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The map on page 7 was drawn by R.D. Metton,
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Dapatkah ditetapkan daerah2 kebudayaan dengan sukses sebagai kelompok2 bahasa? Tentu sekali ada kejadian2 yang terus berlangsung dan dapat didukung konsepsi membedakan politik, membedakan tentang hubungan keberke-pan-pan; pagatan ular yang dianggap sebagai akibat kematan-- dan lain2 sebagainya. Ahli2 ethnography yang baik sangat terbatas didaerah ini, lagi pula jumlahnya tidak bertambah seperti di Papua New Guinea. Apabila lebih banyak karya/tulisannya2 telah didokumentasikan, maka perbandingan ethnography yang hanya danaa itu akan menjadi jelas.

Ever since the time of Friedrich Mülller, at least, the term "Papuan" has covered a multitude of unclassified languages and cultures in the New
Guinea area (of Grace 1959:4). Except for the pioneering work of Father W. Schmidt; S. H. Ray and more lately Capei, this classificatory wilderness remained largely unpenetrated. 1 In the past ten years, however the picture has been rapidly changing, thanks in large measure to the work of S. Varm (e.g. 1960, 1964) and very recently C. L. Voorhove (1968). Since progress in the western half of the island is less well known and has been documented primarily in scattered work by Cowan (e.g. 1953, 1957, 1958, 1969, 1963, 1965) and Anezua (e.g. 1956, 1961, 1965) and unpublished work by Larson (as), a survey of our present knowledge is perhaps of value. Unfortunately not all of the surveys and publications that are available are helpful. Beelaar summarized Father Drabbe’s pioneering contributions to our knowledge of the languages of the south coast of Irian Jaya, but the work is mainly typological in its classificatory procedures (1950). Even some very recent work is mistaken and misleading. One of the otherwise very valuable ethnological descriptions of Grand Valley Dani culture contains a map of the Dani area which includes the Goliath mountain “pyrmics” within the area and excludes from it well known Western Dani centres like Iлага and Stanak valleys (Broekhuijze: 1967:14). The Goliath area was included on the basis of photographs published by the Saulnier “sun-beneath-sky-above” expedition, which Broekhuizene somehow thought showed “strong conformity” to the Dani culture (1967:16), but no reason for the omission is given. Varm’s only published classification of highlands languages in Irian Jaya is based on inadequate data (1960:131), and some of the most exciting indications of large groups of genetically related Papuan languages are only now appearing, with little yet published.

The purpose of this paper is to present a picture of ethnic groups in one part of highlands Irian Jaya where the writer has some first-hand experience, to indicate the sorts of problems encountered in classifying these groups, and then to survey ethnic and/or linguistic groups in the remainder of Irian Jaya and their ties with groups in adjacent areas in other islands of eastern Indonesia and in Australian New Guinea.

THE DANI AREA.

The writer’s first-hand experience has been largely in the Grand Valley of the Baliu (Indonesian spelling), in what is now commonly referred to as the Dani area. On October 29, 1909, the first reported contact by Europeans with mountain people of New Guinea was with people along the upper Lorentz River who identified themselves as Passegam and Morip (Lorentz 1913). In the early twenties the Keeser expeditions reported the names Timorini and Oeringoep for the population of the Swart valley (Le Roux 1948:7). People who live there now can make no sense of either name (O’Brian 1969)! Apparently the name Dani, in that form, came into the literature at the time of the Stirling expedition of 1926 (Le Roux 1948:7). Recent additions to the gazetteer include Dugu and Wiligiman-Walalo (Heider n.d.); Wiligiman (Broekhuizone 1967); Jalé (Koch 1968); and Wangaclam (Ploeg 1969). Who are these people, and what do these names mean?

All of the groups referred to in the last paragraph speak languages of a single family which may be called the Western Dani language family (Bromley 1967). However none of the speakers of these languages would refer to himself with this label used in this sense. Some Grand Valley people identify themselves, in some contexts, as members of the Lani or Dani clan, a rather small clan among many. Perhaps most of the speakers of the Western Dani language would call their language Lani and themselves Lani men; the term is probably cognate with the Grand Valley clan name, which perhaps derives from it. Their Dani and Moni neighbors refer to them as Dani. Sometimes people of other ethnic groups include the Western Dani and the people of the Grand Valley in a single clan. Often that clan excludes speakers of some related languages, particularly Kugwa and Wan, which are typically spoken in small valleys north and south of the larger, central valleys. In the eastern part of this area people from the outer valleys are often labeled contrastively with reference to the central group. Many speakers from the lower Grand Valley label the populations outside the range rimming the Baliu with the term Kwalik ‘outside the range’, and the latter people label the populations in the central valleys as Kupla ‘in the valley’. Each of these labels classifies a group of people who, in contrast to members of the oppositely labeled group, share many cultural traits and patterns, speak languages
of a single sub-family and occupy areas similar in terrain.

These people themselves identify their ethnicity more frequently in terms of smaller groups, depending on the context. A traveler meeting new people frequently reveals his society and/or clan in order to identify himself with his hosts along a dimension useful in establishing trade or possibly marriage ties. He identifies his home area, when away from it, in geographical terms, usually valley names. Some geographical labels are conventional in such contexts. Knyageina, for example, is the name for a single valley, the valley of the Knyage, when it is used in that area. Outside the area it refers to that valley and two others in the same watershed which are inhabited by members of a single political confederacy.

On his home ground a person most often identifies himself and his identified by his political group, made up as locals see it, of members of named clans who live in a defined area. The category name for these ambiguously refers to clan (Hurdock's sib), or the smaller local political group, which is usually named for two clans of opposite society represented in its membership, or the larger political group named for one of the constituent smaller groups. When asked, "What is the name of your kiny" or "What (sort of) man are you?" a Grand Valley Dani may reply with any of these three conceptually distinct sorts of names, although the latter question more often prompts an answer in terms of clan membership. Panesas and Biricas, the first ethnic labels reported from this area, are names for widely distributed clans of opposite moieties. Wiltesan is in fact a double label for a smaller political group named for the Willi and Rolema clans, and Wiltesan-Walana is a doubling of doubled labels for two such political groups closely knit together. The larger political group, which may conveniently be called a larger confederacy, includes from one to perhaps ten thousand members, and there are a few more than twenty of these large units in the Grand Valley and Balin gorge area (cf. Peters 1965: 59). The larger confederacies are related to some others as allies, to still others as enemies on a shorter or longer term basis. In the North Bali and other Western Dani areas, alliances appear to be for shorter periods related to specific war. In most of Grand Valley and the gorge, they are for longer periods, extending in some cases over several generations of traditional enemy relationships.

These political units are not always congruent with linguistic or cultural groups. In the Itaga valley, some units with paired names are comprised of Western Dani clan segments linked with Damal clan segments and so named, although Danas speak a language related only very distantly to Dani. The Pasea confederacy of the southwest side of the lower Bali gorge includes speakers of two languages of one major sub-family and one language of the other main sub-family of the greater Dani family, but the confederacy is commonly referred to as one political unit, Pasea or Buguana.

The most inclusive classification used in these areas is the label "people", but this is not limited to speakers of a Dani language. Speakers of Ekagi/Kapsuku (both outsiders' names for the peoples of the Panisi-Yage-Tigi-Kam-Mapiya area) do indeed refer to themselves as an 'people' in contrast to those of other languages and cultures. But in the Dani area, "people" is a term contrasting with "ghosts", and clearly all highlanders people known to the Dani were included in the "people" class. Coastal people and Europeans, both unknown until recent years, were sometimes included, sometimes excluded, sometimes included as marginal "people" in contrast to the "real people", or sometimes, usually after some period of acquaintance, fully included in the class "people".

Dani ethnic identifications thus involve factors of prestige and ecology in the 'inner' and 'outer' valley labels; linguistic and other cultural factors are also operative in these classifications. These large, high level groupings are made and used largely by persons who travel extensively themselves, meet many travelers or live in a poly-cultural or poly-lingual valley. In mid-Grand Valley, where trade is carried on often by small colonies or groups of bilinguals, the majority of the population is linguistically and culturally homogeneous and is untraveled. High level language or culture labels are much more rarely heard there than in Western Dani areas, where a relatively large percentage of the population has traveled to some other valley and encountered speakers of other languages.
Identification in terms of political confederacy membership is the most common kind of ethnic labeling in the Grand Valley area, as we have noted, and is a very common kind of classification throughout the Dani area. The first contact in the upper Lorents valley was with people at home, who referred to themselves with clan names, perhaps as names for their political units. Many of the later contacts with people in this area were with travelers away from home or with people in the western, poly-lingual valleys, so that the name Ndani or Dani for speakers of the Lasny language and others grouped with them was frequently recorded.

We may now survey what we know of linguistic relationships in the greater Dani family, as they are indicated on Map 1 (cf. Bronley 1967). Western Dani is the fairly homogeneous group of mutually intelligible dialects labeled by many of the speakers as the Lasny language. It is spoken in all the North Balin, the Swart valley system, most of the Sinak and upper Jano or Mogolo, most of the Ilaga, in enclaves in the Booga, Bugindoga and upper Kenindoga valleys, in the extreme upper Habilocerie watershed around Sokondini, the top of Grand Valley and in enclaves in the upper Kibin and Bole or Ibele valleys.

Grand Valley Dani is a chain of dialects much intelligible with the next from the Pyramid mountain area in upper Grand Valley to the Samonag river on the southwest side of the gorge and a little below the Wet river on the northeast side of the gorge; dialects of this chain are also spoken in enclaves between Grand Valley and Archbold Lake and between Grand Valley and some North Ngalik or Jali populations. There is no local term used by people in this area for this whole dialect chain; the opposite ends of the chain are mutually unintelligible dialects. Grand Valley Dani and Western Dani constitute a sub-family within the greater Dani family.

Wano is spoken on the north side of the Jano valley, a fringe area of low population density and much poly-lingualism. The name Wano is used both by speakers of the language and others to identify them. It probably constitutes a separate sub-family within the greater Dani family, but further study may put it within the central Dani sub-family.
The other main sub-family includes all the other known languages of the family and covers a U-shaped area to the north and south of the central Balim valley system and across the Balim gorge at the southern edge of highlands population. The northeastern arm of this U stretches from a point northeast of Bokonisini through the outer pass or Landik valley, through the Abagapelli area, on through the western three and west side of the fourth valley of the five valleys of Jalymo, then south across the main range to the Seng and Haluk valleys, along the northeast side of the Balim gorge up a bit past the Kwik and the southwest side of the gorge up to about the Elu. The dialects spoken in all these areas are structurally and in vocabulary very similar, and apparently most of them are mutually intelligible. People from Grand Valley call most of this area Jalymo, but do not normally include the Balim gorge, Haluk or Seng valleys; the language and people of Jalymo are called Jaly. However, the people of these areas use the term Jaly not to refer to themselves, usually, but to people farther east, particularly those of the Golish family area. The latter also employ what is apparently a variant of this term for people in the eastern part of their territory, in contrast with those in the western part: the usage is apparently relative to where the speaker is (Sadlier 1969ms). The term seems in all these areas to be translatable by 'east', not as a point of the compass contrasted with three other points, but as a point oriented toward the source of some kind of shell goods. This is contrasted, for people in the 'Jaly' area, with a term cognate with Kupla, which may be glossed 'in the valley', i.e. the Grand Valley, the other conceptualized end of the trade route.

From the Elu creek in the Pasena area on the southwest side of the Balim gorge up the gorge to the Samenage river, up the south side of that river and over the range through all the Nyua or Mbo watershed, the Wusak or upper Lorens and probably the Hala and Wylgy valleys, a chain of languages or dialects are spoken. These languages or dialects and their inter-relationships are not yet adequately known. Speakers of these languages or dialects apparently recognize most if not all of them as 'our language', and all may be dialects of a single language for which no single label is widely used.

The term south Ngalk is simply a specification and application of the Lower Grand Valley term for the languages and cultures outside the ranges along the Balim valley.

Probably between the Wylgy and Inije valleys is a language break beyond which Nduwa is spoken. This is a chain of dialects spoken in the Inije, Mbuwa, Jigi-Mugi and Kapnduma areas and in a few valleys farther west to the Balama and Bala valleys, smaller valleys of slight population, where there is reported to be considerable bilingualism between Nduwa and Damal. Nduwa is also spoken by enclaves in the Sinak, Dugindoga and Uwe valleys, and the speakers refer to themselves and are referred to by others as Nduwa. They and the speakers of what is here called south Ngalk are grouped together by many lower Grand Valley speakers as Ngalk 'outside the rim', and, as we have noted, some speakers include the Jaly area as well in this term. All the languages in this long U-shaped area comprise a single sub-family of the greater Dani language family; each language in the chain is more closely related to the next language in the chain than to any language of the central sub-family. The kinship terminologies in these languages group a woman's children with a man's children; the terminologies in the Western Dani and Grand Valley areas distinguish them. Many culture similarities, which are contrastive with the central valleys, are reported from this whole U-shaped outer area. A single basic pattern of women's skirt occurs throughout the area, house types are similar and, probably because of similar ecological situations, some minor crops uncommon in the central valleys are planted in all this area.

PROBLEMS OF CLASSIFICATION.

In this language and culture area, what ethnic identifications and groupings are most useful for the ethnographer? Clearly the answer depends on the focus and purpose of his study, but certain general principles appear to be relevant. First, groups are most helpfully established on locally relevant criteria, criteria that are contrastive in some contexts for the people being classified. The wooden application of analytical criteria
defined in terms extrinsic to the data is not very illuminating and is
sometimes impossible. Naroll suggests, for example, criteria of distance
measured in kilometers or visits per year counted as a basis for establishing
contact links in defining groups (1964: 287). In the precipitous highlands
of Irian Jaya where travel for local people is on foot and where long-standing
enemy boundaries could not normally be crossed peacefully, such criteria are
meaningless. The writer lived for more than two years in an area separated
by less than thirty miles of quite flat terrain from the site of the
spectacular American parachute and glider rescue operation of 1945. Careful
and repeated inquiry failed to uncover any knowledge of that operation,
although some people had heard that a plane had crashed. The rescue was
conducted in a well populated corner of Grand Valley, but one separated from
the area of my inquiry by two major fighting boundaries. On the other hand,
people in that same area of study had heard of penetrations by white men into
valleys south of the range, areas at least as far away as the crow flies and
actually separated by a very high pass, over 13,000' above sea level.
Distance must be measured in terms of effective interaction, and in the
context of the periodic major pig feasts characteristic of highlands New
Guinea, such interaction may be maintained by contact much less frequent than
once a year.

Extrinsically defined criteria of language relationship are also
confusing. Naroll (1967: 77) suggests that two basic vocabulary lists with
80% of the contained words occurring with 80% of their phonemes in the same
order represent two dialects of a single language. Laycock and Wurm tried
similarly to define the dialect/language break in terms of a fixed percentage
of cognate basic vocabulary. Such criteria are operationally convenient when
viewed from a distance, but do not work on the ground. As Hymes has carefully
pointed out (1967) and the writer has argued (1967:297), the difference
between dialect and language involves not only percentage of cognate basic
vocabulary items but also congruity of phonological, grammatical and semantic
patterns. Two different pairs of isolates or language varieties, each
sharing nearly identical percentages of cognate basic vocabulary, have been
observed to permit ready communication by monolinguals after a very brief
contact in the one case and to fail to permit effective communication after
a month of continuous contact in the other. Sankoff reports similar
phenomena from the Morobe district of Australian New Guinea (1969). The
point is not that measurement of cognate basic vocabulary is irrelevant. On
the contrary, much of the recent advance in the classification of New Guinea
languages has been in lexico-statistical studies. However, the subgrouping
of dialects into languages, languages into families and families into larger
groups needs to arise from the data rather than be woodenly imposed on the
data.

It is to be noted, however, that the ethnographer may often wish to
utilize locally relevant criteria to label a group left unlabeled by its
members. We have noted that speakers of Dani languages do exactly this
themselves. Grand Valley speakers label as Nevalik 'those outside the rim'
people who do not themselves use this or any other label for this higher
level grouping, or even recognize the group. Those labeled Nevalik in this
way in turn use identical kinds of criteria to classify Grand Valley people
in a category not recognized by the latter. It is no accident that many
New Guinea ethnic group names are outsiders' names for groups the members of
which do not recognize or label this larger unit, e.g. Sentani (Cowan 1965 : 1).

The crucial issues in ethnic classification are those connected with
defining the groups under study in relationship to other related groups. What
smaller groups are included in the group? In what larger groups is the
proposed taxon included? In short, what is the position of this group in a
reasonable taxonomy of ethnic groups in the area? In much of the available
literature, names are given in a list, or on a map, and they comprise no set
other than the trivial set 'names on this list' or 'names on this map'. At
the present, rigorous taxonomic classification of ethnic groups in Irian Jaya
is only possible in terms of linguistic relationships. Much careful
comparative work in defined domains of culture needs to be done before any
very meaningful classification of New Guinea groups on other than linguistic
criteria will be possible.

OTHER LANGUAGE GROUPS IN IRIAN JAYA

Austronesian. In Irian Jaya as well as the eastern half of New Guinea there are exciting indications of significant progress in language classification. Not many years ago the linguistic map of Irian Jaya had only two contrastive categories, Austronesian and non-Austronesian (see Boser 1956). Even that dichotomy is not without complexities. Miller, who introduced the term 'Papuan' for classifying languages, himself applied it to Numfor, which has now long been recognized as Austronesian (cf Grace 1959: 4). And so recent a study as the survey of Papuan languages by Cestmir Loukotka maps Wamena, Bentuni and Tobati as Papuan (1957: map opposite 32), although all these are generally considered to be Austronesian. He also maps Mol as Austronesian, but this is less surprising, for it is one of several Bird's Head languages which include some Austronesian cognates in their basic vocabularies but structurally conform to a non-Austronesian pattern. After a period of indecision (1953: 49), Cowan classified these languages as non-Austronesian, arguing that there were as many correspondences with the non-Austronesian languages of North Halmahera as with Austronesian and that the former involved longer sequences of comparable phonemes which are thus statistically more significant. He further argues that borrowing from Austronesian was a common feature in these areas, but borrowing from North Halmahera "is practically excluded because of the geographical situation" (1957: 82). Here he neglects to note the very sweeping influence of the sultanates of Ternate and Tidore through this very area. However, the correspondences with North Halmahera languages are no more significantly with Ternate and Tidore than with other languages of the area. This problem is only illustrative of the problems involved in this area where Melanesian languages have apparently borrowed non-Melanesian vocabulary and even structural features, and non-Melanesian languages have borrowed in the reverse direction. If Cowan's solution for the western Bird's Head languages is sound, as it seems to be, there is little indeterminacy remaining in the classification of languages of Irian Jaya other than basically Austronesian or basically non-Austronesian.

Dyen's sweeping classification of Austronesian languages by means of lexico-statistical comparisons has provided the most significant grouping of the Austronesian languages of Irian Jaya. He groups most of these into four higher level taxa but leaves five languages as isolated taxa. The higher level taxa are the Higic Cluster, including a subgroup consisting of Bui of southern Halmahera and Minyafu of Welpen island, and the As language (location in Irian Jaya not specified) and the Bie language located on Wuke. The second higher level group is the Sarmic heison, including a Sebic subfamily consisting of Sobei and Moar, both located in Dyen's finder list on Wukie, and Tapia and Bonggo from farther east along the coast. The third group is the Geelvink Heison, including the Biakic subfamily of Biak and Numfor and the Wamandic subfamily of Wamandam and Japan. The fourth group is the Hollandia subfamily, including the Tobatic subfamily of Tobati and Kajupulau and the language of Ormu. In this list perhaps some geographic locations are in error. It is at least rather remarkable that the tiny island of Wukie, about a mile in diameter, is listed as the home of speakers of three languages of two major taxa. This is possible, of course, and all the samples bear the initials GG in the finder list, indicating that Grace provided them from his trip through the area. However Dutch authors refer Sebic to the Sarmic area and speak of 'the language of Wukie' (cf Cowan 1953: 4; 1952b: 175).

The five languages left ungrouped are located on the Bokorai peninsula and the Waropen coast, and include Sekar, Kuvai (also called Kuvai, Kowal and Namotora), Argui, Kasira (also called Irahutu, Iriatu, iritu) and Waropen. Anceaux had earlier reported much closer relationships between Waropen and Wamandam, with 50% shared basic vocabulary, and between Kasira or Irahutu and Iriatu, with 29%. Iriatu and Wamandam, with 26%, and Iriatu and Waropen, with 27%, than Dyen's figures of 18.9% as the highest percentage for Kasira and 13.6% as the highest percentage for Waropen (Anceaux 1961: 145ff, Dyen 1965: 26). After Grace commented on the figures for Jautefa and Tobati, languages of the Jayapura (formerly Hollandia) area, Dyen rechecked
them and revised the percentage of shared vocabulary from 36.9% to 65.4%. This and Anciaux's figures indicate that careful recheck of probable cognates among these languages might yield significantly different results. However, even the radical revision noted (Ryan 1965: 99), did not alter the major classification, and the remarkable result of Ryan's work is the documentation of many taxa of Austronesian languages in Melanesia, including several in Irian Jaya, which are of equal taxonomic rank with the whole Malayopolynesian group. Whatever the source of this divergence, the classification is highly important both for its results and for its method, by which subgroupings are determined lexicostatistically not by fixed percentage limits but by clustering phenomena in the data.

**Non-Austronesian: highlands phylum.** The more interesting developments in language classification are in the non-Austronesian areas. Moving out from the greater Dani language family surveyed earlier in this paper, we may note relationships with neighboring languages. Dem, a language spoken by a relatively small number of people living mainly on the north side of the Jayaw branch of the upper Boumaer, constitutes a separate language family. Dani shares about 10% basic vocabulary with Dem. In turn has as its closest relative Damal or Kunundu, a group of largely mutually intelligible dialects including Amung, the southern dialects labeled Enggipili and Ingki-poles in early reports (Le Roux 1950: 95). Den shares a little less than 15% basic vocabulary with Damal according to a recent recheck (Ellenberger, personal communication). Moving west we come to the family consisting of Kapsou or Bkgi (including dialects also called Tapir, Simori, and Awja or Jati), Moni(also reported as Djongguru, a clan name, and Migani) and Woda (or Wolani); these share 40% or more cognates with each other. Dani shares about 30% cognates with Kapauku and Woda, perhaps as much as 17% with Moni, according to an early recheck by Larson (ms). He also calculated that Western Dani shares about 13% cognates with Moni and Woda and 11% with Kapauku. Dani shares less than 5% cognates with Damal. Thus these languages comprise four separate language families; within each family languages share a minimum of 40% basic vocabulary. Together they may be described as a phylum, each family in which is tied to more than one other family by 10% or more shared vocabulary. If one wishes to make an intermediate level grouping, the figures would indicate the legitimacy of grouping the Bkgi-Moni-Woda family with the Dem family and the Dani family in one sub-phylum, leaving the greater Dani family in another sub-phylum. The phylum may conveniently be labeled the Irian Jaya highlands phylum (cf Bromley 1967: 300).

**The Central and South New Guinea phylum:** 1) the Goliath or Kim-Jal family. East of the Irian Jaya highlands phylum, specifically east of the Dani family, is the Goliath family (Bromley 1967:1), for which one of the workers in the area has recently suggested the name Kim-Jal (Sadlier 1969). On the north side of the range the boundary between Dani and this family follows the Usogak river in the Jalymo area of the Habilhoer family headwaters, then runs northward to include the Usogak 'valley of the seventy' (S. Zollner, personal communication). South of the range, this boundary is between the Seng and the Erek valley. From these boundaries with Dani, this language family stretches eastward and includes all the valleys of the Marikke or Ar river system on the north side of the range, including Ok Bi, the easternmost valley in this system, where Kupel is spoken. Kupel is also spoken in a few villages south of the range on the upper Ok Tjap, just north of Ok Stibil (Bongersma and Venema 1963: 250, Pouwer 1964: 135). From there westward languages of this family, including that early reported for Goliath mountain 'pygmies' (de Kock 1912, reported in Le Roux 1950: 902-913), are spoken as far as the boundary with Dani. In contrast with Dani languages, so far as is known, these languages are reported to be spoken both north and south of the range down to very low altitudes where sago is commonly eaten and canoe are used (Sadlier 1969). Only the language spoken at Maltja has been studied in any detail; it is clearly tonal, with two contrastive levels demonstrated (Bromley ms). Sadlier has prepared a very useful introduction to this language and corrects the misimpression hesitantly reported by Sealey (1964a: 43) that Kupel is a dialect of Ngala, and the misimpression left by my article (1967: 299) that the Goliath languages are about equally unrelated.
to Dani and to the Ok languages. He says that a rough count gives Kupel 24% possible cognates with Ngalam, the Ok language spoken at Ok Sibil, but 70 to 75% shared basic vocabulary with the Haltja language. Healey had a count of de Kock’s list to yield 10% cognates with Ok (1944: 116), and C. L. Voorhoeve claims 25% possible cognates from a recheck of the lists (1968: 10). My own recheck of an improved list for Haltja against Healey’s lists shows eight clear cognates out of 81 comparable items, plus several doubtful, possible cognates. Thus the Goliath family is clearly a group of closely related languages, sharing 50% or more basic vocabulary with each other (cf. Bradley 1967: 299), but this family is also closely related at a higher level to the Ok family of languages with perhaps 10 to 25% shared basic vocabulary. In contrast, there are still, on better lists carefully rechecked, only three or four possible cognates with Dani on the Swadesh hundred word list.

2) The Ok family. The Ok family has been very carefully documented and proto-Ok reconstructed by Alan Healey (1964); his work is the most extensive piece of comparative linguistic study yet carried out or reported in New Guinea. The family includes two sub-families, Mountain Ok, to which Telofo and several other languages spoken in Australian New Guinea belong, and Lowland Ok, including languages spoken along the western bend of the Fly river. In Irian Jaya, Ngalam, the language spoken at Ok Sibil and northward across the range at Kivirol, belongs to the Mountain Ok sub-family. Just south of the Ngalam area in the valley of the Iwur river another language is spoken which is apparently intelligible to speakers of Kati or Maju, and these languages belong to the lowland Ok sub-family (Healey 1964: 43-4). Healey divides Kati into two languages, northern Kati and southern Kati, and notes that Iwur and Jongoom may be dialects of the former. He also lists Minggurun, spoken along the international boundary east of the Kati area, in the lowland Ok sub-family.

3) The Awju family. Healey in 1964 (116) noted the relationship of the Ok family to the Awju family, best known from the descriptions published by Father Drabbe (1957, 1999). These have been reassessed lexico-statistically by C. L. Voorhoeve, who suggests that what Father Drabbe called six dialects are probably six different languages: Siaiga and Tenim, sharing 78% basic vocabulary; Pasa and Agau, sharing 66%, and Kasti and Waskon, sharing 64%. Siaiga shares 54% basic vocabulary with Pasa, which shares 38% with Kasti, and this in turn shares only 31% with Siaiga (Voorhoeve 1968: 4). These languages are located over a wide area of the inland lowlands in southeastern Irian Jaya. Waskon and Kasti, commonly grouped together and called Durnut or Mandobo, are spoken along the Mandobo river west of the Kati area; Waskon is spoken upstream, Kasti downstream. Agau, often referred to as Dja, is spoken between the Digul and Mapi rivers west of Tambuherah, and Pasa is spoken farther on to the west along the upper Kampong rivers. Siaiga and Tenim or Tenim are spoken north of the lower Digul. Besides these languages Sawi, spoken in the hinterlands along the first river north of the Cook river, is being studied by missionary D. Richardson, who notes its affiliation with Awju (personal communication). Whether the relationship is at the language family level or more remote is unreported. For the Awju family as a whole, Voorhoeve calculates a close relationship to the Ok family as indicated by 28% shared basic vocabulary between Agau and both Kasti and Telofo (1968: 5).

4) Kamoro-Sempan-Una family. Along the south coast from a point a way southeast of Cook’s Bay west to Etta Bay are spoken closely related languages. The easternmost of these, Una, has been studied by Drabbe (1963), Voorhoeve (1965) and Rosaler (ms). Varying dialects are spoken along the coast from a point between Cook’s Bay and the mouth of the Digul westward to a bit beyond the mouth of the Nomac or Le Cog d’Armandville, and in one separated area east of the confluence of the Eilanden and the Wideman. West of the Nomac is an uninhabited strip, then from the Otekwa to the Okamuga a language Drabbe calls Sempan (1963: 2) is spoken; from there west to Etna Bay the language commonly referred to as Minaata or Kamoro is spoken. Others view Sempan and Kamoro as dialects of a single language. Inland from the Sempan area a language called Nafulipi is spoken; this is reported by a
missionary working in the area to be a dialect of Konoro (C. Rasber, personal communication), but no figures or final determination of the relationship are available. Figures for the relationship of these languages are cited by Voorhoeve to indicate 70% shared basic vocabulary for Konoro and Amat, and 72% for Sempan and Amat. This language family as represented by Amat shows a very close relationship with Ok, indicated by 42% common basic vocabulary with Telefol and 30% with Kati; and also a close relationship with Awju, indicated by 34% shared basic vocabulary with Aghu.

5) Kombum. The language spoken on Kombum island, south of Kolepom or Prince Frederik-Hendrik island, is commonly called Kombum, and has, according to Voorhoeve, its closest relationship with the Asma-Kamoro family, indicated by 28% shared basic vocabulary with Amat. Voorhoeve is the first to assess the relationships of this language meaningfully.

6) Sentani. Perhaps the most exciting development in the area is the documentation of a definite and rather close relationship between Amat and Sentani; in a paper by Voorhoeve soon to appear in *Bidragen*, he indicates that this relationship is perhaps at what he calls the stock level, following Swadesh, thus indicating from 12% to 21% shared basic vocabulary. The common vocabulary includes terms appropriate to watery environment where canoes are used (Voorhoeve, personal communication). At last writing Voorhoeve indicated that the relationship extends on to Kimboran, earlier shown to be related to Sentani (Cowan 1957b: 113). However, that relationship must be considerably less close, if Cowan’s figures for the Sentani-Kimboran relationship (six shared items out of 73) are accurate, as they should be in view of Cowan’s own important work on Sentani. Voorhoeve was not at last writing sure about the Tami river group of languages along the international boundary east of Jayapura, and indicated that the Tor languages, which Cowan related to these, apparently showed no measurable relationship to the new group. This question will be discussed again below.

7) The Marind stock. The southeastern corner of Irian Jaya includes the important and widespread Marind languages, including Bian, along the Bian river, and southeast Marind, near Welsah; these are best known from the extensive work of Father Drabbe (1955). Voorhoeve reports 67% shared basic vocabulary between these languages, and he now (personal communication) considers these languages to comprise a family (Voorhoeve 1968: 5, and personal communication).

A second family in the Marind stock consists of the Jaqai or Yqasi language, spoken just north of the mouth of the Digul; it shares 50% common basic vocabulary with the Marind languages (Voorhoeve 1968: 5). Jaqai is also referred to as Soiur.

A third family in the Marind stock, as Voorhoeve now outlines the relationships, is Boazi-Zinakani. Boazi is spoken just south of the easternmost bend of the Fly, and Zinakani is spoken just below the junction of the Fly and Strickland rivers. Boazi is apparently a dialect of Kun. Other languages in Australian New Guinea or Papua belonging to this family are Baewa and Eia, although the latter may be another name for Zinakani-Baewa. This family was first established by Murray and EIA as the Marind-Kuni family (1918; see also Healey 1964: 106). Voorhoeve finds that Boazi shares 26 to 27% basic vocabulary with the Marind languages and 21% with Jaqai. This stock, represented by Bian Marind shares 12% basic vocabulary with Amat and also with both Kati and Telefol of the Ok family, and 15% basic vocabulary with Awju as represented by Aghu (Voorhoeve 1968: 7). Thus this large family, in Voorhoeve’s 1968 terms, or stock, as he now describes it, is very significantly related to the Ok family, the Awju family and the Konoro-Amat family.

8) Kivi-Miriating stock and Tirio. The establishment of the Kivi family was the first fruits of the large linguistic harvest still being reaped by Wurm in New Guinea (1951). Using island Kivi of the southern Kivi language as representative of the family, Voorhoeve’s cites Wurm to the effect that Kivi shares 27% basic vocabulary with Miri, spoken in the islands south of the Fly delta. Using Kivi again as representative of this stock, he further lists 22% shared basic vocabulary with Telefol of the Ok family,
21% with Gogodala and 12% with Bkan Marind (1968: 7-0). Tirio is treated separately by Voorhoeve, but cited, again using Wurm's data, to have 22% shared basic vocabulary with Kiwai. It is questionable whether the difference in degree of relatedness of Tirio with Kiwai as compared to the relatedness of Miriam with Kiwai is sufficient to exclude Tirio from this stock, except on a rather wooden application of Swadesh's arbitrary cut-off points.

9) Gogodala-Suki. Although he did not group these languages in his 1968 paper, Voorhoeve now groups them (personal communication) and notes that Gogodala and Kiwai share 21% basic vocabulary. In the absence of figures for Suki, the separate listing of this group can only be assumed to be well founded.

10) The Oriomo River family and Agob. Three languages, Bine or Kunini, Cidra and Gisra comprise the Oriomo river family, located just south of the Fly delta; these languages share about 32% basic vocabulary with each other (Voorhoeve 1968:7). According to data taken by Voorhoeve from Wurm, Bine shares 20% basic vocabulary with Kiwai, 23% with Miriam (1968:8). The Agob language, also called Dabu, is spoken just to the west of the Oriomo family, and shares 16% basic vocabulary with Bine (Voorhoeve 1968:8).

11) Middle Strickland stock. Voorhoeve now recognizes two families, Awin-Fare and Bedamini, as comprising a single stock (personal communication). Besley (1964: 116) had already established the Awin-Fare family and noted a relationship with the Ok family. Voorhoeve's fieldwork in the Nomad river area between the Strickland and the Bighlands has now furnished the basis for establishing the Bedamini family including the Sano, Kobo, Bedamini or Beami and Bosavi languages. The first three are very closely related, Sano sharing 80% basic vocabulary with Kobo and also with Bibo. Bibo shares 37% basic vocabulary with Beami, which in turn shares 29% with Bosavi. Beami of this family shares 18% with Ba of Awin-Fare, and Sano shares 33% with the same language (1968: 6). From the data presented in his 1966 paper, where these languages were classified as one Pare-Sano-Beami-Bosavi family, it is not clear why Voorhoeve now wants to classify them as a stock including two families unless he is arbitrarily applying Swadesh's 21% cut-off point for family level relationships, thus excluding the Ba-Beami relationship, or has new data. Since this is an area of his recent interest and specialisation, one may perhaps assume the latter to be the case.

12) Pasu. This language spoken just west of Lake Kutubu had previously been noted by Wurm as not a member of his East New Guinea Highlands Stock or Phylum (1964: 80). Voorhoeve notes that it shares 12% basic vocabulary with Beami, 19% with Bosavi, and includes it here. The lists used for Pasu were shorter than most used in Voorhoeve's paper, including only 64 items comparable with Bosavi, and it may prove that Pasu will group more clearly with the middle Strickland stock.

13) Kolepom or Frederik-Bendrik Island family. Moving back to Irian Jaya, Voorhoeve proceeds to bring into the discussion a number of definitely but more distantly related taxa. From Drabe's data (1949) he is able to establish Kimakama, Riambana and Kilom, the major languages of Kolepom (formerly Frederik-Bendrik Island), as one family, with basic vocabulary shared at levels from 32% to 43%. This family, represented by Kimakama, shares 11% basic vocabulary with neighboring Mombum (which is clearly related to Amat, as we have noted) and 7% with Gawir Marind.

14) Yelmek and Maklaw. These two languages, which share 56% basic vocabulary and thus comprise a family, are spoken just east of Kolepom. Van Beal, referring to a comment of Father Ver Scheuren, mistakenly takes these languages to be dialects of Jaka (1966: 14-15); that comment would be appropriate for Cae, a Jaka pocket on the south bank of the Digul, but is wrong for these languages, already grouped by Boelens (1950: 200). Voorhoeve showing their relationship to each other, notes that this family as represented by Yelmek shares 8% basic vocabulary with Jaka or Taka, and 9% with Gawir Marind, 10% with Kimakama of Kolepom (1968:9).

15) Tyv, Kanum and Morari. These three languages (the last with only forty speakers twenty years ago) are spoken in the extreme southeast corner
of Irian Jaya, crowded against the international boundary. According to Voorhoeve's figures, they are only rather distantly related to each other by percentages of shared vocabulary at the 18% level, and this, he notes, may be inflated by shared borrowing from Marind. Maraeoi apparently shares 24% basic vocabulary with Gawir Marind, but is a tiny pocket surrounded by the latter. Yey shares 10% basic vocabulary with Gawir Marind Ani, Kamus 8% with the same language.

16) Morehead River group. Just across the international boundary from Yey and Kamus is a group of languages earlier studied by Ray and Williams, but for which Voorhoeve could only obtain lists for three languages, Pereaks, Dorro and Paf. These may well comprise a single family on the basis of the relationships among them, with from 23% to 47% shared basic vocabulary (Voorhoeve 1966: 9). The closest relationships with other languages, as documented by Voorhoeve, are with Aggb, the next language east, with which Dorro shares 10% basic vocabulary. Strangely, Voorhoeve cites no figures for the relationship between the Morehead River languages and the Yey-Kamus-Maraeoi group. Van Bael notes a cultural affinity between the Kamus and the Papuan of the trans-Fly (1966: 265).

17) Duna. Duna, spoken in western central highlands of Australian New Guinea, has been included by Wurm in his Eastern Highlands Stock and Phylum on the basis of between 14% and 25% shared basic vocabulary with other stock members, even though it is structurally aberrant (1954: 87). Voorhoeve now reports that Duna also shows on lexico-statistical grounds a "stock-level relationship" (personal communication) with mountain Ok and with languages of the Middle Strickland stock. This would mean between 12 and 21% shared basic vocabulary. Voorhoeve concludes, "I presume that eventually it will be possible to incorporate Wurm's group into the CNG Phylum" (personal communication). This possibility is exciting and calls for careful work. The present data might only indicate a language with generic relationship in one direction, heavy borrowing in another, like Atjeh in Sumatra or Cham in Viet Nam (Cowan 1957a: 73ff).

18) Huon-Finisterre. In collaboration with K. McElhanon, of the Summer Institute of Linguistics, Voorhoeve is preparing an article listing 53 probable cognates (presumably not restricted to basic vocabulary) between languages of the group we have been examining and the languages of the Huon peninsula phylum established by McElhanon (1967:9), along with the neighboring related Finisterre languages. Systematic establishment of sound correspondences and reconstruction of proto-forms has not yet been reported, but Voorhoeve indicates (personal communication) that these are evident in a number of cases. This is indeed dramatic progress.

The Central and South New Guinea Phylum reviewed. The discussion has rightly drawn heavily on Voorhoeve's extremely important paper (1968) and more recent comments. It should be remembered, however, that Healey in 1964 had already anticipated the possibility of demonstrating stock or phylum relationship between the Ok, Awin-Pare and Awju families, and noted further the lexical correspondences between Awju and Asmat-Kamoro and between Goliath and Ok (1964: 116). That Healey introduced by saying, "It may eventually prove possible," Voorhoeve has shown to be almost indisputably the case. The evidence used is lexical, the method is up until now lexico-statistical, but the links Voorhoeve documents among the languages of this phylum are seldom more than indicated by 10% shared basic vocabulary. On such convincing ground a phylum has been established stretching from Etne Bay to the Papuan Gulf and northward to a broad central stretch of the highlands, from just east of the Bismarck to the headwaters of the Strickland, and on north, across a gap, to at least Sentani and very probably Nimboran in Irian Jaya and the Huon-Finisterre area far to the east in Australian New Guinea. The writer knows of only two languages in the southern lowlands of Irian Jaya which Voorhoeve has not included. One is Sawi, and as we have noted, this very probably is to be related to Awju; the other is Kajagar or Tamagario on the upper Queen Juliana River, of which Drabbe writes: "Tamagario... has no relationship at all with Kamoro, Sesan, Asmat, Awju and Jaga, but stands completely by itself" (my translation of Drabbe 1965:12). As data become
available from the missionaries working there, this may prove an interesting test case. Meanwhile, as increasingly widespread evidence is adduced for inclusion in the Central and South New Guinea Phylums, the name becomes ever less appropriate. Perhaps it would be easier to follow the precedent of several other sciences and just call the group Voorhoeve’s Phylum, as the East New Guinea Highlands Phylum is already often referred to as ‘Wurm’s group.’

The north coast from_farai to the border. At least two other major phyla of non-Austronesian languages have been proposed for Irian Jaya, and these two both are the product of H.K. J. Cowan’s work. Besides his own detailed study of Sentani (1965), Cowan utilized questionnaires filled in by government officers and school teachers with word lists from many languages of the territory. In some cases particularly the Hollandia area, he was able to supplement the admittedly inadequate information obtainable on such questionnaires. In 1952 he published the first results of this work, according to which the non-Austronesian languages of the north coast east of the Namberamo appeared to be included in three groups plus an isolated language. Just along the international boundary is a group Cowan hesitantly established and called the Tami group; it consists, he said of Sekou (or Sko) on the coast, paired with Sanako, inland, and between them the following languages along the Tami River: Areo and Njao, Yeni and Skofro, and Aspan and Waria, with the members of each pair more closely related to each other than to members of other pairs. Of the Sentani group he was much more confident; it includes the languages of Sentani Lake, Farl at the southern end of Jautefa Bay and Tanah发热 on the coast fifteen miles northwest of Sentani; these are all very closely related, “not much more than dialects…” (1953:3). More distantly related, and still left as a separate taxon in 1953, is Denta, spoken just west of Tanah发热. Farther inland and west of Sentani is the Minboran group, including, according to Auzenne’s monograph, Minboran, Kwanau-Bonggrang, Gresi, Kambuk and Nebui as a “close-knit linguistic sub-group”, with Gresi and Kambuk the most closely related to each other and

Kwanau-Bonggrang “half way between these and Minboran” (1965:2).

Between 1953 and 1957 Cowan began to apply lexico-statistical methods and his own phono-statistical method by which the length of probable cognates is weighed in eliminating chance resemblances. Using these methods Cowan in 1957 documented ten to twelve agreements (out of 75 words) between Denta and Sentani (1957a: 78–83), then went on to document seven agreements between the upper Tor languages, inland from a point opposite Wakte, and the Tami river languages far to the east. He also noted that Sekou (or Sekou) together with Sangke do not share enough cognates with the Tami river languages to demonstrate genetic relationship (1957b). Noting, on his 73 word lists, ten agreements between the Tami languages and Minboran, six between Minboran and Sentani and six or seven between Tami and Sentani, and six between upper Tor and Minboran, he finds only one probable agreement between Upper Tor and Sentani and between Upper Tor and Denta. On the basis of these data, Cowan proposed that Tor, Denta, Minboran, Sentani and the Tami languages constitute a North Papuan phylum (1957b: 117). Uhlenbeck and Auzenne have used Uria and Ewsten, east of the Tor (1965:222).

In comparison with the proposed Central and South New Guinea Phylums, several points need to be noted. Cowan’s group has, by his figures, its closest ties at a level indicated by less than 15% shared basic vocabulary, and most are weaker. The major ties in Voorhoeve’s phylum are much closer. Cowan could use only lists of 73 words often prepared by laymen; Voorhoeve used longer lists prepared by linguists. Also there is asymmetry in the relationships in this phylum; Minboran shows clear ties with Sentani and with upper Tor, but the latter does not evidence ties with Sentani. One suspects the possibility of borrowing. Cowan’s phono-statistical method demonstrates only that resemblances are greater than can be reasonably accounted for by chance. It cannot determine the source of the resemblances. Cowan himself cites 10 resemblances out of 73 items shared by the Austronesian Jautefa Bay languages and surrounding non-Austronesian languages (1965: 217–219). He uses this evidence, exactly as strong as that used to establish the North Papuan Phylum, to argue for a non-Austronesian substratum. However one reacts to
that contention, it is clear that Cowan does not think these resemblances affect the genetic classification of the Jautefa Bay languages as Austronesian.

The most disturbing thing about the proposed phylum is that two other linguists reviewing the data come up with different conclusions. We have already noted that Voorhoeve clearly includes Sentani in his Central and South New Guinea Phylum and thinks Niaiboram, may be Tami but not Tor belong there. Laycock, specialist in the Sepik area, has established a phylum including Arapesh and published a guess that Sko-Sangk also belong in that phylum, which he labels Torricelli (1968:4). In personal communication he has indicated that he thinks the Tami River languages also have closer ties eastward than westward. Is this a matter of competing linguists, of keeping up with the Wurms? That cannot be considered impossible, but what seems more likely is that there are levels of relatedness among these non-Austronesian languages. Cowan brought something new to the scene by demonstrating some kind of relationship; if closer relationships can be demonstrated to intersect these, the latter must take precedence. The answer to these problems of distinguishing borrowing from genetic relationship and of determining degrees of inclusiveness of subgroups must lie with careful comparative work, methodically setting up not just a few correspondences but all that can be set up, reconstructing proto-forms and comparing these. The lexico-statistical method has not been and never can be decisive, only indicative in linguistic sub-grouping. For the moment we can only note that some resemblances which may be due to genetic relationship have been documented for north coast groups including the upper Tor languages, Kwsten and Uria (Ehrenbeck and Auceaux 1965:222), Denta, the Niaiboram languages, Sentani, Sangko-Sko and the Tami River languages. Stronger evidence for closer ties of at least Sentani with languages of the Central and South New Guinea Phylum, and conflicting classifications for the Sangko-Sko and Tami river group demonstrate the need for further work in this area using the finer toothed comb of the comparative method.

The Bird’s Head. Actually Cowan’s earlier proposal of a phylum was for the Vogelkop or Bird’s Head area; from his first article on the subject he included the non-Austronesian languages of north Salawati in this phylum (1957a: 86-91), and in a series of later articles has included more Bird’s Head languages (1958), the non-Austronesian languages of the Bomberai peninsula and Mantemba (Yawa) of central Japen island (1960), Buna of Timor (1963) and Makanai of Timor with related Orlata of Kesar, just off Timor (1965). His method for this area has been the same lexico-statistical and pheno-statistical method already discussed. A few very close relationships among Bird’s Head languages are indicated by Cowan’s data. Karen and Madik, on the north coast just east of the tip of the island, share 74% basic vocabulary, and Kalabra and Moraaid, at the southeastern tip and inland from there, respectively, share 56% basic vocabulary, and Moi, spoken at the western tip of the island and on the facing eastern side of Salawati, shares 35% basic vocabulary with this last group (1957a: 83-84). Karen-Madik share only seven out of 73 items with Kalabra-Moraaid, however. Ajamaru, in the west central Bird’s Head, shares seven (again out of 73) items with Karen-Madik. Jadhian and Konda on the mid south coast of the Bird’s Head share 63% agreements, and Kampong Baru shares 31% agreements with Puragi; these last are spoken on the north side of Bintuni Bay. Jadhian-Konda together show 12% agreements with Kampong Baru-Puragi, forming a southern group, which shows seven agreements out of 81 words with the western group of Kalabra-Moraaid-Moi and Karen-Madik. Amberbaken, on the eastern north coast of the Bird’s Head, shows five or six agreements with languages of the western group, but only three with the southern group. In the eastern Bird’s Head, Manusabber (Matub) shares only six out of seventy items with Manton (Manikton), but these two share no more than two to four items with any of the other Bird’s Head languages or groups tested (Cowan 1958: 161-166).

Comparing three Bomberai languages, Kapaur (Iha), Fatimuni (Baha) and Karas with Bird’s Head languages, Cowan finds a total of fifteen shared items, nine of these with languages of his western group, five only with the much closer languages of the southern group, and one with Ajamaru. In these comparisons he uses Waipu of Salawati as a new member of his western group, noting that it differs from Moi little more than dialectically. By including these
Bomberai languages with the western and southern groups, Cowan is able to find now a total of fourteen likely resemblances between the eastern languages Manusaber (Mejah)–Mantion (Manikton) and the western-southern–Bomberai group. Between Mantemba (Anceaux's Yava, 1961) of central Japen and these Bird's Head-Bomberai languages, Cowan finds eight agreements.

The interesting thing is that ties of these languages with some non-Austronesian languages of Halmahera and Timor are as close as those used to establish the Bird's Head relationships apart from the relationships among the western group languages and among the southern group languages. Cowan finds at least six agreements between one or another North Halmaheran language and Kalabre-Moralai-Koi (1957a: 87). He finds at least nine, and possibly as many as fifteen, resemblances between Buna' of Timor and one or another Bird's Head language of his west and south groups, and this out of a comparable list of only 41 words (1963: 396-7). Most recently, taking Oirata of Kei Island and Makasai of Timor, which are closely related to each other as Capell had long ago indicated (1944: 329). Cowan presents an impressive display of some 24 or 25 possible cognates with one or another Bird's Head language, particularly those of his southern group (1965a: 363-365).

In assessing this phylum several points need to be made. First, Cowan has displayed his data for inspection, as for his proposed North Papuan Phylum, by listing only what he sees as possible cognates. Pulls lists give a better chance for rechecking the hypotheses. Second, the percentages quoted in most cases do not represent probable cognation with any one language, but with forms selected wherever they may be found among several languages; thus they are not comparable with the percentages used by Voorhoeve in establishing his phylum. Third, it appears that relationships noted here may spread much further, although perhaps at a different level of relationship, as we shall see. Cowan has clearly established relationship between the North Halmaheran languages and the western Bird's Head languages, a prospect hypothesised by Schmidt at the turn of the century (1900-1901). He has also clearly tied Oirata, Makasai and Buna' of the Timor area to non-Austronesian languages of New Guinea, especially the southern Bird's Head.

Capell had called these Timorese languages Papuan only in a typological sense (1944:311).

The question as to whether to close this phylum is provoked by a superficial comparison of some Makasai forms with some Irian Jaya highland forms:

<table>
<thead>
<tr>
<th>English</th>
<th>Makasai</th>
<th>Kasauk</th>
<th>LV</th>
<th>Dani</th>
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<tr>
<td>eat</td>
<td>nava</td>
<td>nai</td>
<td>nan (stem na-)</td>
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<td>I</td>
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<td>hat (w Dani: kat)</td>
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<td>we</td>
<td>ini (we excl.)</td>
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This is certainly a much less impressive display than Cowan's, and would indicate a more distant relationship than some of the relationships he documents. But it represents as close a relationship as several which he wants to include in the West Papuan Phylum. These particular items seem to be particularly widespread; e.g. Asmat has no 'I' and an initial stem meaning 'to eat' (Voorhoeve 1965: 145, 339), and Tairora of the eastern highlands has na- as the stem of 'eat', and related Awa has ni as a first person prefix (Mc Kaugan 1964: 114-117).

Greenberg in 1960 mimeographed a list of etymologies or possible cognates in languages from the Andaman to Australia, and has in press a paper presenting his further findings (Voorhoeve, personal communication). There seems clearly to be substantive evidence for genetic relationship over a very wide area, if at a very distant degree. If this is so, then demonstration of any genetic relationship in not sufficient for inclusion of a particular language in a particular sub-grouping. Cowan's method convincingly demonstrates resemblances which cannot be chance, and many of his displays show regular correspondences that indicate clear genetic relationship. Further, a number of these relationships are definitely significantly close enough to establish meaningful groups. However the relationships included in the phyla he has proposed are of different degrees. As Voorhoeve's work extends his phylum ever more widely, the problem of intersecting and included phyla is apparent.
there, too. And the data cited from Kapauku, Makassai and Dani indicate that the Irian Jaya Highlands Phylum, established first by Larson (as 1953?), is also included in larger groupings. It would appear wise to reserve the term phylum for one level of relationship, and to note that a considerable part of Cowan's West Papuan Phylum evidences inter-relationships as close as those now posited for the Central and South New Guinea Phylum, the Eastern Highlands Phylum, or the Irian Jaya Highlands Phylum. Some of the fringe ties in Cowan's western phylum, particularly those with the eastern Bird's Head languages and Manteaku, and some of the ties in his northern phylum may well prove to be relationships at a level which spreads very much further in its coverage, perhaps as far as Greenberg's Indo-Pacific group of non-Austronesian languages, or perhaps at an intermediate level for which some label like Swadesh's macro-phylum may be useful.

CONCLUSION

From an examination of ethnic groups in the Dani area of highlands in Irian Jaya, our attention has turned to language groups in the rest of the province and their ties eastward into Australian New Guinea and westward to other islands of Indonesia, specifically Timor and northern Halmahera with Morotai. There are significant areas of Irian Jaya not touched upon in the discussion, particularly the lowlands between the central mountains and the hinterlands behind the north coast. Much of this very thinly populated territory is linguistically unknown, but rapid advances by government missions and churches should soon provide useful data. Language data have been reported from a number of pockets along the Wabag area, but have not been available for this study, nor have they been obviously amenable to grouping procedures by linguists who have had access to them (Wurm map: n.d.). The neck of the island east of the Bird's Head also represents an area quite inadequately known except for Waropen, Wamena and, to a lesser extent, Irau and some Berau peninsula languages (Anceix 1956, 1961).

However, the linguistic map of Irian Jaya now includes numbers of meaningfully established groups of non-Austronesian languages. As recently as 1962 Capell said: "No general picture can be given of the languages of DNG (Irian Jaya) in terms of families or other groupings" (1962a:4). Actually, that was an unduly pessimistic evaluation of what was known then. Now one major problem is intersecting and included high-level groups! Solid descriptive work is needed for many more languages of the territory, and lexico-statistical procedures still have a wide field for application to give an overview of linguistic relationships. However, the time has come for the careful, painstaking work of exhaustively establishing correspondences and setting up proto-forms, then comparing reconstructed proto-languages. This task has been scarcely begun in Irian Jaya.

Will rigorously defined culture areas be established as successfully as linguistic groups? Certainly there are widespread occurrences of comparable patterns; paired names for political units, pairing as an idiom for talking about exchange relationships; snakes shedding their skins as an idiom for talking about immortality—these and many others might be cited. Good ethnographies are few for the area, nor is the number increasing at anything like the rate for Australian New Guinea. When much more good descriptive work has been done, the promise of comparative ethnography that is more than superficial will be bright.

NOTES

1Significant work was done in the lower Fly area by Murray and Ray (1917) and later by Wurm (1956). Capell's dissertation on the whole southeast Papuan area is also of importance (1953). For the western half of the island and neighboring islands, Father H. Schmit made important contributions, including proposing at the turn of the century that the North Halmahera languages were related to languages of New Guinea and could be called Papuan. Van der Veen carefully documented the inter-relationships of the North Halmahera-Morotai languages and decisively showed them to be non-Austronesian (1915). Capell documented the existence of non-Austronesian languages in central Timor and on Kiser, off the northeast coast of that island (1944).

2There has been a long and continuing stream of literature concerning the relationships of Austronesian and non-Austronesian languages in New
Guinea, and the position of Melanesian within Austronesian in relationship to that problem. Ray, Capell and now Cowan attribute the diversity in Melanesian languages to a substratum of diverse Papuan languages which were spoken earlier in the areas of present Melanesian. Others, especially Dyen, deny this and attribute the diversity to normal processes of language change over long time periods. For recent contributions note Dyen (1965:15, 53-55) and Cowan (1965b:217-219) and the discussion following the latter.

Contrast Wurm's earlier report grouping Kapuku-Woda-Moni in one group, Dem-Dani-Dhunduni in another (1961). Larson had already documented the general grouping presented here, but had not published.

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CARSTENSEN GLACIERS EXPEDITION

R. Champion and members of the Carstensen Glacier Expedition.

Keterangan:
Ekspedisi Gletser Pergunungan Carstensen dalam tahun 1971/72, yang diprakarsai oleh Departemen Meteorologi Universitas Melbourne dengan bekerja sama dengan ahli2 dari tiga universitas2 Australia lainnya dan dengan bantuan P.T. Freeport Indonesia, dapat dianggap sebagai suatu studi pertama yang dilakukan secara teliti dan saksama dari suatu daerah khusus yang menghubungkan suatu jurang pemisah dari mata rantai gletser yang terbentang disebangkan besar dari bola bumi ini, dilaksanakan sebagai suatu bagian dari International Hydrological Decade (IHD) oleh the International Association for the Hydrological Sciences (IAHS). Program IHD adalah suatu studi yang mempunyai kelanjutan dan perlusahaan dari peranannya utama gletser yang mempengaruhi perubahan iklim serta keadaan alam sekitarnya.

Aspek kedua yang nyata adalah bahwa tanpa bantuan aktif dari pihak pemerintah Indonesia dan teristimewa pula dari sarjana2 Indonesia (a.l. Dra. Sulasmoro dan Johannes), maka ekspedisi tersebut tak dapat terlaksana. Meskipun Indonesia tidak ikut serta secara langsung dalam ekspedisi ini, namun hal ini pasti akan terlaksana pada kegiatan2 dimas mendatang. Daerah itu pernah dijelajahi oleh suatu ekspedisi Indonesia dan telah dikunjungi pula oleh sebuah tim pendaki dari Universitas Indonesia, Jakarta; dan Universitas Cenderawasih, Jayapura. Terbukalah jalan mulai sekarang ini dimana rencana2 Ekspedisi dimas mendatang akan memberikan kesempatan yang lebih luas lagi sarjana2 Indonesia dalam mengadakan studi mengenai daerah ini.

1. Introduction

The first field operation of the Carstensen Glacier Expedition has now been carried out with the help of funds from the Australian Research Grants Commission and from the Melbourne and Australian National Universities, and with massive logistic and other support from Freeport Indonesia Inc. The expedition was led by Randell Champion and included J. Bennett (meteorologist-glaciologist, Melbourne University), G. Hope (botanist, Australian National University), R. Muggleton (photographer, Preston and Northcote Community Hospital) and Dr. J. Peterson (geomorphologist, Monash University). Mr. W. Soerjadi, the Indonesian scientist attached to the expedition, could not achieve acclimatization to high altitudes and had to withdraw; the same fate befell Dr. J. Allman, (University of N.S.W.) who advised the expedition on surveying matters and continued helping it in a major way by evaluating and reducing the primary geodetic survey data. The survey measurements were carried out by R. Champion with the help of the other expedition members who in turn took time off their own special work for the purpose.

The field work covered the period from 7 December, 1971 when an advance party arrived at the Ertsberg mine of Freeport Indonesia Inc., until 9 March, when the last two expedition members left the base camp site near the Meren glacier tongue. Follow-up operations included a final photographic survey flight by R. Muggleton in a Freeport Indonesia helicopter, a botanical reconnaissance of the Komabu Plateau by G. Hope, and the collection of climatic data and other information by J. Bennett and G. Hope in Jayapura, Irian Jaya, and in Papua/New Guinea on Mt. Wilhelm and in Port Moresby.

Only a little more than one third of the time in the field was taken up by logistic operations (shifting stores, equipment and specimens, establishing and striking camps); this low proportion reflects the generous help provided by Freeport's helicopters. Of the remaining time (some sixty days) more than one half was contributed by each expedition member in turn to helping with the surveying programs.

Narrative.

After two weeks of reconnaissance by small climbing parties and a helicopter flight for aerial photography the main work of the expedition got off to a flying start when a Freeport helicopter piloted by D. LaFreniere lifted the bulk of its stores and equipment directly to the base camp near the tongue of the Meren glacier, at an altitude of 4200 m, on 20 December 1971. Other material was dropped near the camp from the air. The camp was later visited by Freeport officials and by an Indonesian climbing party; it also attracted the attention of the neighbouring native tribes (Amme-Danai from Tsinge), and there were repeated confrontations, all of which were settled with mutual goodwill. The knowledge of the Indonesian language acquired by J. Bennett and G. Hope before and during the expedition played a vital part...
in this diplomatic success.

The most intensive scientific work was done on the Meren and Carstensz glaciers and their surroundings, where the discovery of cairns left by previous expeditions gave direct indications of a large ice front retreat during the past 35 years. Evidence of earlier glaciation was obtained from glacial deposits as low as 1705 m altitude along the East Otomona river. Following the re-discovery of the New Zealand Pass, first used by the Harrer-Temple expedition which visited the area in 1962, the field work was extended to the region north of the icefields during January and February. The expedition came to a close with gravity observations and a first remeasurement of stakes established on the glaciers.

This progress report has been compiled from two field reports and from personal statements. The objectives in the different disciplines, and the main work actually achieved, are given in the following sections. Full reports by individual expedition members are in preparation.

2. Surveying

The surveying programme aimed at the preparation of maps showing the general distribution of glaciers and glacial land forms, the contours of the glaciated and recently deglaciated areas, and the detailed outlines of the present glaciers. For the primary survey a Mecall 3800A Distance Meter with Model 3801A Power Pack had kindly been made available on loan by Hewlett-Packard Pty. Ltd. This equipment proved invaluable in the rugged terrain, especially since its speed of operation enabled many measurements to be made during short breaks in the predominantly rainy and cloudy weather. All expedition members took part in the completion of the surveying programme by tacheometric means, under the direction of R. Champion.

The reduction of the primary triangulation of reference points was begun by Dr. J. Allman after his return to Australia and is now well on its way to completion. The evaluation of the tacheometric data will then have highest priority. The aim is the production of multiple copies of a base map of the entire surveyed area, with the following information:

1) marginal coordinates (scale, latitudes, longitudes)
2) spot heights of all trigonometric survey points
3) height contour lines (including those of the glacier surfaces) at intervals commensurate with the accuracy of the survey
4) positions of the current ice fronts and of the ice boundaries deduced from aerial photos taken in 1942, 1970, and 1972
5) locations of cairns built by Dozy in 1936 and by Harrer in 1963
6) outlines of all moraines and lakes surveyed (including those on the glaciers) with indications of nature and location of drainage features. Some of these details may require further field measurements.

3. Glaciology

The broad objectives of the glaciology programme were those laid down in the IHD programme for a world inventory of perennial snow and ice masses. To this end about 100 four metre stakes were established on the Meren and Carstensz glaciers as part of the general topographic survey and were re-surveyed at the end of February to establish ice movement and accumulation/ablation rates.

The precise evaluation of this material remains to be made. First estimates of the mass balance of the Meren glacier indicate values of the order of 1.3 cm/day ablation for the lowest 500 m (120 m elevation difference), decreasing to 0.5 cm/day where the surface levels out to a firm line about 800 m from the ice front. A water level recorder and weir were installed in the meltstream which appears to drain the entire tongue of the Carstensz glacier and were left in operation until the next visit. Together with continuing meteorological records (cf. section 4) these should clarify the annual variation, if any, in the mass exchange and permit firmer conclusions regarding the mass balance of the glaciers and its altitude trend.

A major part of the glaciology programme, coring and internal temperature measurements, could not be executed during this first stage and
form a highest priority item for the next stage. But at any rate the work so far has provided definite evidence of a progressive retreat of the Carstensz glaciers in the past 35 years.

From photographic material the following provisional figures for the retreat of the Meren and Carstensz glaciers have been deduced by R. Champion.

<table>
<thead>
<tr>
<th>Period</th>
<th>Meren Glacier</th>
<th>Carstensz Glacier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1936-1942</td>
<td>325 m</td>
<td>300 m</td>
</tr>
<tr>
<td>1942-1962</td>
<td>665 m</td>
<td>250 m</td>
</tr>
<tr>
<td>1962-1972</td>
<td>440 m</td>
<td>120 m</td>
</tr>
<tr>
<td>1936-1972</td>
<td>1430 m</td>
<td>670 m</td>
</tr>
</tbody>
</table>

The average retreat rates over the past 35 years have been 40 m/yr and 19 m/yr, respectively, the difference being explained mainly by the steeper bed of the Carstensz glacier.


The meteorological programme provided for recording instruments at various points near and on the glaciers, with comparative recording systems for longer-term operation lower down the valley if their maintenance could be arranged. The actual work accomplished has included in addition the installation of a dense system of precipitation gauges extending some distance from the glaciers both along and away from the ranges. These and the visual weather observations have shown the main snowfalls to be associated with disturbances from the east and north, rather than with the daily rain period caused by convection and uplift in the valleys extending southward.

Measurements of meteorological elements involved in the surface heat balance indicate that, owing to the absence of large diurnal temperature variations and of intense glacier winds, radiation is the controlling factor.

The surface albedo of the ice is greatly reduced by dark-coloured algae (cf. section 6) and only raised temporarily to the more usual levels around 60% by snow falls of several centimeters. The climatology of the area will become clearer from the continuing records of temperature, precipitation, and runoff, and also from climatological data obtained during the closing stage of the expedition from the Meteorological Service of Irian Jaya at Jayapura.

5. Geomorphology.

The geomorphological programme centred on the possibility that the pronounced subterranean drainage features of the Carstensz area would have left unusually clear records of past glaciations. The field work has confirmed this expectation and produced evidence of glacial deposits down to an elevation of 1705 m in the bed of the East Otsomo river. The interpretation of these and many other deposits will be made by means of some hundreds of soil, sediment, and peat samples brought back to Australia.

Some radiocarbon datings have now been completed. These suggest that the Carstensz glacier system has been involved in at least two advances of 1-2 km in Holocene times. Some of the evidence and its provisional interpretation is given in fig. 1 which shows the detailed structure of a section through glacial and lake deposits in the Yellow Valley below the Carstensz Glacier. The buried peat soil noted in the left of the diagram has been C14 dated as 2470 ± 60 years before present (B.P.). In another part of the same section further down the valley (not shown in the diagram) a similar sequence of soil buried by glacial till was found, and in this case the soil was dated 2930 ± 100 years B.P.

An earlier advance took place about 10,000 years B.P. This extended 15 km to the south, crushing vegetation at 3,620 m (C14 date 11,370 ± 150 yrs B.P.) and 1705 m (pooled mean of C14 dates, 10,320 ± 100 years B.P.). The advance was probably very local however, and perhaps related to reflooding of the Arafura sea at the end of the last world wide Pleistocene glaciation. An earlier, lengthy, glacial period is responsible for the most extensive glacial
deposits and landforms on the mountains. These extend 30 km north of the present ice and their mapping is still incomplete. A preliminary date of 14,000 B.P. has been obtained from sediments at the base of a lake formed when the major ice cap retreated, so the time of maximum advance must have been still earlier.

Fig. 1. Section in glacial and lake deposits in Yellow Valley below Caratans Glacier showing evidence of Holocene glacier advances since 2400 B.P.

related to the glaciers and other land forms, and of fossil deposits which can be analyzed for pollen. This technique produces a history of vegetation changes which can indicate past climates or the effects of human disturbance.

A general survey of plants and fauna occurring above 2,000 m altitude was made with a detailed study of the plant sociology of 30 sites in the sub-alpine and alpine zones. About 250 species of plants were collected which have been lodged for identification and the distribution of duplicates at the CSIRO herbarium, Canberra. A set of duplicates will be sent to the Indonesian herbarium at Bogor, Java. In addition about 50 species of mosses, lichens and algae were collected and will be sent to various specialists. The algae include a species of blue-green (Cyanophyta) which grows on the glacier surfaces and is responsible for the generally low albedo. The plant communities have been found to delineate the limits of the Holocene ice advance so clearly that mapping of its final stages should be feasible on this evidence alone. It is planned to produce a general map of the vegetation and an account of the floristics.

The remains of about 35 species of mammals and birds were recovered, including one, possibly new, species of kangaroo. Most of the birds were found dead on the ice and the mammals occurred as pick up skeletons, in cave deposits or were trapped. Lizards were found as high as 4,100 m, believed to be an altitude record for New Guinea. Two archaeological sites were located, the Mapala rock shelter at 4,000 m and the Kemau rock shelter at 3,450 m. The rock shelters contain shallow ash layers with deposits of bones and presumably reflect hunting parties living there for short periods. Charcoal from the lowest layer found in each deposit give preliminary ages of 5,000 2 200 yrs B.P. for the Mapala shelter and 300 2 150 yrs B.P. for the Kemau shelter, suggesting a long history of intermittent occupation. The bones and archaeological material are being studied by the Prehistory Department, A.N.U., and it is hoped that a full report will be published in a future issue of IRIAN.


The programme provided for a thorough study of present vegetation in
7. **Photography.**

More than 6000 photographs were taken of every relevant aspect of the expedition's work. These included a large number of aerial photographs and panoramic sequences which will be especially significant in comparison with earlier photographic material obtained by the Colijn expedition (Dozy, 1954), during the war by the United States Air Force, and during the preliminary exploration of the mining area. The photos will be catalogued and annotated for an archive collection which will serve both for publications arising from this expedition and for the preparation of further work in the area.

8. **Plans.**

For the immediate future the COE's tasks now fall under the major headings of Analysis and Supplementary Field work. The analysis of the results will have top priority. By establishing the extent of the knowledge gained, the regions of incomplete knowledge, and the areas left unexplored, this analysis will point the way to more intensive and specific studies in the future. At this time however even the first data set remains essentially incomplete, especially as far as glacio-meteorological variations in the course of a year are concerned; moreover the geomorphological examination to the area has no more than scratched the surface of the available information, and the reduction of the survey data may still reveal gaps in the information needed for a satisfactory base map. These considerations suggest the following work as essential for completing the first stage:

a) **Analysis** - Separate reports on the work done, the data and materials collected, and their provisional interpretation will be prepared by individual members of the expedition. In addition to specialised journal articles, a consolidated account of the expedition will be prepared for the *Zeitschrift für Gletscherkunde und Glazialgeologie* which in 1930 published the first detailed account of the Caratens' glacier system. A brief report has already been submitted to the Permanent Service on the Variations of Glaciers for inclusion in their summary for 1955-70, and a letter with geomorphological results has been sent to Nature Physical Science by J. Peterson and G. Hope.

b) **Supplementary field operations** - A brief visit to the glaciers was planned for August 1972 for accumulation/ablation/ice movement readings and maintenance work on instruments and stake systems but was prevented by logistical problems. The main supplementary operation will take place at some time during 1973. It will serve primarily for glaciological studies not yet attempted (ice coring, internal isotope sampling and temperature measurements), and will include further geomorphological exploration (narrow-bend and infrared [colour as well as black/white] photography), meteorological observations, and remeasurements of accumulation/ablation and displacement stakes.

It is hoped that the work in 1972 and 1973 will provide all the information still needed for a complete first-stage observational cover; special urgency attaches to the glaciological and meteorological projects. A relatively large team is proposed for 1973 mainly to provide greater safety; this was notably lacking in the 1971/2 operation which involved far too many one-man exploration climbs.

9. **Conclusion.**

The 1971/2 Caratens' Glaciers Expedition, mounted by the Meteorology Department of the University of Melbourne with the cooperation of scientists from three other Australian universities and with the help of Freeport Indonesia Inc., can be regarded as the first thorough study of a unique region which closes a significant gap in the worldwide chain of monitored glacier areas set up as part of its International Hydrological Decade (IHD) by the International Association for the Hydrological Sciences (IAHS). The IHD programme seems certain of continuation and extension in view of the central role glaciers have come to play in studies of changes in climate and environment.

A second international aspect derives from the fact that the
expedition could not have been undertaken without the active support of the Indonesian authorities and more specifically of senior Indonesian scientists (notably Drs. Sulamso and Johannes). Although no direct Indonesian field participation eventuated this will undoubtedly be a feature of future operations. The area has been explored by a previous Indonesian expedition and was visited by a climbing team from the University of Indonesia, Jakarta, and Gonderawasih University, Jayapura while the CGE was in progress. Hence future plans of the Expedition will allow for an increasing share for Indonesian scientists in the study of the area.

THE ORIGIN AND INTRODUCTION OF THE
BASIC FOOD CROPS OF IRIAN JAYA
Peter Foster

IMPISAR:

Dua jenis tanaman baru, jagung (Zea mays) dan tembakau (Nicotiana tabacum) juga tersebar luas di Irian Jaya termasuk didasarkan betatan sebelum pulau ini digarap dalam abad terakhir ini.

Kepulauan Malaysia dan Ambon merupakan daerah khusus atau suatu penting tanaman bahan makanan untuk daerah Irian Jaya, mengapa padai (Oryza sativa) tidak diperkenalkan? Justru karena dapat disimpan lama sudah tentu telah terbentuk pada mereka yang bepergian. Hal ini tidak mudah dijawab.

Budi-budah daerah tropis seperti mangga (Mangifera indica), manggis (Garcinia mangostana), rasabatan (Raphia lancea), durian (Durio zibethinus) dan banyak lagi telah diperkenalkan oleh bangsa Eropa. Papaya, beras dari Amerika, terdapat dalam se-ana.

Adalah sangat mengherankan bahwa mempel, mempel, seperti lada (Piper nigrum) pada (Vrissica fraxinea), kayu manis (Cinnamomum zeylanicum) cepeng ( Eugenia aromatica) yang merupakan tujuan utama kedatangan bangsa Eropa se-ningga menculik penerangan antara bangsa Portugis, Spanyol dan Belanda di- nasa lampaui tidak pernah dimasukkan ke Irian Jaya. Mempel-mapel tersebut diatas baru akhir-akhir ini diperkenalkan, walapun jenis-jenis sebagianya telah tersebar luas sebelumnya.

Buah apel (Malus sylvestris) telah diperkenalkan tahun ini untuk yang pertama kali didera de penggunaan teneng. Anakannya, yang adalah dari jenis Princess Noble dan Royal Beauty, diperoleh dari Java, dianggap akan yang tak diketahui, telah dapat menyusut dengan iklim tropis serta menghasilkan buah-buah berwarna dingin dalam jumlah yang besar. Kemungkinan perluasannya di Irian Jaya akan memberi harapan besar.

Diantara-bahan didasarkan akhir-akhir ini, maketela (Manihot utilissima) adalah yang paling utama. Berasal dari daerah tropis Amerika, Meksiko dan Peru. Leinnya, juga berasal dari Amerika ialah keladi Johor (Kapitamus malacca). Selama 50 tahun terakhir ini, kacang (Arachis hypogaea) dan ketang (Solanum tuberosum) adalah yang terpenting. Banyak kebun-kebun sekarang telah pula ditambah dengan berbagai jenis kacang, diantaranya; i rude (Calamus calian), kacang ijo (Phaseolus auritus), kacang ijo (Phaseolus angularis), kacang panjang (Vigna sinensis) dan ketan.


Considering the high degree of endemism of the flora of Irian Jaya and the supposed isolation of its people, who, prior to the arrival of Europeans, lived in a state of constant warfare with each other, one would expect that the majority of the basic subsistence food plants would be indigenous to the area. However, of the major basic food-crops, only the Musa spp. (banana) and Saccharum spp. (sugar) can be regarded as originating here. All the others—sweet potato (Ipomoea batatas), sugo (Atrocyclus sp.), taro (Alocasia sp.) and Colocasia sp., coconuts (Cocos sp.) and yam (Dioscorea spp.) must have been introduced at one stage or another. Human agency is the most likely means by which they were distributed. Who are the people and where did they come from?

There is no certainty of the origin of the peoples of New Guinea, who are extremely diverse in their physical types and languages. At the time of first contacts, they were using only stone, wood or bone implements (and in many areas still do) but no metal of any kind. It is thought that the original inhabitants called Negritos — allied to the Negritos of the Andamanese Islands and the Malay Peninsula— are short or dwarfish and live in isolated communities towards the centre of the island. Although taller, the aboriginal population of Tasmania is supposed to have been related to the Negritos. After the Negritos, came a race spoken of as "Papuans." They are a medium tall, fairly dark race. Allied races can be found in some of the Malayan Islands. In some far-off pre-historic time, the primitive "Papuan"
drove the still more primitive Negrito to the central highlands. The "Mamans" were followed by at least one major invasion - the Melanesians. They have settled along the coast and are now so mixed with the "Mamans" that they would be difficult to distinguish them, but for the fact that they have retained their own type of language. They tend to be lighter in colour. The original Melanesian was probably straight-haired and relatively light-coloured, more comparable with the present day Malay or Polynesian. The original home of the Melanesians is placed somewhere in Southern Asia. From there, they have spread both East and West, and their descendants can be traced in the languages from Madagascar to the Malay Peninsula and Archipelago right to Polynesia. They were probably the first seamen of the Pacific, travelling in outrigger canoes, which are typical of the area of their influence and unknown elsewhere. The Negritos are still mainly hunters and gatherers of roots, leaves, nuts and berries of the forest. Until recently, agriculture played only a small part in their economy, so it is unlikely that they were responsible for the introduction of food plants into New Guinea. That, probably, fell to the "Mamans" and Melanesians.

India is the type habitat of Dioscorea sp., while Alocasia, Colocasia and Metropicarpus originate, probably, from Asia. The breadfruit (Artocarpus altilis) is not as important as a food-crop in Irian Jaya as it is in Polynesia, but it is to be found everywhere. Similarly, the coconut (Cocos nucifera) is seldom the principal item of the diet as it is in many atolls in Polynesia, and it is one of the most characteristic plants of the coastal areas. It is a Pan-Pacific species with its origin probably along the shores of the Indian Ocean. Man is considered the agent of its distribution, reaching Madagascar on the one hand and Hawaii on the other.

The distribution of the sweet potato (Ipomoea batatas) which is the basic food-crop of the people of the highlands, presents an interesting problem in plant geography. There appears to be a symbiotic relationship between man and the sweet potato. It is a species of the new world. When and how was it introduced into the New Guinea highlands? It is interesting that throughout New Guinea and particularly in the highlands, stone pestles and mortars are unearthed from time to time. These stone implements are not part of the culture of the present population, and they know nothing of them, neither do they utilise them in their everyday life. They must be a relic of a previous population or perhaps the ancestors of the present people used them before the introduction of the sweet potato, following which their use was no longer necessary and was forgotten. A possible pre-sweet potato "staple" is the mountain Pandanus sp., whose nuts are still highly favoured. It is likely that American Indians travelled across the Pacific from the East towards the West and introduced sweet potatoes. The name of the sweet potato in Polynesia suggests contact with Peru, Columbia or Ecuador, where similar names are used. The sweet potato has spread throughout Polynesia reaching Hawaii in the north and New Zealand in the south, becoming the staple food of the Maoris.

Two other new-world plants, maize (Zea mays) and tobacco (Nicotiana tabacum), were also widely distributed in Irian Jaya, including the highlands, prior to the first exploration of the island during the last century.

If the Malay Archipelago and Aboon in particular, played such an important part as the source of plant material for Irian Jaya, why were some crops introduced and not others, the most important exception being rice (Oryza sativa)? Surely, rice seeds, being easily storable, would have appealed to travellers. This question is not easy to answer.

Tropical fruits have only recently been introduced by Europeans - mangos (Mangifera indica), mangosteen (Garcinia mangostana), rambutan (Nephelium lappaceum), durian (Durio zibethinus), and others. Pawpaw (Carica papaya), which is of American origin, is ubiquitous.

This year, apples (Malus pumila) were introduced into the highlands for the first time. The seedlings have come from East Java where Princess Noble and Rose Beauty varieties have been grafted on an unidentified rootstock and have become adapted to a tropical climate, with good production of high quality fruits. Their possible development in Irian Jaya is of considerable interest.

It seems remarkable that the main objective and interest of the
presence of Europeans in the early days, namely the spices, were not imported into New Guinea. None of these species sought after by the European traders and the subject of wars between the Portuguese, Spaniards, and Dutch — pepper (Piper nigrum), nutmeg (Myristica fragrans), cinnamon (Cinnamomum zeylanicum), cloves (Syzygium aromaticum) — were introduced into Irian Jaya until very recent years, even though other members of the genera have a wide-spread occurrence.

Of the most recent introductions, cassava or tapioca (Manihot utilissima) is of major importance. It is a native of tropical America, Mexico and Peru. Another more recent introduction originating in America is Chinese taro (Xanthosoma spp.).

Of the introductions made during the last 50 years, peanuts (Arachis hypogaea) and potatoes (Solanum tuberosum) are of the greatest importance. Also many food gardens now contain a wide variety of pulse crops including red gram (Cajanus cajan), green gram (Phaseolus aureus), black gram (Phaseolus mungo), cowpea (Vigna sinensis), Bengal gram (Cicer arietinum).

The potato is gaining importance in high altitude areas where sweet potatoes are killed by periodic frosts.

Rice is already widely consumed, but efforts in recent years to encourage its culture have not been too successful. Eventually, population pressures will demand more intensive system of food production to replace shifting agriculture. Sorghum might prove to be the ideal crop for the drier regions.

The stage is being rapidly passed when much success could be expected from introducing a few seeds or plants from here and there. The future role of plant introduction will be more to provide the basic collections for specialists working on crop improvement. Plant introduction is no longer the part-time of the naturalist, but is the field of systematic research to find the types of material most suited for the new environment or required research projects.

**Summary:**

This article gives a general background to economic policy choices in Irian Jaya, describes some of the policy achievements in relation to national goals, and suggests some possibilities for economic co-operation with Papua, New Guinea. The background section deals with some structural problems arising out of economic and social dualism between the urban, commercial areas and the large majority of subsistence villages, and between the migrants that dominate the modern sector and the indigenous population. The section on policy discusses briefly success in economic integration with Indonesia, inefficiencies and inequalities arising out of the subsidised price of rice, some shortcomings of the highlands development program, possibilities of Sorong becoming a major economic centre, and the importance of greater co-ordination of public programs. It is suggested that in the areas of shipping (especially in the south), fishing and forestry, trade and telecommunications, and in highlands development programmes there are considerable mutual economic gains to be made through economic co-operation between Irian Jaya and Papua New Guinea.

These are some of the conclusions that are presented in the authors' forthcoming book on 'The Economy of Irian Jaya' to be published by ANU press. Some of the data included in the book has already been published in the Bulletin of Indonesian Economic Studies, November 1972 and March 1973.

**Pokok2 Pengarahan:**

Irian Jaya adalah suatu propinsi di Indonesia yang patut dinamakan dual economy, walaupun dualisme di Irian Jaya berlanjut sekalai dari suatu dual ekonomi yang biasa.

Sebagian besar penduduk Irian Jaya tinggal dideraah perkampungan yang sana sekali tidak dipengaruhi oleh perkembangan ekonomi modern. Walaupun ada jaringan perdagangan tradisional yang menghubungkan satu daerah kedaform lainnya, pada umumnya perdagangan diantara penduduk perkampungan terbatas sekali, division of labour, masih sedikit dan teknologi sangat sederhana. Sebagian besar penduduk hanya mengenal pengambilan dan penambangan sagu dan penangkapan ikan (dipantai), dan panenanan ubi rambat dengan kayu (dibble stick) dan pe- meliharaan babi (dieraah pedalaman).


Sutu pengertian tentang kenapa2 ekonomi ini sangat diperlukan untuk merencanakan kebijaksanaan2 yang bertujuan menaikkan taraf hidup para daerah Irian Jaya. Pengeluaran Pemerintah yang diarahkan keperluan fasilitas2 kota tidak akan terasa oleh sebagian besar penduduk setempat, dan hanya akan memperbesar perbedaan antara kota dan kampung dan antara putra daerah dan pendatang baru. Dalam pihak pengeluaran dideraah pedalaman janganlah hanya ditinjau berdasarkan perhitungan ekonomi saja. Keuntungan ekonomi dari investasi Pemerintah di daerah pedalaman akan bah2 keuntungan ekonomi yang dapat diperoleh dari pengeluaran dilain daerah di Indonesia. Usaha2 untuk menaikkan tingkat ekonomi dan sosial dari pada putra daerah menerlukan suatu program khusus berdasarkan penilaian sosial ekonomi dengan tujuan ke- sejahteraan dan perkembangan secara ekonomi jangka panjang.

Kebijakan Pemerintah.

Tujuan2 pemerintah dalam program pembangunan ekonomi di Irian Jaya telah digariskan diberbagai tulisan dan dapat disimpulkan dalam tiga tujuan pokok yaitu (1) Menintegrasikan Irian Jaya kedalam perekonomian nasional, (2) "menaikkan" cara2 dan tingkat hidup putra daerah dan (3) memperlancar kegiatan2 ekonomi propinsi Irian Jaya dan memperbaiki sunbangnya kepada pembangunan nasional.

Integrasi ekonomi Irian Jaya dengan ekonomi nasional (terutama sejak tahun 1968 dan 1969) telah berjalan dengan pesat. Peraturan2 baru dalam bidang ekonomi- penghapusan subsidi2 yang diberikan kepada perusahaan negara, dan kepada harga pengangkutan dan bahan2 konsumsi- sudah mempertinggi efisien- si alokasi sumber2 produksi. Dewasa ini hanyalah subsidi terhadap harga beras yang masih tetap menjadi satu hobar besar (kurang lebih Rp.1½ milyar setahun)
dalam RAPBN propinsi dan negara. 1) Subsidi beras ini menyebabkan alokasi sumber produksi yang tidak efisien: beras yang secara resti sangat maha telah mengganggu makanan2 yang jauh lebih murah dalam pola konsumsi rakyat pantai; dan produksi padi tidak dapat dikesampingkan (valasup daerah2 ditama penananan pada adalah ekonomi masih terbatas jumlahnya). Lagi pula, subsidi beras ini lebih menguntungkan pendatang2 baru dari putra daerah yang belum biasa makan beras.

Penghapusan subsidi ini dapat mempunyai keuntungan ekonomi yang besar (valasup gaji pegawai mungkin perlu dinaikkan untuk menjaga pendapatan riel dari para pegawai).

Dengan dihapusnya subsidi terhadap beras di Irian Jaya migrasi dari luar daerah akan menjadi kurang menarik. Tetapi bantuan kepada orang2 dari luar Irian Jaya sangat tidak efisien kalau diberi melalui subsidi harga beras.

Task Force adalah suatu program khusus yang bertujuan menaikkan ke-
sejahteraan masyarakat putra daerah di pedalaman. Tapi sampai sekarang Task
Force belum mempunyai suatu efek yang nyata terhadap ke sejahteraan putra daerah. Anggarannya terlalu kecil (hanya sekitar 5% dari semua pengeluaran pemerintah di Irian Jaya). Penanganan programnya ditutup oleh unsur2 di-
luar daerah pelaksanaan, dan penduduk setempat jarang diikut sertakan dalam
penciptaan dan pelaksanaan programnya. Personel pelaksana tidak mendapatkan
latihan dan pengalaman yang layak untuk melakukan tujuannya yang sangat berat.

Penegasan tugas antara dinas2 pemerintah setempat dan program khusus Task
Force masih belum jelas. Rakyat pedalaman secepatnya menerima bantuan yang
lebih penting dalam menentukan tujuannya kalau program ini akan menaikkan ke-
sejahteraan secara resti.

1) Perbedaannya dengan beberapa pengeluaran lain di Irian Jaya menunjukkan betapa besarannya subsidi ini. Nilai subsidii beras adalah kira2 45% dari se-
luruh anggaran pebangunan di Irian Jaya (Rp.3.5 milyar) dan hampir dua kali
lipat seluruh anggaran Task Forces (Rp. 750 juta) untuk pebangunan daerah
pedalaman.

Disektor moneter penanaman modal dibidang komunikasi dan pengangkutan
diumumkan dalam program pemerintah dan telah memberi hasil yang baik. Per-
bantuan komunikasi adalah syarat mutlak untuk mendapatkan informasi yang di-
perluakan untuk penengalaman dan juga untuk menunjang pembangunan di daerah
pedalaman. Tapi ada kecenderungan untuk senata-mata memperbaiki atau meng-
gentikan fasilitas perhubungan yang ditingkat pada zaman Belanda. Jaringan lain
ini tidak sesuai dengan pola perekonomian yang sekarang sedang tumbuh di Irian
Jaya. Terutama pengeluaran disektor moneter dapat menguntungkan negara kalau
diaturkan fasilitas infrastruktur yang dapat menunjang kegiatan2 perusahaan2
asing disektor pertambangan, perikanan dan kehutanan. Khususnya Sorong dapat
direncanakan sebagai suatu pusat untuk pengolahan hasil perikanan dan perka-
yuan, dan juga sebagai pusat penyediaan perusahaan2 pertambangan dan sebagai
pusat perhubungan laut.

Tetapi pada umumnya pengeluaran disektor moneter tidak dapat diberikan
secara ekonomis (atau sosial) kalau proyek2 tersebut tidak memberi hasil yang
lebih besar dari pada investasi dideras Indonesia lainnya.

Keuntungan2 dari pengeluaran tersebut akan dinikmati oleh penduduk dari luar
Irian Jaya dan ini merupakan suatu cara yang kurang efisien untuk menaikkan
pendapatan orang Indonesia lainnya.

Kordinasi dari kegiatan pemerintah dan swasta diberbagai sektor ekono-
mi sangat diperlukan di Irian Jaya. "Economics to scale" yang tiap4 baik
sektoral produksi maupun perhubungan sebagai akibat dari fragmentasi kegiatan2
ekonomi menyebabkan perlu adanya koordinasi yang mantap. Suatu contoh yang
mengekejukan akibat dari kurangnya koordinasi tersebut terlihat dalam usaha2
untuk sempliancer perhubungan laut. Tanpa perbaikan pemasaran dan pening-
katan produksi, penyediaan fasilitas perhubungan laut kurang bermanfaat.

Dengan demikian koordinasi antara beberapa program pemerintah juga
mutlak diadakan. Di Irian Jaya banyaknya program pemerintah (terdapat 4
program khusus dan 5 anggaran tersendiri) dan kurangnya koordinasi dari pro-
gram2 tersebut telah menyebabkan alokasi modal dan tenaga ahli yang tidak
efisien. Belum ada suatu Badan yang tanggung mengordinir kegiatan2 diberbagai
program. LAKSADIPA (Pelaksana Pembangunan Daerah) semestinya dapat melakukan tugas koordinasi, tetapi stafnya terlalu kecil. Laksadipa memerlukan bantuan khusus untuk meningkatkan kemampuannya untuk melaksanakan tugas kordinasi yang sangat penting ini.

Diberbagai bidang Irian Jaya sedang menghadapi banyak persoalan dalam pembangunan yang hampir serupa dengan masalah2 yang dihadapi oleh tentangan Papua New Guinea (PNG). Irian Jaya akan beruntung jika dapat memetik keuntungan dari pengalaman pengalaman PNG dalam beberapa bidan. Kerjasama dalam berbagai hal juga akan sangat menguntungkan kedua belah pihak. Disini kami cantumkan beberapa kemungkinan kerjasama yang dapat diadakan:

1. Untuk mengatasi kesulitan pengangkutan dan penjualan yang timbul karena jinis perkayaan yang banyak, Irian Jaya dan PNG dapat bekerja sama dalam penjualan jenis2 tirtentu dan juga dalam pengangkutannya.

2. Untuk menghubungi daerah Merauke kembali dengan pasaran internasional perlu diadakan hubungan pengangkutan laut antara Merauke dan Port Moresby.


4. Sumber perikanan okealang (skiplack) tuna dan udang di dua daerah ini yang mempunyai pola yang agak sama. Baik dalam hal-hal konservasi maupun dalam menghadapi perusahaan2 asing (terutama perusahaan Jepang) pemukaran informasi dan kerjasama dalam bidang ini akan sangat menguntungkan.

5. Irian Jaya dan PNG mempunyai suatu masalah yang pokok yaitu sebagian besar dari penduduk tinggal di daerah2 terpencil yang sulit dihubungi. Beberapa

Innovasi Indonesia terutama yang sederhana dan bersifat pada karya (misalnya teknologi Indonesia dibidang buah-buahan, gerabak2 yang sekarang dipakai di daerah Merauke) dapat menguntungkan PNG. Dan pengalaman PNG dalam perkembangan tanaman2 export di daerah pedalaman (highlands) - terutama kopi, teh dan sutra-dapat sangat bermanfaat untuk program pembangunan daerah pedalaman Irian Jaya.

6. Kerjasama dalam bidang telekomunikasi dapat meringankan biaya dan mempertinggi efisiensi untuk kedua belah pihak.

7. Yang terakhir, industri2 jasa pada karya dan pasar2 "Melaju" yang sudah menjadi umum di kota2 pantai di Irian Jaya dapat sangat membantu perkembangan kota2 di PNG dimana teknologi industri dan perdagangan sangat dipengaruhi oleh pola2 yang didapat di Australia, yang kurang tepat di PNG.

Persoalan2 politis masih menghantangi lancarnya perkembangan kerja sama yang lebih orat antara dua daerah ini. Tapi perkebangan2 dibidang sosial dan ekonomi yang sangat berbeda disebelah timur dan barat dari perbatasan sudah menciptakan masyarakat yang berbeda pula. Dengan demikian rasa persamaan telah berkurang dan ini akan lebih menunggukkan kerja sama yang sehat antara dua tetangga yang mempunyai banyak ciri khas alam dan geografis yang sama.
THE ARSO VERSION OF THE STORY OF THE FLOOD

P.J. Rombouts c.f.m.

TRANSLATOR:


Cerita tentang airrah besar yang terjadi didalam artikel ini dicurititakan oleh orang2 Arso. Menurut cerita ini airrah yang terjadi itu diakibatkan oleh terbunuhnya seekor buaya yang disangkak korban.

Banyak beberapa orang saya yang dapat terhindar dari bahaya air bah ini, neka kita inah orang2 pertama yang mendiami kampung Arso.

Long ago it was not possible to bring a child into the world by natural means. The womb had to be opened with a stone axe. The result of this operation, of course, was that the mother died.

Now once upon a time there lived in the village of Sawja-Tami a man named Towjatwa. His wife was expecting a child and the delivery day was not far off. Sadly he went to the bed of the Tami river to find a good stone to use as an axe. As he was walking along the bed of the Tami river deep in thought, he suddenly heard a strange sound. He looked around and saw a huge crocodile behind him. It was a beast of formidable proportions and among its scales were casamaya feathers.

The crocodile spoke and asked, "What are you doing?"

"I am looking for a stone to use as an axe because my wife must bring a child into the world," answered Towjatwa.

"Oh! You men cause women sorrow and pain that they really need not undergo. Tell me where you live and when darkness falls I will come and help your wife so that she need not die," said the crocodile.

Happily Towjatwa returned home and told his wife the good news. Towards evening he removed a section of gabba-gabba (sago palm pith) from the wall of his house so that the crocodile might enter. His wife sat by the fire, leaning against one of the upright poles of the hut. When it was dark, Towjatwa heard a rustling in the high grass. It was the crocodile.

The crocodile’s large snout was filled with herbs mixed with water and he spat this over the woman. (The herbs he had in his mouth, the so-called grusika, are to be found in all the villages behind Jayapurra growing beside the houses. This is the medicine that has to be used during confinement. The crocodile learnt this and so taught it to Towjatwa.) The outcome was wonderful. In a moment the child was born and the woman lived. The joy of Towjatwa cannot be described.

The child which was born was a boy. The crocodile first told them his name and then gave a name to the boy. He himself was called Watawe and the child was given the name of Narowa. Then the crocodile prophesied, "When the child, Narowa, grows up and becomes an expert hunter, the people will shoot me. They will eat my flesh. Kwemo (the godhead), however, will be very angry and as a punishment will destroy the whole world with water. When you, Towjatwa, and your son are offered my flesh to eat, you must refuse for anyone who eats it will perish. You must ask for my testes and take them to the mountain in Sambia. You, together with your son. Then the jambiruk (the people from above) will tell you what to do next".

Narowa grew and prospered and became a good hunter. His father often took him hunting. One day, while he was away from the village the following occurred.

The children from the village were playing a ball game in the bed of the Tami and, as was the custom, they had put a few breadfruit on a fire to warm. None of them stayed by the fire as they were all happily at play. When they tired of playing, they went to see if the breadfruit was ready as they were all hungry from their game. To their astonishment the fire was out and everything around was wet. This was strange because it had not rained. They could not understand it.

After this happened again several times the children decided to make a large basket from the sheath of the nipa palm leaf which could be suspended from a tree and in which one of the small boys could hide and observe from
above without being seen. The older children went off to play as usual.

Suddenly, in the distance, the boy saw the reeds on the bank of the Tami
waving to and fro. A large crocodile climbed the bank and advanced slowly in
the direction of the fire on which the breadfruit were burning. When it got
there it stood astride the fire and extinguished it.

The child was so frightened he could not utter a sound. He stayed in
the tree until the crocodile disappeared once more into the river. He then
climbed down the lianas which hung to the ground and told the others
everything he had seen. This excited the children very much for they were keen
on hunting and looked forward to killing the crocodile.

With the help of the older people of Sawja-Tami, a screen of reeds was
made a little way from the place where the crocodile would appear. Behind this
they could hide unseen. Part of the group went to sit behind the screen with
their fine bows and arrows. For safety they each brought sufficient arrows.

The other children went to play as usual on the bank and in the bed of the
Tami. To the side, the fire burned with the breadfruit as customary.

It was not long before the boys and the men sitting concealed behind
the screen saw an enormous crocodile not far off, making its way towards the
fire. It was a remarkable beast. They had never seen anything like it. It had
emerald green feathers between its scales. Slowly it came closer. The boys and the
men drew their bows and when the crocodile stood astride the fire to put it
out, they all let fly their arrows. The arrows flew towards the crocodile and
struck home. The animal fell dead. There was a loud cry of rejoicing for this
brought them meat in abundance. It called for a celebration in the
neighbouring villages would also take part.

Just as Towjatuna returned from the hunt with his son Narrowra, the
people were starting their feast. Proudly they told him of the enormous
crocodile they had killed. He asked if he might see it and at once recognized
Natume. When they invited him to join the feast, he refused and asked, as
Natume had instructed him, for the taste of the crocodile. Then he told
Narrows what they were to do. Narrows went to fetch his friend Kuneban, as
well as his sister, Ubara, and the sister of Kunubau, Mambau. The five of
them set out for the mountain in Sankria. According to the prophecy of Natume,
this was the place where they would meet the Jankwénk to receive their
instructions.

On their way they passed by Ewini which was completely deserted. All
the inhabitants had gone to Sawja-Tami for the feast. From there they walked
at a steady pace to the mountain in Sankria which stood close to the river
Sakanto. Towards evening, they came to the mountain in Sankria. The Jankwénk
were there already, with their large flutes. What beautiful people they were! White and with wings. This was the first occasion in a long time that these
people from above had dealt with the people from below. The last time had been
when a woman had stolen fire from one of the people from above. Since then
they had always remained above.

When Towjatuna and the children had rested, the Jankwénk began to talk
about the terrible punishment which would come to pass over the world as a
result of the death of Natume. At the same time, they were told what was to be
done after the dreadful punishment. All human, animal and plant life would
disappear from the earth. Only that which stood on the Mountain of Sankria
would survive the catastrophe. Their task was therefore to repopulate the
devastated world with people, animals and plants. The seeds with which they
were to do this would be obtained from the Jankwénk.

To create people they were to saw the seed of a banana. From the stem
of the banana they were to create large pieces and to say these words:
"I command... become woman!" or, alternatively, "man!"

Towards morning the talk ended. The Jankwénk took their flutes and each
went to stand in one of the directions of the wind. One turned to the south,
the other to the north and two others to the east and west. Then they lifted
their flutes, put them to their mouths and sounded a deafening noise. This was
a sign to the waters. With thundering force the floods came. The water foamed
and frothed. Trees were uprooted and dragged away. The clouds emptied the rain
on to the earth with immense force.

The water rose higher and higher. The force of the flood remained
unbroken until all life was dead, all trees and plants uprooted. The Mountain
Sandria was the only place where life remained intact. Slowly the water came to rest and the dampour lessened. After a few days the water began to subside. There was devastation everywhere. The only tree that still remained standing was a large ironwood at the top of Mount Sandria.

Tarjatuna and his children began to get bored. They wanted to start their appointed work. They sent down a kangaroo to see whether the ground below was yet dry, but the animal soon came back as it was still too wet. After a few more days of waiting, a lory (small, brightly coloured parrot) was sent. It too came back for it was not yet dry. After yet a few more days he sent down a pig. It stayed. This was a sign to Tarjatuna and his people that they too could descend and begin their designated tasks.

They took with them the seeds which the jankwack had given them. Below, at the foot of the Sandria, Narrowra took over the leadership. He sowed the banana seed and lo, in a very short time, to the delight of the eyes, sturdy banana stems rose from the ground. These were cut down; some pieces were large and others small. They were laid neatly alongside each other: the larger beside the larger, and the smaller pieces beside the smaller.

Narrowra stood in front of them and in a strong voice said the following words, "I command . . . become women!" At this the larger pieces of stems became large women and the smaller pieces became small women.

Unaided the women rose and went forth whilst Narrowra and the others continued their work. The forest was large and after having walked for some time, the women built themselves a dance house. They wanted to hold a feast, but in their own manner. They knew nothing about flutes and there was no pig meat. Still, in order to have some music, they made a container from the sheath of the nipa palm, filled it with water and put in frogs. When they wanted music, they had only to shake the container and the frogs began to croak.

In the meantime, Narrowra had seen fresh banana seeds and from the stems he again cut pieces, large and small. After laying the large pieces beside the large and the small alongside the small, he said once again, "I command . . . become men!" Again there rose both large strong men and small sturdy ones.

Narrowra was happy and spoke to the men, "Men, we must make a feast, for something great has happened. We must always commemorate this that we, Tarjatuna, my father, Kunebuny, my friend and I have remained safe from this terrible calamity. While I go and make flutes for the feast, you must go and hunt pigs." Narrawra then went off to fetch wood to make the flutes. These had to be completely hollowed out. In the meantime, Tarjatuna who was out on a reconnaissance, discovered the dance hut in which the women sat feasting. This gave him an idea as to how the dance hut might presently be used.

The men had already returned some time ago with a few pigs, sufficient to hold a fine feast. They went to Narrawra and asked if the flutes were ready. Repeated he answered "Ne-kek", which means, not yet. (Since then the place has been known as Ne-kek and is halfway between Takanto and Arso at the so-called Talaqa Nati, a dead branch of the Tani River).

At last the flutes were finished. Tarjatuna had already told them of the women's dance hut and when Narrowra completed his flutes, they set off in that direction. They approached the hut very quietly. Silently Tarjatuna went ahead with a few men and placed sharp nipa slats against the house which stood on stilts, and removed the pole which the women used to enter the hut. Then they signalled the men to sound their flutes. With all their might they blew the instruments. The women in the house were bewildered by the noise and tried to flee as fast as they could. The pole for descending was missing and when they saw the nipa slats they tried to use these instead. The slats, however, were sharp and they were all badly hurt.

Rejoicing at the misfortune of the women, the men took possession of the hut. Quickly they cleared it of the containers of frogs. Now the feast could begin. Narrawra again ordered, "In future you must, as I have already said, commemorate our delivery from the deluge. You have us to thank for your existence."

Thus they prepared the decorations. Red, white and black paint was brought with which to paint the body. The whole body was painted in small squares, black, white and red. These represented the scales of the crocodile Nature. Because the crocodile also had cassowary feathers, these too had to be
The couples that were sent to Kwini did not heed the order not to eat sago. On the way they ate nearly all of it. The result was that they had very little left to plant in the village. This is the reason why there are today so few sago palms in Kwini.

It was now time for Narroora and Kunebuun to marry. Because Narroora, Kunebuun, Ubaba and Kenbawa were the only true people still living they had to arrange an exchange marriage. This is the reason the people in the area prefer exchange marriage when at all possible. Kunebuun married Ubaba, Narroora's sister, and Narroora married Kenbawa, Kunebuun's sister.

They lived on Mount Sankria where they chose to remain. Their marriage was happy. Narroora received the testes of Natuswe from his father Towajaawa. He was to guard them well and ensure that they were never seen by women. Carefully he stored them in a nokking (a small bag) and hung it on a pole in the house under the roof. As long as this small parcel hung there undisturbed and no woman saw its contents, life was pleasant; the hunt was always successful and no man knew misfortune or illness.

Narroora had a son, Nifirm. The boy was very tiny. The second son, however, was much bigger and sturdier. This son was called Mulmu. Nifirm found it very tiresome that his younger brother was much bigger and stronger than himself and he decided to go away for good. He changed himself into a morning bird, the bunyu sian, and flew away.

One day, while Narroora was out in the forest hunting, something suddenly went wrong. He lost his way, got caught on the thorns of the rattan and stumbled over the roots of the trees. He feared the reason for this and quickly hurried home where, indeed, it was as he suspected. The women, who were no longer able to contain their curiosity, had climbed up the pole, brought down the small parcel and opened it to see what was inside. At that moment the contents began to grow.

As soon as Narroora reached the house, he grabbed the package and quickly wound various leaves around it to hide it from the eyes of the women. He summoned the people of Arso and with their help carried the testes of the crocodile Natuswe to Arso. Eight people were needed for this task. The package
was carried on a branch of the ironwood tree that had survived the flood.

There in the dance house they built a special room for this precious package. No woman was allowed to enter the dance house. It was a house reserved exclusively for men. Day and night watch was kept. A large number of the men slept in the house around the room with the obat hujan (rain medicine). They were convinced that if the package was broken again, the world would undergo another deluge. In November, 1953, they disobeyed and opened the bundle.

It contained two large stone axes.

A NOTE ON THE WORK OF THE SULFER INSTITUTE OF LINGUISTICS

Norman Draper

INTRODUCTION:

The Sulfer Institute of Linguistics (S.I.L.) is a study group of language workers in 26 countries, with membership of about 3,000 members. The Institute is concerned with the study of language in its various forms and aspects, with a particular emphasis on the work of language workers in the field of linguistics.

The Institute is divided into four sections: the Linguistic Section, the Language Planning Section, the Language Education Section, and the Language Policy Section.

The work of the Institute is carried out through the efforts of the members, who are drawn from a wide range of backgrounds and disciplines, including linguists, anthropologists, sociologists, psychologists, and others.

The Institute publishes a quarterly journal, Language, which contains articles on a wide range of topics related to language study and language policy.

The Institute also conducts a number of training programs and workshops, aimed at helping language workers to develop their skills and knowledge.

The work of the Institute is carried out in collaboration with a number of other organizations, including the United Nations, the Commonwealth Secretariat, and the World Bank.

The Institute is committed to promoting the study of language, and to using that study to help improve the lives of people around the world.
to study unwritten or unanalyzed languages.

Training camp

Each member initially is given three months training in preparation for village life and dependence upon village food. This orientation is also aimed at deepening his sensitivity to another culture and outlook. As well, at the training camp a number of practical skills are taught such as house construction, maintenance of radios, battery chargers, outboard motors and so on.

The programme

The programme of research and translation varies slightly according to the needs of each country. A team including a husband and wife (both trained in linguistics) or two single people will concentrate their efforts in one language and culture area. They spend about half of their time in the village situation to absorb the language with its idiom and thought patterns and to study the culture that so intrinsically permeates the language. The rest of the time is generally spent at the headquarters base. A team will normally spend ten to fifteen years in completing their whole project of linguistic analysis, translation work and teaching literacy.

At base

At base, teams are given opportunities for additional training in various aspects of their work including phonemics, syntax, lexicography, advanced grammar, literacy, anthropology and translation techniques. Senior consultants who have specialised in their particular fields, many having completed their M.A. or Ph.D. degrees, direct these workshops and advise on research problems.

Literacy

In most of the twenty-five countries where S.I.L. operates, governments have requested S.I.L. to conduct adult literacy classes. Wide experience in this field has produced positive results showing a distinct advantage in using the vernacular as a bridge to literacy in the national language. It is normal policy in S.I.L. literacy programmes to teach literacy in the vernacular.

Translation

S.I.L. expects each team to translate at least the New Testament of the Bible along with other books which are important in the lives of the people so that they may develop concepts of the world beyond the village. Government departments sometimes ask S.I.L. to cooperate in publishing particular booklets in the vernacular, recognizing the advantage of communicating with village people in their local language.

Projects

Many teams work with the village people in developing community projects. These may include such things as a clean water supply, the raising of chickens, cash crops, construction of bridges, roads, or airstrips. All such projects are first approved by local government officers and the S.I.L. Director.

Finance

Members receive no salaries from S.I.L. but are responsible for their own support or are sponsored by Christian churches and friends who are interested in assisting S.I.L.'s programmes. It is therefore a non-profit service organization. Field and home administration costs are financed by agreed percentage payments from members out of monies given to them for the work.
Results

The results of S.I.L. members' research is available to all interested parties who recognize the normal ethics of scientists as to published material and its use.

Irian Jaya

S.I.L. has commenced work only this year in Irian Jaya where they are operating in affiliation with Cendrawasih University. The first three teams are already beginning language research in the Sarmi and Tor River areas. An initial survey undertaken by S.I.L. through correspondence with government and mission personnel in this Province has reflected a wide interest in the field of language study. It is hoped that because of the large number of languages represented in this area of Indonesia S.I.L. may encourage present language studies and make a significant contribution to scientific research and to the well being of village people in Irian Jaya.

F Heath

Father Jules Camps' review of my monograph, The Dugum Dani (IRIAN 1.2:83-100. 1972), is a most welcome contribution. The Editors of IRIAN are to be congratulated for their enterprise in soliciting it. All too often, anthropologists write only for other anthropologists, and their ideas and findings are lost to the people where they actually did their research. And all too often, missionaries and government officials, who spend more time in an area than do anthropologists, do not write their ideas on paper at all.

If IRIAN develops this sort of interchange, it will become valuable indeed. And the next step will come when the people of an area review what outside anthropologists have written about them, and even write their own ethnographies about their own culture.

Meanwhile, I would like to comment on Fr. Camps' review of my book. He has found some mistakes: for example, the jabing spears are indeed more than four meters long, and not, as I unaccountably wrote, "two to three meters long." Some of his points are disagreements of emphasis. Two examples of this are: he thinks that remarriage of young widows and eating of raw sweet potatoes is more common than my observations suggested.

We also have outright disagreements on matters of fact. Despite Fr. Camps absolute denial, I did find that the terms nanece and naege (my dog) could be used for especially important men; and I did see the remains of fires in hearths in the sleeping lofts of some women's houses. On the other hand, Fr. Camps may well be right when he suggests that the various names for rain which I reported were the results of misunderstandings in the early days of my field research.

One possible source of conflicting data may be due to the fact that my first work was done in the Dugum Neighborhood, but that Fr. Camps lives in Jiwia, some 5-10 km. up-valley. Anyone who is familiar with the Grand Valley of the Salia knows that often groups which are only a few kilometers
apart may show differences in cultural traits, both minor and major. Unfortunately, Fr. Camps is rarely clear whether he is speaking of the Dugum Neighborhood, of Jiwika, or of other parts of the Balim where he has lived and visited.

But Fr. Camps has also raised a number of more important issues, among them the matter of orthography of Dani words. He has correctly pointed out inconsistencies in some of my transcriptions. But it should be noted that his review and this present reply are continuations of many long debates which we have had over the past years, and especially during the months in 1970 when I lived at Jiwika as his guest. The debates were inconclusive, and I think that some of these matters can only be resolved by a trained linguist. The name "Dani"

I have used the name "Dani" for the people speaking related dialects and languages who live in and around the Balim drainage; and "Grand Valley Dani" for those who speak dialects of the major language in the Grand Valley of the Balim. As I wrote at the time, there was no really appropriate term for these people. The term which Fr. Camps suggests, Orange Balim (surely he means "Balim"?), may be appropriate for those speaking the language of the Balim area. But then what of the "Western Dani" who live in the Konda Valley, north of the Balim drainage system, and other "Dani" who do not live in the Balim?

There is no obvious answer to this problem. Years ago I began using what seemed to be the best name and no one, including Fr. Camps, has objected until this year. Outsiders are always on slippery ground in this respect, and must watch carefully as the consciousness of the people themselves rises and they choose their own names. Meanwhile, one might remark that many of us seem to live quite happily with names imposed from the outside (e.g., "Indonesia" and "America.")

Sexual behavior

Fr. Camps questions my statements that abortion is rare and that the level of sexual interest is low. Actually, I wrote that although people talk about abortion, "there is no indication that abortion actually occurs," while Fr. Camps says that "anyone who has lived for a longer time among the Dani (sic) people has been able to learn that abortion occurs frequently." (99)

I am sure that Fr. Camps does not mean this. Long residence is not necessarily correlated with knowledge. More important, one of the basic lessons of Anthropology (and indeed of life itself) is that there is often a difference between what people say about their behavior and what they actually do. Fr. Camps has done no more than repeat an old wife's tale which supports my point that people talk about abortion. But neither of us has convincing data that abortion "occurs frequently."

My data about sexual behavior come from non-Christian adult males who lived mainly in the Dugum Neighborhood and Jiwika; at least some of Fr. Camps' data are from Christian catechists and, apparently in part, from people from elsewhere in the Balim area. In my conversations with many men about the long period of post-partum sexual abstinence, I perceived no overt sexual concern, yet Fr. Camps reports two young Christians who "have almost become frantic as a result of the prolonged abstinence." During my period of observation in the Dugum-Jiwika areas, I saw only one unmarried young man have a humuk-balim seizure, and that lasted only an hour or so; yet Fr. Camps says that it "quite often occurs" and "some of them lose their heads completely for a full day..." (91).

These discrepancies raise more problems: were my observations incomplete? are Fr. Camps' observations misunderstood or wrong? or has there been a major cultural change in sexual and sex-related behavior during the last decade? I am unable to answer these questions now, but obviously they are worth serious attention. And they cannot be resolved by a few casual anecdotes.

Warfare

Fr. Camps also raises some interesting questions about the fighting in the area during the 1960s. He adds some useful historical notes to my account, but he misunderstands the point of my discussion.

It seems to me that when looking for "causes" of Dani war, we must consider both social structural features and specific triggering events.
Structurally, the Dani alliance (e.g., "The Kurelu Alliance") is an unstable unit composed of relatively independent cohesive confederations (like the Wililiman-Walalua Confederation). An entire alliance can and does (or did) wage war against another alliance. An entire alliance holds a maximal pig feast every five or so years.

But an alliance is not an effective judicial unit. Conflict resolution is effectively managed within the confederation, but not between confederations of even the same alliance. Perhaps it would be best to qualify this: within an alliance, some confederations are closely enough associated so that conflicts between them can be resolved relatively easily by the Big Men; but also, within an alliance some confederations are so separated politically that it is relatively difficult for any Big Men to resolve conflicts between those confederations. This was the case between the two factions of the Kurelu Alliance in the early 1960s. The historical events of the Police presence contributed to conflict which, for structural reasons, the alliance found more and more difficult to resolve. And so the outbreak of fighting in 1966, which split the alliance.

Pr. Camps posed the hypothetical question.

Suppose that the Wililiman-Walalua had always belonged to the Logo-Mabel war alliance, does Heider believe that such a retaliation would not have taken place? (94)

My hypothetical answer is, "No, it would not. If the Wililiman-Walalua had always been close to the Logo-Mabel, the 'crimes' would have been punished or resolved as they occurred and tension would not have built up to the point of explosion."

This emphasizes the weakness of the Dani judicial system. (And it must be recognized that by "judicial system" I refer not to Police and Courts with power, but to adjudication by Big Men with influence. A common error has been to think that the Big Men were "chiefs" or "Kepala" with real power. This is a self-correcting error, however, for the Big Men are gaining power and will soon be true chiefs or kepala.)

Until the late 1960s, the Dani judicial system could handle small-scale conflicts, but could not easily resolve conflicts between people of different antagonistic groups. The end result of such unresolvable conflict was often war. Now, of course, as the effectiveness of the Police and Civil Government grows, a new judicial system should be able to deal with such conflicts.

Finally, I am very glad that Pr. Camps took issue with my last words, which were extremely pessimistic about the future of the Dani. I said that "the chances are slim indeed for the Dani to become other than detribalized parasites." This was a warning, not a prediction. I sincerely hope that it does not come to pass. If it does, not, much of the credit will go to Pr. Camps and many others who will read these pages.

A COMMENT ON DANI ORTHOGRAPHY WITH REFERENCE TO HEIDER'S DUGUM DANI

M. Bromley

Father Camps' informed and detailed review of Karl Heider's The Dugum Dani has raised, among other issues, the matter of Dani orthography. The inconsistent spellings in the book are indeed bothersome, but I think Father Camps has been unnecessarily harsh in his criticism. It should be noted that Heider modestly and truthfully admitted in his preface his difficulty with just the symbols cited in the review, including ḥ and ḫ, ȳ and ư, ȳ and ư, ǹ and ǹ and ǹ (Heider 1970: viii). And, as the citations in the review demonstrate, the terms quoted by Heider are in general recognizable to anyone working with the language spoken in the area, and they are probably the only people who care about the pronunciation of the terms anyway. Father Camps also unwittingly provides a reminder that mercy ought to be shown to those who do not fully master the orthographies we linguists devise. Contrary to what is cited in that review (1972:85) from Father Peters' generally excellent dissertation (1965:173), ǹ at the beginning of a word does not stand for ǹ, and the example given as poko begins in mid-Grand Valley dialects with an explosive and should be spelled with initial ḫ.
in the orthography under discussion. For an accurate summary of that orthography, including the value of initial p as a voiceless aspirated stop, see Father van der Staph's dissertation (1966:3), although it should be noted that initial p does not occur in the speech of most people in the areas studied by Father Peters and van der Staph, but has rather been replaced by h.

UNIVERSITY AND INSTITUTE NEWS

Procedures for Applying to Undertake Research in Indonesia

The University of Gonderawasih has received a letter from Lembaga Ilmu Pengetahuan Indonesia (LIPI) — the Indonesian Institute of Sciences — setting out the procedures to be followed by foreigners wishing to do research in any part of Indonesia. The procedures are as follows:

1. To carry out research in Indonesia one must have a sponsor. Normally, this would be an institute or other organization within Indonesia which has some connection with the type of research envisaged. If the applicant does not know of any such body the Indonesian Institute of Sciences (LIPI) will endeavour to put the applicant in touch with an appropriate organization or, if the applicant wishes, will act as sponsor itself.

2. In order to obtain a visa to enter Indonesia to carry out research LIPI must first approve of the proposed research. To obtain such approval and the necessary visa the following should be sent to LIPI.

(a) A letter of request to undertake research.
(b) A detailed research proposal which includes the duration of the proposed research, the date of commencement and the location where research is to be carried out.
(c) Three copies of the applicant's curriculum vitae including a list of publications.
(d) Two letters of recommendation. One of these should be from the applicant's university or institute and the other from a well known authority in the field of the proposed research.
(e) A letter of support from the sponsor in Indonesia if the
(f) A letter of guarantee verifying that the applicant has sufficient funds to cover research and living expenses in Indonesia.

(g) One photograph of the applicant.

If approval to carry out the research is granted LIPI will communicate with the Immigration authorities in Jakarta requesting that a visa be granted to enter Indonesia. The granting of a visa takes about one month from the time when the documents referred to above have been received.

The address of LIPI is Jl. Teuku Tjihik Ditiro No. 43
Jakarta
Indonesia.

Asia Foundation Grants

The Asia Foundation, Jakarta, Indonesia, has granted Rp. 615.000,- in equipment and funds to help meet the costs of publishing the IRIAN and Rp. 1.314.000,- in equipment and funds to assist the research activities of the Institute for Anthropology. In acknowledging these grants the Rector of the University, Dr. Soekismo Hadikoesoro, the Director of the Institute, Drs. Anwar Iskandar and the staff of the Institute wish to express their appreciation for this generous assistance.

University of Cenderawasih Museum

Although the museum has not yet been opened officially it is open to the public each day. An increasing number of visitors attest to the growing popularity the museum is achieving in Jayapura. There are now 957 artifacts held by the museum although it is not possible to display all of these at the same time. At the present time artifacts have been obtained from the following areas in Irian Jaya: Keriake, Asmat, Mimika, Teminabuan, Raya Asmat, Manokwari, Panai, Belim, Bokondini, Bonggo, Sarmi, Yapen Waropen and Biak. Most of the artifacts have been purchased through the John D. Rockefeller 3rd. Fund grant to the museum but there have also been a number of pieces donated to the museum and some have been obtained on loan from government officials and from the Kabon Permusanman Dinas PD & K Propensi Irian Jaya.

At this time we wish also to express our appreciation for a gift of artifacts from the Papua, New Guinea Museum and Art Gallery. This gift was made possible through the generosity of Mr. R.D. Milton of Newmont Mining Company and the Board of Trustees of the PNG Museum and Art Gallery.

Arie Yan Korwa
Curator
University of Cenderawasih Museum
RESEARCH IN IRIAN JAYA

Proposed research:

Potential Modernisation Among the Asmat

This is Ph.D. dissertation research being conducted among Asmat of Irian Jaya. Focusing on six coastal villages in the District of Agate, the study will investigate the potential for modernization and development there. Specifically, changes in local resource utilisation patterns and changes in communication patterns will be investigated statistically, as they have been influenced by external change agents, and as they can be related to internal population dynamics.

The period of research: Sept. 1973 - June 1974. Research advisor:
Prof. G.O. Lang, University of Colorado.

Peter van Arsdale
Department of Anthropology
University of Colorado
Boulier, Colorado

Plan for Interdisciplinary Research
in the Central Highlands of Irian Jaya

Anthropologists of the Berlin Museum for Ethnology (Staatliche Museen/State Museums Preussischer Kulturbesitz, West-Berlin) and scientists of the social and natural sciences at university institutes of Berlin and within the Federal Republic of Germany have developed a plan for research work to be realised with regard to the people of the Central Highlands of Irian Jaya east of the Baliem Valley, within the area north of Mt. Goliath and westwards to the Sogger River.

It is the idea to start with anthropological and linguistical field work early in 1974 (at the latest), continuing the co-operative approach within the following years in relation to sociology, psychology, physical anthropology, medicine, ethnomedicine, human ethology, ethnomusicology, prehistory, anthropogeography, botany, zoology, soil sciences, and climatology.

The complete research might be undertaken from 1974 to 1979. Only 5 - 8 German scientists would work within the area at the same time.

At the end we should have gained a thorough knowledge of that area under the topic "Man and his environments", covering the problems of development and change to the fullest extent. The scientific results will be published in a series of volumes.

All funds necessary for this project should be provided by the German Research Foundation (Bonn - Bad Godesberg). The research should be done in close co-operation with the Government of Indonesia and with all those Indonesian Institutes which will be interested in this work.

The result of all this research work should be made available to the Government of Indonesia and to the Indonesian Universities, particularly to the University of Cenderawasih, as soon as possible. This includes the implications for development, which might be useful for the Governor of the Province.

If the Government of Indonesia desires development aid for this area in the future, detailed plans might be submitted by our specialists in cooperation with the FUNDETI representatives, and the Federal Republic of Germany might assist by providing funds.

The research work within the area should be started in February 1974. All participants are well aware of the extremely difficult nature of the terrain and will bring the technical equipment necessary for carrying out the intended work.

We firmly believe that the proposed research is not only important for science itself. It will be still more beneficial to those concerned with the
later economic development of the people of that area. These disinterested studies of social and natural research should serve the interests of the people of Irian Jaya finally.

The President
Museum Für Völkerkunde
1 Berlin 33, Dahlem
West Germany

Research in the Asmat

The Professor of Anthropology and three staff members of the Institute for Anthropology, University of Cenderawasih, intend undertaking a lengthy research project in the Asmat region of the south coast, commencing late October, 1973. Research will be centred in the villages of Nawa-Srama.

The initial project will be to undertake a study of the effectiveness of co-operatives in motivating villagers to sustained work. This phase of the study which is expected to last two months will be funded by the Irian Jaya Joint Development Foundation. The second phase of the research which is expected to continue for four months will focus on culture change with particular reference to forms of emerging leadership. Costs for this portion of the research work will be met partially by monies remaining from the Southern Illinois University/UNESCO FUNDWI 8 subcontract and the Asia Foundation grant to the Institute for Anthropology. It is hoped that additional sources for funding can be found.

Malcolm T. Walker Ph.D.
Professor of Anthropology
University of Cenderawasih

Research in progress:

Research into Adat Law in Irian Jaya

A study of adat law in various areas of the Province is being carried out by University personnel under the direction of the Faculty of Law. The project is being funded by the local government. It is hoped to be able to present a progress report on this research in the next issue of the IRIAN.

Completed research:

Larry L. Naylor: Culture change and development in the Baliem Valley.
The field work for this study was completed in March, 1973. Funds were provided from the Southern Illinois University/UNESCO FUNDWI 8 subcontract and a graduate research fellowship from Southern Illinois University. A mimeographed report bearing the above title has been submitted to the Government of Indonesia through UNEP. The research data are now being written up as a Ph.D. dissertation which will be submitted to the Anthropology Department, Southern Illinois University.

Institute for Anthropology, University of Cenderawasih: A Socioeconomic Survey of the Jayapura Fishing Industry (Dec. 1972; 56 pps. mimeo.).

Institute for Anthropology, University of Cenderawasih: A Survey of the Copra Industry in Sorong (August, 1973; 65 pps. mimeo.).

Institute for Anthropology, University of Cenderawasih: Markets in Jayapura. (Field work for this study has been completed and the report is now being written.)
Norman Draper:

Dr. Draper has spent a number of years working as a linguist for the Christian and Missionary Alliance (C.M.A.) in Irian Jaya. Most concentrated efforts have been spent in studying the Dani language. Dr. Draper holds a Ph.D. in Anthropological Linguistics from Yale University.

Peter Foster:

An Englishman, Peter Foster graduated in agriculture at the Universities of London and Reading. Prior to coming to Irian Jaya, where he was managing the FAO/FUNAI/27/28 Project "Agricultural Development and Animal Husbandry", based at the Asan Agricultural Research and Education Institute, Manokwari, he was working as an Agriculturalist for more than twenty years in several countries in tropical Africa. Mr. Foster has now completed his assignment in Irian Jaya and has returned to England.

Ross Garnaut Ph.D.:

Dr. Garnaut, an economist, is a Research Fellow with the New Guinea Research Unit, ANU, Canberra. He has carried out numbers of studies in Papua New Guinea on various issues bearing on economic development and currently heads a research team which is studying the movement of rural peoples to urban centres in PNG.

Karl G. Heider Ph.D.:

Heider was a member of the Harvard Peabody Expedition to the Baliem Valley, 1961 - 1963. Subsequently he returned to the Baliem in 1968 to gather further material on the Dani which in 1970 led to the publication of The Dugum Dani, the most comprehensive work to date on Dani culture. Dr. Heider gained his Ph.D. in Anthropology from Harvard University. He is now an Associate Professor of Anthropology at Berkeley, California.

Chris Manning:

Chris Manning is a Research Assistant with the Department of Economics, Research School of Pacific Studies, ANU, Canberra. At present he is carrying out research work at the Institute of Population Studies, Gadjah Mada University, Yogyakarta.

P.W. Rombouts:

P.W. Rombouts o.f.m a Franciscan priest was ordained in Holland in 1946. The following year he began work as a missionary in Irian Jaya and has worked here ever since. For some years Fr. Rombouts has been in charge of a large mission agricultural and secondary school complex in Spoto, Missal Lakes, but over the years he has carried out mission work in the areas of Arso, Waris, in remote areas of the Bird's Head, and in Sorong. He is familiar with the languages of the Waris people, the Blaks and the Skagi people of the Missal Lakes.
Manuscripts:

The editors of the IRIAN welcome manuscripts of a theoretical or practical nature that directly or indirectly bear on West Irian. Manuscripts should be typed, double space and may be submitted in either Indonesian or English. If articles are submitted in Dutch the editors will endeavour to have the material translated into one of the above languages. Two copies of articles are required. Each article must be accompanied by an abstract of 200-400 words which, if possible, should be in the language other than that in which the manuscript is written. Articles should be accompanied by a brief biographical note on the author.

Note:

Pandangan2 yang disajikan dalam artikel apa seda dalam Irian ini adalah pendapat pengarang2 dan tidak perlu mewakili pandangan dari Pemerintah Indonesia atau Pembesar2 Pemerintah setempat. Para penerbit dari Bulletin ini dan Universitas Cenderawasih tidak memikul tanggung djawab atas pertanjan2 yang mungkin muntul dalam suatu artikel.

The views expressed in any material produced in the IRIAN are the authors' and do not necessarily represent those of the Government of Indonesia or local government authorities. The editors of the IRIAN and the University of Cenderawasih accept no responsibility for statements that may appear in any article.