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Among the Karam of the New Guinea Highlands**



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Man, New Series, Vol. 2, No. 1 (Mar., 1967), 5-25.

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WHY IS THE CASSOWARY NOT A BIRD? A PROBLEM OF ZOOLOGICAL TAXONOMY AMONG THE KARAM OF THE NEW GUINEA HIGHLANDS

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The Karam people of the upper Kaironk Valley in the Schrader Mountains of New Guinea place in the taxon *yakt*¹ all the 180 or so kinds of flying birds and bats they recognise and name. Cassowaries, which are large ostrich- or emu-like birds, are not included in *yakt* but constitute the contrasting taxon, *kobtiy*. Why, to the Karam, is the cassowary not a bird? This is a simple question, but the conclusion I shall arrive at is that there is no simple, single answer to it apart from the very general statement, 'The cassowary is not a bird because it enjoys a unique relationship in Karam thought to man.' The same difficulties appear in attempting to find answers to other, similar questions such as why the dog is not grouped taxonomically with any other kind of creature by the Karam but also occupies a position on its own.

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Speakers of the Karam language number about 13,000 and occupy the eastern sector of the Schrader Range and a little of the western fringes of the Bismarck Range in the Territory of New Guinea. The particular communities with which I have been working are Kaytog and Gobnem whose members, numbering approximately 350, occupy territory in the upper Kaironk and upper Aunjang (or Aunje) Valleys at altitudes between 5,000 and 8,600 ft.² This territory includes, in actuality and in Karam thought, two contrasting ecological zones. The Kaironk Valley bottom and sides between 5,000 and 6,500 to 7,000 ft. are *msey*, 'open country', consisting of grasslands interspersed with current gardens, groves of casuarina trees and a little rather poor, naturally regenerating, bush-fallow. *Ytk*, 'forest' or 'bush', is applied to the ridges flanking the Kaironk Valley where, above about 7,000 ft., fairly extensive tracts of tall forest trees remain, and to the entire upper section of the Aunjang Valley, which has undergone much less deforestation than the Kaironk. However, for the past two generations, and possibly for a longer period, some gardens have been cut in the forest at altitudes up to 8,000 ft., and at Gulk in the upper Aunjang Valley there is an area of about one square mile of continuous clearing between 6,900 and 8,000 ft.

Like other New Guinea Highlanders Karam are horticulturalists with a wide range of crops. Their main subsistence crop is sweet potato, *Ipomoea batatas*. Their main ceremonial crop is taro, *Colocasia esculenta*. Pig husbandry is important to them. Hunting and collecting are significant subsidiary aspects of their economy.

Karam settlement pattern is of dispersed homesteads which shift with the cycles of land use and ceremonial activities. The largest Karam houses may contain, at

least for a few months at a time, up to thirty people.³ Territorial groups are small—none in the upper Kaironk Valley appears to have more than 160 members—and somewhat fluid in their composition, with many people enjoying rights to dwell and use land with more than one group. Although Karam distinguish between paternal and maternal kin, and post-marital residence is normally viri-local, the genealogical framework of their local groups is ambilateral. They may be said to have shallow segmentary ramares, but not lineages.

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Karam zoological taxonomy is conveniently approached at two levels, or from two angles. One can look at the broadest groupings, what I call the 'primary taxa', and try to see what sense these make as a set, and it is with part of this problem that I am concerned in this paper. Or one can look at the smallest units which Karam discriminate, the 'terminal taxa', and with them the rather few intermediate taxa present in the system, and see what kinds of discriminations are there being made. This is a task outside the scope of the present essay. Here I need only say that at this level Karam show an enormous, detailed and on the whole highly accurate knowledge of natural history, and that though, even with vertebrate animals, their terminal taxa only correspond well in about 60 per cent. of cases with the species recognised by the scientific zoologist, they are nevertheless in general well aware of species differences among larger and more familiar creatures. The general consistency with which, in nature, morphological differences are correlated with differences in habitat, feeding habits, call-notes, and other aspects of behaviour is the inevitable starting point for any system of animal classification, at the lowest level.

At the upper level of Karam taxonomy, however, objective biological facts no longer dominate the scene. They are still important, but they allow a far greater, almost infinitely varied, set of possibilities to the taxonomist. This is the level at which culture takes over and determines the selection of taxonomically significant characters. It is not surprising that the result shows little correspondence either to the taxonomy of the professional zoologist, which reflects the theory of evolution, or, for that matter, to our modern western European folk-taxonomies. Thus, as can be seen from table 1, mammals are split up between six different Karam primary taxa, some being thrown in with birds and others with frogs. There are no Karam taxa corresponding to 'reptile', 'lizard', 'snake' and so forth.

In elucidating the principles which underlie Karam taxonomy at this level one of the problems is that Karam appear to take a great deal of this very much for granted, in much the same way that one takes the grammar or the phonology of one's mother-tongue for granted. It is only where distinctions are patently rather difficult to maintain, as where morphologically extremely similar small furred animals are divided among three different taxa, or where they know some other people classify creatures differently, as with cassowaries and birds,⁵ that they have ready-made explanations. However, largely by inference, a simple logic can be constructed which makes reasonably good sense if imposed upon these categories. Initially, two kinds of factors need to be taken into account: firstly, gross morphological similarities and differences; secondly, habitat.

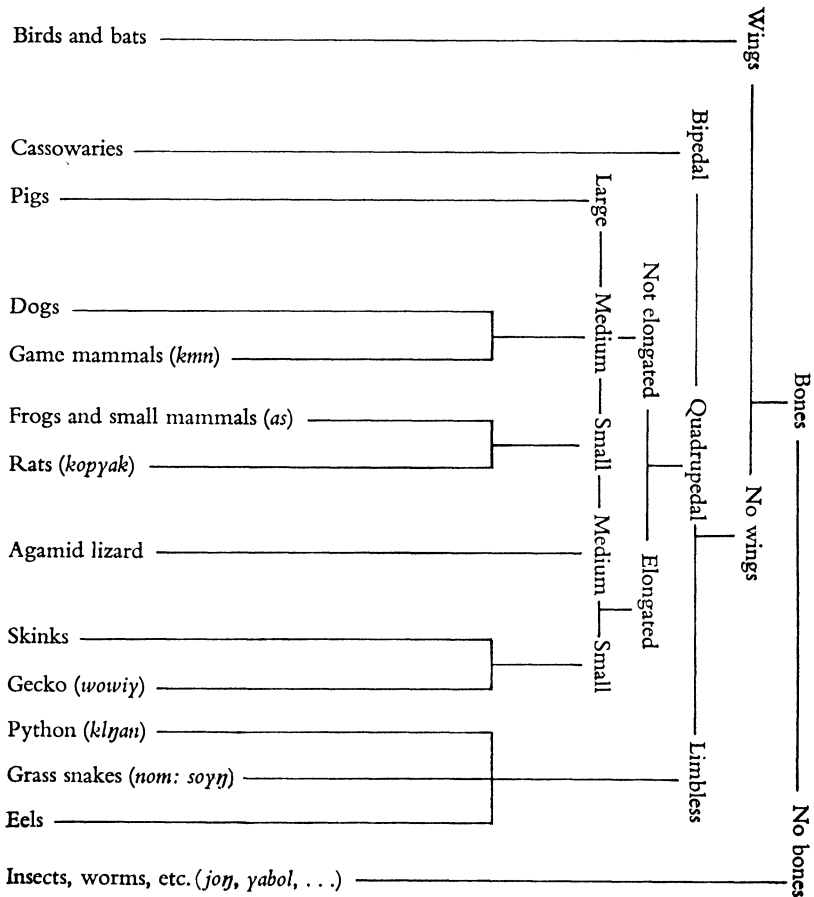
Thus, if we take morphological factors, all of which, even if somewhat arbitrarily selected, can be simply defined in the Karam language, we can, by dividing creatures up into boney versus boneless; winged versus wingless; bipedal versus quadrupedal versus multipedal versus limbless; elongated versus not elongated; and large versus medium-sized versus small, arrive at a table (table 2) which only leaves a small number of distinctions still to be made.

TABLE I. Karam zoological taxonomy.⁴

	Primary taxa	Content	No. of intermediate taxa	No. of terminal taxa	Edibility
1.	<i>kobtiy</i>	Cassowaries	1	3 (1*)	Restricted
2.	<i>yaket</i>	Flying birds and bats	23	181 (33*)	3 t.t. not eaten; 2 restricted; others unrestricted.
3.	<i>kayn</i>	Dogs	0	2	Not eaten.
4.	<i>kaj</i>	Pigs	0	2	Normally unrestricted.
5.	<i>kmn</i>	Larger marsupials & rodents	2	37 (14*)	2 t.t. restricted; others unrestricted.
6.	<i>kopyak</i>	Rats from homesteads and gardens	0	2	Not eaten.
7.	<i>as</i>	Frogs and small marsupials and rodents other than <i>kopyak</i>	2	35 (2*)	1 t.t. not eaten; others restricted.
8.	<i>yn</i>	Skinks	1	11 (1*)	1 t.t. not eaten; others restricted.
9.	<i>wowiy</i>	Small gecko	0	1	Not eaten.
10.	<i>aypot</i>	Agamid lizard	0	1	Restricted.
11.	<i>nom</i>	'Dangerous' snakes	1	6 (4*)	Not eaten.
12.	<i>kljan</i>	Small python	0	1	Restricted.
13.	<i>tok</i>	Eels	0	2	Restricted.
14.	<i>awleg</i>	Tadpoles	0	3	1 t.t. not eaten; others restricted.
15.	<i>joy</i>	Grasshoppers & crickets	0	20	7 t.t. not eaten; others restricted.
16.	<i>kogolok</i>	Weevils	0	6	Restricted.
17.	<i>kan</i>	Timber-boring larvae of certain beetles & moths	0	6	Restricted.
18.	<i>yabol</i>	Earthworms	0	2	Not eaten.
19.	<i>gogaj</i>	Snails	0	3 (1*)	1 t.t. not eaten; 1 restricted.
20.	<i>kuymol</i>	Leeches	0	3 (1*)	1 t.t. restricted; others not eaten.
		74 other primary taxa have been recorded, 6 applied to reptiles and fish not present in the upper Kaironk Valley, 68 applied to invertebrates. 63 of these, like <i>wowiy</i> (9), cannot be subdivided, i.e. are also terminal taxa.	0	95 (10*)	Approx. 40 t.t. restricted; others not eaten.
TOTALS (94 Primary Taxa)			30	422 (67*)	Of t.t. applied to local creatures, 166 are unrestrictedly edible; approx. 120 restricted; approx. 69 not eaten.

*=not present in upper Kaironk Valley, above 5,000 ft.

TABLE 2. Possible classification of Karam primary taxa by gross morphological features.



If we then look at habitat we find that with the aid of two dimensions, horizontal and vertical, the former with the forest at one pole and the homestead at the other, with open country and gardens lying in between, the latter ranging from aerial through arboreal, terrestrial and aquatic, to subterranean, we can elucidate nearly all the remaining distinctions, as can be seen from table 3.

Further, we find that taxa already marked off discretely on morphological grounds alone can in most cases be assigned a characteristic position on one or both of the two axes of habitat. Thus birds and bats, while they span the whole horizontal dimension from forest to gardens and homesteads, are marked off in the vertical dimension by the fact that they fly in the air: cassowaries are not merely wingless bipeds, but they are unambiguously terrestrial and of the forest; pigs are terrestrial and of the homesteads and gardens.

The justification for using these dimensions of habitat is not merely that, like the morphological distinctions I have drawn, they can all readily be expressed linguistically in Karam and that they seem to make sense of distinctions that are awkward to draw in purely morphological terms, but that Karam use them both,

explicitly, in accounting not so much directly for their taxonomy as for the status animals enjoy in their system of dietary regulations. Thus Karam explain that they do not eat 'rats' (*kopyak*), certain small birds, and indeed almost any other creatures found around the homesteads except the domestic pig,⁶ on the grounds that these eat or are otherwise associated with excrement, unclean foods and female dirt, and with the corpses which are exposed in open, fenced graves near the houses in the first stage of the disposal of the dead. They also distinguish between the mainly arboreal creatures hunted by men, which belong in the two big taxa *yakt* and *kmn* ('birds and bats' and 'game mammals'), most of which are unrestricted foods for

TABLE 3. Classification of Karam primary taxa by habitat (morphologically similar creatures are linked by brackets).

	Horizontal axis*				Vertical axis†
	Forest	Open country	Gardens	Homesteads	
Birds & bats	—————				A, B, C, some Q, some T.
Cassowaries	—————				T.
Pigs		- - - - -	—————		T.
[Dogs	—————	- - - - -	- - - - -	—————	T.
[Game mammals	—————	- - - - -	- - - - -		Mainly B or T, some S.
[Frogs & small mammals	—————	- - - - -	- - - - -		C, Q, T, S.
[Rats			—————		T, S.
Agamid lizard		- - - - -			B, but lays eggs in ground.
[Skinks	—————				B, C, T, S.
[Gecko			—————		B, but especially found in banana palms and old houses.
[Python	- - - - -	- - - - -	- - - - -		B.
[Grass Snakes		—————			T, S, sometimes Q.
[Eels	- - - - -	- - - - -	- - - - -		Q, rarely T.

* Continuous line indicates characteristic habitat: dotted line indicates restricted occurrence.
 † A=aerial; B=arboreal; C=found in low vegetation; Q=aquatic; T=terrestrial; S=subterranean.

everybody, and the smaller creatures mainly found on or under the ground or in low vegetation, *as, yn̄, joy* etc. (frogs and small mammals, skinks and their eggs, grasshoppers and crickets and most other kinds of edible insects), which are mainly collected by women and children and which are forbidden foods for certain categories of males, notably boys during their rites of passage and adult men in their prime who practise sorcery.

The picture I have presented, though over-simplified is, I hope, on the whole coherent. But, having done this, what is the status of tables 2 and 3 when combined? Is this a 'real' taxonomy or is it just a 'key', useful for deciding where things have to go, once the categories are *given*? Does it tell us all we need to know about how the categories really relate to each other? In the rest of this paper I in part demolish this pattern, or rather try to show that it is not so much wrong as inadequate for indicating the significance which certain of these animals have in Karam thought. What I have so far constructed is thus a temporary scaffolding for a

structure which may look quite different when completed, whose salient features alone I can sketch in at present.

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To return to the cassowary, why is this really not a bird? We may look first more closely at the objective physical and biological differences between the cassowary and other birds and the bats, as these may be perceived at the level of common-sense natural history.

1. As we have seen, the cassowary is flightless: other birds and bats all fly.
2. The cassowary is virtually wingless; the wings are invisible without close inspection, and have no feathers, only a few bare quills: other birds and bats all have wings.
3. It follows from the above that the cassowary is exclusively terrestrial: other birds and bats not merely fly, but with a few exceptions perch at least sometimes on trees, bushes, rocks and other elevated places.
4. The cassowary is very much larger than any other bird, or bat, in the Karam domain. Although the local mountain species (*Casuarium bennetti*) is a pygmy cassowary, much smaller than the species in lowland New Guinea and northern Australia, adults probably weigh fifty pounds or more, at least six times as much as the harpy eagle (*Harpyopsis novaeguineae*), the largest flying bird in the region. It is in fact the largest creature in the New Guinea mountains other than man and the pig. With size goes strength. While the wild cassowary is in no sense ferocious, being timid and avoiding man as far as possible, it has powerful legs and extremely sharp claws and can inflict serious wounds with these if cornered (cf. Mayr & Gilliard 1954: 331-2).
5. Unlike birds, or any other local creatures, the cassowary has heavy, strong and very human-like leg bones, which are used to fashion jammers or splitters for marita fruit, *Pandanus conoideus*.

Now, in case it might be thought that merely on its objective, common sense, natural history there is sufficient reason to place the cassowary in a special category, we must note that some other New Guinea Highlanders, who have just as much common sense and just as much knowledge of cassowaries, nevertheless place them in the same taxon as other birds.⁷

Let us therefore ask what Karam themselves say if one enquires why a cassowary is not a bird. I must admit that I did not ask this question as often as I should have done, one problem being that by the later stages of my enquiry my regular informants knew that I knew some of the things to be explained below, and it was therefore understood between us that the question had complicated answers. But the first simple answers to the question simply and naïvely put were as follows.

1. 'It's not a bird because it doesn't have plumes (*slp*, *bog*), it just has "hair" (*kas*).'⁸ Now it is a noticeable feature of the cassowary that it lacks conventional feathers with a stiff quill or midrib, but has wispy, soft hair-like plumage. This is technologically significant: there are special techniques for making cassowary plumes into headdresses and other ornaments, which are unlike those used in preparing ornaments from the plumes of other birds. But, if one pauses to think, this is not entirely a logical answer, since bats also lack plumes, their surface

covering being also described as 'hair' by Karam, but they they are nevertheless *yakt*.

2. 'The cassowary's head is all bone: it has no brain (*jn-mok⁹*), not like a bird.' This answer took me aback at first. To us birds are, well, 'bird-brained', and it took some adjusting to assimilate the idea of a creature with less brain than a bird. But my informant was making a statement which was anatomically quite sensible. The adult cassowary has a large bony casque on the top of its skull: most birds have rather fragile, light skulls. Furthermore, proportionately it could be that for the size of a cassowary's skull there is a disappointingly small amount of brain, as compared with smaller birds. Karam eat bird and mammal brains so they should know about these things. But even though it is a valid taxonomic distinction in this case, I do not think we could really use it as a sufficient reason in itself for the special taxonomic status which the cassowary enjoys, unless cranial structure and bone-brain ratios could be shown to be of general relevance in Karam taxonomy, and I have no evidence that they are. I recorded no other cases where categories of creatures were separated out on this basis.

However, we can see that there are at least five ways in which cassowaries can be marked off as a distinct class of creatures by morphological characters alone: size; absence of wings or other visible upper limbs; heavy human-like leg-bones; unique pelage; and unique cranial structure. There are probably other features which Karam could point to if they were pressed for additional information. At the same time, to point to these features does not explain *why* the cassowary should enjoy special taxonomic rank. To understand this I would argue that we must consider the cassowaries' relationship to man: how, when and by whom they are hunted; how they are used; how their hunting and utilisation are regulated.

When making enquiries on these points I soon learned that hunting cassowaries was quite a different kind of activity from what it had been among the Kyaka Enga of the north slopes of Mount Hagen, among whom I had previously worked. There, as far as I could gather (though I was not at that time concerned to enquire deeply into the subject), almost any kind of hunting was acceptable: individual hunting with snares or by stalking with bow and spear, capture of live chicks for domestication, mass drives by men armed with the weapons of war and of the hunt. For Karam, by contrast, hunting cassowaries is hedged around with rules and prohibitions.

Before I go into these I should perhaps note that cassowaries are not common in the upper Kaironk Valley. The forest edge kin-group of about twenty adult men with which I lived killed on average one or two a year at the most, and men living in valley settlements probably get hardly any. In over thirty day-trips into the forest I never saw one. They are, however, on the evidence of their droppings and spoor, well distributed in the mountain forest from its lower limit in the Kaironk Valley at about 7,000 ft. right up to the ridge crest at 8,600 ft. This is in contrast to what one finds in forest at this altitude in many parts of the Highlands, where the bird has been eliminated. Most Highlanders have to go down-hill, to less densely populated lower-lying areas, to get cassowaries, and not upwards. The way in which cassowary hunting is regulated by Karam may be a factor in accounting for the survival of the bird in their immediate territory.

The most important rules governing Karam cassowary hunting are as follows.

1. Men hunting cassowaries must 'practise avoidance' (*ask . . mosk g-*), meaning in this context that they must not use the everyday vocabulary for a very large number of objects and activities, but must use the alternative terms of the 'language of avoidance', known as *ask mosk mmm* or *alɥaw mmm* ('pandanus language'—see below).¹⁰

2. The blood of the living cassowary must not be shed. Thus, arrows and spears may not be used against it; it can only be captured in snares or despatched with a blunt instrument.

3. The hunter who has killed a cassowary should eat its heart.

4. People who have killed or eaten cassowary are *asɥ*, that is, in a ritually dangerous state, and should not plant taro or go near growing taro crops for one month.

5. Cassowary should be cooked and eaten in the forest or near the forest edge, and the apparatus used in hunting and in cooking cassowary should not be brought into settlements which are near taro gardens. The only exception to this rule appears to be that cassowaries were formerly sometimes brought into settlements for cooking and consumption at the *smiy* festivals, described below.

6. Live cassowaries must not be brought into homesteads and gardens. If they are, pigs, taro and bananas will not flourish. Thus the bird cannot be domesticated. This is in marked contrast to the practice in many New Guinea Highlands societies where cassowary chicks are captured and tamed or semi-tamed and, when adult, used either live or dead in ceremonial gift exchange and ultimately eaten.

None of these rules applies to the hunting and consumption of *yakt* (flying birds and bats) with the possible partial exception of *alp* (large fruit-bats), which I briefly refer to below, and *duk*, the harpy eagle, about which my information is limited and contradictory.

Before going into the explanations which can be offered for these rules, both those of the Karam and the more extended and fanciful ones of the ethnographer, let me note two practical consequences they have. Firstly, they restrict cassowary hunting to an activity by one or two men alone, as is almost all other Karam hunting, rather than allowing it to be a group activity. Since the cassowary is a powerful bird, this introduces an element of personal duel into the hunt. Considerable prestige comes from successful hunting, and men tell good stories about the wrestling matches which ensue when one or two men attempt to despatch a cassowary using only the blunt butt end of an axe or some similar weapon. Secondly, the rules prevent communities which are growing taro from eating cassowary during the planting season (August to November) and for several months thereafter while the crop is growing and needs tending, and they discourage individual men of such communities from hunting cassowary during the same period. If a hunter from a community with growing taro does kill a cassowary, he cooks and shares it with kin elsewhere who are not handling this crop.

Logically, the next questions to be asked are, 'what is the significance of taro to the Karam?' and, 'what else besides cassowaries may not be killed or cooked or eaten by persons who are growing taro?'

Taro (*m*) is a very special plant to the Karam. Although they live at an altitude which is marginal for its cultivation, and although sweet potato is their staple crop, taro is the cultivated vegetable food they value most highly.¹¹ The best garden land is reserved for taro, and they systematically encourage casuarina trees as fallow cover

in the taro gardens, so that the splendid casuarina groves one sees in the upper Kaironk Valley are all fallow taro gardens. Sweet potato gardens, by contrast, lie fallow under grass or anything else that will grow there.

However, these taro and casuarina gardens are only found up to about 6,500 ft. A little taro is grown in forest edge swiddens higher up the hill, but it does not do well. Karam say taro flourishes at the base of the casuarinas; it does not flourish at the base of the *kamay*, the small-leaved southern beech, *Nothofagus* sp., which dominates the mountain forest in this region above about 7,500 ft. Presumably the reasons are climatic. Sweet potato still does very well in forest swiddens, up to 8,000 ft. But the important point is that there is an opposition, as Karam see it, between taro cultivation and the mountain forest.¹²

The second point is that taro, unlike sweet potato, is a seasonal crop. Planted at the commencement of the wet season, August to November, the greater part of the crop is harvested at the end of the dry season, in June and July, and the same early months of the wet season, August to November, in the following year. It is available only in negligible quantities from January to May.

Apart from being the preferred root crop to the Karam, taro is also essential to the celebration of the festivals called *smiy* which provide the ceremonial element in Karam life. The seasonality of the crop determines the timing of the *smiy*. In the years in which a particular community holds this festival it can perhaps be seen as, among other things, a ritualised adjustment of the annual horticultural calendar, marking the division between the harvest and the new planting. Roots are harvested and stored in raised shelters (*aban*) for up to two months before they are used in the *smiy*. After this period in storage the taro is rather soapy in texture, but Karam like it like that even better than fresh, and it has thrown a new shoot which is then cut off and planted.

Smiy festivals, then, are held between August and November, while the taro is being both harvested and planted. A *smiy* is held by the leader of an extended family or local ambilateral kin group. Its main overt function is as a rite of passage for youths, including the sons and nephews of the holder, who have their nasal septa pierced and stay in seclusion in a rear chamber of the ceremonial house for a period of from three to five days. But it is also an occasion when pigs are slaughtered, propitiations are made to the dead, gifts of pork, vegetables, shell-valuables and axes are made to affines, and a spectacular all-night dance is held to which all are welcome, provided that they are not in a state of blood-feud with the hosts. Lastly, adolescent girls also have their nasal septa pierced, but with little ceremony. A man's, and his group's, prosperity and prestige are indicated by the scale of their *smiy*, and it seems probable too that the number of social ties publicly activated there is an indication of the support they can raise in other contexts, notably when they need allies to assist in vengeance killings.

Much planning goes into a successful *smiy*. Taro gardens have to be planted, pigs have to be husbanded, a very large ceremonial house has to be built (which may afterwards be converted into a residence for the kin-group) together with other smaller structures for the accommodation of dancers and spectators, and then taro and other vegetables have to be harvested and placed in the special stores outside the ceremonial house, and very large quantities of firewood have to be amassed for cooking-fires and for the fires which will illuminate the dancers and warm the other guests.

Taro is thus essential to the ceremonial life of the Karam. Understandably there is great concern that the crop should flourish; much care goes into its cultivation and a great deal of minor ritual is associated with this. The taro garden itself is in a sense a holy place. At the centre of a large taro garden there is normally a small spring associated with the ancestors who first cleared the garden and only their descendants, the present owners of the garden, should approach it and wash the roots they have harvested in it.

Turning to the plant itself, we find that taro is said by Karam to die (*kum-*), the same verb being used as in reference to men and animals; of other plants it is merely said, they rot (*kuy g-*) or wither (*mlep g-*). Also, the suckers which some kinds of taro throw and which, together with the decapitated heads and shoots from harvested roots, are used for seed, are referred to as its 'daughters' (*m pañ*). It is not too fanciful, perhaps, to suggest that taro may be seen as having the same kind of life and tenuous continuity that human populations do. This is consistent with the fact that shoots and suckers of the most highly valued and ritually significant varieties, known as *m kls-tmel* ('taro strong no-good' or 'dangerously strong taro'), are acquired from one's blood relatives, and it is these that are planted near the spring in the centre of the taro garden. So, if the continuity of taro can be seen as related to the continuity of kin groups, this is an additional reason why it should be husbanded carefully so that the stock increases and does not die out.

At the same time, as we have seen, only a limited area of the Karam domain will support taro gardens. The crop does not grow well above about 6,500 ft., and even below that altitude much of the land will not support it. This has interesting sociological implications. Population pressures mean that some people have to live, at least for part of the time, where taro will not grow. The Karam settlement pattern is one of dispersed homesteads which shift, or circulate, with cultivation and fallow of land over cycles of very approximately fifteen years in time, and of up to ten miles in linear distance and 3,000 feet in altitude between the most distant homesteads of the same family. While a family lives up the hill, at the forest edge or in forest clearings, most of its taro has to be left in gardens to which its members commute somewhat irregularly, and where other people, close kin and their spouses, will help in looking after it. Normally a group only holds its *smiy* festivals while it is resident in one of the lower-altitude sections of its territory, but one can hold a *smiy* in a forest settlement if one can get enough support with taro cultivation from kin and affines living lower down the hill. The dependence of forest dwellers on valley kinsmen, and particularly of men on their sisters and sisters' husbands, which taro imposes, is possibly important to an understanding of the failure of Karam society to develop segmentary, ideologically patrilineal local descent groups, such as are found in much the greater part of the New Guinea Highlands.

To return to the question of why there is an antithesis, a required separation, between cassowaries and the taro crop, we can see that in the first place the cassowary is the prime game of the forest, and the taro is the key element in horticulture, or, in civilisation. If we turn to the other things which have to be kept away from growing taro, we find that a number of these too can be seen to exemplify the same opposition.

Let me take first the fact that to shed the blood of a cassowary makes a man

ritually dangerous, or unclean. Here the cassowary is not unique. If one kills a man or a dog one is similarly *asɿ*, and to a lesser degree this is true if one kills marsupials of two particular species, *madaw* (the terrestrial cuscus, *Phalanger ?gymnotis*) and *blc* (the striped possum, *Dactylonax palpator*).¹³ As to the eating of cassowary, dogs are not eaten at all, and men are only eaten by witches (*koɿb*). Terrestrial cuscus and striped possum are eaten, but on the same terms as the cassowary: having done so one is *asɿ* and may not go near growing taro for one month. Some informants say that eating *alp* (large fruit bats or 'flying foxes', especially the spinal winged bat, *Dobsonia moluccensis*) and *aypot* (an agamid lizard, *Goniocephalus binotatus*) should place one under the same restriction, but there is no general agreement about these creatures.¹⁴ Terrestrial cuscus and striped possum, like cassowary, are certainly forest animals. So, in spite of its domestication, is the dog, since in Karam eyes this is a *wild* beast which they partially domesticate; I shall have more to say about this later. Also identified with the forest is the only vegetable food the eating of which renders one dangerous to growing taro. These are the nuts of the mountain pandanus palms. These are important and entail a second ethnobotanical digression.

There are many species of pandanus palms or screw-palms in the New Guinea mountains, and several of them are of considerable economic and ritual significance. The best known, the red- or yellow-fruited *Pandanus conoideus*, known as *marita* in New Guinea, is cultivated up to about 5,000 ft. in the Schrader Mountains and is not what we are concerned with here. To Karam, two of the three local species of nut-bearing pandanus are much more important.¹⁵ One, *gudiy*, which grows between 5,500 and 7,500 ft., has foliage which provides the roofing for houses; its nuts have rather small kernels which make only a minor contribution to diet. A second, *kumiy*, which grows locally between about 6,500 and 8,000 ft., is mainly important for its nuts, which are harvested casually and in any month of the year when they happen to be ripe; it is not very plentiful. The third, *alyaw* which is the ritually important species, only grows locally above 7,500 ft., but it is very common in the mountain forest and its nuts are very highly prized.

The first point about *alyaw* is that it is highly seasonal in its cropping. It produces ripe nuts in May and June,¹⁶ that is, during the dry season when weather conditions are optimal for forest hunting expeditions and also just at the right time in terms of the cycle of taro cultivation, since these are the months when most of the taro is almost full-grown but the crop does not require much further attention. So, in May or June family groups camp in the forest to harvest and cook pandanus nuts, and to hunt. Nuts are cooked in earth-ovens, and as with game cooked in the forest, the nature demons (*keekiy*) who reside there are propitiated. During the nut harvest prohibitions are observed on sexual intercourse (at other times there is no restriction on marital intercourse in the forest, and no restriction on entering the forest for hunting or other purposes by men or women after they have had intercourse),¹⁷ and, as when cassowary hunting, on using everyday words for all sorts of objects and actions. As we have seen, the second, ritual language which has to be used is called *alyaw mmm*, 'pandanus language'.¹⁸ It is said that if this language is not used the kernels of the nuts will be soft and watery when they are removed from the earth-ovens. After cooking, some of the nuts are carried back to the

homesteads, where they may be eaten or offered in hospitality to guests over a period of several weeks.

Pandanus nuts are very oily, nutritionally doubtlessly very valuable, and of some economic importance, possibly more so in the recent past, two generations or so ago, than now. But there is more to *alɥaw* than this. The palms are individually owned and their ownership not only conveys the right to dispose of the nuts (I recorded an account of a murder in revenge for theft of *alɥaw* nuts), but also conveys exclusive rights to certain birds of paradise and other valued game in the areas which these palms, together with cordyline shrubs and with such natural features as streams and ridge-crests, mark off into individual forest holdings.

Significantly, whereas rights to garden land can be acquired through either parent (and, as we have seen, seed taro is acquired from both parental groups also), in Karam dogma pandanus palms can only be inherited in the male line. Although it is perfectly acceptable for a man's sisters' sons to occupy his gardens as residual heirs if he has no sons or brothers' sons and, indeed, to occupy these even if there are agnatic heirs, provided that these give their consent, it would be unthinkable for a man to claim his mother's brother's *alɥaw*, even if there were no sons or brothers' sons to inherit them. To do so would show a lack of sorrow or proper feeling for this relative.

The implications of this seem clear, although I must add that no Karam has put them to me in these terms. Firstly, if pandanus palms were only acquired by inheritance, forest holdings ought to give one a most wonderful spatial representation of agnatic relationships and agnatic groupings, which would be quite the opposite of the overlapping, inter-locking and somewhat transitory ambilateral or cognatic groups which actually exist in settlement areas. Secondly, the frictions between cross-cousins (a man's sons on the one hand and his sister's sons on the other) which can occur over rights to dispose of women in marriage and to receive bridewealth for them,¹⁹ and among their descendants, over rights in garden land, should be eliminated in the forest through the rule of exclusive agnatic inheritance.

However, it is obviously impossible in practice for the forest to remain as a sort of living archive of purely agnatic genealogy; people migrate, and some families flourish and others die out. The solution to these problems of demographic readjustment is provided by two other rules and a dogma which again present forest conditions as a sort of reverse image of what prevails in 'civilisation'. Unlike garden crops, all three nut-bearing pandanus palms, *alɥaw*, *gudiy* and *kumiy*, are said never to be planted by men. Karam say that if men planted them they would not grow, and anyway it would be unthinkable to try. They know perfectly well that palms grow from seed, from the nuts which they eat. But if one asks who plants the nuts, the first answer is that the nature demons do. Subsequently one learns that certain game mammals, particularly *gudiy-ws* (one of the giant rats, *Anisomys imitator*), which also eat the nuts, bury some of these and that the cassowary also propagates *gudiy*, like a host of other forest trees, by defecating undigested nuts which it has swallowed. Thus the original human owner of a pandanus palm cannot be the man who planted it. Rather, the owner is the man who first finds a young palm growing and puts his mark on it. It would be unthinkable for an unrelated man to claim young palms in the immediate vicinity of groves with known owners who are continuing to harvest these. But where an owner is dead

or has no heirs, or where a man, through force of circumstance, ceases to visit his groves, it is easy enough for new palms growing among his old trees to be acquired by other people. So, gradually, over time the whole complex of forest holdings can, and does, change.²⁰

I hope I have said enough to indicate that there is a real antithesis between uncultivated things and wild game, whose prime elements, cassowary and pandanus palm, are not merely undomesticated but *may not be* domesticated, on the one hand, and civilisation, centring on the cultivation of the taro, on the other; and to suggest that this must be understood in evaluating the status of the cassowary and also the statuses of the other creatures of the forest which share some of the same attributes: the dog, terrestrial cuscus and striped possum.

However, we have also seen that to slay these creatures is in some sense equated with killing a man. To kill a man makes one *asny*, ritually dangerous, in just the same way as to kill a cassowary or a dog. Killing a cassowary is like committing homicide in yet another respect. If one kills a cassowary one must eat its heart (*mdmagl*). If one kills a human being one doesn't eat one's victim's actual heart, but as soon as possible one kills and cooks a pig and eats its heart instead. The term *mdmagl* is applied both to the heart and to the 'spirit' or 'life-force' which survives after death as the *cp-kawnan*, 'body-shade' or 'ghost', and by eating the pig's heart one prevents one's victim's ghost from following one. When one eats the heart of the cassowary, people say, one ensures that its spirit goes back to the forest, and will not prevent one from killing more cassowaries in future.²¹

So, a cassowary is in a sense equated with a man. Can we refine this and say what sort of man? One clue already exists in the rules of cassowary hunting, but before I draw attention to this I want to retrace the chronology of my field enquiry and let Karam mythology come to my aid.²²

The relevant myth was the first one that I recorded, and it has been repeated to me in a number of versions.

A very long time ago a brother and a sister lived at Abmaj (in Kopon territory in the middle Kaironk Valley). One day in the dry season the brother went hunting, leaving the sister to weed their garden, and first telling her to burn the rubbish and not throw it into the nearby river. She disobeyed him and threw the rubbish into the stream, and it floated down and was seen by a cannibal man who was sharpening his axe at the water's edge at the confluence of the Kaironk and Mundmbul Rivers. The man followed the Mundmbul until he came to the garden, crept up on the girl and grabbed her by the neck as she bent down to weed the crops. She struggled and cried out and her brother heard her, hurried back and shot her assailant, so that he fell down dead by the water-course. The brother and sister cooked the game animals the brother had obtained with taro and other vegetables from their garden, and they butchered the man and cooked his head, limbs and guts in three separate ovens. They then made a trail of stakes along the water-course and put small pieces of human flesh and guts on these. The dead man's family came and found the meat and ate it. The brother then taught the sister to shoot with bow and arrows, and when the dead man's kin, realizing they had eaten their father, returned to take revenge, the pair slew them all, and also the relays of reinforcements that followed them. Then the two killed pigs and exchanged gifts, but though the sister gave the brother greensnail shells and axes and other good gifts, the brother only gave the sister very poor things.

After this the brother and sister competed to see who could shoot arrows the furthest [a game Karam boys play, walking along a track and firing arrows ahead of them as they go]. The brother moved on ahead of the sister, and when he came to a wallaby pit-trap on the track, he covered it up with leaves, and the sister, running after him, fell into this. The

brother went to make a shelter [of the kind used by hunters when they sleep or cook game in the forest], and when he returned to the wallaby pit, the sister had turned into a cassowary and laid a clutch of eggs which in due course hatched. The brother made a *gawb* [bamboo jew's harp] and hung it in a tree so that the wind would make it sound and the cassowary-sister, hearing this, would stay nearby.

Later, two sisters from another settlement were in the forest to collect edible leaves for cooking at the *smiy* and they heard the jew's harp. Being curious as to what was making the noise, one of them climbed the tree, found it and broke it. The cassowary followed the girls back to their settlement, and when the people there saw it, the men pursued it with bows and arrows, and after a long chase and wounding it many times, killed and ate it. The brother revenged himself on them by taking away the two girls and when the rest of their kin-group followed, by cutting a tall *spiy* tree (*Albizzia ?fulva*) so that it fell on them and killed them all. He kept the two girls as his wives.²³

My informants did not explicitly justify the way that cassowary hunting is regulated by reference to this myth; in fact, some of them say that this myth is really of the Kopon people of the middle and lower Kaironk Valley and specifically relates to Kopon initiation ceremonies, where small boys dance in cassowary plume head-dresses. But the myth does nevertheless suggest the appropriate metaphor for the relationship of cassowary to man, as Karam see it. Cassowaries are sisters, cross-cousins (i.e. father's sister's children), and their descendants, to men. This is really very appropriate. Brother and sister are mutually dependent, but the sister is under the brother's control, is married out (usually to the brother's advantage), and is in a sense dispossessed of much that she would have enjoyed if she had been a male. Your cross-cousins are the people with moral claims on you which you are nevertheless sometimes quite reluctant to meet: and whose names you should not say. You cannot keep your real cross-cousin out of your inheritance, or out of your taro gardens, at least not unless and until you are beginning to suspect witchcraft and consider homicide. How appropriate that you should treat your metaphorical cross-cousins, the cassowaries, with due respect when you kill them, and make entirely sure that they never come anywhere near your taro.

When I first heard the cassowary myth I said, the light suddenly dawning, 'do you mean that the cassowaries are cross-cousins of men?'. To which my interpreter replied, 'if we are in the forest and see a group of cassowaries we say, "there are (our) sisters (*ay*) and cross-cousins (*n̄bem*) over there"'.²⁴

We may now return to the rules governing cassowary hunting, and in particular to the prohibition on using bow and spear. Karam explain this by saying that to do so would mean that one would shed its blood, and thus adversely affect the taro crop, and also that it would be useless in any case, since the cassowary's heart or spirit is too strong for it to be killed readily in this way. However, it seems relevant that to Karam, as to many other New Guinea Highlanders, sharp weapons of war—spear, arrow and axe-blade—are appropriate to fights between unrelated or distantly related people, whereas if one must fight with close people, one's kin, one should in theory do this only with blunt weapons, sticks or perhaps the butt end of an axe.

To recapitulate: to understand the cassowary's special status we must know:

1. That is it a forest creature, the prime game of the forest, and that there is an elaborate antithesis in Karam thought between forest and cultivation, based on the special value they attach to taro on the one hand and to *ahyaw* pandanus nuts on the other, and facilitated by the seasonal cropping of both these plants.

2. That the forest-cultivation antithesis is also linked to very basic concerns with kinship roles and kinship rights, and in particular to the problems of brother-sister relationships and of relationships between cross-cousins. These may in part be shared by many other societies but are perhaps particularly acute in a very small-scale society where segmentary groups, unilineal or otherwise, have not developed in such a way that they can bring collective weight to bear in solving problems of personal duty and personal interest.

Lastly, I would argue that to look for an explanation of the cassowary's special taxonomic status in purely taxonomic terms, by reference to objective features of its appearance and behaviour alone, could be to miss the point. Certainly it is a strange beast in many ways, and using only characters of which Karam are well aware one can isolate it as a separate taxon in any one of several different ways: as a terrestrial biped, as a hairy egg-layer, as a thick-skulled brainless monster and so on. But equally well, and still using characters which Karam are well aware of, one could fit it in with the birds (as many other New Guinea Highlanders do) or even perhaps with wild pig and wallaby in a class of 'big game animals'. So, for me at least, 'special taxonomic status' is a function of something broader, a special status in culture, or cosmology, at large.

* * * *

I turn now to discuss, more briefly, the dog and the pig. Dog, *kayn*, has in some ways a more complicated position than the cassowary. Taxonomically it is harder to sort it out by size, morphology or behaviour from mammals in the *kmm* class, which are very varied, including wallabies, tree-kangaroos, bandicoots, possums, the carnivorous 'native cat' (*Satanellus*), giant rats and water rats, than it is to extract cassowary from the birds. The two anatomical features of the dog which Karam comment on in a number of contexts are its mouth and its prominent male genitalia. But cosmologically the dog is very special: a wild forest animal which ought by rights to be kept far away from homesteads and gardens, but which Karam nevertheless tame and use to help them hunt other animals and which, when it is in human settlements, manages to eat filth, get into graves, and do quite a lot of material and social damage by stealing food and killing piglets, both its owner's and other people's. Thus dogs break two kinds of boundaries, those between forest and cultivation, and those which attempt to separate the clean and the unclean (male and female, live and dead, kin and non-kin) within human settlements. It is not surprising that there is a complete prohibition on killing forest dogs, that domestic dogs must be killed without shedding their blood and must not be eaten, and that people who kill a dog, handle a dead dog, or handle a bitch which has newly littered, are all ritually dangerous for a month.²⁵ Like cassowaries, dogs are believed to have spirits which survive after death, and these are thought to be capable of bringing great harm to humans if provoked. Myth and folklore assign to dogs their own society, analogous to human society, and in one myth men stole women married to dogs and made them their own wives. Both in myth and in reality domestic dogs are the adopted children of their owners, adoptees of a special class for which there is a human parallel, taken as foundlings from distant places and unrelated people.²⁶

Pigs, in contrast, are to the Karam rather domestic animals which sometimes run wild and 'go bush' than indigenous forest creatures, and considerable effort is made to prevent them getting away into the real forest.²⁷ Karam folk tradition, which presents the pig not as something which has always been there but as an acquisition in ancestral times from a neighbouring people, the Maring, is consistent with this assertion. Karam also say that intensive pig husbandry is really very recent among them, within the last two to three generations, and ethnological evidence lends some support to this view.²⁸ They hardly figure at all in mythology, except in incidental references to their being cooked and eaten, but the one *sosm* we have collected which is specifically about them is worth reporting. It is very brief.

A man's younger brother died, so they say. He put three fences round the corpse. The first day he went to look at the corpse there were maggots on it. The second day he went to look at the corpse there were piglets on it. The third day he went to look at the corpse there were grown pigs. This was the origin of pigs. He looked after them and ate one. It was sweet. He bred them. This was in the Maring area.²⁹

The sense of this seems plain. Pigs, which live with us and share our food, even share our women's milk (for Karam women, like women in many other parts of New Guinea, sometimes suckle piglets), also eat our excrement (though we try to stop them) and eat our corpses (though we try to prevent that too). And we eat them. Given the disgust which Karam evince for eating rats and birds which are associated with corpses and with excrement, and also for the witches who are believed to break into graves to eat human flesh, it is astonishing that they can bring themselves to eat pork at all. But they do (with very evident enjoyment, one must add), and they get round the pig's insalubrious habits by letting only women eat pigs' tongues and intestines, which are considered to be the most contaminated parts. In the case of pigs which are known to have broken into human graves, it is said that women and old men eat the whole beast. Karam explain this, as also the long list of other animal and vegetable foods which women can eat at all times but which are prohibited to certain categories of males, by saying that women are stronger than men. But underlying this there does seem to be an analogy between the relationship of men to women, or perhaps of men to their wives and female affines, and the relationship of humans to pigs. Women are always potentially dangerous because of their childbearing capacities and menstrual activities, but you have to live with them. Pigs are also filthy creatures, but you have to live with them, too.

Lastly, unlike cassowaries and dogs, pigs are not seen as having an independent spiritual existence. Those informants who say that they have spirits (*mdmagl*) which survive after death say that these, like human ghosts, follow the watercourses down to the underworld where, as spirit pigs, they join the herds of the human dead.

I hope it is not too fanciful to sum up by saying that if cassowaries and dogs are quasi-humans, cassowaries the metaphorical cognates of men and dogs the distant potential affines and adopted children, pigs are not quasi-humans with a separate society of their own, but sub-human or non-human members of the human family: like women, only more so.

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The reader may wish to disregard my metaphorical statements about the relationships of these three special beasts to human beings: they are largely based on inferences, perhaps unsystematic, rather than on explicit formulations by Karam themselves. Nevertheless, I hope I have demonstrated that the statuses which these creatures occupy in the totality of Karam activities and thought are complex, and that to understand both their special taxonomic rank and the particular rules which govern their slaughter, handling, and consumption, one has to take an extensive body of ethnography into account. One cannot, I think, be satisfied with simple explanations of such things as dietary status in terms of taxonomy, or taxonomy in terms of dietary status.

There is of course a considerable literature on these problems, including notably Radcliffe-Brown's discussion of taboo (1952: 133-52) and of ritual attitudes towards animals (1922; 1952: 126-8) and the more recent contributions of Professor Lévi-Strauss (1966: esp. Ch. 7), Dr Leach (1964), Dr Mary Douglas (1966), and Professor Fortes in his recent Presidential Address to the Royal Anthropological Institute. Though I have not made explicit reference to any of this work, some of my debts will be apparent.

However, I shall conclude by referring—over-briefly—to the discussion in Dr Douglas's very interesting recent book (1966) of the status of two particular animals; the pig, as one of the abominations of the Ancient Hebrew, and that most interesting creature, the pangolin, among the Lele of the Congo. If I may somewhat unfairly remove her argument from its full context, Dr Douglas tells us that the pig was an unclean beast to the Hebrew quite simply because it was a taxonomic anomaly, literally, as the Old Testament says, because like normal domestic animals it has a cloven hoof, whereas unlike other cloven-footed beasts, it does not chew the cud (Douglas 1966: 54-5). And she pours a certain amount of scorn on the commentators of the last 2,000 years who have taken alternative views and drawn attention to the creature's feeding habits, the quality of its flesh, the moral virtues with which it is or is not endowed, and so on. Without pretending to having any knowledge of Hebraic or Semitic studies, I would myself regard the brief statements in Leviticus and Deuteronomy as taxonomic rationalisations, made by very sophisticated professional rationalisers, to justify the prohibition of a beast for which there were probably multiple reasons for avoiding. It would seem equally fair, on the limited evidence available, to argue that the pig was accorded anomalous taxonomic status because it was unclean as to argue that it was unclean because of its anomalous taxonomic status. In any case, Dr Douglas's argument does not concern itself with the reasons why the pig, originally prohibited by a tribe of pastoralists, has remained such a questionable beast right through from Old Testament times to the peoples of the Middle East, the Islamic world, and many western Europeans. Here I find Dr Leach's discussion (1964: 50-1) very much to the point. The commensal association of pig and man does seem to be the nub of the matter, and the fact that the pig was probably not a commensal associate of the Ancient Hebrew itself perhaps requires more explanation. If the archaeologists could tell us whether or not it was commensally associated with the neighbouring worshippers of heathen idols, this could be relevant.

However, when Dr Douglas leaves the pig and considers the pangolin, which is an animal of great ritual importance to a people for whom the ethnographic

record is in many ways more adequate, I find her analysis much more satisfying. Here we are told not merely the many reasons why the beast is taxonomically anomalous (a forest mammal with scales like a fish, which only produces one offspring at a time, and which curls up in a ball when in danger rather than fleeing from the hunter), but also something of the multiple dimensions or contexts of Lele thought and activity in which these anomalies become relevant (Douglas 1957; 1966: 166-74).

I am impressed by Dr Douglas's general theory of pollution, that this is associated with things that are out of place in terms of the order which a society seeks to impose upon itself and on the universe it occupies. But the trouble is that things can be out of place in so many different ways, in terms of so many different, even if linked, dimensions. The first problem, operationally, seems to me to be to ensure that the ethnographic record is comprehensively enough recorded and presented. I hope that this presentation of the Karam ethnography will at least indicate the complexity of the ethnographic task.

NOTES

This is a revised version of a paper read at the Royal Anthropological Institute on 27 October 1966. I undertook ten months' fieldwork among the Karam of the upper Kaironk Valley in 1960, 1963-4 and 1965-6 as part of a continuing programme of linguistic and social anthropological studies in this region conducted by the Department of Anthropology, University of Auckland. Grateful acknowledgement is made for financial support from the U.S. Public Health Service (M.H.07957-01), the New Zealand University Research Grants Committee, and the Golden Kiwi Lotteries Fund Scientific Research Committee of New Zealand. I must also thank my companions in the field, Bruce Biggs, Andrew Pawley, Graham Jackson and Inge Riebe, for their indispensable collaboration, Edmund Leach and Marilyn and Andrew Strathern for helpful comments on an earlier draft of this paper, and Meyer Fortes for characteristically insightful suggestions made in informal discussion of my field material.

¹ Spelling of Karam words follows the phonemic orthography of Biggs (1963).

² Aufenanger (1964) has published ethnographic notes on two other Karam communities of the upper Kaironk Valley. Reports on other Karam-speaking groups include those of Moyne & Haddon (1936) on the people living near Mount Aiome and of Gusinde (1958) on the people of the lower Asai Valley.

³ Aufenanger (1964: 164-72) describes houses in the upper Kaironk Valley.

⁴ Taxa as applied in identification or discussion of individual creatures. In most contexts in which collectivities of animals are being discussed, e.g. in statements concerning human diet, primary taxa applied to vertebrate animals constitute the same mutually exclusive set, but in discussion of collectivities of smaller creatures there are some simplifications. Thus, although in the identification of insects the term *joŋ* (15) can only be applied to grasshoppers and crickets, in general discussion of human diet it can be applied to all edible insects and spiders; similarly in answer to such a question as 'what does this bird eat?' *joŋ* can be taken to refer to insects and similar small creatures in general.

28 of the 94 primary taxa recorded are subdivided into mutually exclusive sets of 'secondary taxa', most of which are also 'terminal taxa' (t.t.), i.e. cannot be subdivided into standardly named groups. However, 28 secondary taxa are further subdivided into mutually exclusive tertiary taxa, which in all but two recorded cases are terminal taxa, these two (both birds) being subdivided into pairs of quaternary terminal taxa. 'Intermediate taxa' enumerated in this table are the secondary and tertiary taxa which are internally subdivided.

The larger primary taxa (*yaket*, *kmm*, *as*) are also subdivided internally in alternative and cross-cutting ways which are not referred to in this table: by habitat, size, plumage (of birds), cleanliness or uncleanness as food, and to some extent as 'families' (*kŋŋ*), though these lack standard names and definitions. Karam also relate certain taxa as developmental stages (e.g. *awleg* and certain *as*: 'tadpoles' and some 'frogs') or, among birds, as sexual pairs, without necessarily including the forms they thus relate within a single named group.

⁵ Pidgin-speaking Karam know that New Guineans from some other areas and Europeans regard cassowaries as 'birds'.

⁶ Men of some Karam communities, including Kaytog, now keep domestic fowls (*bojp*, *klokl*, or *yuyu*, placed in the primary taxon *yakt*), mainly for sale of birds and eggs to Europeans. They say they kept no fowls before European contact. I do not know the circumstances in which Karam themselves eat these creatures. Tame cockatoos, kept for their plumes, are not eaten, though wild ones are.

⁷ E.g. the Melpa of the Mount Hagan area (according to information kindly provided by A. J. Strathern) and their neighbours the Kyaka Enga (according to my own records). However, Diamond (1966) reports that the Fore of the Eastern Highlands District, like Karam, do not classify cassowaries with other birds.

⁸ *Kas* has a wide range of referents: hair, fur, feathers (in general), foliage. *Slp* is applied to the shoots, buds and in some cases blossom of plants, and to the elongated, thin tail feathers of certain birds. *Bog* is applied to relatively broad wing and tail plumes of birds, and also to wooden boards and to the walls and partitions of houses.

⁹ *Mok* or *muk* is applied to the viscous sap or resin of certain plants and to the body-fluids, milk (*tiy-mok*—'breast-mok'), semen (*way-mok*—'penis-mok') and brain (*jn-mok*—'head-mok'). Bone-marrow, however, is, *slom*, not *mok*, as is nasal mucus. Karam relate semen and brain and consider the brain of game mammals (*kmm*) and birds (*yakt*) to be strengthening foods.

¹⁰ One also 'practises avoidance' (*ask mosk g-*) in relations with affines and with cross-cousins of one's own sex, meaning in these contexts that one may not say their names. If such a relative has a name which is also the word for some animal, plant or object, this word must also be avoided in these other contexts and a synonym used. Many of these synonyms are the standard terms in 'pandanus language'.

¹¹ Over 40 named varieties of *Colocasia esculenta* are said to be grown in the upper Kaironk Valley. Approximately the same number of named varieties of sweet potato have been recorded. However, many sweet potato varieties are said to have been introduced within living memory, whereas this is true of only a small number of varieties of taro.

¹² Bananas, which rank next after taro in importance as a ceremonial crop and which are mainly grown in the same gardens, are also said not to flourish in forest clearings and at the forest edge. A similar but rather less elaborate antithesis between bananas and the things of the forest to that presented here for taro is postulated by Karam.

¹³ I am grateful to Dr Hobart Van Deusen of the American Museum of Natural History, New York, Mrs Dorcas MacClintock of New Haven, and Mr Basil Marlow of the Australian Museum, Sydney, for identifying mammal specimens. To Dr Van Deusen I owe the tentative identification of the 'terrestrial cuscus', from my account of Karam statements concerning its habits, as *Phalanger gymnotis*. Among locally known cuscuses (*Phalanger* spp.) and the superficially similar ring-tail possums (*Pseudocheirus* spp.), this species is singular, according to Karam lore, in characteristically having its lair in a rock-crevice or under the roots of a tree, and in spending much of its time on the ground, whereas the other morphologically similar species are essentially arboreal. The striped possum (*Dactylonax*) is remarkable, in the opinions both of professional zoologists and of the Karam, for the long digits of its fore-feet, and particularly for its very long fourth toe, which is used to extract wood-boring insects or insect larvae. The terrestrial cuscus is identified in Karam mythology with the ghosts of the dead, its subterranean lair being an entrance to the underworld. The striped possum is one of the creatures Karam associate particularly with witchcraft, on account of its very elusive habits and probably also because of its distinctive black and white markings.

¹⁴ *Alp*, *aypot* and also *klyan* (a small arboreal python, probably *Chondropython viridis*) are also foods which certain people cannot eat because they were forbidden and avoided by their ancestors, either paternal or maternal.

¹⁵ Botanical identifications of these palms have not been obtained. For brief further notes see R. Bulmer (1964: 148).

¹⁶ Individual palms do not fruit every year, and there is said to be considerable annual fluctuation in the size of the general harvest. Palms are keenly examined, some months ahead of harvest-time, to see if nuts are forming.

¹⁷ Some informants say that married couples usually abstain from sexual activity while making and planting taro gardens, and that it is usual for them to commence the period of regular and frequent intercourse which is deemed necessary to provide enough semen to form a child after the hard work of garden making is over.

¹⁸ In 'pandanus language' *yakt* are known as *wjblp*; *kmm* as *wjbeke*; *kobtiy*, the cassowary, as *wjbeke nmey*, 'mother of game mammals'. This designation may be taken as figurative. There are other instances in Karam taxonomy where one kind of creature is named as the 'mother' of another similar but much smaller kind. However, it does indicate clearly that cassowaries are seen as allied to other kinds of terrestrial and arboreal game, rather than to flying birds.

¹⁹ Kinship categories are applied to cognates of Ego's generation according to (1) sex of

relative, (2) whether relative is of same or different sex to ego, and (3), if of same sex as Ego, whether their parent(s) and Ego's parent(s) are cognates of same or opposite sex. Thus *mam* = brother or male parallel cousin (man or woman speaking) or cross-cousin (woman speaking); *ay* = sister or female parallel cousin (m. or w.s.) or female cross-cousin (m.s.); *n̄bem* = male cross-cousin (m.s.); *pañbem* = female cross-cousin (w.s.). A man cannot marry any *ay* for whom he has 'made gardens', i.e. who has lived in the same homestead as himself, or for whose marriage he may claim to receive part of the bridewealth. In practice this makes all first cousins unmarriageable, and certain second and third cousins also, depending on residence and on whether or not contributions to their parents' marriage-payments have led to continuing claims on their own bridewealths. Male first cross-cousins are said to have particularly strong interests in the marriage arrangements of each others' sisters, and these appear to be most pronounced in the case of a man's claim on his mother's brother's daughter, since, it is said, his mother's brother received the bridewealth for his own mother. As indicated above, *n̄bem* and *pañbem*, like affines, may not say each others' names.

²⁰ It is also said that the ownership of pandanus palms does not carry any continuing claim to land if it should be taken under cultivation. I do not know if disputes arise between men wishing to clear forest and owners of pandanus in the intended clearings. But informants were emphatic that once land had been cleared it could be disposed of by the clearer or his descendants without regard to the ownership of pandanus which might still stand on it. In fact there appears to be little if any regeneration of *gudiy* or *alyaw* groves in garden areas, though individual *gudiy* palms survive for some decades and grow, in these circumstances, to heights of 60 ft. or more.

²¹ Informants agree that men, dogs, cassowaries and birds (*yakt*) have *mdmagl* which survive after death, but disagree as to whether pigs and game mammals (*kmm*) do.

²² Karam distinguish two classes of stories, *sosm*, which are traditional tales referring to events outside the experience of living persons or specific remembered ancestors, and *kesm*, which are narratives relating the putatively true experiences of known people. Some *sosm* are at least in a broad sense 'myths', providing or reflecting accepted explanations for features of the natural universe, for certain human institutions and for human fate after death. Others are accepted as no more than fairy-tales, remembered and recounted merely for their entertainment value.

²³ Free and abbreviated translation of the story as tape-recorded in Karam by Bos, 13 year old boy of Gobnem, prompted and corrected by several older youths of the same kin-group, on 21 November 1963. In another version the two women whom the cassowary follows home are already the wives of the brother, and at the settlement the cassowary kicks down the walls of her brother's ceremonial house.

²⁴ *Ay*, as indicated in note 19, applies not only to a male's sisters and female parallel cousins but also to his female cross-cousins. Another informant said that cassowaries were the *n̄bem*, *mam* and *ay* of men. This is not inconsistent with the argument I advance, in so far as the children of cross-cousins refer to each other by sibling/parallel cousin terms if their linking parents were of same sex. Miss Riebe has, at my request, recently attempted to check this information. She tells me that only one of seven informants she consulted would confirm it, and he did so in so far as, he said, cassowaries were referred to as *n̄bem* when they were trapped, though not in general contexts.

²⁵ Dogs' teeth, like those of the larger *kmm* mammals, are strung in necklaces. They are said to have been an important valuable in gift exchange in earlier times. Teeth could be removed from a dead dog after the flesh had decomposed, without making one *asñ*: this parallels treatment of human corpses, which are considered to be especially contaminating until the flesh has decomposed and the bones have been cleaned for the second stage of the disposal of the dead.

²⁶ In the past six years a few domestic cats (*ksiy*) have been obtained by mission employees in the Kaironk Valley, and one or two of these have become feral. Karam are in doubt as to whether cats should be regarded as *kmm* or *kayn*, but majority usage at present appears to be to consider them as dogs and refer to them as *kayn ksiy*.

²⁷ Neither dog nor pig is indigenous to New Guinea. I am not aware of any good evidence as to the possible date of the dog's introduction. Pig bone has been found in archaeological deposits at Chuave, Eastern Highlands District, dated by C14 to between 3,000 and 4,000 B.C. (Bulmer, S. in press). Feral dogs (*Canis familiaris ?hallstromi*) have been reported from Mount Giluwe, Mount Wilhelm and other parts of the Highlands. Feral pig is widely distributed in New Guinea, though mainly, it seems, at altitudes below 5,000 ft. Kaironk Valley Karam know of the extensive wild pig population in the lower-lying Jimi Valley to their south, but say that there are no real wild pig in the higher altitude forests flanking the upper Kaironk Valley itself, only occasional escaped beasts from domestic stock.

²⁸ They say that the introduction within the last two generations of new, heavy-cropping

varieties of sweet potato which grow well at high altitudes has enabled them to make larger gardens and thus maintain larger numbers of pigs. Earlier, pigs were not used in the *smiy*, but *kmm* mammals were smoked and stored for one or two months for this, though at least one live *kmm* had to be captured and killed and cooked at the festival. If available, cassowaries were also used at the *smiy*.

²⁹ Narrated in Pidgin English by Gi, 19 year old youth of Skow, 4 September 1965.

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