THE NEW GUINEA OCEANIC HYPOTHESIS[1]

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1. Introduction

The large island of New Guinea, extending 2,400 km from east to west and 700 km from north to south at its midpoint, is the link and buffer between the islands and archipelagoes of eastern Indonesia and Melanesia. While New Guinea is usually considered part of Melanesia, it is useful to distinguish it from 'Island Melanesia', which comprises the smaller island groups from the Bismarck Archipelago to Fiji. The junction of these two Melanesian regions is at the Vitiaz Straits; there the western end of New Britain and its offshore islands face New Guinea's Huon Peninsula and Rai Coast across an ocean gap of only 72 km. East of the Huon Peninsula the Papuan tail of New Guinea droops far to the southeast below the Solomon Sea, while New Britain arcs northeast towards New Ireland. From New Ireland a chain of more or less intervisible smaller islands runs east and then southeast to the end of the Solomons Group; beyond this point lie the archipelagoes of the central Pacific, isolated by vast stretches of open sea.

For flora and fauna, the ocean gap between New Guinea and Island Melanesia is an important boundary: whereas the New Guinea mainland is relatively rich in plants and animals, with many links to Australia, Island Melanesia is relatively poor. It is possible that the Vitiaz Straits has also been an important boundary to man. Since the rise in sea-levels at the end of the Pleistocene, the inhabitants of the north coast of New Guinea could not have crossed to New Britain without seaworthy craft, and it is likely that there was no regular traffic across the Vitiaz Straits between pre-Austronesian populations.

In the case of Austronesian (AN) languages, it has long been suspected that the north coast of New Guinea and/or the Bismarck Archipelago were the original points of entry into Oceania from Indonesia. If this were so, it would not be unreasonable to suppose

an early separation between those AN speakers who moved north and east into Island Melanesia and those who moved down the coast of New Guinea southeast of the Vitiaz Straits to the Huon Gulf and to Southeast Papua.

In the recent linguistic literature, at least one scholar has maintained that there is an important linguistic boundary coinciding very approximately with the geographic boundary in question. According to Wilhelm Milke, all AN languages of the New Guinea mainland, or at least all those east of Humboldt Bay (including the languages of the small islands off the mainland), plus the languages of the islands in Milne Bay Province and Morobe Province, show evidence of a period of common development apart from those of the rest of Oceanic except for Northwest New Britain. Milke often referred to such a grouping in his writings, but only in his last major paper (Milke 1965) did he define and defend the hypothesis in detail.

Milke called his proposed subgroup 'New Guinea Austronesian' or the 'New Guinea cluster'. For several reasons I prefer the term 'New Guinea Oceanic' (NGO). By 'cluster' Milke simply meant 'subgroup', rather than a cluster in the lexicostatistical sense of Dyen (1965). And as Milke himself said, his main evidence for the New Guinea group applies only to members of the Oceanic division of AN, and not to the non-Oceanic AN languages spoken around the western end of New Guinea. Thus, 'New Guinea Oceanic' is a less ambiguous name, and I will use it or the abbreviation NGO here except when quoting Milke's own words. Milke's subgrouping proposal will be referred to as the 'New Guinea Oceanic hypothesis'.

Roughly 150 languages are assigned to the putative NGO group. This is about a third of the total membership of Oceanic (Lincoln 1975, 1977b). If it were established, NGO would be the largest recognized division of Oceanic, in terms of number of languages. While the AN languages of Island Melanesia are all generally held to be Oceanic, they do not (on present evidence) form a subgroup within Oceanic. In fact, the western part of Island Melanesia appears to contain

many high-order subgroups; the eastern part is rather less diverse (Grace 1955, Pawley 1972). There is a fair amount of evidence indicating that the languages of Fiji, Rotuma and Polynesia and many New Hebrides languages belong to a subgroup which possibly also includes Nuclear Micronesian (Grace 1955, 1959; Pawley 1972, 1977a, 1979; Ka'eo 1977).[2] There is no comparable body of evidence for any subgroup of comparable size in Western Melanesia.

Sections 2-4 of this paper will review Milke's discussion and other publications relevant to the NGO hypothesis. Some of Milke's arguments, as well as the placement of the New Britain boundary of NGO, have already been scrutinized and found in need of revision by Ann Chowning (1973). Competing high-order subgrouping proposals have been advanced by Isidore Dyen (1965), using lexicostatistical evidence, and Arthur Capell (1969, 1971), using syntactic typology. A number of lower-order subgroupings, connecting languages of contiguous regions within the New Guinea area, have been posited by several writers, including Grace (1955, 1971b), Milke (1965), Hooley (1971), the Hendersons (1974), Chowning (1973) and Pawley (1975). A brief outline and evaluation of the evidence for the more extensive of these various competing or lower-order subgroupings will be presented.[3]

In regard to the NGO hypothesis I will follow Chowning in concluding that the evidence presented by Milke is not persuasive. In the present state of Oceanic linguistics, it is possible neither (1) to accurately identify high-order subgroups relying mainly on Milke's principal criterion, i.e., lexical cognates exclusively shared by a set of languages, nor (2) to accurately reconstruct sequences of linguistic splits occurring more than 3,000 years ago, using the lexicostatistical method. I will suggest that if a convincing case for NGO is to be made, it will have to rest mainly on isoglosses of a type more difficult to locate - a body of innovations which are unlikely to have been developed independently by those languages which share them. Indeed, Milke himself seems to have come to the same conclusion (1965:346).

In Section 5 some new evidence will be reviewed. This material is not decisive, but indicates that there is some hope for the New Guinea Oceanic hypothesis, in a somewhat modified form. I do not think we should expect to find a large mass of evidence for NGO. If there was a Proto New Guinea Oceanic (PNGO) language, as distinct from Proto-Oceanic, it very likely broke up more than 4,000 years ago, possibly only a few centuries after the dissolution of POC. This being the case, there would probably be no more than a handful of important innovations originally characterizing PNGO and some of these would now be difficult to reconstruct. For further progress in clarifying the history of the AN languages of New Guinea better grammars and dictionaries, and painstaking application of the comparative method are needed. But 'autonomous' comparative linguistics may not be enough. We also require an understanding of the social and economic variables which have affected New Guinea speech communities. Study of the linguistic consequences for speech communities of participation in trading networks, different marriage and residential customs, Papuan-Austronesian and Austronesian-Austronesian bilingualism, size and distribution of communities, environmental barriers, and linguistic taboos, among other factors, may be necessary to help explain how the present distribution of linguistic resemblances and differences came to be.

2. Milke on New Guinea Oceanic

2.1 Milke 1965

Milke begins his 1965 paper with a brief defence of the widely accepted concept of an Oceanic subgroup embracing nearly all the AN languages of Melanesia, Micronesia and Polynesia. This was in response to Dyen's (1962, 1965) discovery that there is no lexicostatistical basis for such a group. Milke then asserts that the AN languages of New Guinea fulfil all the established phonological criteria for inclusion in Oceanic. Next he puts forward the hypothesis that "the New Guinea languages constitute a 'New Guinea cluster' within the Oceanic subgroup" (p. 331), and presents lexical evidence for this last hypothesis. He also explores

subgrouping relations within the 'New Guinea cluster'.

Before introducing his own material Milke comments tersely and rather ambiguously on two bits of evidence which scholars of a previous generation had used to link New Guinea AN languages with Eastern Indonesian languages. Milke describes the Schmidt-Friederici hypothesis of a New Guinea AN-Eastern Indonesian unity as "of doubtful standing" (p. 331), adding that his own opinions concerning this connection had been stated in Milke 1961:180. Schmidt (1900) and Friederici (1912, 1913) made two observations about possessive constructions:

> (1) The AN languages of New Guinea and some New Britain languages prepose the [noun] possessor in the possessive clause, this being a feature shared with some eastern Indonesian languages in contrast to the remaining western AN and Oceanic languages. (Thus where an Island Oceanic language like Bauan Fijian says na nona vale na tagane 'his house the man', NGO languages typically say 'the man his house' for 'the man's house.')
>
> (2) Some New Guinea AN languages, like some eastern Indonesian languages, show a 'double possessive pronoun', preposing an independent pronoun form to the possessive phrase (I my house, you head-your, etc.).

In Milke's 1961 paper we find a brief explanation offered for feature (1), whose distribution was first observed by Brandes (1884). Milke suggests that after the separation of the Oceanic branch from its Indonesian and Philippine relatives, the Oceanic branch remained in the neighbourhood of the eastern Indonesian languages, and there was some mutual influence leading to the common development of the 'preposed genitive'. Possibly he felt that the same explanation would do for feature (2).

As to the precise boundaries of the New Guinea cluster, Milke hedges his bets. On p. 346 of the 1965 paper he allows that the history of the Geelvink Bay languages "seems to a considerable extent independent of that of the more eastern [New Guinea AN] languages". In fact, since the AN languages of the Bird's Head and Geelvink Bay are generally excluded from Oceanic, it is puzzling that earlier in his paper Milke implies that they meet the diagnostic

criteria for inclusion. These languages do not show all the phonological changes characteristic of Oceanic, such as coalescence of Proto-Austronesian *p and *b, as Milke must have been aware. Later in the paper he concedes that the lexical evidence presented as attesting the historical unity of New Guinea AN languages really applies, at best, to those languages spoken "east of Humboldt Bay" near the Irian Jaya-Papua New Guinea border, and not to the whole of New Guinea.

Besides including all New Guinea AN languages east of Humboldt Bay, Milke's New Guinea Oceanic extends beyond the New Guinea mainland into New Britain. Milke wished to include in the New Guinea subgroup, first of all, the languages of "westernmost New Britain". By this he meant the Bariai group, extending from Maleu at the western end of New Britain to Kove, next to the Willaumez Peninsula, a group which others have shown to include languages spoken on the Vitiaz Straits islands and the New Guinea mainland opposite (Chowning 1969, 1973; Lincoln 1977a). Second, he included Nakanai, spoken in the Kimbe Bay region east of the Willaumez Peninsula. Milke believed that there were "many isoglosses connecting Nakanai with the languages of westernmost New Britain and of the mainland of New Guinea" (p. 332). He preferred to explain these special resemblances as resulting from common genetic origin rather than borrowing. Milke noted, however, that the Nakanai dialects do not prepose possessor nominals as NGO languages typically do, and as an explanation suggested that Nakanai has changed some of its syntax under the influence of the Gazelle Peninsula languages. He did not say why the explanation could not be reversed, and the isoglosses linking Nakanai and the Bariai languages attributed instead to difussion across or around the Willaumez Peninsula. This question was later taken up by Chowning (1973) (see below).

16 lexical isoglosses (besides items (1) and (2) above) were listed by Milke in support of his New Guinea cluster hypothesis. The geographic coverage of New Guinea languages in his supporting evidence is generally very thin. Milke's working strategy seems to

have been first to look for special resemblances among two of the best known and geographically most widely separated New Guinea Oceanic languages (Motu of Papua and Gedaged of the Madang region) on the assumption that if these two languages could be shown to subgroup apart from non-New Guinea Oceanic languages, then most or all of the intervening New Guinea languages could also be shown to fall into the same subgroup. Plainly, he planned to improve the geographic coverage at some later time. In the 1965 paper, only a few of the Motu-Gedaged isoglosses were supported by cognates from other members of the putative New Guinea Oceanic unit.

The following list of lexical isoglosses with commentary is taken directly from Milke (1965:344-6). (Numbering follows on from items (1) and (2) above; GED = Gedaged, MTU = Motu, PNGA = Proto New Guinea Austronesian, PNGA being equivalent to our PNGO (Proto New Guinea Oceanic).)

(3) GED au 'to flee, to run away', MTU he/au, 'to flee, to escape'.

(4) GED bog 'fish eagle', Barriai bogi sapule 'fish eagle', MTU boge 'white heron'. [Note also MTU bogibada 'kite (bird)': AP]

(5) GED buga 'shadow, soul, evil spirit', MTU boga 'belly, the seat of desire and affection, the uterus'.

(6) GED dai/a, dau/a 'to cross over, pass over (by wading, swimming, a bridge, in a boat)', Tami djai 'to go westward', MTU dai 'to go (by sea or river)'.

(7) GED dub 'black (said only of pigs)', MTU duba 'grey colour, dark grey colour, duba/duba 'very dark colour'.

(8) GED fuz 'grinding stone', MTU huro 'grinding stone'.

(9) GED gaz (suffix 'tribe, family of...', Azirá garam 'tribe, people', MTU gara 'descendants, seed'.

(10) GED mazaz 'to sit up, to watch', MTU mara/ia 'to wait (with intent to kill)'.

(11) GED nai 'to cook, to boil', Azirá noa/n, Tumleo nies, Tami na/nat, Yabem no:no 'to cook', MTU nadu/a 'to cook by boiling'.

(12) GED zaz, Bilibili rar 'clay, used in making pottery', MTU raro 'clay (used in making pottery)'.

(13) GED ze, Bilibili rei 'Kunai grass (Imperata cylindrica)', MTU rei 'grass'.

(14) GED sazi 'to shave, pare', MTU dari/a 'to husk a coconut with the teeth, to tear clothes with the fingers'.

(15) GED uzat 'work, labour, charge, activity', Kilenge urata 'a garden plot', MTU ura 'to will, wish, desire'.

(16) PNGA *lobu, *libu: Suau rou, Bunama nuhu, Guregureu nuhu, Nuakata lou, Wagawaga nowe, Bwaidoga nuu, Dobu nuu, Kiriwina lu--ta, Nada leu, Tavara nou, Wedau novu, Paima novu, Mukawa nobu, Ubir robu, Azirá nafo, Jabem lú, Bukawa lu, Tami lu, liwu, Barriai liu, Vitu livu, Gedaged, Bilibili liu, Takia lu, Wogeo liu, Ali, Tumleo ma/lu, Ulau me/lu, Jakamul me/le 'cross-sibling'. The root is lacking in the Mekeo-Motu-Keapara group and in the Nakanai dialects. The transition *l>n is regular in Bunama, Guregureu, Wagawaga, Dobu, Wedau, Mukawa, Ubir, and Azirá, as is the *l>r change in Suau.

(17) PNGA *rawa: Mekeo ŋava, Kuni lava, Motu rava 'parent-in-law, son/or daughter-in-law', Tubetube rawa 'sibling-in-law', Dobu lawa, Kiriwina yawa, Bwaidoga lawa, Jabem lawa, Bukawa awaŋ, Tami laua, Barriai laua, Gedaged zaua, Bilibili raowa, Takia rao, Swit rau, Sinor rau, Manam rawa, Tumleo lave 'parent-in-law, son/or daughter-in-law'. Also cognate are: Wedau, Paima rava/gi, Mukawa ravi/i, Ubir yawa/n 'to marry somebody'.

(18) PNGA *wawa, *waya: Motu vava, Wagawaga avu, Dobu wa 'mother's brother', Bwaidoga waga 'uncle or aunt of wife or husband', Wedau avu, Paima yavu, Mukawa abu, Ubir avu 'mother's brother', Azirá gaia- 'mother's brother', Jabem wawa!, Bukawa wawa!, Tami aua! 'my mother's brother!', Tami waga/m 'thy mother's brother', Gedaged wau!, waia-, Bilibili vau!, vaia- 'mother's brother', Tumleo wau!, wuoyie- 'mother's brother'.

Milke adds the following comment concerning items (17) and (18):

The North Coast languages have preserved the semantic differentiation between a vocative *wawa and a reference term *waya. The Wagawaga, Wedau, Paima, Mukawa, and Ubir forms point rather to a prototype *abu and may not belong here. Indeed, Capell has derived them from PAN *empu. On the other hand, possibly related forms are found in a number of 'Papuan' languages: Mer aua, Marind bab, Keraki

bava, Kiwai gau, Gogodara aua, Mailu aúe, Kate wawa, Iatmul wau, Sentani auau, all meaning 'mother's brother'.

It seems significant that the continuous distribution of the three kinship terms comes to an end at Humboldt Bay. Only a single probable cognate has been found in the Geelvink Bay languages: Windési rewa 'daughter-in-law' (<*rawa). The history of Geelvink Bay languages seems to a considerable extent independent of that of the more Eastern NGA languages. (1965:345-6).

Milke was pessimistic about discovering subgroups within New Guinea Oceanic from lexical evidence: "as the data at hand on the vocabularies of different languages are by no means equal in bulk and reliability, we cannot expect to get a sound subgrouping...by lexical comparison" (1965:346). But two features of grammatical structure, comprising typological similarities rather than demonstrably cognate structures, were isolated as possibly having subgrouping value. He attempted to correlate these with phonological innovations, specifically in the treatment of the two POC consonants which he wrote as *s and *z.

Although Milke advanced the grammatical features as evidence for particular subgroups within New Guinea Oceanic, rather than as evidence for the unity of all New Guinea Oceanic languages, the distributions of the grammatical features make them worth considering alongside the lexical isoglosses (3) - (18), as possibly of PNGO age. Once again, Milke's discussion of each only runs to a few lines.

(19) Realis-irrealis. Yabem (Yabim), the best-known Huon Gulf language, has a verbal system "dominated by the realis:irrealis opposition" (p. 346). Milke notes that the structural means for making this opposition - different sets of pronominal prefixes - is partially paralleled in the Tumleo language, spoken several hundred kilometres to the west in the Sepik Province. Tumleo has distinct third person singular (and possibly also distinct second person singular) markers for realis and irrealis. Also cited is Capell's (1943:258) statement that the "distinction between the real and the conceived is at the root in the Suau group of languages", spoken in the Milne Bay region, far to the southeast of Yabem. But as Milke remarks, the formal means for expressing the opposition differ in Suau, Tumleo and Yabem.

One might have expected Milke to interpret the widespread use of realis:irrealis verbal contrasts as reflecting an original characteristic of PNGO. But he was distracted by his preoccupation with a favourite topic, the outcome of POC *s and *z (Milke's *z is generally regarded as the nasal grade correspondence of *s and is now written *ns). Milke sought to correlate the distribution of the realis:irrealis contrast with the distribution of particular groups of New Guinea languages which have merged *s and *z.

*s and *z have fallen together in Tumleo, Suau, Yabem, and in the immediate relatives of each. Among other NGO languages the merger also occurs in Motu and other members of the Central Papuan subgroup, which Milke knew to lack the realis:irrealis opposition. On the other hand, some widespread NGO languages preserve separate reflexes of *s and *z, including Manam and Gedaged of Madang Province, and Ubir and Wedau of South-East Papua. Now, Milke more than most other Oceanists was inclined to take the coalescence of *s and *z seriously as grounds for subgrouping languages which otherwise have few, if any, special resemblances. Thus, he was impressed by the fact that three of the four NGO groups which merge *s and *z also exhibit the realis:irrealis opposition. As later study has shown (see section 5), the correlation is not close. *s and *z fall together in many different Oceanic groups, while realis:irrealis contrasts are more widespread within NGO than Milke observed.

Verb Classifying Prefixes. A second feature which attracted Milke's attention was the distribution of what he called "classificatory prefixes to verbs". Capell had discussed these in his 1943 study of South-East Papuan languages. Milke believed that cognate prefixes exist in South-East Papua, Gedaged, and possibly in Azira. He isolated three possible cognate sets and commented as follows:

(20) "(a) Mukawa bo-, Ubir aba-, Paiwa, Wedau vo-, Tavara wo- 'action by hand'; [Gedaged] ba-, be-, bi-, bo-, bu-, wo- (vowel depending on first vowel of verbal stem) 'action with the hands'.)

(b) Ubir tar(a)-, Mukawa, Paiwa, Tavara tara-, Dobu tala-, Panayati, Sabari tar-, Kiriwina ta- 'action by cutting or severing'; [Gedaged] teze-, tizi-, tuzu-'action by cutting, piercing, severing'. I have counted seventeen [Gedaged] verbs with this prefix. The root is [Proto-Austronesian] *taRaq.

(c) Ubir ku-, Mukawa, Paiwa kam- 'assumption of state'; [Gedaged] ka-, ke-, ku- 'prefix indicating that an action takes place without a purpose, by itself'.

Now turning to the Azirá language, we find a number of recurrent first syllables in verbs (a-, ja- etc.) which may be classificatory prefixes. This we must leave undecided. But Holzknecht has an entry: ririz 'particle to compound verbs meaning: away from, out of....' As [Proto-Austronesian and Proto-Oceanic] *t > r in Azirá, this compares (except for the final consonant) with [Gedaged] teze-, tizi-." (Milke 1965:347).

Again, he makes a comparison with *s and *z reflexes. Milke was impressed by the fact that the three groups which share the development *s > s, *z > Ø (the Gedaged, Azira and Mukawa groups) "share also the use of verbal classifying prefixes" (p. 347); perhaps this correlation prevented him from suggesting that the development of classificatory prefixes to verbs was an innovation of PNGO.

2.2 Milke 1958

In a paper published in 1958, Milke proposed a subgrouping of Oceanic languages based purely on the development of three POC consonants, *l, *d and *R. All Oceanic languages show some loss of phonological information in their treatment of these phonemes, i.e. no language shows three distinct positive (non-zero) reflexes of *l, *d and *R. New Guinea mainland Oceanic languages show this merger:

(21) *d and *R fall together, usually as r.

The same development is found in the languages of Geelvink Bay, New Ireland and surrounding islands, Kuanua, Buka, Bougainville, Choiseul, New Georgia, the Banks and Torres Islands, and according to Milke, in West New Britain. (Chowning (1973:201-2) draws attention to double reflexes of *R in West New Britain languages.) As there is no other evidence uniting all these languages, it is plain that the

merger of *d and *R has occurred independently in more than one set of Oceanic languages. It is surprising that Milke should set such store by a single, apparently rather natural, phonological simplification. Judging by its most common reflexes, POC *d was probably an apical flap [ɾ̆] or trill [r̃] . The exact phonetic qualities of *R are uncertain, but its reflexes in the daughter languages (usually r, sometimes l), suggest that *R also belonged to the 'liquid' family. Liquids are a rather mysterious class. Phonetically, the class is hard to define. (What is 'liquidness'?) The r-family of sounds is similarly puzzling. What is the distinctive feature marking off [ɾ̆], [r̃], [ɹ], [R] from other consonants? At any rate, there is no doubt that such diverse sounds are perceived as a class in many languages, e.g. English has a phoneme /r/ variously realized as [ɾ̆], [r̃], [ɹ], so that while the merger of two liquids counts as subgrouping evidence it is not very powerful evidence.

2.3 Milke 1968

Milke was working on a second paper on New Guinea Oceanic when he died in 1967. We know nothing of its contents apart from a few hints in the 1965 article and in another paper (Milke 1968) which he had submitted in draft form to the editor of Oceanic Linguistics.

The latter paper presents some new POC lexical reconstructions which were a byproduct of his work on New Guinea AN. They indicate that he had extended his search for lexical isoglosses beyond the sources cited in his 1965 article, to all reported AN languages of the New Guinea area. But the 1968 paper adds very little to the discussion of New Guinea Oceanic. It is purely a listing of POC reconstructions supported by cognate sets found in NGO and other Oceanic groups.

Widespread external cognates were noted for one cognate set which in 1965 had been proposed as unique to NGO: item (14): MTU dari/a 'to husk, tear etc.', GED sazi 'to shave, pare'. Milke cited cognates from Kuanua, Nggela, Sa'a and Mota, indicating a POC etymon *saRe 'to tear'.

Among the new Oceanic cognate sets listed in Milke (1968), one is of interest in showing a formal irregularity distinguishing New Guinea forms from apparent cognates elsewhere:

(22) Milke compares MTU nuse 'small octopus', GED nui 'squid', and Manam nuri 'octopus'. These agree in showing a final non-low front vowel, compared with Nggela nuho, Sa'a nuto 'squid'. Also listed as possible cognates are Rotuman nu 'squid', Bariai, Kove gusa, Kilenge husa 'cephalopod', Maori ŋuu, Tongan ŋu/feke 'cuttle-fish'. Milke reconstructs POC *nus(i,o), and presumably intended *nusi as the PNGO reflex. He observes that Motu -s- and Maori, Tongan ŋ- are unexpected. So is the loss of the second syllable in the Rotuman and Polynesian forms, while Motu -e does not regularly correspond to Gedaged and Manam -i. Thus, there are several hindrances to establishing the NGO forms as cognate with the external forms, and it is by no means clear that Motu nuse is cognate with the other NGO forms.

The situation becomes a little clearer if we make some additional comparisons. Nggela nuho, Sa'a nuto 'squid' compare with Lau nufo 'squid', Arosi nuto 'octopus, squid', 'Are'are nuto 'cuttle-fish, squid', and indicate Proto-Southeast Solomonic *nu(n)so 'squid'. A regularly corresponding cognate from New Britain, Lakalai (West Nakanai) luso 'squid', suggests that the form *nu(n)so may go back to POC. However, Numbami of the Huon Gulf shows ia/nusa 'squid', pointing to an alternative reconstruction *nu(n)sa. This alternative is compatible with the forms showing final -o, because -o<*-a following a stressed u is a common assimilation in Oceanic languages. Although the initial consonant correspondence is irregular, Bariai and Kove gusa, Kilenge husa otherwise also support *nu(n)sa. And Andrew Taylor has drawn our attention to the fact that nuse (phonemically nute) is found only in the Eastern Motu dialect. Western Motu has the form dune, which may be from earlier *nude by metathesis; Motu d reflects POC *(n)s, and *nude can be derived from *nu(n)sa more readily than from *nu(n)so. This hypothesis is supported by the occurrence of nude 'cuttle-fish' in Lala, a Central Papuan languagè closely related to Motu. (As an

explanation for Eastern Motu nuse, we can offer only the following: earlier *nude became *nute, by irregular devoicing of the medial consonant, followed by the conditioned change *t>s before e, this last being a regular development in Motu.)

We are left with the Manam and Gedaged forms to account for. Despite its unexpected final syllable, Gedaged nui is probably cognate with POC *nu(n)sa: Gedaged also has nui as the reflex of POC *nusa 'island'. The mutation of *-a to -i in these words may be an isogloss connecting languages in the Gedaged-Manam region.

The net result of Milke's 1968 paper, then, is to subtract item (14) from the evidence for NGO presented in his 1965 work.

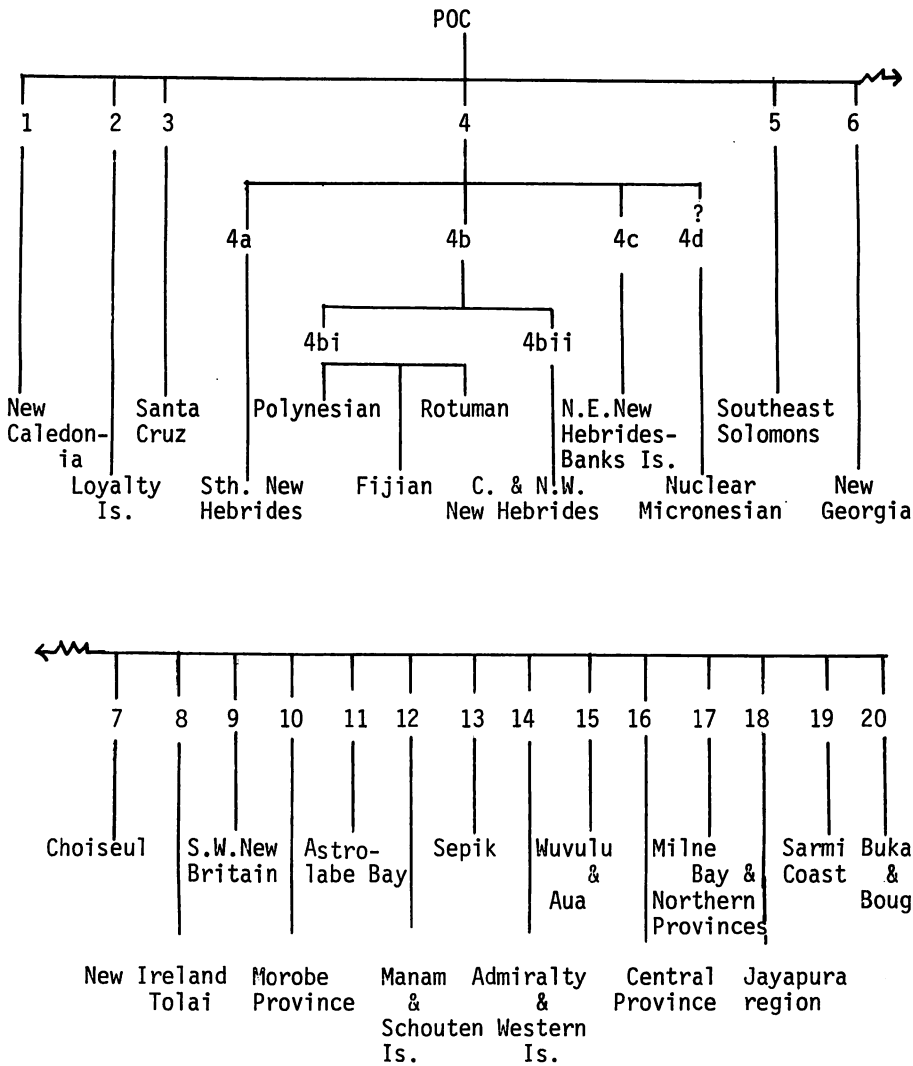
3. Other Large-Scale Classifications of New Guinea Oceanic Languages

3.1 Grace 1955, 1971

The first attempt at a comprehensive subgrouping of Oceanic languages was made only 20 years ago. In a three page report Grace (1955) proposed a tentative classification based on his survey of almost 400 Oceanic languages and dialects for which he compared basic lexical and grammatical information. In later discussions Grace made some changes to his original proposals. The diagram on the following page is based on the 1955 classification as modified in an unpublished paper (Grace 1971b).

Except for group 4bi, discussed at length in Grace (1959), the evidence supporting these subgroupings has not been published, and we should recall that Grace (1955:338) emphasized the preliminary and tentative nature of his original classification. Nevertheless, a number of Grace's proposed subgroups have been more or less confirmed by later more detailed studies. For example, group 4a (Southern New Hebrides) has recently received support from the work of Lynch (1978), while group 4b (if modified to include 4c) corresponds to the North Hebridean-Central Pacific group in Pawley (1972). Grace's tentative alignment of Nuclear Micronesian with group 4 is consistent with the (still tentative) findings of recent studies (Ka'eo 1977; see also Pawley 1972). Group 5(Southeast Solomons) appears as a moderately

CLASSIFICATION OF OCEANIC LANGUAGES (AFTER GRACE)



well-defined group in Pawley (1972). Group 7 (Choiseul) is a clearly-indicated group in Dyen's (1965) lexicostatistical study, while Laycock (1973) and Ross (1977) found evidence in support of groups 12 (Manam and Schouten Is.) and 13 (Sepik). Blust (n.d.) has found some qualitative evidence for group 14 (Admiralty and Western Is., though he would also include Wuvulu and Aua in the same group). Group 16 (Central Province) appears as a well-defined subgroup in Pawley (1975).

Several of the proposed groups have not as yet been subjected to detailed comparative study. Among those which have, however, only in a few instances has it turned out that Grace's groupings can be seriously faulted on present evidence. (We have, as noted earlier, incorporated in Figure 1 Grace's own (1971) amendments to his 1955 classification.) It appears that Grace underestimated the genetic diversity of New Britain languages (Chowning 1969, 1976; see also Dyen 1965); similarly, later studies have been unable to unify the Morobe languages (group 10). It is unlikely that the Milne Bay-Northern Province division (group 17) is actually a closed subgroup apart from group 16 (Pawley 1975). Recent work (e.g. Hooley 1971, Chowning 1973, Lincoln 1977a) points to a subgroup extending from N.W. New Britain across the Vitiaz Straits to the Huon Peninsula and west as far as Gedaged. This group (see sections 4.1-4.2) intersects with Grace's groups 9 and 10 and includes his group 11.

Perhaps the most striking fact about Grace's classification is the absence of any very large geographic groupings in Western Melanesia. Of the 20 first-order units, 16 are located in the New Guinea-Bismarcks-Solomons region, and of these, eight are on the New Guinea mainland. Each of the Western Melanesian groups has a quite restricted geographic distribution, none extending over more than about 400 km in any one direction. In marked contrast to this, all of the Oceanic languages of the island groups of Melanesia east of the Solomons, together with those of Polynesia and Micronesia, are assigned to just four first-order groups in Grace's Oceanic family tree.

Now, we should stress that Grace did not discount the possibility that larger groupings might be established in western Melanesia. He simply found no good reason at the time to recognize any larger units. Certainly there is no group in his classification that is remotely like Milke's New Guinea Oceanic.

3.2 Dyen 1965

In his Lexicostatistical Classification of the Austronesian Languages (1965), Isidore Dyen treated over 200 AN languages. One of Dyen's discoveries was that there are no lexicostatistical grounds for the Oceanic subgroup. Melanesia contains a high proportion of small groups and isolates each showing less than 20 percent cognation with all other languages in the comparison.

Unhappily for our purposes, only about 15 percent of all New Guinea Oceanic languages were compared. Thus we still lack a thorough study of the internal and external lexicostatistical relationships of the members of Milke's New Guinea grouping. Still, it is reasonably clear from Dyen's results that New Guinea Oceanic cannot be justified on a lexicostatistical basis.

Included in the main classification (Dyen 1965:23-42) were 19 languages representing six major geographic-linguistic regions within 'New Guinea Oceanic' territory:

Central Province	:	Motu
Milne Bay and Northern Provinces	:	Dobuan, Keheraran (dialect of the language better known as Tavara), Molima, Panayati, Ubir, Wedau.
Morobe Province	:	Acira (=Azira), Hapa (=Labu), Numbami (=Siboma).
N. W. New Britain	:	Bakovi, Nakanai.
Jayapura, Irian Jaya	:	Tobati, Kajupulau, Ormu.
Sarmi Coast, Irian Jaya	:	Bonggo, Moar, Sobei, Tarpia.

Several other languages represented by incomplete lists were included in the original comparisons but not in the main classification:

Morobe Province	:	Tami
E. Sepik Province	:	Kairiru, Blupblup
N. W. New Britain	:	Kilenge, Kapore
Sarmi Coast	:	Anus

The full matrix of figures was not presented, but evidently there was no instance of a New Guinea language showing as much as 20 percent cognation with any language of a different New Guinea region (regions as defined above). The highest inter-regional percentages for languages represented by full lists were:

Central Province	:	17.2 (Motu with Dobuan or Molima)
Milne Bay-Northern Provinces	:	17.2 (Dobuan or Molima with Motu)
Morobe	:	None higher than 15.
N. W. New Britain	:	None higher than 19.
Sepik	:	[No full list language, and no language higher than 17.]
Jayapura	:	None higher than 10.7.
Sarmi Coast	:	None higher than 14.5.

With one exception, comparisons with non-New Guinea languages apparently yielded no agreements as high as 20 percent. The exception is Motu, which shares 22.1 percent with the conservative Guadalcanal language, Kerebuto.

Some intra-New Guinea Oceanic comparisons gave extremely low figures. For example, Azira scores no more than 7.3 percent with any other language in the entire comparison, and Hapa (Labu) no more than 10.8 percent. Even if we inflate the lowest figures by 6 to 8 percent to allow for unrecognized cognates, the glottochronological dating for the breakup of the immediate common ancestor of the New Guinea languages is no later than 2500 BC, and possibly as early as 4000 BC - in fact, the same range of dates as for Proto-Austronesian itself, according to Dyen's results.

The reliability of glottochronology is by no means so great that we are compelled to accept these dates. However, the considerable lexicostatistical diversity of New Guinea Oceanic languages is plainly indicated by Dyen's comparisons of a small but geographically dispersed sample. Whether the lexicostatistical method can reliably

distinguish sequences of linguistic splits occurring more than 4000 years ago is another question, which we turn to later.

3.3 Capell 1943, 1969, 1971

Arthur Capell has written three lengthy studies of New Guinea Austronesian languages using a rather different theoretical framework from the other subgrouping studies reviewed here.

The first of these was his monograph The Linguistic Position of South-Eastern Papua (1943). There he elaborated and refined an old idea that the so-called 'Melanesian' peoples originally spoke non-Austronesian ('Papuan') languages and adopted AN languages from Indonesian (i.e. western AN) colonists or traders. It was assumed that in all cases the transfer involved some degree of pidginization, mixing or strong substratum effect: a simplified AN phonology and grammar, and at most two or three hundred AN words, were superimposed upon a Papuan substratum. Many such Papuan-AN hybrids developed independently in the various parts of Melanesia visited by Indonesians. In some cases the substratum remained very strong in the adopted language; in other cases (particularly where successive waves of AN colonists imposed multiple layers of AN on the original mixture), the AN component was richer and better preserved.

Capell attempted to distinguish the number of AN movements into Melanesia and to trace the place in Indonesia where each movement stemmed from, by correlating the AN elements found in various regions of Melanesia with those characterizing different contemporary languages of Indonesia and the Philippines. The assumption was that AN settlement of Melanesia occurred relatively late, after PAN had broken up and the main present-day branches in Indonesia had been established. Dempwolff's theory that the Melanesian languages form a genetic unity, namely 'Oceanic' (also including Polynesian and Micronesian) apart from the western AN languages was rejected; however, the several phonological innovations common to the Melanesian languages were not explained away by Capell (except tacitly as parallel simplifications). Dempwolff was impressed by the structural convergence of the Melanesian languages, seeing this as clear

evidence for subgrouping them. Capell, on the other hand, was impressed by the diversity, especially the lexical diversity, seeing this as evidence for substrata. This led him to reject the family tree model as inadequate for explaining the history of the Southeast Papuan languages.

The years have been kinder to Dempwolff's theory. Although the low retention of PAN roots in certain 'aberrant' Melanesian languages, e.g. those of New Caledonia (Grace 1974), still escapes convincing explanation, subsequent research has shown that the number of roots common to Oceanic and western AN languages is over 1,000, and that certain individual Oceanic languages preserve at least 500 of them. The numbers continue to rise as we swing into a new phase of AN comparative research; now, instead of accepting the great works of Dempwolff and his predecessors as delimiting for all time the common vocabulary and structure of the AN languages, Austronesianists have resumed the search for new comparisons. As reconstruction of Proto-Oceanic vocabulary and grammar proceeds the similarities with western AN languages become more and more evident, and the residue of unexplained discrepancies, although still sizeable, continues to shrink.

Capell's 1943 book focussed on the AN languages of Papua. In two later works he has commented on all the major regions of New Guinea and contiguous regions of Melanesia. In 1969 he published a survey of AN and Papuan languages of the New Guinea area, dividing the languages into two different 'types' according to various structural criteria. Two major AN sub-types were recognized, and called AN_1 and AN_2. In a 1971 paper on New Guinea Austronesian the same labels appear, but their application is reversed, on the grounds (Capell pers. comm.) that AN_1 should be applied to that type which has the widest distribution in Oceanic. Here I follow the terminology of the 1971 paper.

The grounds for distinguishing the two types are grammatical. AN_1 languages have SVO word order and prepositions. AN_2 languages resemble Papuan languages in having SOV word order and postpositions.

In addition, whereas AN_1 languages are said to rely chiefly on free morphemes (particles) to signal grammatical information, AN_2 languages, though they employ grammatical morphemes that are historically AN, show a "grammatical structure" that is "much more like that of the majority of [non-Austronesian] languages" (1969:23); no more is said but the implication is that in AN_2 the uses of grammatical elements, the kinds of grammatical categories that they mark, tend to parallel those of Papuan languages rather than those of AN_1.

Although Capell uses the term 'subgroup' of both AN_1 and AN_2, he expresses no strong conviction that they are contrasting genetic units, as opposed to typological classes. More than once he suggests that AN_2 languages are not Austronesian in the same sense as the AN_1 languages. Whereas AN_1 languages are fully Austronesian, in AN_2 there is only a "thin veneer of AN" (1971:316). In one remark he does come close to making a subgrouping hypothesis: "these [typological differences].....suggest that the two groups of AN languages have probably come into New Guinea at different times and perhaps by different routes" (1969:23). But elsewhere he attributes the distinctive syntactic features of AN_2 languages to Papuan linguistic substrata or influence.

There is a fair measure of agreement between Milke's New Guinea Oceanic and Capell's AN_2: "Practically all the New Guinea mainland AN languages" east of the Sarmi Coast belong to the AN_2 type. So too do the island groups off South-eastern Papua, except for the Trobriands-Woodlark group. However, on most of the small islands immediately off the north coast of the New Guinea mainland (e.g. the Vitiaz Straits islands) the languages are of the AN_1 type. Here there is a fairly serious conflict with Milke's NGO hypothesis, as Milke assigned all these north coast languages to NGO.

4. Studies of Relationships among New Guinea Oceanic Languages

4.1 Chowning 1973

The only previous detailed critical examination of Milke's (1965) proposals has been provided by Ann Chowning (1973). Her main concern

is Milke's suggestion that the languages of the northwest coast of New Britain, as far east as (and including) Nakanai, are quite closely related to each other and are all probably members of New Guinea Oceanic.

Chowning's discussion is thorough and perceptive. Her main conclusions are these:

(i) Milke was mistaken in his treatment of Nakanai.[4] The Nakanai dialects and their immediate relatives (which form the Kimbe group, spoken on and east of the Willaumez Peninsula) are an isolate in New Britain. They are not closely related to the Bariai languages, or to other New Britain languages. Nor do they subgroup with any New Guinea mainland language.

(ii) Milke, and Friederici before him, were correct in subgrouping the Bariai languages of New Britain with certain mainland languages. The Bariai languages--Bariai, Kilenge and Kove and dialectal variants--are spoken west of the Willaumez Peninsula. They show an obvious close relationship to several languages of the Rai Coast of New Guinea and the islands between New Britain and the mainland. (Thus, if it were conceded that the Rai Coast languages belong to a New Guinea Oceanic grouping, so, by association, would the Bariai languages. But see (iii).)

(iii) Milke's evidence for subgrouping all New Guinea mainland languages east of Humboldt Bay is open to several serious objections. While it remains possible that a "somewhat redefined" New Guinea Oceanic will turn out to be a valid subgroup, at present Milke's grouping lacks a sound basis.

The criticisms of Milke's sixteen isoglosses linking Gedaged and Motu are of several kinds. As was to be expected, some items have proved to have external cognates. The original list was reduced to fifteen when Milke himself (1968) noted widespread external cognates of item (14) (see 2.3).

Item (17) can also be discounted: Chowning points to cognates of PNGA *rawa in several Solomons languages. (6) and (8) also have possible cognates in Nakanai. We may also rule out item (13) on

similar grounds; the type of Motu rei 'grass' is also found in the Southeast Solomons group, e.g. Arosi rei 'long sp. of grass with sharp cutting edge'.

Of the remaining putative cognate sets, two or three are doubtful because the semantic connection is questionable. For example, Chowning "finds no reason to consider.....cognate" the comparisons in (5): Gedaged buga 'shadow-soul, evil spirit' and Motu boga 'belly, uterus, the seat of desire and affection' and (15): Gedaged uzat 'work, activity, etc.' and Motu ura 'to will, wish, desire'.

We should note certain other comparisons which show unexplained irregular sound correspondences. In particular, the comparison: Gedaged nai, Yabem nó:no and Motu nadu/a (item 11) is defective in several respects. In the equation under (18) of Motu vava with Wedau, Ubir avu, Mukawa abu, Gedaged wau (vocative), waia, Tumleo wau 'mother's brother', etc.,there are unexplained discrepancies, while probable external cognates of Motu vava exist, e.g. Wayan (Fiji) vāvā 'father' (term of address).

Thus, we are left with seven of Milke's original set of 16 lexical isoglosses marking off New Guinea Oceanic. The residue comprises items (3), (4), (7), (9), (10), (12), (16).[5] None of these demonstrably shows an innovation--a shared irregular change in form or a semantic or functional shift. The possibility must be allowed that all the valid form-meaning resemblances concerned are shared retentions from POC. Chance alone might permit two distantly related languages to preserve ten, or for that matter, a hundred POC words which elsewhere have been lost; it is hard to determine where the bounds of chance lie in such comparisons.

That Milke was aware of the shared retentions problem is indicated by his remarks on p. 344: "apparent [Proto-New Guinea Austronesian] roots may later be shown to be [Proto-Oceanic]" . Of course Milke's list is not necessarily exhaustive, based as it is mainly on a comparison of a very few New Guinea languages. But as long as there are no good dictionaries for most Oceanic languages it

will be difficult to build a secure case for a subgroup on exclusively shared lexical items. The suspicion will always be present that external cognates will be found when good dictionaries appear for more languages outside the putative subgroup.

We need not dwell on Chowning's long discussion of the position of Nakanai and the Bariai group. Some convincing arguments support her claim that most of the similarities shared by Nakanai (exemplified by the Bileki or Western dialect, also called Lakalai) and the Bariai languages (exemplified by Kove) are shared retentions from POC. The Nakanai dialects are manifestly fairly conservative - they have preserved the POC phonological and morphosyntactic systems better than most languages of New Britain or the New Guinea mainland. Chowning shows that Kove is also conservative in phonology and fairly conservative in grammar and basic vocabulary. In the shared structure and vocabulary exhibited by Kove and Nakanai there is a notable absence of common innovations. Admittedly Nakanai and Kove share a few common idioms, apart from non-New Britain languages; on this Chowning comments: "I do not think that the number of shared isoglosses...[is] any more significant than might be expected for languages that are geographically so close and that have certainly been subject to similar influences from other New Britain languages" (1973:206).

4.2 Hooley 1971

In contrast to the Kimbe languages, the close relationship of Kove and its congeners to certain New Guinea mainland languages is easily demonstrated. In a lexicostatistical study of Morobe Province languages, Bruce Hooley (1971) included several languages of adjacent provinces, New Britain being represented by Maleu, Nakanai, Kuanua (Tolai) and Arawe. The cognate percentages (for a 100 meaning list, including some New Guinea cultural items) show Maleu as consistently closer than the other New Britain languages to certain New Guinea mainland and Vitiaz Straits islands languages.

Nakanai's percentages with other New Britain languages in the comparison were 18 with Kuanua, 15 with Maleu, and 6 with Arawe.

Nakanai's highest percentage with New Guinea Oceanic languages were 18-20 with three Vitiaz Straits island languages (Barim, Lukep and Mangap), 17-19 with Malasanga, Roinji and Gitua of the Huon Peninsula, 16 with Gedaged of Madang Province and with Siboma (Numbami) of Morobe Province, and 12-15 with several scattered Morobe languages. Hooley's figures are slightly lower that some other investigators have obtained. Still, the pattern of consistently low agreements supports Chowning's contention that Nakanai does not subgroup with any New Guinea language. Maleu, however, shares significantly higher percentages with Rai Coast and Vitiaz Straits island languages than with other mainland or New Britain languages (except its Bariai congeners): 27-34 with Barim, Lukep, and Mangap of the Vitiaz Straits islands, and 24-28 with Malasanga, Roinji, Sio, Gitua, and Gedaged of the Rai Coast, compared with 17 with Kuanua and no more than 18 with any other New Guinea mainland language. Moreover, Maleu has evidently replaced more POC basic vocabulary than other Bariai group languages (Chowning 1973:208); using the same list as Hooley, Chowning scores 38-47 percent cognation between Kove and Barim, and 43-50 for Kove-Gitua. (The higher end of the range in each case includes doubtful cognates.)

HOOLEY'S ISLAND SUBFAMILY

Hooley constructs a tentative family tree from the lexicostatistical figures. He posits an 'Island subfamily' including Gitua and other Huon Peninsula languages, and Barim and other languages of the Vitiaz Straits islands, and Gedaged. By association, the immediate relatives of Gedaged in Z'graggen's (1971) 'Belan family' qualify for inclusion in the Island group. Hooley does not explicitly assign Maleu and Kove to the Island subfamily, but Chowning's comparisons show that the Bariai group has even stronger lexicostatistical claims for inclusion than Gedaged and its immediate relatives. She also points to several isoglosses linking Kove, Huon Peninsula and Siasi-Umboi Island languages (Chowning 1973:209-10). Lincoln (1977a) offers further evidence, quantitative and qualitative, for subgrouping Gitua and Kove with Tuam-Mutu and other Vitaiz

Straits island languages, and with Gedaged and Matukar of the Madang Province.

Allowing for these extensions, then, there seems to be rather general agreement as to the probable validity of Hooley's 'Island' subgroup (for which Lincoln prefers the name 'Rai'). However, the exact boundaries of the unit are still unclear - for example, Manam has some claims to a place (Chowning 1973:210), while Tami presents a problem. The geographic position and role of the Tami islanders as voyaging traders no doubt partly accounts for the fact that their language scores well over 30 percent with Gitua, Tuam and certain other Island languages, with Gedaged and also with Yabem, Siboma, and certain other Huon Gulf languages which are excluded from the Island group. Although Hooley assigns Tami to the Island group, it shows only 20 percent cognation with Maleu. At this stage we cannot rule out any of the following possibilities: (a) Tami belongs to the Island group but has exchanged a good deal of basic vocabulary with Huon Gulf languages; (b) Tami subgroups with certain Huon Gulf languages but has been influenced by neighbouring Island languages; (c) Tami is an isolate which has borrowed vocabulary from both Island and Huon Gulf languages.

The Tami case reminds us that all the Austronesian communities of the Vitiaz Straits and Huon Gulf regions formed part of trading networks (described by Hogbin 1947 and Harding 1967). Inevitably, items of vocabulary as well as shells, pots, food and spouses, move along any well-travelled trade route. Thus, we must be especially wary of any subgrouping resting on a small margin of lexicostatistical differences and isogloss linkages when the language communities concerned are known to belong to a trading network or to intermarry. Among related languages it is not easy to distinguish between a large mass of special resemblances due to original genetic sub-relationship and resemblances due to areal diffusion. The illusion of a subgroup may be produced by borrowing or parallel change. Sometimes painstaking application of the Comparative Method may clarify the sequence of historical events. This is what is needed now to confirm

or disconfirm the Island (or Rai) grouping, and the larger Siasi grouping, also proposed by Hooley (see below).

HOOLEY'S SIASI FAMILY

Under the heading 'Siasi family' Hooley (1971:99-101) combines the Island subfamily with all the coastal languages of the Huon Gulf, from Yabem south to Siboma (Numbami). He also includes Maleu and Gedaged at this higher level, although we have argued, after Chowning and Lincoln, that they belong to the Island group. The case for the Siasi family is far from persuasive. The case rests strictly on lexicostatistical grounds and these are not argued in detail nor are they transparent. It is noticeable that most of the relatively higher percentages linking the Huon Gulf languages and the Island group are between geographically close or trade-linked languages. Otherwise the lexicostatistical agreements between them (100 word list) rarely exceed 25 percent, and more importantly, are not significantly higher than agreements with many non-Siasi family languages included in the comparison. For example, in Hooley's original 100 word list computations (1971:87, 102), Yabem's percentages include 12 with Lukep, Barim and Maleu, and 19 with Gedaged, and 18 with Kuanua. Kuanua scores 21 with Gedaged, and 17-19 with Lukep, Barim and Maleu. It seems that if the Island subfamily subgroups with any other set of New Guinea languages, the relationship will have to be demonstrated on qualitative, not quantitative, grounds.

4.3 Pawley 1975

This paper investigated the internal and external relationships of the AN languages of the Central Province of Papua. The particular interest of these 'Central Papuan' languages in the present context is that they form the southwestern extreme of Milke's New Guinea Oceanic on the New Guinea mainland, and include Motu, one of Milke's main witnesses and perhaps the best-described AN language of New Guinea.

THE CENTRAL PAPUAN GROUP

Seven of the Central Papuan languages are distributed along the coast between Cape Possession in the west and Cheshunt Bay, over 200 km to the east. Two others are situated a few miles inland. A tenth, Magori, is isolated from the rest; it is spoken at the eastern end of Table Bay near the border joining the Central and Milne Bay Provinces.

The nine contiguous languages form a well-marked subgroup of Oceanic. At least nine shared changes to the POC phonological system and several irregular changes in POC grammatical and lexical forms, as well as many lexical isoglosses, attest the earlier common history of these languages. A tenth language, Magori, only recently recorded (Dutton 1971), probably belongs to the same subgroup. Although the descriptive material is fragmentary, it is sufficient to show that Magori shares all the main innovations defining Central Papua, including loss of POC *k, loss of *l before *i or *u, merger of *u and *i as i after *ol or *ul, and merger of *s and *ns as a stop or as r.

Lexicostatistical comparisons indicate that the Central Papuan languages (excluding Magori) have been diversifying internally for between 2500 and 3400 years. The Eastern and Western subgroups converge at around 23-33 percent cognation (215 word list). Motu apparently forms a third primary division, but because of its central location and trading links with other communities shares higher percentages (30-52) with both Eastern and Western languages.

Given that the Central Papuan group is Oceanic, we must assume movement into the Central Province from a less marginal Oceanic-speaking region, one where other Oceanic languages are or were once present. On geographic grounds an obvious candidate is the Milne Bay region at the S.E. tip of New Guinea. Not only is Milne Bay the nearest Oceanic-speaking region, it is the only other one overlapping onto the southern coast of New Guinea. I find it implausible to suppose that the linguistic ancestors of the Central Papuans

reached the Central Province without passing through the Milne Bay region. Linguistic comparisons, in turn, suggest that there was more than just a passing connection between Central and Milne Bay Province languages.

MILNE BAY AND CENTRAL PAPUAN

Grammatically and lexicostatistically, the Milne Bay languages are more diverse than the Central Papuan group (Lithgow 1976). They all meet the main criteria for inclusion in Oceanic. Grace (1955) tentatively suggested that there is a Milne Bay subgroup apart from the Central Province group. This now seems unlikely. Several developments in phonological, grammatical and lexical forms are common to Central Papuan and to certain Milne Bay Province languages.

The phonological histories of most Milne Bay languages were first investigated by Capell (1943). Inadequacies of the data left many things unclear. Later, Milke charted the development of POC *l,*d and *R (1958) and POC *s and *z (1965) in all New Guinea languages. In the 1975 paper I examined developments in three Milne Bay languages, Dobuan, Molima and Suau, which on inspection had seemed to show some special resemblances to Central Papuan.

Dobuan (DOB), Molima (MOL) and Suau share with Central Papuan the following innovations:

(i) Merger of POC *d and *R. (According to Milke, the innovation is common to New Guinea Oceanic, Geelvink Bay, New Ireland, and to some languages of the Western Solomons and Banks Is.)

(ii) Merger of POC *s and *ns. This development occurs in many, diverse Oceanic languages though, evidently, not in all South-East Papuan languages. Milke (1965:339-341) finds that *s becomes s and *ns becomes r in Panayati, Kiriwina, Nada, Nimoa and several other Milne Bay languages. In Ubir, Wedau and Mukawa, *s becomes s while *ns disappears. In Dobuan, Molima and Suau, *s and *ns fall together as s. In Central Papuan the outcome of the merger is always a stop or r.

(iii) Loss of POC *l before *i or *u in some words. This loss occurs regularly in Central Papuan reflexes but sporadically in the 3

Milne Bay witnesses. Only a handful of comparisons are available for the latter. In five or six words Dobuan and/or Molima exhibit this innovation: thus POC *talina 'ear' becomes DOB, MOL tena; POC *tolu 'three' becomes DOB, MOL toi; POC *tuli 'deaf' becomes DOB tui, MOL tui-na; POC *sa-ŋa-pulu 'ten' gives DOB sanau; *salum 'needle' gives MOL saim/a; *puli(q) 'turn' gives MOL bui. But in at least four words there is no loss: POC *quliŋ 'to steer' gives DOB, MOL kulig/a; POC *lima 'hand' gives DOB, MOL nima; POC *pulupulu 'body hair' gives DOB unuunu; POC *kalimaŋa 'crab sp.' gives DOB, MOL alimana. It appears that the most common Molima reflex of POC *l is n, except before *i or *u, when it is more often zero, sometimes l. In five probable Suau reflexes, *l is lost only once before *i or *u, otherwise it remains l.

(iv) Coalescence of *u and *i as i after *ol or *ul in some words. Again, this change is regular in Central Papuan but irregular in the Milne Bay languages. The number of comparisons available is quite small. In Dobuan and Molima *u becomes i in two words: POC *tolu 'three' gives DOB, MOL toi; *salum 'needle' becomes MOL saim/a. (DOB 'uya'uya 'head hair' just possibly is a reflex of POC *qulu 'head, hair'. Note that Suau has wuia 'fur', possibly from POC *pulupulu 'body hair, feathers' plus *-a. *-a is a common Oceanic suffix to nouns indicating an abundance of the noun referent. But against this Suau has ulu 'head' and 'aliha 'centipede' from POC *qulu and *qalipan.) In Dobuan *u remains as u after *ul in at least one word: POC *pulupulu becomes DOB unuunu 'body hair'. Suau 'unuli 'breadfruit' from POC *kuluR is perhaps explainable as follows: *R becomes l (a regular development), then medial l dissimilates to n. Ann Chowning (pers. comm.) has pointed out to me that *-l->-n- in this word in Molima, Kove and all Rai Coast languages. Final -i is an accretion, perhaps from an earlier harmonizing -u, i.e. *kunulu > kunuli.

Innovations (iii) and (iv) are potentially of some importance for subgrouping. They are context-restricted and as such are rare as regular sound changes in Oceanic (though common as sporadic

changes). It seems clear that (iv) preceded (iii) historically in the development of Central Province languages (see Pawley 1975:58). If we grant that the regular context-restricted loss of *l and the merger of *u and *i in Central Papuan and their (possibly regular) loss and merger, respectively, in certain Milne Bay languages are unlikely to be the result of independent parallel evolution (convergence), we must ask what kinds of historical connection could have produced the similarities. Borrowings? Original unity? If borrowed from Central Papuan into Milne Bay languages, why is it that the changes are more regular in Molima and Dobuan, which are geographically more remote, than in the Suau dialects, which are the closest languages to Central Papuan? If there was a period of unified development during which the innovations took place, why is it that Suau shows fewer traces of them than Dobuan or Molima, when Suau shares certain other innovations with Central Papuan which are not found in Dobuan or Molima (see Pawley 1975:73-77)?

One possible explanation is this. At one time Central Papuan and the three Milne Bay languages were a single, dialectally diverse language, call it Proto-Milne Bay, spoken in the general region of Milne Bay. Phonological isoglosses divided the dialects into areas A and B. Area A underwent innovations (iii) and (iv); B did not. The Central Papuan group stems from area A, but moved out of regular contact with other A and B dialects. The remaining A and B dialects continued as part of a single continuum, gradually diversifying into discrete languages. During this further period of regular contact, the originally discrete distributions of lexical items reflecting the innovations in question were disturbed; some words moved from A dialects into B dialects and vice versa.

For the present it remains difficult to evaluate (iii) and (iv) as subgrouping evidence. This is particularly so because the precise distribution among the various Milne Bay languages of forms showing conditioned or sporadic development of i from u and loss of *l has still to be charted. Forms showing i from u after ol and ul appear to be very widespread, occurring sporadically in mainland languages from

Goodenough Bay to Mullins Harbour and in most D'Entrecasteaux languages and some Louisiade Archipelago languages. Forms showing loss of *l before i seem to have a more restricted distribution. We lack the data to draw precise isoglosses.

Certain other phonological developments are shared by Central Papuan, Molima, and Dobuan but these carry little weight for subgrouping, and need not be considered here. In sum, the phonological evidence is consistent with the hypothesis that Central Papuan, Dobuan, Molima and Suau form a subgroup within Oceanic, but does not, by itself, provide compelling evidence for a subgrouping. However, it is difficult to explain the distribution of phonological innovations without assuming some kind of historical connection since POC times - either a period of continued unity or a period of close contact between the languages.

The case for subgrouping Dobuan, Molima, Suau and their immediate relatives with Central Papuan is considerably strengthened by several common innovations in grammatical and basic vocabulary forms. A partial list appears in Pawley 1975:73, 75-77. It was also observed there that Suau and certain languages of the Milne Bay mainland, east and south of Goodenough Bay, share some developments with Central Papuan that are not found in Dobuan, Molima or other languages of Goodenough or Fergusson Is.

5. Further Thoughts on New Guinea Oceanic

In the preceding sections we examined Milke's evidence for NGO and reduced it considerably. A few additions are now in order, together with a summing up of the present standing of the NGO hypothesis.

5.1 Lexical Evidence

Milke's original list of 16 exclusively shared cognate sets was reduced by about half. Besides the unsatisfactory evidence for a PNGO form *nu(n)si 'squid' against the rather well-attested POC reconstruction *nu(n)sa (item (22) in section 2.3), a few other candidates for exclusively-shared-lexical-item status have since been noted:

(23) Keapara repa, Sinagoro deba, Dobuan daba, Ubir tefa 'head', Suau deba 'forehead', Mukawa tepa 'top' indicate an earlier form *t(a,e)mpa, widely attested in Southeast Papuan languages. Apparent cognates occur in Huon Gulf and Rai Coast languages: Gitua dava, Bona dawa, Malai, Tuam, Mutu daba suggest an earlier *ntampa.

(24) Motu idoi 'all' is possibly cognate with Manam doi 'all, quite'. Elsewhere (Pawley 1975:53) I associated Motu idoi with a POC form *untolu 'many, a very large number', as the sound shifts are regular. Motu d reflects POC *s, *ns, *nt, *R, *d, and *nd; but the Manam comparison suggests other possible reconstructions. Manam d reflects *d, *nd. Thus PNGO *(n)doi is indicated, with Motu i- to be explained.

(25) Chowning (1973:214) notes widespread cognates referring to Saccharum edule, Pidgin pitpit, a plant cultivated for its edible inflorescences in western Melanesia: Lakalai tabua, Kove tavuahi and tabuka, Gedaged tabu, Molima tabu'ala indicate an earlier *tampukal which from its distribution must be attributed at least to PNGO. This term does not seem to be found outside of the New Guinea area,[6] but as the plant is confined to "western Melanesia" the distribution of the name may have little or no subgrouping value, as Chowning mentions. She also points out that diffusion of plant names must be allowed for.

(26) Another possible cognate pair connecting Kove and Molima is noted by Chowning (1973:225): Kove era/pu, Molima 'eda 'road'. The type of Molima 'eda occurs widely in the Milne Bay Province, e.g. Mukawa keda, Wedau eta, Nada keza, suggesting an earlier *(k,q)enta or *(k,q)enda 'road'. According to Chowning (pers. comm.) the -pu in the Kove form is probably an accretion, as the same element has been added to several other words, e.g. tano-pu 'mainland (of New Britain)'.

(27) There is another usage common to Bariai and Milne Bay languages: tau occurs in Kove and in Molima among other Milne Bay languages in the meaning 'self' (Chowning 1973:225), as in Kove ai tau i lio-i 'himself he hanged-him, i.e. he committed suicide'. Just how widespread this usage is is not known, and it is hard to judge the chances of convergent development of a reflexive construction with these features when we know so little about the grammatical development of reflexives in Oceanic languages. As a reflexive marker we can reconstruct POC *ti(m)po 'self' from widespread reflexes. POC had *tau as a noun meaning 'person' or 'man'.

No doubt the number of lexical isoglosses will grow as NGO languages become better described. But unless the lexical items in question show common changes in comparison with their POC prototypes

(irregular formal changes being the most convincing kind of evidence), lexical isoglosses--no matter how numerous--will always be a weak basis for subgrouping. The methodological objections were stated in 4.1: the possibility that we are dealing with shared retentions rather than innovations. Chowning also draws our attention to the likelihood of borrowing, particularly of names for cultural objects, within a linguistic area, even one as large and discontinuous as New Guinea Austronesian. I think Milke would have agreed with these objections. He acknowledged in his 1965 paper (p. 346) that with the present gaps in the descriptive record lexical comparisons are not likely to produce decisive evidence for subgrouping within NGO. He looked to grammar as a more promising source.

5.2 Lexicostatistics

A review of the main lexicostatistical studies concerning New Guinea AN languages in 3.1 and 4 strongly suggests that there is no lexicostatistical basis for NGO. However, this may mean no more than that present lexicostatistical methods are incapable of accurately reconstructing the order of linguistic differentiations which took place under ordinary conditions more than 3,000 years ago. 'Ordinary conditions' for most language families seem to include a few linguistic splits that begin with a sudden and complete separation of the parts of a speech community and other splits that begin with partial separation and a much more gradual divergence; varying rates of basic vocabulary replacement in individual languages; a good deal of borrowing between related languages; and certain other variables which obscure or complicate subgrouping relationships.

These kinds of problems are not unique to lexicostatistics; many of them also plague qualitative methods for subgrouping. But the difficulties and sources of error are less likely to be identified in lexicostatistical studies as normally pursued. For example, it appears that neither Dyen (1965) nor Hooley (1971) had the advantage of knowing the regular sound correspondences obtaining between all or most of the languages that they classified. Thus, the possibility is at once introduced of counting borrowings and chance resemblances as genuine cognates and of discounting genuine cognates that happen to

be phonetically dissimilar. For obvious reasons, the chances of making such errors probably increase as the relationship becomes more remote; and the chances of such errors significantly affecting the classification probably increase also, as the number of apparent cognates drops to, say, 25 percent and below.

While the value of the lexicostatistical method should not be judged as constant at all time depths, the method should not be dismissed completely. As various lines of comparative work on AN are pursued, I think substantial support is emerging for the conclusion that lexicostatistics will often yield a correct subgrouping (defined as one consistent with a convincing body of well-established qualitative evidence) of a set of languages that have diverged from one another at various times within the last two millenia; further, it will often distinguish correctly between splits that occurred within the last 2,000 years from those that occurred at much more remote times (say, more than 3,000 years ago). On the other hand, AN linguistics has provided evidence that the lexicostatistical method as usually applied is generally unreliable as a means of reconstructing a sequence of splits that occurred at time depths much greater than 2,000 years. So the lack of lexicostatistical evidence for NGO would count strongly against the NGO hypothesis only if we thought that PNGO broke up within the last two millenia or so. However, the glottochronological dates derived from lexicostatistical comparisons indicate around 4,000 years as the minimum age of the common parent of all the NGO languages.

Some readers may see an apparent contradiction in this appeal to glottochronology to roughly date the breakup of the NGO languages. Haven't we just asserted that lexicostatistics is not a reliable instrument for reconstructing subgrouping sequences occurring more than 2000 years ago? If this assertion is correct, surely the glottochronological dates are no more reliable than the corresponding subgroups?

The contradiction is only apparent. We are not using glottochronology to do fine-grained subgrouping, nor to derive exact

dates. Glottochronology gives approximate dates for linguistic splits. Sometimes dates are useful although approximate. A dating of 4,000 B.P. for the divergence of various pairs of NGO languages would still be of interest even if the allowance for error at the 9/10 confidence level were, say, as much as ±1500 years. However, reliable subgrouping depends on a method which is sensitive to small differences in the timing of linguistic splits. Often the period of unified development between two different proto-languages on one branch of a family tree is no more than a few centuries. Indeed, we have reason to believe that the initial dispersal of Oceanic speakers was fairly rapid, and that as a consequence the high-order subgrouping sequence will turn out to be finely graded, if it is recoverable at all.

5.3 Phonological Evidence

As noted in 2.2, there is one change to the POC consonant system that appears to be present in all languages which Milke assigns to NGO:

(28) =(21) *d and *R fall together, usually as r.

While this is consistent with the NGO hypothesis, it is not very cogent evidence because such a merger is quite likely to happen independently in different groups and indeed the same fusion of *d and *R is found in many Oceanic languages outside the putative NGO division.

5.4 Grammatical Evidence

Milke began his discussion by referring to the 'preposed genitive' and the 'double possessive' as features common to New Guinea AN and eastern Indonesian languages (see (1) and (2) in 2.1). Clearly, possession of these features could not define a NGO subgroup without also including in it non-Oceanic languages spoken east of the Brandes Line, which marks the westernmost limits of the preposed genitive construction in Indonesia. For the distribution of this construction Milke offered the explanation of borrowing between two geographically contiguous branches of AN. The same explanation obviously could be applied to the distribution of the preposed

genitive within NGO. Besides, we cannot be sure that either the preposed genitive or the double possessive was a post-POC innovation. While the development of preposed genitive nominals would be consistent with the change to SOV word order in NGO languages, the double possessive, on present evidence, may well have been POC. The latter is found in a few Island Melanesian languages, as well as in eastern Indonesia.

Milke himself cited no new grammatical arguments for NGO, although I will comment later on two items which he brought up as possible evidence for subgroups within NGO.

It is time to return to Chowning's discussion. Having found fault with Milke's lexical evidence, and having argued with some force that Nakanai and the other Kimbe group languages do not subgroup with any New Guinea mainland or other New Britain languages, Chowning declares herself uncertain whether the Bariai and Vitiaz Straits languages subgroup with certain Milne Bay languages with which they share a few possible innovations. She sees as a problem the likelihood that "there have been many and complex movements of peoples along the north coast of New Guinea and onto the offshore islands; the linguistic picture reflects this complexity, and makes it difficult to distinguish shared inheritance from borrowing" (1973:225). Still, she ventures that "the resemblances may be strong enough to enable us to accept a subgrouping [within Oceanic] composed of the AN languages of Central Papua, most but possibly not all those of the Milne Bay District, and some but by no means all those of the north coast of New Guinea and the small islands off that coast" together with "the Bariai languages, but nothing else on the north coast of New Britain" (ibid. 225-6). In other words, a reduced version of Milke's NGO is tentatively advanced.

What are the resemblances in question? Chowning gives no particulars, except to say that they are grammatical. The unity of this putative grouping "rests not at all on phonology" (ibid. 226). And she expresses "serious doubt that we have evidence for a shared lexicon peculiar to these languages; instead we have sets of

isoglosses linking geographically close groups to each other." Thus, we are "reduced to a situation in which the main reasons for putting these languages together are grammatical, and since in fact there are so few features that are shared by all of them, it is difficult to say that what is proposed is any improvement on Friederici (1913) or even Schmidt (1900): languages of western Melanesia that prepose the genitive are related, as the result of contact with each other if not of common origin" (ibid. 226). No other details are given at that point but at the very end of her paper Chowning remarks that: "It nevertheless remains possible that there is evidence, other than the widespread grammatical features that made Capell set up his mainland [AN_2] category, for the unity of many, if not all, languages of the New Guinea region" (ibid. 227).

So we come back to Capell's typological criteria for a grouping that coincides largely but not wholly with Milke's NGO. Capell defined a New Guinea mainland, or AN_2 group, according to word order features and other, much vaguer, similarities in grammatical categories (discussed in 3.2). The basic isogloss defining AN_2 is SOV word order, other word order features being implicationally related to this. We have already spoken of the preposing of the genitive. Capell principally refers to postpositions (1969:23) but also (1971:283) to post-nominal demonstratives. However, the last feature occurs widely outside AN_2. So does another feature in Capell's list of structural characteristics widespread among mainland languages: the distinction between realis and irrealis (1971:288); this distinction does not extend as far as the SOV isogloss, however, and is otherwise problematic (see below). The total body of typological arguments, then, is unimpressive.

Still, we must allow that the two related word order features:

(29) a. SOV word order
b. Postpositions

are syntactic innovations. The internal and immediate external evidence strongly suggests that POC had Subject + Verb + Direct Object (SVO) as the unmarked word order, along with prepositions and prepositional verbs but no postpositions (see Pawley 1973, Clark 1973).

In the entire AN family SOV order is found only in the New Guinea area. Further, the SOV languages which preserve the POC incorporated subject and direct object pronouns invariably show SVO order for these pronouns.

Now, if SOV word order is an innovation of NGO we have to account for the fact that not all of Milke's NGO languages exhibit this feature. We could of course redefine NGO to exclude these exceptions. The best-known exceptions are certain Huon Gulf languages, which have SVO basic order, and certain languages of the Island (Rai) group, which are also SVO. Two sets of facts suggest that these languages may have had SOV word order at some earlier stage in their history. First, they show possible relics of SOV order in their syntax. For example, Kove has at least one postposition as well as prepositions (Chowning 1973:219), while Numbami (Siboma) has many word order features associated with SOV word order (Joel Bradshaw, pers. comm.). Second, some SVO languages have close relatives which show SOV order. For instance, Gitua is SVO - with some SOV features - (Peter Lincoln, pers. comm.) but other Rai Coast languages, apparently closely related, are SOV. Admitting some exceptions, then, New Guinea mainland languages from the Madang Province to the Central Province of Papua are pretty solidly SOV.

The next question we must ask is: was the shift to SOV syntax made independently by several groups of NGO languages? As an argument for the likelihood of independent development we can point to the universal preference among 'Papuan' (non-AN) languages of New Guinea for SOV syntax. While we do not know how much AN-Papuan bilingualism there has been in the various regions of New Guinea where AN languages are spoken, the ethnographies tell us that in some areas AN communities intermarried with and traded regularly with Papuan communities. Capell has suggested (1943, 1969) that AN_2 languages typically show other signs of influence by Papuan languages. While wishing for detailed documentation of such influence (which Laycock (1973) found every elusive when comparing two neighbouring languages, Sissano (AN) and Warapu (Papuan)), I think that anyone who examined Gedaged syntax would admit that one or two features

generally considered characteristic of Papuan languages are present, including the use of so-called 'medial verb inflections', marking temporal sequence and subject-identity and non-identity relations between successive clauses within a sentence or paragraph. Z'graggen (1976:101-2) writes that "Gedaged shares a number of non-Austronesian words with the Papuan Nobanob dialects of Madang Province".

Our conclusions, then, are inconclusive: SOV syntax may be an innovation of PNGO, but may, on the other hand, have developed separately in different New Guinea groups. Grammatical evidence of a more specific kind is needed to build a case for NGO unity.

We turn now to a grammatical functor which occurs as a suffix or a postposition in New Guinea languages as far apart as Motu and Kove. At present this item is perhaps the single strongest piece of evidence for a NGO subgroup.

> (30) *iai, a postposition marking locative or general relation, is reflected by Motu -ai, Suau yai, Molima -ya, Kove -iai, Gitua -ei. This form can be related to the POC preposition *(q)i 'at' plus the anaphoric pronoun *ai 'there (previously mentioned)' which is attested in Polynesian, Rotuman, Southeast Solomonic and Nuclear Micronesian languages. The wide distribution of reflexes and the analysability of the reflexes in many languages are strong grounds for attributing an *(q)i + ai sequence to POC; it appears that *(q)i marked locative case and *ai substituted for any locative noun phrase that was moved to the front of the clause or was taken as previously referred to. Evidently, in NGO the locative pronoun *ai was reanalysed as a post-nominal particle and its function was generalized to that of a locative case marker. Further study is needed to determine the precise distribution of this putative innovation, but it occurs in Central Papua and Milne Bay and in some languages of N.W. New Britain and the Huon Peninsula.

Milke mentioned the realis-irrealis contrast in verbs and classifying prefixes to verbs as possible evidence for subgroups within NGO--see (19) and (20) in 2.1. According to him, three of the four NGO groups that merge *s and *z also show realis-irrealis. I think we can safely disregard the correlation with *s/*z coalescence. Realis-irrealis are also opposed in Manam, for example, where *s and *z do not fall together. The important issues are whether the various aspectual contrasts have a single origin, and, if they do, whether this traces back to POC or only as far as PNGO.

Milke observes that the means for distinguishing the two aspects are different in the different NGO groups (from Tumleo in the West Sepik region to Suau in Southeast Papua) which show them, although he finds a partial overlap between Tumleo and Yabem. Frankly, the semantic contrast is not worth much as subgrouping evidence: it is essential to be able to demonstrate unity of form as well. There is at least some hope of achieving this for north coast languages from the Huon Gulf to Manam and perhaps Tumleo. In Yabem and Numbami, of the Huon Gulf, irrealis is indicated by what we can consider the 'marked' form of the preverbal subject pronouns, realis by the unmarked form. Roughly speaking, irrealis forms are required when the verb is future, imperative or subjunctive, realis when it is present or past. The same formal basis exists for the contrast in Manam (Frank Lichtenberk, pers. comm.), and at least in one or two Tumleo singular person-markers. But the actual pronominal forms are distinctively similar only in the two Huon Gulf languages. In Yabem and Numbami the irrealis pronoun forms are derivable from a fusion of the unmarked or realis pronouns plus *na. *na can be reconstructed for POC as a separate particle marking future or immediate future, and is widely attested as such. Thus, the Huon Gulf irrealis pronoun forms incorporating *na represent a post-POC innovation. When did the fusion of pronoun + *na occur? Almost certainly after the breakup of NGO languages; Gitua, one of the Island group spoken on the Huon Peninsula, preserves *na specifically as a future marking particle (Peter Lincoln, field notes). Manam irrealis forms show no trace of *na. To sum up, the aspectual contrast in question may have evolved during a period of NGO unity but we lack formal evidence that this occurred. An evaluation of the historical significance of the widespread semantic resemblances requires a much better understanding of the development of tense-aspect categories in Oceanic than we have at present.

Feature (20), classificatory prefixes on verbs, is also difficult to assess on present evidence. It is pretty certain that POC had nothing closely comparable, but study of this phenomenon in NGO

languages has not proceeded beyond the initial work of Capell and Milke and a recent discussion of Milne Bay classifiers by Ezard (1978).

One or two commentators have referred to distinctive similarities between the pronouns of widespread NGO languages. Following Capell (1943), Chowning (1973:213) speaks of "notable resemblances between Kove pronouns and parts of the Milne Bay District, in contrast to the Lakalai pronouns", and refers to Capell's tables showing continuities between Milne Bay and Central Papua. The continuities within Southeast Papua are transparent enough. But I have yet to see any special resemblances that extend from Central Papua to the Rai or Island group--'special' in the sense of clearly presenting innovations of form in comparison with POC. Although we lack a thorough comparative study of Oceanic pronouns, we are in fact able to reconstruct many of the POC forms with some confidence (Pawley 1972, 1977b). Except for the widespread loss of the dual and trial forms which are tentatively attributable to POC, many NGO languages preserve the POC pronouns with remarkably few irregular changes. Capell (1976:26-7) comments as follows on the distribution of third person plural pronouns: "New Guinea on the whole has the [*si form] ... distinguishing [it] in an important respect from the [Eastern Oceanic] group, which [reflect *da]..." However, *si forms are found in some NGO languages while *da forms are found in some languages of Island Melanesia.

The difficulties in using lexical isoglosses for subgrouping recur, if to a lesser degree, with grammatical isoglosses. The problem is to distinguish innovations from retentions and (sometimes) 'drift' or parallel development, and (in the case of contiguous languages) borrowing. Many typological resemblances in grammatical structure are rather likely to develop independently, so are of small use. Highly specific formal resemblances are of great value, provided that we can show they are innovations and not retentions. In principle this is much easier to establish for grammatical as opposed to lexical elements. Whereas every language has many

thousands of lexical items and the comparative search is endless, a language usually has at the most a couple of hundred grammatical functors. As well, grammatical functors tend to fall into small, highly structured classes while this is not generally true of lexical items.

In practice, however, it is still easy to go wrong using grammatical evidence. Let me cite as an example what I once believed to be a rather striking argument in support of the NGO hypothesis: the use of possessive pronouns suffixed to adjectives, and either specifying the person and number of the head noun in the phrase, or agreeing in person and number with an independent pronoun which is the underlying subject of the clause. Thus, where English says 'the bad men' many NGO languages say 'man bad-their' (which we might also render 'their-badness the man'), and where English says 'I am a bad man', these NGO languages say 'I man bad-my' (or 'I man my-badness').

Not all NGO languages show these constructions, but they are very widely distributed, being found in languages as far apart as Manam, Numbami, Molima, and Motu.

Compare Manam:

tamoata goalaka-Ø	'bad man'
man bad-his	
tamoata goalaka-di	'bad men'
man bad-their	
ngau goalaka-gu	'I am bad'
I bad-my	
kaiko goalaku-m	'you are bad'
you (sg) bad-your	

with Motu:

tau dika-na	'bad man'
man bad- his	
boroma hahine-dia	'female pigs'
pig female-their	

lau na tau dika-gu 'I am a bad man'
I man bad-my

In Motu certain modifiers (those which can be nouns or verbs) may also precede the head noun, in which case the suffix attaches to the head:

lau na dika tau-gu 'I am a bad man'
I bad man-my (specifically, a sinner)
lau na mavaru tau-gu 'I am a dancer'
I dance man-my

These usages might be explained historically as extensions of POC inalienable possessive-marking. In POC pronominal suffixes were attached directly to head nouns to mark an inalienable relation. The hypothesis is that not only possessor nouns, but all modifying nouns, adjectives and relative clauses came to require a possessive suffix in specific noun phrases in PNGO, as is the case in Motu, Molima, Numbami and (with some qualifications) Manam. This innovation looked to be rather powerful support for NGO--until I noticed a brief paragraph in a Roviana grammar, showing that the same features are alive and well in this western Solomons language; as it turns out, relics appear in Southeast Solomonic languages also. Convergent development seems unlikely. So, once more, a NGO 'characteristic' must be reinterpreted as a retention from POC.

5.5. Summation and Prognosis

The problems of testing the NGO hypothesis may be compared to those confronting proponents of the Eastern Oceanic hypothesis. In the first place, if we are dealing with a real subgroup it is likely to be one of limited 'length', i.e. the period of unified development of the proto-language after divergence from all other members of the family was probably no more than a few centuries. This conclusion is indicated by the fact that there is no lexicostatistical basis for either NGO or Eastern Oceanic. It is reinforced by the virtual absence of phonological innovations common to all members of the putative subgroups. Just as the phonological system attributed to Proto-Eastern Oceanic continues that of POC with (at the most) only

one or two possible changes, so that of PNGO shows only a single and rather natural change. Put another way, the phonological system that one can reconstruct by comparison of just the set of Eastern Oceanic languages, or just the set of NGO languages, is virtually identical to that which can be reconstructed by comparison of all the members of Oceanic. The solitary structural change common to the NGO languages - the merger of *d and *R - is one that could easily have happened independently.

In the second place, the proto-language in question may have been no more than a partly independent dialect, a member of a dialect chain which persisted after the proto-language had differentiated into daughter dialects. From such circumstances we should expect to find evidence conflicting with the subgrouping claim: the residue of intersecting isoglosses deriving from the old dialect chain. Given the sailing skills and trading connections associated with many Austronesian peoples, a PNGO language community living in the region of the Vitiaz Straits can be expected to have been in contact with sister Oceanic dialects spoken in the Bismarck Archipelago. The borrowing between Nakanai and Kove, described by Chowning (1976), illustrates the effects of contact between two quite discrete AN languages in recent times: although it now appears that Nakanai belongs to a different first-order subgrouping of Oceanic from Kove, the isoglosses connecting these two languages were numerous enough to persuade Milke to assign Nakanai to NGO along with Kove (see 4.1). While NGO languages spoken in Southeast Papua may have been isolated enough to be little affected by any flow of words across the Vitiaz Straits, the languages of the New Guinea north coast may well have been participating in such a flow for thousands of years.

To the problems presented by inter-dialect borrowing we may add those arising from 'drift' - parallel developments reflecting natural tendencies for change in the parent language - or from the common influences of Austronesian-Papuan bilingualism on Austronesian languages of the New Guinea area. Special resemblances which look like the innovations of a common ancestral language may on occasion be due, instead, to these other causes.

Milke's primary strategy, in testing the NGO hypothesis, was to search for uniquely shared cognate sets in the general vocabulary. So far this strategy has not revealed a large body of words and idioms exclusive to his NGO grouping or to any grouping embracing such widely dispersed languages as Gedaged, Yabem, Suau and Motu. Nor is it likely to prove a fruitful procedure in the immediate future, so long as good dictionaries of AN languages are few. In reviewing Milke's lexical evidence for NGO we have found that a high proportion of his cognate sets turn out to be retentions from POC, and the suspicion must remain that the remainder can also be accounted for in the same way. The case is hardly strengthened by the few additional lexical comparisons, (23)-(27), which were noted in 5.1. A better strategy in lexical comparisons may be to look for irregular formal changes in POC words, and for common replacements in the most basic vocabulary items of POC. While there are not likely to be many such common innovations they would carry more weight than exclusively shared cognate sets of the sort advanced by Milke. But this strategy is an obvious one and must have occurred to Milke, so we may speculate that he tried it and came up empty-handed, at least in his initial (1965) restricted survey.

So we came, finally, to the grammatical evidence. Milke himself suggested that grammatical comparisons will probably decide the issue one way or the other in due course. But it has proved difficult to rule out alternative explanations of exclusively shared grammatical features. Among the items noted by Milke, the 'double possessive pronoun' (item 2) may well be a retention from POC. But some weight must surely be given to the occurrence of SOV order and post-positions in most of the putative descendants of PNGO, and to the occurrence of reflexes of POC *(q)iai 'there' as a locative case suffix or particle in widely dispersed NGO languages. Other possible innovations (such as the use of classifying prefixes on verbs, and realis : irrealis as an obligatory grammatical opposition in the verb phrase) are hard to evaluate at present, for various reasons.

The most favorable overall judgment of Milke's New Guinea Oceanic hypothesis possible at this stage is that the NGO group may be defensible if its membership is reduced somewhat. Chowning has argued strongly against including the Kimbe subgroup. Present evidence for including any languages of Irian Jaya is very slim. The relationships of the Austronesian languages spoken in the interior of the Morobe Province are still little understood, but as comparative work on the last-named languages advances they begin to look less aberrant and mysterious (Joel Bradshaw pers. comm.); Milke (1965) seems to have been fairly confident that the Azira group at least would eventually turn out to belong to his New Guinea cluster. For a large residual group of New Guinea Oceanic languages - the language of the Central, Milne Bay, and Madang Provinces, and at least some languages of the Sepik and Morobe Provinces - a fairly weak case can be made, mainly on grammatical grounds outlined in 5.4.

The pioneering stage of work on the NGO hypothesis is ended. It is hardly likely that further substantial progress will be made until fine-grained descriptive and reconstructive studies supersede the relatively crude materials and procedures which have informed the first stage. This assessment lay behind the University of Hawaii team's field research in New Guinea in 1976-77, and it is pleasing to observe that other scholars have independently begun reconstructive work on the AN languages of New Guinea in the last two years, e.g. Ross (1977), Blust (1978), and some of the papers in Wurm (1976).

However, I doubt if linguistic research carried out in isolation from other disciplines will be sufficient to clarify the development and relationships of the New Guinea Oceanic languages. Linguists surely need also to study the social, economic and geographic variables affecting the development of Oceanic speech communities. For example, in order to define subgroup boundaries and to evaluate reconstructive hypotheses one needs to know the extent and nature of borrowing between the languages concerned. In some cases this knowledge can be gained pretty well from the linguistic evidence alone. But generally a much better assessment can be made if there has been

thorough ethnographic and archaeological documentation of the regions in question, along with careful study of the way in which linguistic elements tend to move along trade routes and marriage-exchange networks. I was reminded of this point, a little painfully, in drafting the present paper. It turns out that item (12) on Milke's list of lexical items unique to NGO can also be subtracted from the evidence. Gedaged zaz, Bilibili rar and Motu raro 'clay, used in making pottery', was first compared with Roviana raro 'pot'. Now, as Roviana is probably in a different first-order subgroup of Oceanic from the first three languages, I concluded that we must reconstruct POC *dado 'clay pot/clay used by potters', providing further witness to a knowledge of pottery-making by the POC speech community, confirming that provided by the retention of PAN *ku(dD)en 'clay pot' by widespread Oceanic languages. However, Susan Bulmer (pers. comm.) pointed out that not only do the Roviana and other New Georgia peoples not make pottery, but no pottery was made in historic times in the entire area between Choiseul in the Western Solomons and the New Hebrides. Thus, Roviana raro is almost certainly a borrowing, and the POC reconstruction was undermined. (The occurrence of the form raro 'pot' in Uruava, spoken in Bougainville, where pottery-making survives, allows the reconstruction to be restored and suggests a source for the Roviana borrowing.)

NOTES

1. This paper is offered as a small tribute to Wilhelm Milke (1913-67), whose untimely death cut short his pioneering work on the New Guinea Oceanic hypothesis.

   I am indebted to Joel Bradshaw, Ross Clark, John Lynch, Andrew Taylor, and, especially, to Ann Chowning and Peter Lincoln, for pains taken in commenting on the draft version. If time had allowed full account to be taken of all their suggestions the present version would be a lot better (and longer) than it is. The writing was supported by NSF grant no. BNS 75-19451.

2. In Pawley (1972) this group was called 'North Hebridean-Central Pacific', but I now prefer the name 'Remote Oceanic'. A larger grouping, termed Eastern Oceanic, was tentatively identified in Pawley (1972). But Eastern Oceanic as defined there is not a well-established group. It does not rest on a large body of common innovations, nor are its boundaries sharply defined by the set of innovations which have been attributed to it.

3. An important paper by Malcolm Ross (1977) on the relationships of the Austronesian languages of the Sepik and Madang Provinces came to hand too late for full review here. But see 5.5

4. Chowning's discussion of Nakanai is based on data from the West Nakanai dialect, known as Bileki. West Nakanai shows l for East Nakanai n, hence the name 'Lakalai' which Chowning uses.

5. Item (12) may now be subtracted from the list, too. See the final paragraph of 5.5.

6. Peter Lincoln (pers. comm.) has drawn my attention to a cognate in a Bougainville language, Banoni tabogana or taboghana 'wild pitpit'.

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