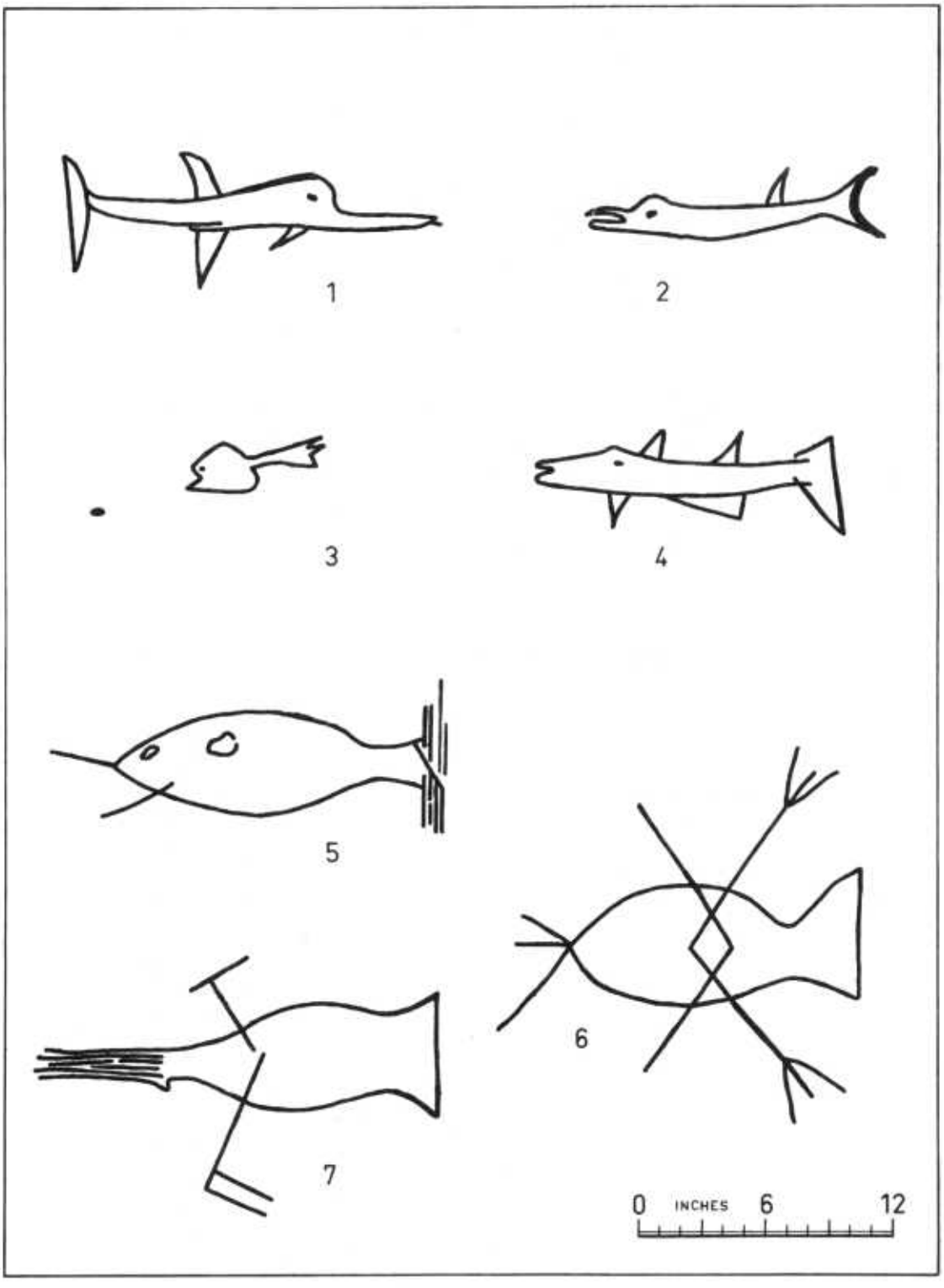
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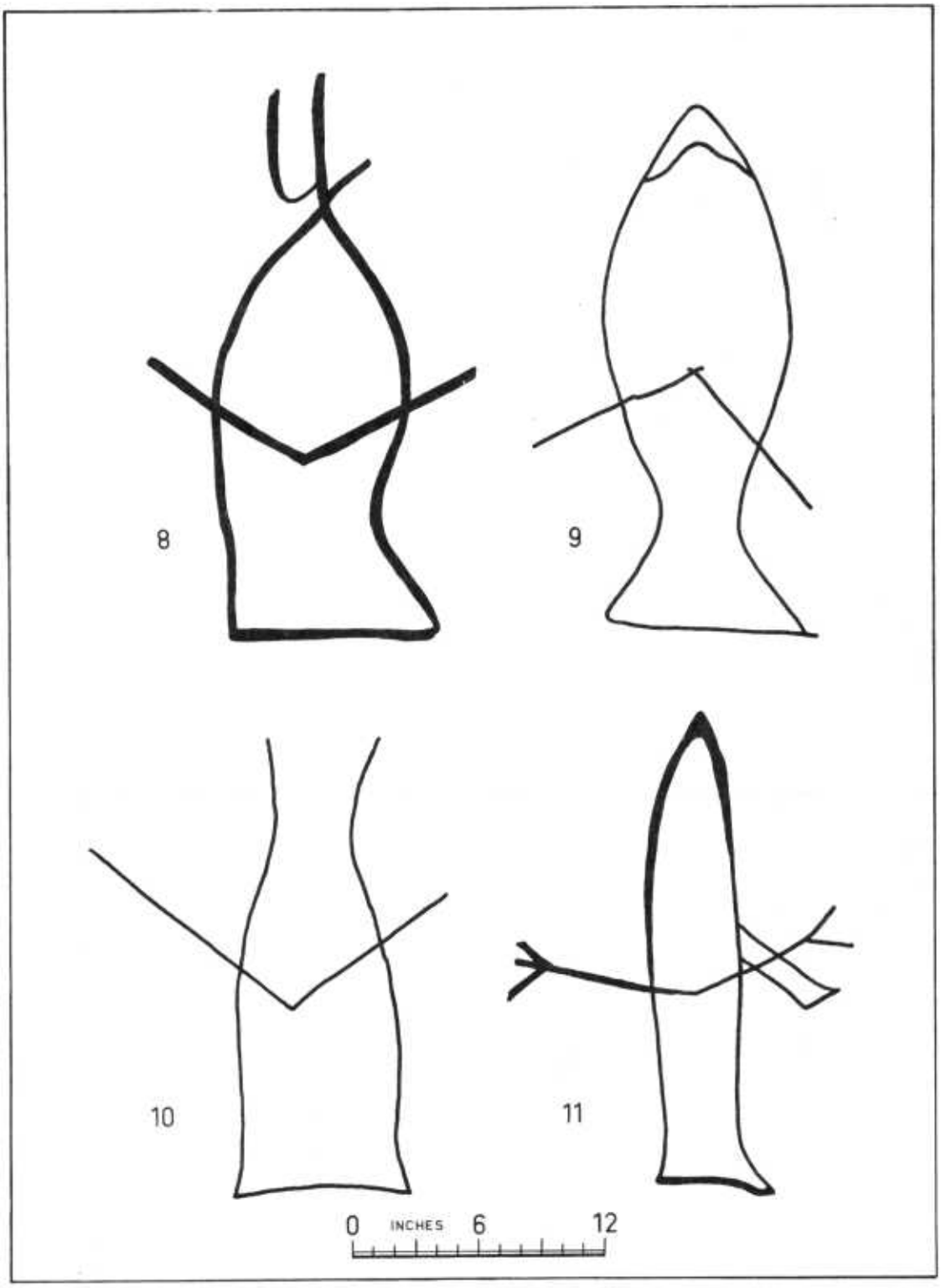
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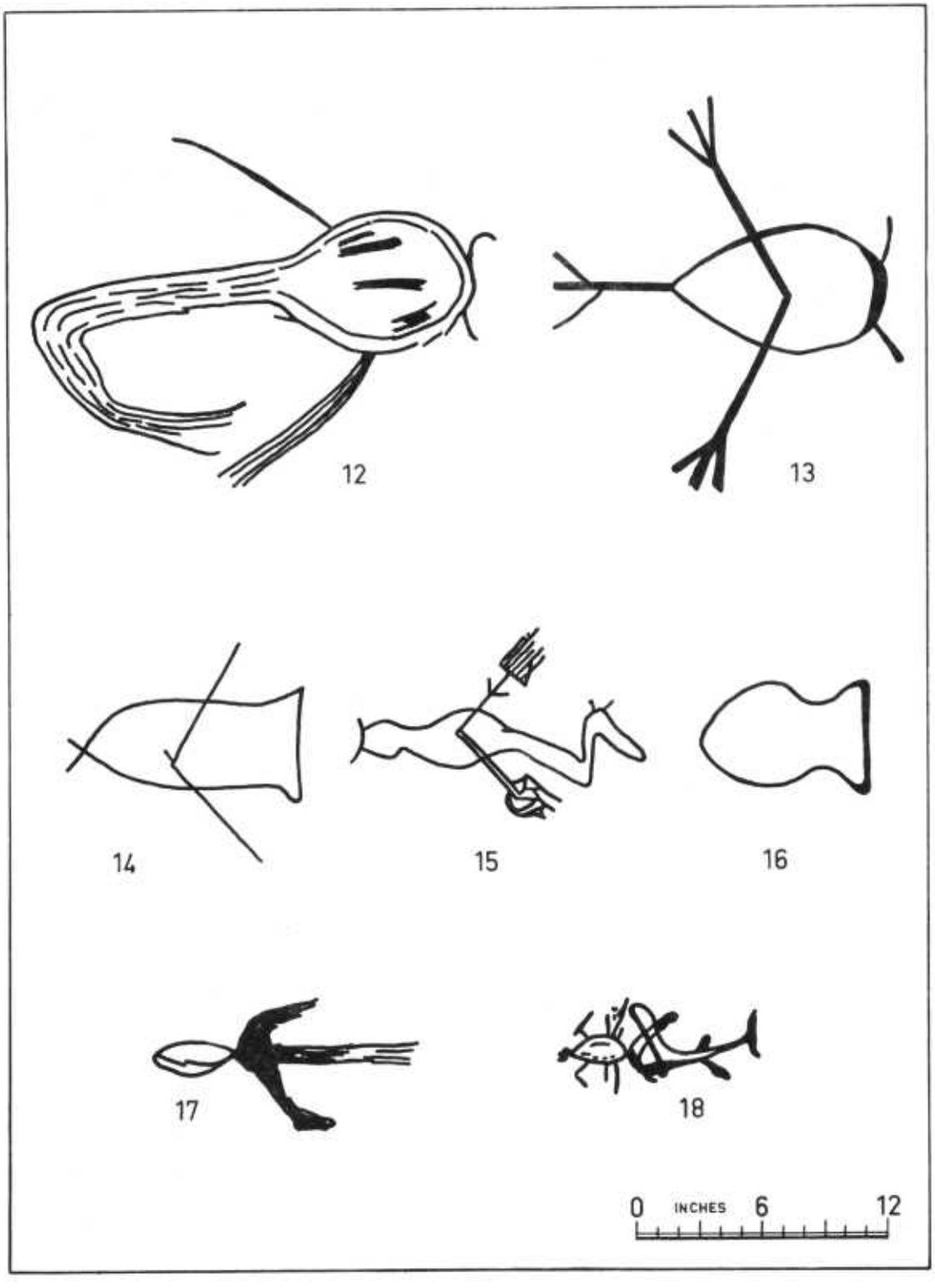
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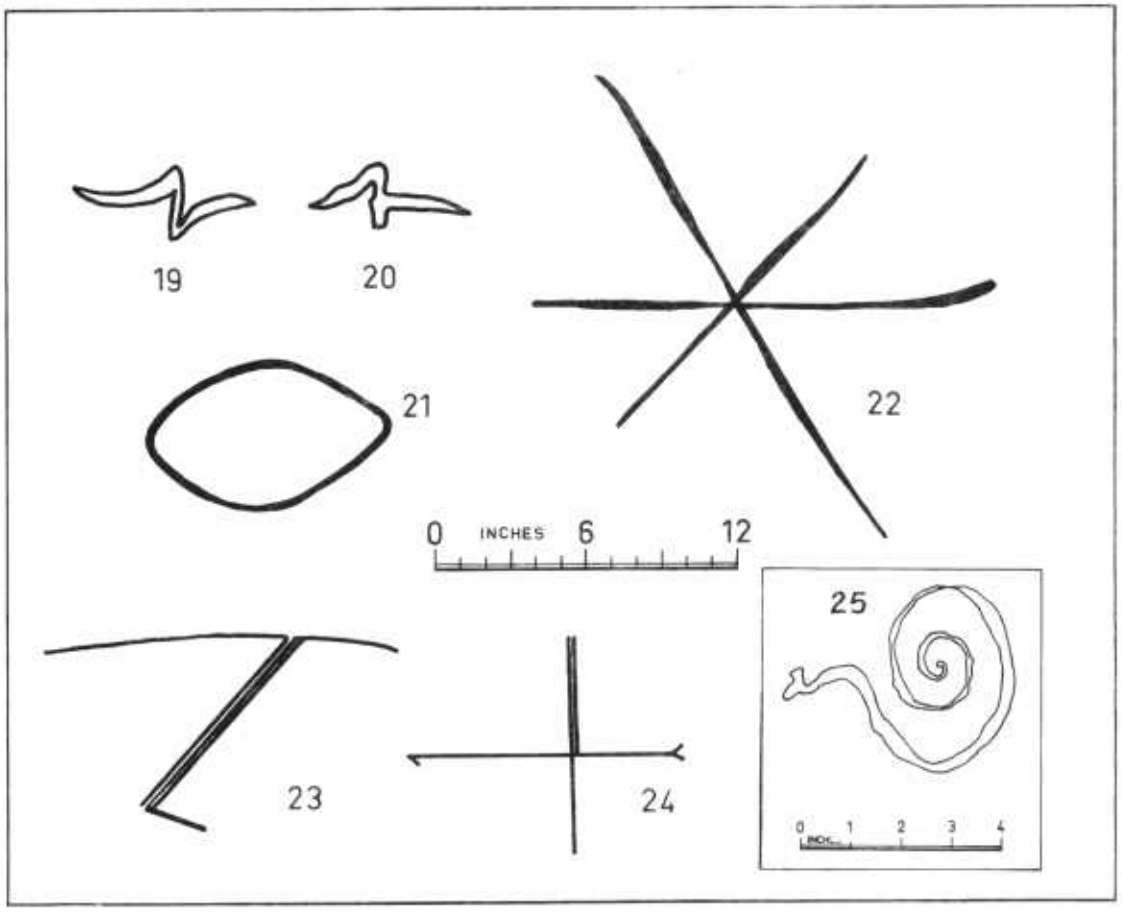
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Plate 1

Plate 2

Plate 3