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KUNJEN PHONOLOGY: SYNCHRONIC AND DIACHRONIC

by

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0.0 INTRODUCTION

0.1 SCOPE

The object of this study is the phonology of the group of dialects which are spoken by the Kunjen Aborigines of North Queensland, Australia. Many of the languages of Cape York Peninsula, including the Kunjen dialects, show phonological features which are generally regarded as being atypical of Australian languages. In Kunjen, these atypical features include uncommon word and syllable patterns, complex consonant clustering, and a contrast between two series of stop consonants.

Early writers cast doubts on the wholly Australian character of the Cape York Peninsula languages (Schmidt 1919; Kroeber 1923; Capell 1956). More recently, the application of comparative techniques by Hale (1964) has shown that the Cape York Peninsula languages developed regularly from a common parent language which he termed *Proto-Paman*. Through Proto-Paman, the Cape York Peninsula languages are readily related to the other languages of the Paman-Nyungic family, which occupies the vast area of the continent south of latitude 20°S, and some of the central and eastern areas north of it.

The Paman-Nyungic phyletic family is one established by O'Grady, Voegelin, and Voegelin on a lexico-statistical basis (1964). In this study, the Kunjen dialects are integrated into their classification of Paman languages, and some revision of it is effected.

A detailed phonology of the phrase, word, syllable, and phoneme for the Oykangand dialect is employed as the basis for the description of the other Kunjen dialects.

0.2 THE KUNJEN DIALECTS: SURVEY

The speakers of four linguistically distinct dialects insist on their inclusion in the 'Kunjen' community. They call themselves the *Oykangand*, *Olgol*, *Okunjan* and *Kawarrangg* peoples. To the former three, the prefix *Uw* (with the meaning *speech*) is often applied.

Since each dialect of the Cape York Peninsula has as many names applied to it as it has neighbours, considerable confusion exists in earlier works as to the identity of some speech communities. This confusion is compounded by the sometimes uncertain status of the term by which a speech community refers to itself or to its language. Discrepancies in spelling and in phonetic transcription also add to the confusion.

In surveying the information published on the Kunjen dialects, the spellings of the respective authors will be preserved. In conformity, however, with the orthographic requirements of the dialects themselves, and with the *desideratum* of simplicity, the writer has standardized on the four forms above. The spelling of these forms reflects the contrast of two series of stop consonants, *ng* has been chosen to represent the velar nasal, *rr* signifies a trilled or flapped *r* and *j* is used for the unaspirated palatal stop. *Kunjen* follows the spelling generally adopted by English speakers. Following is a survey of this term. Data and names for the four dialects of Kunjen and Bakanha will be traced in the ethnographic literature to date.

KUNJEN

Mathews (1900:110) refers to the 'country watered by the Lower Mitchell, Alice, Coleman, Palmer and other rivers' as being inhabited by *Koonjan* people. The next comment on the term is from Sharp (1939:439 fn.) who records that the name is applied to *Okundjain* speakers as a 'popular pidgin name'.

Whatever its past status, the name *Kunjen* is now applied to the speakers of all four dialects, and sometimes--rather hesitantly-- to the few Bakanha speakers who have intermarried with Olgol people. Bakanha will later be shown to be a member of the *Wik* group of languages to the north.

Capell's *Linguistic Survey of Australia* (1963:Y.53) lists *Gundjun*. This includes *Ngundjan* (following Tindale 1940:169) and *Koonjan*, with *Ogentjel* and *Gudjal* as 'possible variants'. A brief note on a present tense morpheme is included in an earlier work by him (1956:72).

OYKANGAND

There are more speakers of Oykangand than of any other Kunjen dialect, but references to it in the literature are few. Sharp (1939:257) locates an *Oikand* as No. 64 on his map, and Tindale (1940:169) follows this usage. Sharp (439 fn.) comments on the source of the term (*Koko-*) *Wanggara* as applied to the Oykangand, but Tindale treats it as a separate linguistic entity. Both Capell (1963:Y.116) and Tindale (p.172) list *Wagara* as a separate entity.

This writer has observed the use of the term *Wangarra*, and is convinced of the adequacy both of Sharp's transcription of the term and of his explanation of its origin as a name applied to the Oykangand by others, but now the Oykangand use it freely to refer to themselves.

OLGOL

Mathews (1900:110) refers to a group of *Owoilkulla*, and Roth (XVIII 1910:94) describes the locale of the *Koko-Olkulo*. McConnell (1939:71) also places the *Koko-Olkulo* accurately. Capell (1963) lists *Ulkulu* (G.53) and *Wulgulu* (Y.133), with *Olkulo*, *Olgolo*, and *Okulo* as alternatives. Sharp (1939:257) locates both *Olkol* and *Okangol*, but the conclusion reached over this latter name by this writer is that it parallels the case of *Wangarra* with respect to Oykangand. That is to say, it is a term originally applied to the Olgol by their neighbours and now is in use by the Olgol themselves. It was recorded as *Kokonggol*.

OKUNJAN

Sharp (1939:257) lists *Okundjain* and *Okuntjel*, typical of the variation in the final consonant recorded more recently by Hale (B:1). Some speakers prefer the fricative γ to the stop *k*, further confusing the matter.

It is therefore highly improbable that Sharp has recorded two separate linguistic groups, despite the wide separation between them indicated on his map. Tindale (1940:165) mentions *Kutjel* and *Kuritja:l* (with *Okuntjel* as an alternative), while Capell (1963:Y.131) lists *Wugundjal* (with *Okuntjal* and *Okuntjain* as other forms). O'Grady, Voegelin, and Voegelin (1966:54) classify *Ogondyan*, the only Kunjen dialect to be included in their classification, as South Paman. Wurm (in press) lists the name used by the Oykangand people for the Okunjan: *Uw In-gan*.

KAWARRANGG

Kawarrangg corresponds with the *Okaurang* of Sharp (1939:257) who in a footnote (p.439) identifies this as the *Kauwarang* of Roth (XVIII 1910:94). Capell (1963:Y.131) lists *Okaurang* as an alternative to the listed *Wugurin*.

Very little beyond Sharp's anthropological work and brief notes on geographical location is extant for any of the dialects so far noted. However, two early word lists were published by a nineteenth century grazier, Edward Palmer. They represented a language not far removed from identifiable Kawarrangg territory. The question is, has the present writer recorded material in the same dialect as has already been reported, or do they stand as separate languages? The answer is important to the reconstruction of tribal territories and linguistic boundaries prior to the disruption effected by western culture.

Palmer's vocabulary lists appeared in 1884 and 1886, the latter as a part of Curr's *The Australian Race*. Palmer refers to the source variously as the *Akoonkoon*, *Mirkin*, *Koogominny* and *Koogobathy*, but recognizes only one linguistic entity. Ray (1907: map opp. p. 264) quotes Palmer's *Mirkin* and Capell (Y.88) lists (*Koko-*) *Mini*, which is the term preferred by Sharp. Roth mentions fighting between the *Koko-Minni* and the *Kau-warang* to the west.

In each case Palmer's list consists of more than 100 items of vocabulary, but only forty items are common to both. The forms for these forty lexical items coincide in thirty-six cases, with minor orthographic differences.

These forty lexical items were among those elicited by the writer from the Kawarrangg informant through the Oykangand dialect. Good lexical equivalence was assured by the informant's bilingual control of Oykangand, but phonetic difficulties were experienced because of her lack of teeth.

A comparison of the forty items yielded this result: twenty-three of Palmer's unambiguous thirty-six forms were also recorded by the writer; one of Palmer's ambiguous forms was elicited; eight of Palmer's forms showed lexical equivalence to related items or concepts as revealed by other Kunjen dialects. For example, his 'black woman' is the term for 'old woman' and for 'hungry' he records a form cognate with 'thirsty' elsewhere. Otherwise, 'rain' and 'water' are almost certainly separate terms, but he records one form for both (1886:398-9). Eight of Palmer's forms show no evident cognation.

A figure of 75 per cent of shared material results from the twenty-four certain cognates and the eight clear differences. Accounting for the passage of some eighty years between the respective samples, the fact that the thirty-two items remaining do not all represent core vocabulary and the problems of lexical equivalence already mentioned, a claim of more than 90 per cent of shared basic vocabulary is indicated. That is, Kawarrangg and Koko-Mini are established as closely related dialects.

The hostility referred to by Roth is therefore less likely to be a permanent state of conflict than an isolated incident perhaps resulting over women, hunting rights or other case of offended privilege. This is based on the better known behaviour of the Oykangand speakers, who intermarried and held amicable relations with not only the speakers of the closely related Olgol, but also with the Bakanha and Okunjan.

BAKANHA

Tindale (1940:155) and Sharp (1939:257) list variant forms of this name; Capell (1963:Y.62) lists (*Koko-*) *Jan*, which is the Koko-Bera name for this group. McConnell (1939:63) also records the suspicion that the Bakanha spoke a variety of *Wik*. The Bakanha are also termed *Yir Mayan* (by the Yir Yoront) and *Uw Ayan* (by the Kunjen; see Wurm (in press)).

A considerable number of other names were encountered in the literature, relevant to the geographical area believed to be occupied by the Kunjen people. None of these was encountered during field work, so that exact identification was not possible, and no source for these names other than that of the author himself could be ascertained.

0.3. THE KUNJEN DIALECTS: SOURCES OF DATA

The description of Kunjen which follows is based on field notes and transcribed tape-recordings, the bulk of which resulted from field work carried out under the auspices of the Summer Institute of Linguistics between July 1964 and July 1967.

The investigation was concentrated on the Oykangand dialect, in which a fair degree of fluency was achieved. A list of some 1500 vocabulary items was prepared, and a short paper published on pronouns and kinship terms (Sommer and Sommer 1967). The research was conducted at the Mitchell River Community, where there was no lack of clear--if unsophisticated-- Oykangand informants. Mrs Elizabeth Henry, Mrs Kathleen Major, Mr Frank Brumby, and Mr and Mrs Cecil Rutland were willing and adequate assistants in this research.

Speakers of Olgol and Okunjan dialects were less numerous. Of the fifteen or so of each that could be located, Mr Jimmy Koolatah and Mrs Nancy Gordon provided the Olgol data, while Mrs Lucy Tommy and Mrs Annie Leonard supplied Okunjan materials. The only speaker of Kawarrangg known to this writer was Mrs Doris Rory. All informants were still living at the Mitchell River Community at the close of 1967.

Bakanha data were provided by Mrs Lucy Native, Mrs Nancy Gordon, and Mr Frank Yam; there can be only eight or ten other speakers, mostly members of Mr Yam's family. Very early in these investigations it became evident that Bakanha was not a Kunjen dialect, but in view of its uncertain status in the classification of Australian languages a brief study was attempted. A fuller investigation is called for in the case of Bakanha and also Okunjan/Kawarrangg before these become extinct.

Responses in the four Kunjen dialects and in Bakanha were recorded for almost all the lexical items set out in *Linguistic Materials for Field-workers in Australia*.

The phonological analysis of Oykangand which follows was completed only late in the period of field study. It was hindered by two factors. Firstly, the phonetic abilities of the investigator and his wife were taxed to the full by awkward consonant sequences and by phonemic distinctions between sounds which were barely distinguishable to native English speakers. The initial stop of stop/nasal/stop clusters, especially when following *l*, was particularly difficult to perceive in the speech of some informants. The investigator too easily confused

[d] and [d], [t^h] and [t^h], or [ŋ] and [n] in making transcriptions.

By far the greatest hindrance, however, was the psychological unpreparedness of the investigator to accept the evidence of the data. Oykangand manifested features so dissimilar to those of the other Australian languages with which the writer had had contact, that the phonemic status of the two series of stops, the fricatives and the emic structure of the word and syllable were a long time being established. Once established however, the patterns of phonemes, syllables, words, and phrases proved to be most elegant, and represented without major change the facts of Olgol, Okunjan and Kawarrangg.

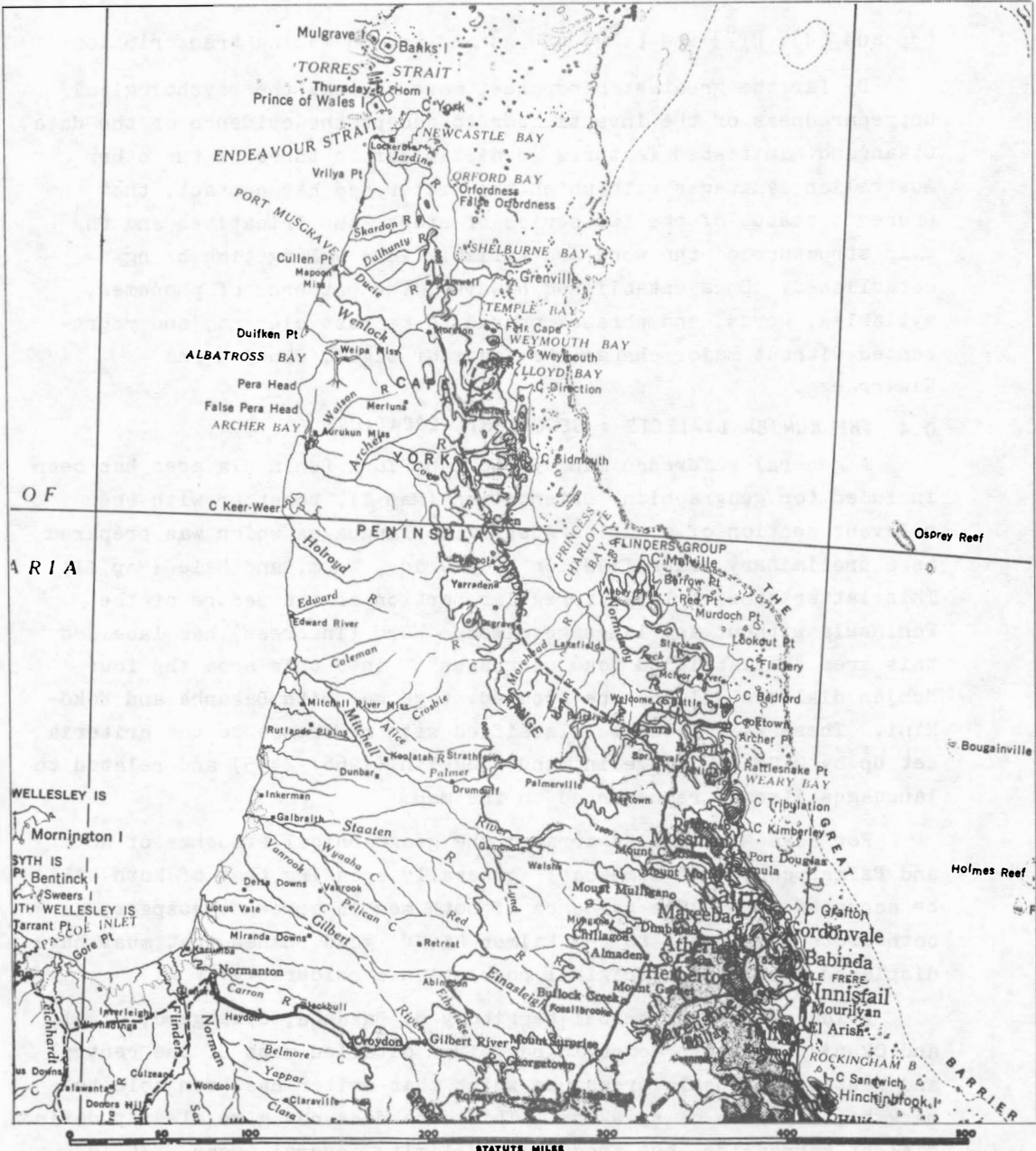
0.4 THE KUNJEN DIALECTS : GEOGRAPHIC LOCATION

A general reference map of the Cape York Peninsula area has been included for geographical orientation (Map I), together with the relevant section of a map of Australian languages which was prepared as a preliminary classification by O'Grady, Wurm, and Hale (Map II). This latter shows a large irregular portion of the centre of the Peninsula without any language names. Wurm (in press) has labelled this area "Unclassified Koko Languages". Into this area the four Kunjen dialects will now be located, together with Bakanha and Koko-Mini. These will later be classified with reference to the criteria set up by O'Grady, Voegelin, and Voegelin (1966: 24-5) and related to languages already represented on the map.

For Koko-Mini and Kawarrangg the geographical evidence of Roth and Palmer conflicts somewhat; generally speaking that of Roth will be accepted here. The evidence of both men is somewhat suspect, as both wrote subsequent to the Palmer River gold rushes that must have displaced the local aboriginal population considerably.

Evidence for the tribal territory of Bakanha, Oykangand, Olgol, and Okunjan speakers comes in part from detailed maps of the central and western peninsula areas, on which this writer has been able to mark birth places of speakers. This data does not give clearly defined dialect boundaries, but adequately delimits general areas. It is supplemented by information from Tindale (1940) and Sharp (1939) as necessary.

Map III details the changes necessary to the map proposed by O'Grady, Wurm, and Hale in order to accommodate the data on Kunjen and Bakanha. The location of Aghu Tharnggalai has been corrected following



MAP I

Reference Map of Cape York Peninsula
 (Crown Copyright, made available by Courtesy of Director, Nat.Mapping, Dept.of Nat.Development, Canberra, Australia)

Inset: Australian continent showing area detailed in Map I above

personal communications with Professor Hale. The alternative name recorded by Hale, Aghu Laia, corresponds with Sharp's Aku Laia (1939:257) which Tindale (1940:165) identifies as Koko-Wara. Aghu Tharnggalai is placed in a Southern Paman subgroup with Okunjan by Hale.

Some reorganization of linguistic boundaries relevant to the Yir Yoront, Koko Thayorr and Koko-Jelandji (Gugu-Yalanji) may be necessary now that the territory claimed by the Kunjen dialects-- including Koko-Mini-- has been defined.

0.5. THE KUNJEN DIALECTS: CLASSIFICATION

Various criteria for the classification of Australian languages have been suggested. In a lucid review of these, Wurm (in press) reduces the attempts at classification to four basic types: regional or areal, typological, comparative linguistic, and lexi-costatistical.

The most complete classification of Australian languages is a lexicostatistical one, published by O'Grady, Voegelin, and Voegelin (1966), and followed with only minor changes in the map of O'Grady, Wurm and Hale (1966). Refinements have been made by Wurm (in press) in several areas but the basis remains unaltered.

This classification has been misunderstood, and as a result, criticized (Platt 1967:62; Capell, in press) despite a clear statement by Hale (in an address before the 61st Annual Meeting of the American Anthropological Association (1962) 'Linguistic Evidence for Routes of Entry into Australia') as to the preliminary and tentative nature of the classification, and its frankly lexicostatistical basis.

Although, as Capell (in press) notes 'Grammar has not been taken into account', the lexicostatistical classification parallels grammatical typologies in reflecting the most basic grammatical distinction recognized among Australian languages: that of prefixing versus suffixing of verb stems. Even the unity of the isolated 'suffixing' Murngic languages of north east Arnhem land with the southern languages is recognized by this lexicostatistical classification. It must therefore be accepted as representing some degree of truth, and in practice it provides an immediate framework for research which can be applied to all but the most fragmentary of extant records.



MAP II

The Languages of Cape York Peninsula

From: Geoffrey N. O'Grady, Stephen A. Wurm and Kenneth L. Hale
 Aboriginal Languages of Australia: A Preliminary Classification.

Drawn by Robert M. Watt. University of Victoria B.C. (1966)
 [reproduced to the same scale as Map I]

On the other hand, the classification is certain to be abandoned or modified, either in whole or part, when 'careful sifting of detail on all levels of language' reveals a distortion of the facts of historical development, as established by accepted comparative methods. It is on this understanding that the classification, and its diagnostic criteria, are used in this study.

Wurm summarizes the classificatory criteria of O'Grady, Voegelin, and Voegelin thus:

The following criteria have been adopted for this classification:

A cognate density of below 15 per cent for different phylic families...;
 16 per cent to 25 per cent for different groups of the same phylic family;
 26 per cent to 50 per cent for different subgroups of the same group;
 51 per cent to 70 per cent for different languages or family-like languages...of the same subgroup;
 over 71 per cent for different dialects of the same language.

These criteria are adhered to except under two conditions:

- 1) When the existence of a dialect chain (or family-like language) is strongly indicated in the data, but certain intervening links are linguistically unrecorded, geographically non-contiguous speech areas sharing somewhat less than 70 per cent of cognates are nevertheless assigned to one dialect chain.
- 2) When it can be demonstrated that a given Australian language has borrowed numerous basic vocabulary items from a language of another phylic family or of another, non-Australian, language, with the result that two structurally very similar Australian languages do not share as much as the 16 per cent of cognates normally necessary for their inclusion in the same phylic family, then two such languages are nevertheless listed as belonging to different groups of the same phylic family.

The map already referred to, reflects this classification by establishing the following boundaries:

— - — - — -- between phylic families
 — . . — . . — . . — . . between language groups
 — . . — . . — . . — . . between sub-groups
 - - - - - between languages
 between dialects

Oykangand	97	44	38	24	32	35	30	29	20	14
Olgol		43	38	23	31	24	29	28	19	14
Okunjan			82	25	26	25	29	29	18	14
Kawarrangg				24	25	24	26	28	17	14
Koko-Bera					32	30	25	23	20	11
Yir Yoront						43	29	32	23	16
Koko-Thayorr							37	41	25	16
Bakanha								49	34	14
Wik-Munghan									34	13
Umpila										14
Gugu-Yalanji										

TABLE I
 Percentage of Basic Vocabulary
 Shared by Eleven Paman Languages

Rigorous application of these criteria do not always give the expected, or even desired, result. Hale (1964) clearly established the unity of the Northern Paman sub-group by historical reconstruction, and the map recognizes this unity. Nevertheless, Mbiwom is included despite only 47 per cent of cognates with the nearest language, Yinwum.

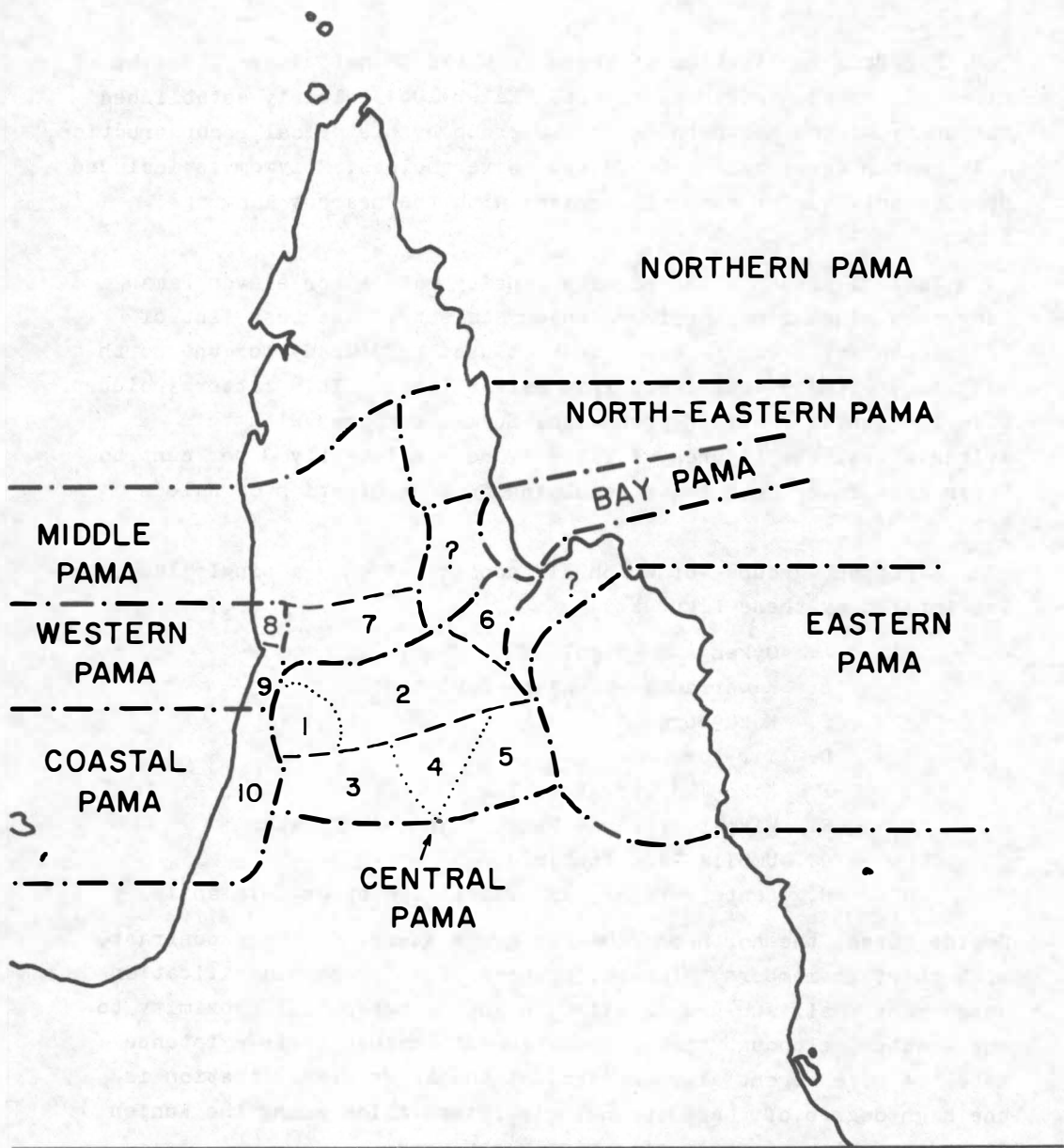
Table I presents the cognate density matrix for eleven Paman languages, including the four Kunjen dialects. The test list of 100 vocabulary items is based on that used by O'Grady for the north and west, with several items from Hale's list.¹ This latter includes five frequently retained pronominal forms, compared with this writer's two; the figures of Table I are consistently 3 per cent to 4 per cent lower than those resulting from examination of Hale's data.

Eight sub-groups--of which six consist of only a single language--are implied by these figures:

- A. Oykangand--Olgol
- B. Kawarrangg--Okunjan--Koko-Mini
- C. Koko-Bera
- D. Yir Yoront
- E. Koko-Thayorr--Koko-Yak
- F. Wik; to include Bakanha and Wik-Mungkan
- G. Umpila (and Kantju?)
- H. Eastern Paman, as exemplified by Gugu-Yalanji.

Beside these, the Northern Paman subgroup stands in sharp contrast, with thirteen members. Indeed, nowhere else in the classification do so many small sub-groups exist in such geographical proximity to one another, although that is no argument against their existence here. A more cogent argument against the above classification is the high degree of shared phonological innovation among the Kunjen dialects, which has been effectively obscured.

If the figures of Table I are each raised 3 per cent to 4 per cent to accommodate the use of Hale's list, and these figures re-examined so that marginal cases can be determined by reference to known phonological developments, the following classification results. It is more satisfying in that it reflects better the phonological innovation or conservatism observable among these languages.



MAP III

Revision of Map II
to conform with the classification
and language boundaries proposed by the writer

- | | | |
|-------------------|---------------------|-----------------|
| Key: 1. Oykangand | 4. Kawarrangg | 8. Koko-Thayorr |
| 2. Olgol | 5. Koko-Mini | 9. Yir-Yoront |
| 3. Okunjan | 6. Aghu Tharnggalai | 10. Koko-Bera |
| | 7. Bakanha | |

- A.B. Central Paman :
Oykangand, Olgol, Kawarrangg, Okunjan
(also Koko-Mini and Aghu Tharnggalai)
- C. Coastal Paman:
Koko-Bera
- D.E. Western Paman:
Yir Yoront, Koko-Thayorr and Koko-Yak²
- F. Middle Paman:
Wik languages: including Wik-Mungkan
and Bakanha
- G. North Eastern Paman:
Umpila (and Kantju?) (see Map II)
- H. Eastern Paman:
Gugu-Yalanji, etc. (See Wurm (in press)).

This is the classification adopted for Map III, preserving the boundary conventions established by O'Grady, Wurm, and Hale (1966) outlined above. For convenience, Oykangand, Olgol, Okunjan and Kawarrangg will still be referred to here as 'the Kunjen dialects'.

0.6. THE THEORETICAL BASE

Kunjen phonology is here described according to the theoretical model developed by K.L. Pike (1947, 1967). Pike postulates that language is structured in terms of hierarchially ordered levels of phonological units; any phonological unit may be unambiguously assigned to an appropriate level. Each such unit is trimodally structured: existing as a functional entity with contrastive and identificational features differentiating it from other units, possibly varying according to the disposition of the unit within the whole, and being distributed after a storable pattern into units on higher levels. Any intermediate unit thus becomes the distributional matrix of units on lower levels, while being itself distributed within the matrix of higher level units.

Phonemes are retained as the minimal entity, but phonemes of syllabicity, stress, pause, juncture and intonation are rejected. These latter are treated as contrastive-identificational features diagnostic of hyperphonemic units, such as the syllable, word, etc. The phonological levels pertinent to this description of Kunjen are the phonological phrase, phonological word, syllable, and phoneme.

Pike assumes that larger phonological units can be constructed from smaller ones; syllables from phonemes, words from syllables, and

so on. However in the Kunjen dialects, certain phonetic features of a segmental nature appear at the level of the phrase which cannot be assigned to any smaller unit without involving serious complications (e.g. sequences [ey], [ow], and [a?] are restricted to the phrase). These phonetic features, together with intonation and phrase stress, are contrastive-identificational characteristics peculiar to the phrase, and are treated as such.

The case of the word provides a counter example to that of the phrase. Certain words in restricted environments *lose* part of the initial syllable. Building larger units from smaller would require that these words be constructed of certain syllables plus partial syllables. In the description of the word that follows, forms which have lost part of the initial syllable are regarded as etic variants of the forms which have not, since the loss is phonologically conditioned. Words can thus be consistently constructed of whole syllables.

Dealing with both segmental and supra-segmental phenomena as non-emic characteristics of emic phrase types, word patterns, and syllable types in turn means that the discussion of phonetic variants of the phonemes can complete the account of all the observable phonetic data.

English loan words are excluded from this study; where they occur in native utterances they are presented in conventional English orthography.

1.0. THE PHONOLOGICAL PHRASE

The phonological phrase is a pause group, which manifests contrastive intonation contours. (Pike 1962:24-6, 1967:402-5). Beside the pauses which delimit the phrase, the loss of part of the initial syllable from certain words (Section 2.1) also marks the beginning of a phonological phrase in Kunjen.

The phonological phrase (henceforth *phrase*) is the largest phonological unit described in this study. Its distribution into higher level units will not be discussed, although it is evident that such units do exist (phonological sentences or breath groups, etc.) and that certain etic variants of the phrase are conditioned by their position within these higher level units.

This study is based on 750 phrases, being the entire content of four narratives and discussions (and part of a fifth) recorded on tape.

The material is all in the Oykangand dialect, and was chosen for its range of subject matter and for the emotional states or attitudes expressed by the speakers. A brief study of narrative material recorded from Olgol, Okunjan and Kawarrangg speakers showed no distinctively new intonation contours: the following analysis is tentatively applied to them also.

Five contrastive phrases are set up on the basis of their grammatical functions and phonological features. The writer's intuition of the speaker's emotional state or attitude is not accepted as a criterion for the separation of any phrase types. Such paralinguistic phenomena may account for etic variants of phrase types, and will be referred to where possible.

It is convenient to describe the intonation contours of Oykangand by reference to four relative levels of pitch (level 1 being the lowest, level 4 the highest). They are 'relative' in that the levels are not absolute. They vary from speaker to speaker, and even within the speech of one person they are affected greatly by changes in physiological or nervous states: anger, excitement, anxiety, tiredness and so on.

Nor are these levels discrete. Progression from one pitch level to another is not necessarily immediate, but may proceed through a succession of intermediate frequencies. Pitch glides of this sort are indicated by broken lines between pitch levels. A numeral followed by the symbol '+' is used to indicate a pitch intermediate between the level indicated by the numeral and the level above. The cypher 'o' is placed under that syllable of the word on which phrase stress is perceived. Phrase stress, when heard, attains maximum prominence on the nuclear syllable of the stressed word. Pause is indicated by the virgule '/'; decrescendo and crescendo by the conventional representations used in music. Except where indicated, the transcription of segments is a phonemic one. A description of the five emic phrase types follows, succeeded by a discussion of phonetic features which are not crucial to the differentiation of the phrase types.

1.1. NON-FINAL PHRASE

The contrastive features of this phrase type are decrescendo and level or slightly falling pitch on the final syllables of the phrase. Devoicing may also occur.

Phrase stress is not always discernible in non-final phrases.

Where it occurs it initiates a primary contour with the characteristics described above. It may be preceded by a number of pre-contours which are non-distinctive to the phrase type and will be therefore treated separately.

/ uřmuř[>]/ uřmuř[>]/ uřmuř[>]/
 2 0₃₊₃ 2 0₃₊₃ 2 0₃₊₃
(they) barked, [and] barked, [and] barked...

/ inaŋ ađun eřgel[>]/
 3-- --2 3 0₃₊₃
You said to me, '....'

/ ilimb awand eřkiy ambiy ađen ambař ambiy
 3 3 3 3+- 3 3 3 3
 aliy awand[>]/
 3 3
*Then from the east we carried it, you and I,
 back home...*

Phrase stress may sometimes be accompanied by a high pitch, which drops rapidly to the sustained level pitch diagnostic of this phrase type:

/ eřgel ay oraŋař ađen undamay[>]/
 2 0₄₋₋ --3 3 3 3
Said I to my husband, '...'

In about two thirds of the examples of this phrase type, phrase stress could not be located with any certainty. The primary contour in these cases comprised a level pitch extending over the entire phrase, with just a few examples of pitch falling slightly in the latter part of the contour.

/ il igiguř ad^y ŋd^y iy [ey][>]/
 3 3 3 3
The old man kept going along,

/ ilimb afař ay iŋun uruŋđam[>]/
 3 3 3 3 3
Then I pulled it up out of there,

/ ilimb iđóđam awand elkeŋ ambař ambiy aliy[>] /
 3 3 3 3 3 3 3
*Then from there we carried it back, you and I,
 westward,*

/ igogĩr̄ aliṅ igun>/
 3 3 - 2+

We pulled it out.

The vowel in the nuclear syllable of any one word in non-final phrases may be lengthened. This lengthening seems to indicate the extended nature of some quality or action. The following phrases were recorded almost consecutively within the one narrative. Only the phonetic lengthening of one vowel differentiates them:

/ uwand iguṛ aliṅ [ey]> /
 3 3 3 3

On to the west we went.

/ uwa[::::]nd iguṛ aliṅ [ey]> /
 3 3 3 3

Ever westward we went.

Several examples employ an initial low pitch, to emphasize or call attention to the first lexical item.

/ ugṅgal aṛin igun aliy > / uwarñdʷ /
 2 -3 3 3 3 3 -⁰2-3+

Now which way do we go, daughter?

It sometimes happens that one word is repeated several times as the sole constituent of a phrase, perhaps for emphasis. The pitch level of each succeeding repetition is usually just a little lower than the last. In the following example both vowels were lengthened in each utterance of the word:

/ uwand>/ uwand>/ uwand>/ uwand>/ uwand>/
 3++ 3+ 3 2++ 2+

westward, westward, westward, westward, etc.

1.2. FINAL PHRASE

The contrastive features of the final phrase are decrescendo and a rapidly falling, or very low pitch on the final syllables of the phrase. Phrase stress is never difficult to locate.

/ bigibig anbámengḡ ewal ay>/ bigibig
 3 3 ⁰4 - -3 -2 -1 3

aṛĩnam>/

3 ⁰2+-1

I saw a pig on the bank, a dead (lit. killed) one.

/ awar ambiy iguṛ ay>/
 2⁰2 - 3+ - 2+ - 1

I went to that place to the east.

/ udng ab igun>/
 0⁴ - - - 1

(He) got away (still) alive.

The last example appears to reflect disgust or disappointment, but a similar primary contour indicated that the speaker was pleased with himself:

/ awiṛ iḡun>/
 2⁰4 - 1

(I) snagged him.

A milder disappointment underlies the consecutive use of these final phrases:

/ uy aḡaṅd^v a^b aḡkinm aliṅ>/ eṛkiy amb inaḡ
 3 3⁰4 - - 3 3 -1+ 3⁰4 - - 3
 aliṅ>/
 2 - 1

We still didn't go fishing. We (just) sat at home.

A final phrase may sometimes be followed by another of low pitch, either level or slowly falling even lower. The latter phrase is frequently an afterthought, or supplies information perhaps inadvertently omitted from the first phrase.

/ aliṅ ad^venday aliṅ ekekan>/ aḡḡan oḡḡaḡal>/
 3 3 3⁰3+ - - 1+ 1+ 1+

Father and I, we two were cutting it up. And that dumb chap, three of us.

Interesting primary contours appeared on two further phrases:

/ oḡgom iḡ onoḡ>/
 3 3 2⁰3-4-2

What do they call that animal? (I can't think)

/ ay oḡgoḡ inaḡ>/
 3 3⁰4-3 -4- -1

I was sitting here. (I don't care what you say).

1.3. QUESTION PHRASE

The features of the Question Phrase which uniquely define it are a rapidly rising pitch on the final syllables of the phrase, and a maintained level of vocal power. The phrase may terminate with a glottal stop. In only a very few cases has phrase stress been difficult to locate.

/ uwarñdʷ [ey]/

3 0₃ - - 4

(Are you there,) daughter?

/ iŋ ab udnudn [ey]/

0₃₊₃ 3 3-4

That animal is still there (isn't he)?

The name assigned to this intonation pattern is a result of the high degree of mutual association of this phrase type with syntactic questions.

/ kotakot aŋg iŋdóðeŋ uŋŋiŋ /

3 3 0₃₊ 3+ -4

Where did we leave that axe, ever?

/ abm inaŋ aɟun ayin elay [a?]/

3 - 2 2 2 0₃₊ - 2- 4

Are you going to send me?

/ iŋdod udnəŋ il [a?] /

0₃ - - 2 2-3+

Just where was it lying?

The following sequence of two question phrases is taken from a personal anecdote in which the speaker recalls her long trek down a dry creek bed in search of water. The second phrase is characterized by greater vocal power and a higher final pitch than level 4 in the first phrase. The speaker's anxiety is relived, resulting in a considerable rise in the pitch frequency of levels 3 and 4, and a greater interval between pitch levels.

/ og aŋg iŋɟay / og aŋg iŋɟay /

3 3 3+ 0₄ 3! 2+! 3! 0₄!

Where is there water for me? Where is there water for me?!

A question phrase does not always anticipate a reply. The following excerpt comes from a narrative about hunting in which the speaker had outrun the other hunters, and her question appears therefore to be rhetorical:

/ il udal itom in elmban atař inun /
 3 3 3 3 3+ 0- 3++ -- 4
Has that dog indeed got it by the neck?

1.4. Imperative Phrase

The imperative phrase manifests a level or slightly falling pitch on the final syllables before the pause, and a level of vocal power which is not dropped, but rather maintained to the end. Although some phrases contain an affix having imperative function, others are vocatives, warnings or brief comments which are shouted, or conveyed under circumstances of emotional stress. Phrase stress cannot always be located with certainty.

/ muwmuw /
 4!
Dumb one! (vocative)

/ abm ařimay /
 4 04
(He) could kill (us)!

/ away inañ /
 4 4
You (come) up here!

/ in ongom el atuwil ubal /
 3 3 3 3 3
You two watch for this animal!

/ abm ang udalgar /
 4 4 04
It's a dingo! (implied: *so shoot it*)

/ abm anđar /
 3+ 3+
More! (lit. *person still*).

The following sequence was recorded in a personal anecdote. The speaker and her family are recovering from the bottom of a lagoon (with a grappling hook and line) a valuable crocodile that

had been shot. Besides reflecting the tension of the situation, and the strenuous nature of the activity going on, there is an element of encouragement to the chief participants in the event:

/ iɔm amb ambuŋ / iɔm amb ambuŋ /
 4⁰! 4! 4! 4⁰! 4! 4!
 aŋg adniy ambel ambuŋ / aŋg adniy ambel
 4! 4! 04! 4! 4! 4! 04!
 ambuŋ /
 4!

*We've got him! We've got him! (lit. that one
 ours) We've got him up! We've got him up!*

1.5. EXCLAMATORY PHRASE

Exclamatory phrases are mild imperatives with the force of the command being broken by the intonation, or exclamations of an idea, or of a fresh realization. Phonologically, they maintain a high level of vocal power, but share the rapidly falling pitch over the final syllables that was characteristic of the final phrase. The basis for the separation of this phrase type from the imperative phrase is tenuous: some imperative phrases contain the same lexical items as recorded utterances of this phrase type. Exclamatory phrases are only tentatively differentiated: an investigation of higher levels of the phonological hierarchy may reveal that exclamatory and imperative phrases are only etic variants of the one emic phrase type.

/ etʲ ar oŋdoŋdar / etʲ ak aliyiyan /
 2 03+ - - - 1+ 2 03+ - - - 1
Wait a minute (idiomatic). Let me think.

/ oŋŋd eɾk ukukin eɾb inaŋ aɟun /
 04 -- 3+ - - 3 3 3- - 1+
*Stop pulling my leg! Only intonation prevents this being
 rendered Stop lying to me!*

/ aɟun uŋŋgil /
 3 04 -- - 2
Leave it for me (if you don't mind).

/ engine i_ɔm stop'em artil / engine stop'em
⁰4 - - 3 - - - 1 ⁰4 - 3 - - -
 artil /

1
Stop your engine, stop your engine (It's your engine but if you don't stop it that crocodile will hear us)!

/ eřk iŋkum /
 3 -⁰3+-1

It's a new place! (Floods had changed the configuration of the river).

1.6. PHONETIC FEATURES OF THE PHRASE

Pre-contours and Primary Contours

The terms *pre-contour* and *primary contour* have been defined (Pike 1951:27-29) to refer to segments of the 'intonation tune' manifest over the entire phrase. The pre-contour is that 'intonation tune' preceding the phrase stress; the phrase stress constitutes the beginning point of the primary contour, the 'tune' of which more frequently differentiates phrase types.

Pre-contours. If the pre-contour preceding the phrase stress is short, it usually manifests a constant pitch of level 2 or 3:

/ ay ořen iguř[>] /
 2 2 ⁰3 3

I was going behind.

/ alk ubmař il /
 3 ⁰3+ --1+

It broke (my) spear!

Longer pre-contours frequently begin on level 2 and terminate on level 3.

/ iŋ i_ɔtur aŋg igigúnay[>] /
 2 3 ⁰3+ - - - 1+

Those bubbles must be coming up from some animal.

/ et^v iŋday line eránay ay[>] /
 2 2 3 3 ⁰3+ - 1

Where I throw the line now (is the place the crocodile sank).

A slight rise in pitch may signify emphasis on a given lexical item:

/ on aing onong uŋgaĩ>/
3 3+ - - -2 3--2 03+---2

Another creek to the north.

/ iŋ ant iŋday iŋin /
3 - 4 -- 3 04 - - -2

But where are its children?!

/ andan ifaĩ amb eĩnen>/
2 - 3-- 203+ --- --- 1

We were standing down there to the south of it. (The emphasis is partly phonological, partly syntactic).

Primary Contours. Phrase stress constitutes the beginning point of an 'intonation tune' which is terminated only by a pause. This interval of the 'intonation tune' is referred to as the primary contour.

It has been found more convenient to define the five phrase types by reference to the characteristics of the terminal syllables of the primary contour, than by the entire contour shape. This is required by several primary contours in which an unexpected rise in pitch appears to indicate emphasis of an included lexical item, and by phrases (above) in which phrase stress was not perceptible.

/ awar ambly iguĩ ay>/
2 02 --- 3+ -- --- 1+

I went eastwards (would you credit it?).

/ afaĩ aiiŋ iŋun iŋ ant iŋiy /

Those little ones, he and I caught them.

/ eikel amb awand eĩkiy>/
3 04- 3+ - - 2+ -- 2-3+-2

We returned from the east home again.

(See also the last example under Final Phrase)

Further Features of the Phrase: Ey, Ow and A?

Three phonetic sequences, [ey], [ow], and [a?], can occur as the final phonetic segments of the phrase. While these are not morphemes to be listed in any lexicon or dictionary, the occurrence of each is restricted to certain phrase types.

The sequence [ey] occurs in non-final and question phrases. In non-final phrases it may be lengthened, nasalized and/or laryngealized to convey monotony or length of time.

/ awar / awar [ey:::]² /
 3 3 3

Eastwards, eastwards yet.

Three further examples are already recorded under the non-final phrase, and two under the question phrase.

Sequence [ow] tends to vary towards [aw], and occurs in the termination of some exclamatory phrases.

/ eŋ ubaŋd^y aŋg [ow] /
 3! ⁰3! 3! 3-1!

There's sugar-bag here!

/ oŋgoŋ udnag [ow] /
 3 3 ⁰3 -1+

This is where he slept!

Some of the older Oykangand speakers use [oy] in preference to [ow].

/ iŋ uŋgul amb id^yŋd^yin [oy] /
 3 3 3 3 ⁰3+-1+

That animal is running away there now!

Sequence [a?] has been recorded in a few cases. The fourth example under Question Phrase is one. It has been also recorded in isolation with the meaning *Hark! What's that?*. It appears to be a feature of question phrases only.

/ iŋgoŋ udnag il [a?] /
 3 ⁰3 - - - - 1+ - - 3

Where was it lying?

Laryngealization

Laryngealization occurs most frequently as a feature of the non-final phrase type, but has also been recorded in final phrases. It may affect the entire phrase, or may begin at some point and continue to the end. It seems to indicate tiredness or disappointment on the part of the speaker, but a few examples suggest laryngealization may apply to other situations also.

/ ɪɣnɑ̃ ɑ̃ ɔ̃rɛn ɪɣʊnm ʔʔ ʔʔ / ʔʔʔʔ ʔʔk
 3 3 3 3 3 3 3 3
 ʔɛ̃rkɪʔʔ / ʔudnɑ̃l ʔʔʔʔ ʔʔʔʔ /
 3 3 0₃₊ --2 --- 1

I was tired out and came along behind, returned home from the east, and lay down.

/ ʔɔ̃ɣnɔ̃ ʔab ʔʔk ʔʔbʊl ʔʔ ʔʔʔʔʔʔ~ /
 0₂ 3 3 3 3 - 3+ -2+

We just had to return home without any meat.

Interjections

Certain forms occur which do not enter into the syntax of the language as regular lexical items. Each of these forms constitutes a separate phrase, bounded by pauses, and manifesting a suitable intonation pattern. By comparison with the rest of the language, rules of stress, or of C-V patterning, are sometimes violated by these forms and phones occur which are not accounted for as allophones. Phonetic features of this nature are regarded as extrasystematic, as their occurrence is limited to a restricted environment already described.

A phonetic representation of the more common interjections--as these forms have been termed--is presented below, together with a brief note as to function or meaning.

- [/k^hów/k^hów/] Repeated six, eight, or as many times as required to call attention to an approaching visitor, car, etc.
- [k^hʔʔ] Uncertainty; with question intonation.
- [k^hʔtʔ^hɔ̃tʔ^hóy] Wrong! Sometimes laryngealized.
- [k^hát^h] Sound of chop, or thud of spear hitting target. Intonation varies.
- [kářéy] *Let's carry on.*
- [k^háʔ] *Very well, okay*
- [ɛ:ʔÉéʔ] *Very good.*
- [t^hé:p] *Quietly now.* Usually on a low, level pitch.
- [t^hóřtʔ^h] Sound of something coming off or breaking.
- [p^hlw] Sound of shot, sharp crack.
- [yégeʔ] *No, rubbish! Don't say such things!*
- [yɪk^hí:] *Shame; careful; look out!* A wide range of uses varying with intonation.
- [p^húy] *Go!* Often used to recommence an activity as dance, journey, etc.

2.0. THE PHONOLOGICAL WORD

The phonological word or stress group is a unit characterized by a physiologically produced pulse. It is the matrix within which the syllable is distributed, and may consist of only one syllable (Pike 1962:25; 1967:392-423). There is a high degree of correspondence between the phonological word and the grammatical word.

2.1. OYKANGAND

Structure

The phonological word (henceforth *word*) consists of from one to five syllables; stress characterizes the nuclear syllable. Stress is perceived as intensity, the peak of which is attained on the vowel of the nuclear syllable. Word boundaries are sometimes discernible by phonetic features which apply to the closure of a word: decrescendo, length of a consonant in final position, or pause following the word.

The shape of the word is governed by that of the syllable: Oykangand words follow a vowel-initial, consonant-final pattern. This word pattern is maintained consistently except for a very few cases. The exceptions can be accounted for by the following. Certain words occur with high frequency in phrase-initial position because of their syntactic functions. The initial syllable of these words invariably loses the vowel, but only in this environment. If the remaining syllable margin consists of a homorganic nasal/stop or stop/nasal sequence, further reduction may leave only the final consonant of the syllable.

The words *in meat*, *uk tree*, *abm person* are typical of a category of words which occur both in isolation, and as noun class markers in the syntax. As noun class markers these are reduced:

Phonemic Structure:	Perceived in Phrase - Initial Position as:
<i>in</i> otol <i>water rat</i>	[ŋ·ɔt ^h ʔ]
<i>uk</i> igay <i>bloodwood tree</i>	[k ^h ·ɪkʂɪ]
<i>abm</i> ambot ^v <i>little person</i>	[m·ʌmpʂt ^v h] ³

The progressive form of certain verbs is expressed by partial reduplication, and where the form occurs initially in the phrase, loss of the initial vowel is frequent:

[ɪkún]	igun	go	[kɪkún]	igigun	going
[ɪtʷæn]	idʷan	eat	[tʷɪtʷæn]	idʷidʷan	eating

A special case of reduplication is the formation of direct address or vocative forms of the kinship terms. These parallel the case of the verbs:

[επάναĩ]	ebánaĩ	older sister	becomes	[πεπάη];
[αίληναĩ]	alánaĩ	uncle	becomes	[laiáη];
[εδνάναĩ]	ednánaĩ	female cousin	becomes	[nednáη]

Certain spatial and temporal modifiers, demonstratives and interrogatives are the words most subject to loss of the initial vowel, and where applicable, the possible loss of the first member of a subsequent homorganic cluster of consonants:

ilimb	then, next,	is heard as	[límp];
iɬom	that	as	[ɬ ^h óm];
uŋgul	there	as	[kúɪ] ~ [ŋkúɪ]. ⁴

Stress Pattern

For most Australian languages, stress occurs regularly according to a predictable pattern (Capell 1956, 1967:104; Hale E:2; Oates 1964: 18-19), usually on the initial syllable of the word. By contrast, there is evidence in Kunjen for a strong phonological pressure against this stress pattern. Stress is not predictable in the case of words of more than two syllables.

Stress on monosyllabic words is discernible when these occur within phonological phrases of more than one word. The affixation of a monosyllabic stem results in a poly-syllabic form, which conforms to the phonological patterns established by stems of a similar structure.

ábm	person	abmán	someone's
úd	dog'	udáɪ	dog (ergative)
ég	head	egámend	on (his) head
éw	mouth, hole	ewáŋand	from the mouth, hole

Words of two syllables are invariably stressed on the final syllable:

iñtʷim	house
amáy	big
eĩkíy	to the place, home.

Words of three syllables may be stressed on either the ultimate or penultimate syllable. A survey of dictionary entries revealed no statistically preferred pattern: the two word types were numerically almost identical. Although no two lexical items in the language are differentiated solely on the basis of stress, several sub-minimal pairs are evident among three syllable words:

iñáṅař	<i>aunt, father's sister</i>
añáṅář	<i>pushed (them) apart</i>
(iṅ) aráwal	<i>turtle sp.</i>
(iṅ) awaréi	<i>bird sp., crow</i>

Words of four and five syllables are most commonly the result of affixation or compounding. Stress may occur on any of the last three syllables of the word, but uninflected forms are frequently stressed on the final syllable.

orolonmón	<i>heart</i>
eladnáraṅ	<i>poor thing</i>
iñáṅařay	<i>for (my) aunt</i>
etegeřegéř	<i>separately</i>
oralṅalṅánay	<i>will go walk-about</i>
orolonmónam	<i>from out of (its) heart</i>

The syntax of the language calls for the partial or complete reduplication of certain forms. These compound grammatical words retain stress on both elements of the compound, and are thus regarded as two phonological words although no word juncture phenomena are to be observed between them.

adñdíř-adñdíy	<i>old men, the elders</i>
aṅṅán-aṅṅáṅṅ	<i>frowning, worried</i>
(orol) alṅṅéb-alṅṅéi	<i>(he) was amazed</i>

Juncture

The final consonant of the word is sometimes slightly lengthened, or perhaps articulated with greater tensivity. This feature, together with that of stress, differentiates the first member of the following (sub-)minimal pairs as two words: the second of each pair comprising only one phonological word.

[ʌbm· ánt ^h]	(person) child
[ʌbmánɿ]	still, yet
[é̌r· ʌlɣóáɿ]	don't carry (it)!
[ɔralɣóáɿ]	go walk-about
[ʌl·i:áɿ]	made the fire
[ʌli:áɿ]	listened.

2.2. OLGOL, OKUNJAN, KAWARRANGG

The remarks already made on the structure and stress pattern of Oykangand words also apply in general to the other dialects. Interesting exceptions that became evident in the corpora follow.

OLGOL

The final word of a phrase is never monosyllabic, including words uttered in isolation such as responses to lexical cues. Monosyllabic words which may appear in initial or medial position within the phrase, become di-syllables in final position. The stress in this case falls on an additional final vowel, which may become partially devoiced.

Response to lexical cue:

[aɿgʌ́A]	earth, ground
[iɿʌ́A]	meat, animal.

Response to sentence:

[áɿg	ʌɿé̌n	ɿɿ ^h ómaɿ	ʌtáyɿɿn	inʌ́ɿ	ʌɿú̌n
place	mine	to it	would	have	come
you	to me,				
áɿ	inú̌n	uwáoǐɿ	inʌ́A.]		
I	to you	must	give	meat.	
If	you had	come	to my	camp,	I would
					have
					given
					you
					some
					meat.

[iň aɿɿemáɿ̃ antʌ́n.]

meat without we (incl. pl.).

We have no meat.

Some speakers of Olgol, and a few speakers of Oykangand follow this pattern, but retain the stress on the initial syllable. From another Olgol informant the following data were recorded in response to lexical cues:

[ářǵʌ] ~ [ářǵʌʌ]	<i>earth, ground</i>
[é eE]	<i>eye</i>

All five vowels contrast in final position for the Olgol dialect, but only a central ə or ʌ has been recorded in Oykangand:

(Olgol)	[ídnɪ]	<i>vagina</i>
	[é eE]	<i>eye</i>
	[ɪqʌʌ]	<i>meat, animal</i>
	[ɔóto0]	<i>penis</i>
	[ʌ uU]	<i>fire</i>
(Oykangand)	[íqʌ]	<i>meat, animal</i>
	[ʌ e]	<i>fire</i>

Words of more than one syllable which are closed by stop, l or r, following a stressed vowel, also may manifest a similar central vowel when in final position in the phrase.

[o ǵó ʌ]	(dialect name)
[ɔnbǵrʌʌ]	<i>face</i>
[ʌdnúǵkaʌ]	<i>buttocks</i>

OKUNJAN

The vowel phenomenon observed in Olgol was also recorded in Okunjan, but only for mono-syllables which would otherwise end in a stop, l or r. The stress remains unchanged:

[ǵra] ~ [ǵrʌ]	<i>hand</i>
[áytʷaʌ] ~ [áytʷʌ]	<i>food, vegetable</i>

Considerable variation was recorded in the voicing quality of the final vowel.

KAWARRANGG

All words in phrase final position are terminated by a vowel, which like that in Okunjan varies considerably as to its voicing quality.

The Status of Final Vowels

In each dialect final vowels occur only on the last word of the phonological phrase, depending on (1) the shape of the word (mono-syllabic, poly-syllabic), and (2) the final consonant (nasal, stop l, r). Since phonological features regularly account for the occurrence of this vowel, it is treated as a contrastive-

identificational unit at the level of the *phrase*. No syllable type will therefore be established in the description for it.

3.0. THE SYLLABLE

Pike defines the syllable as a unit which is characterized by a chest pulse or syllable pulse produced by muscular compression of air in the vocal canal. 'The syllable wave gives a ripple on the larger rhythm wave.' (Pike 1962:24, see also 1967: 364-392). It is the matrix within which the phonemes are distributed: vowels at the crest of the wave, consonants in the margins or slopes.

3.1. OYKANGAND

Structure

There are four contrastive syllable types: VC, VCC, VCCC, VCCCC.⁵ The nucleus of the syllable is always a single vowel. Consonants or semi-vowels, and combinations of these may occur in the syllable margin, or coda. Clusters of consonants occur within the syllable, and not across syllable boundaries.

ef	<i>tongue</i>	algŋ	<i>tooth</i>
egŋ	<i>food</i>	albmb	<i>opossum</i>

All the words of the language can be analysed in terms of the four syllable types necessary to the description of the examples given above. Any increase in the inventory of syllable types is not economical to the description.

eI	<i>eye</i>
ab.aI	<i>tick</i>
eI.áŋ.aĩ	<i>younger sister</i>
or.ol.onm.on	<i>heart</i>
or.algŋ.algŋ.án.aŋ	<i>will go walk-about.</i>

The possibility of reduction of the initial syllable of certain words following a pause or silence has already been mentioned. VC and VCC syllables may be affected, and manifest only C as an etic variant of the syllable.

Interpretation

Brief transitional vocoids which may sometimes be heard between consonants in a cluster are rejected as syllable nuclei: such an analysis would require a di-syllabic word which is stressed on the initial syllable. Not only would this be a novel

stress pattern nowhere substantiated by unambiguous data, but it would also be contrary to the strong phonological pressure against initial stress that becomes evident from the analysis of the word.

For a similar reason, and for the fact that no stressed or syllabic nasals were recorded, the nasal component of complex consonant clusters are also rejected as syllable nuclei:

[ʎlg̃ŋ]	~ [ʎlg̃ ^o ŋ]	algŋ	<i>tooth</i>
[aɾ̃ ^o ŋk]		aɾŋg	<i>child</i>
[ʎlb̃ ^o mp]		albmb	<i>opossum</i>
[ég̃ ^o ŋk]		egŋg	<i>relation</i>

Grammatical evidence confirms this analysis.

There are three phonologically determined allomorphs used to express 'from, off from...' ⁶. The form -Vŋand applies to words of one syllable, realization of the vowel V being morphologically conditioned:

ud	<i>dog</i>	udáŋand	<i>from the dog</i>
al	<i>fire</i>	alúŋand	<i>from the fire</i>
abm	<i>person</i>	abmáŋand	<i>from someone</i>
egŋg	<i>relation</i>	egŋgέŋand	<i>from (a) relation</i>
algŋ	<i>tooth</i>	algŋáŋand	<i>off from (a) tooth</i>
og abmb	<i>swamp</i>	og abmbáŋand	<i>out of the swamp</i>

The vocoids [ɨ], [u] have been interpreted marginally in the syllable as the semi-vowels γ, w respectively, to conform with the patterns of non-suspect syllable types above.

[úɿ]	uy	<i>fish</i>
[ɨyún]	iwun	<i>pygmy goose</i>
[adní·]	adniy	<i>upwards</i>

Pre-nasalized stops have been interpreted as a cluster of two simple segments rather than one complex unit, on the basis of the occurrence of reverse sequences, and of the separate occurrence of the component segments:

[ʎbmáŋ]	abmaŋ	<i>someone's</i>
[ʎmpáŋ]	amban	<i>happens, causes</i>
[ʎpáɿ]	abal	<i>tick</i>
[amáɿ]	amay	<i>big</i>

Phoneme Distribution within the Syllable

VC syllables show no restriction on the occurrence of any consonant with any vowel:

og	<i>water</i>
if	<i>liver</i>
in	<i>meat, animal</i>
ul	<i>they</i> (dual nom.)
ur̄	<i>you</i> (pl. nom.)

VCC syllables show restrictions on the consonants which co-occur. Only three sequences of contiguous nasals have been recorded: mn, nm and nŋ. m may be followed by f, otherwise m, n̄, ñ, and ŋ are only followed by a homorganic stop. n may precede bilabial, alveolar or velar stops. In any sequence of a stop preceding a nasal, the stop is unaspirated and the nasal is at the same point of articulation. l precedes only the grave stops p, b, k, g, fricatives f, γ, nasal m, and ŋ, w, y; r is followed only by the acute stops t, d, tʸ, dʸ, nasal ñ, and w, γ. The inventory of Oykangand clusters of two consonants is completed by a number of sequences having r̄, w or y as a component: r̄b, r̄d, r̄g, r̄t, r̄k, r̄f, r̄m, r̄n, r̄ñ, r̄ŋ, r̄w, r̄y, wn, yb, yk, yf, ym, yñ, yw, gw. The word unudb *ridge* contains the only cluster of two stops, but it is not accepted by all speakers.

VCCC syllables show very limited sequences of consonants in cluster of three consonants, according to two general patterns: (1) a stop/nasal or nasal/stop sequence preceded by l, r, or r̄: lbm, lŋŋ, lmb, lŋg, rnd, r̄nd, r̄bm, r̄gŋ, r̄mb, r̄nd, r̄ng, r̄ñdʸ, r̄ŋg; (2) a stop/nasal/stop sequence in which the first two members are homorganic: bmb, gŋg, dnb, dnd, dng, dʸndʸ, gŋg.

VCCCC syllables occur only as the initial syllable of the word, and have been recorded in only twenty words. The consonant cluster consists of l, r or γ, followed by a homorganic sequence of stop, nasal and stop. Only six such sequences were recorded lbmb, lŋgŋ, rdnd, r̄dnd, ybmb, ygŋg. Of these r̄dnd and ybmb were each recorded in only one instance. VCCCC syllables are restricted in occurrence to the initial position of the word. The only exception to this restriction in the data so far is elbmbelbmben *red*, where reduplication may be a governing factor.

Vowels in Stressed Syllables

The articulation of vowels in stressed syllables is maintained for a longer duration and with greater tensity than corresponding vowels in unstressed syllables. Alternatively, tensity and prolonged articulation of the vowel may be two physical correlates of what is actually perceived as intensity, or word stress.

A brief instrumental study on the duration of vowels in disyllabic words was carried out on the Kay Electric Sona-Graph Model 6061A to determine the extent by which the vowels of stressed syllables were longer. The ratio varied from 1.0:1.12 to 1.0:2.0, with the average 1.0:1.50. Consonantal environment, vowel quality and the relationship between the phrase stress and the vowels concerned seemed to affect the ratios. More research on a broader basis than this study would perhaps reveal interesting patterns.

Comparison of the vowel lengths in the initial syllables of *ánt child*, *antiy dillybag*, and *antúr fly (insect)* proved interesting. The words were spoken in isolation:

ant	length of a : 0.234 sec.
antiy	0.093 sec.
antur	0.088 sec.

Length on vowels is relatable to the perception of word stress, and is therefore regarded as a contrastive-identificational feature of the word.

3.2. OLGOL, OKUNJAN, KAKARRANGG

The same series of syllable types is shared by these dialects, along with similar patterns of consonant clusters. The inventory of consonant sequences already described for Oykangand was not recorded in its totality for the other dialects, in which the data are more limited. Only in Olgol, was a systematic restriction of co-occurrence observed.

OLGOL

Clusters of three and four phonemes followed the same pattern as Oykangand. Clusters of two consonants included *yg*, *ydʷ*, and *yl* not found in Oykangand, but no sequences were found to include an aspirated stop.

OKUNJAN

The sequences lt, ly and lñ were recorded, as well as the clusters lnd, lñdʷ, and řnd, none of which were found in Oykangand, where there seems to be a restriction against l and ř occurring with alveolar consonants.

KAWARRANGG

As could be expected, Kawarrangg resembles Okunjan. The sequences lt, yt, yd, řnd, lñdʷ, and řdnd were recorded for this dialect but not for Oykangand.

4.0. THE PHONEME

The phoneme is regarded as the smallest discrete unit in the phonological hierarchy.

In articulatory terms, a phoneme is a phone, which 'as a wave has a nucleus which is contrastive according to point and type of articulation'. (Pike 1962:23.) Acoustically, a phoneme may be regarded as a 'bundle' of a small number of 'distinctive features'. These features are believed to realize less than a score of possible 'oppositions', 'out of which each language makes its own selection' (Jakobson and Halle 1956:28-9, see also Jakobson, Fant and Halle 1952, Halle 1962).

This analysis of the phoneme will rely upon articulatory terminology. The traditional terms 'consonant', 'semi-vowel', and 'vowel' apply to phonemes on the basis of their distribution in the nucleus and margin of the syllable (3.0, 3.1).

4.1. OYKANGAND

Phoneme Inventory

There are

unaspirated stops	b	ɟ	d	dʷ	g
aspirated stops	p	t̚	t	tʷ	k ⁷
fricatives	f		ð		ɣ
nasals	m	ɲ	n	ñ	ŋ
trill			ř		
oral continuants		l		r	
semi-vowels		y		w	
vowels	i	e	a	o	u

Phonemic Contrasts

Phonemes d , t , d^{v} , t^{v} , y contrast:

idar	<i>dream</i>
iṭar	<i>toffee tree</i>
iday	<i>waiting</i>
atikar	<i>hard</i>
idyaṛ	<i>ate</i>
ityal	<i>hungry</i>
iyaṛ	<i>made</i>

Phonemes f , b , p , m , w contrast:

afal	<i>get</i>
abal	<i>tick</i>
apltʔar	<i>bird sp., dollar bird</i>
amar	<i>snake sp., brown snake</i>
awar	<i>westward.</i>

Phonemes g , k , y contrast:

algál	<i>straight</i>
alkál	<i>call out</i>
alyál	<i>love</i>

Phoneme δ is established on the basis of only two words:

iṛñiḍ	<i>tree sp. with fine leaf</i>
antufáḍar	<i>daughter.</i>

Phonemes m , ṃ , n , ṅ contrast:

alim	<i>bird sp., galah</i>
aliṅ	<i>we (dual excl. nom.)</i>
alin	<i>rainbow colours</i>
aliṅ	<i>ours (dual incl. poss.)</i>

Nasal ṃ is established as a phoneme by only a few cases of contrast with ñ . The two phones otherwise occur in almost complementary distribution:

elkéṃam	<i>while returning</i>
ekánam	<i>while cutting</i>
efáñam	<i>grass lily sp.</i>
adn	<i>excrement</i>
uḍṅ	<i>hornet</i>

adʷñ	<i>vomit</i>
ugŋgaŋ	<i>was frightened</i>
agŋgaŋ	<i>was looking (for)</i>
ugŋgañ	<i>from the north.</i>

Phonemes l, r, ṛ contrast:

elan	<i>sending</i>
eran	<i>sandfly</i>
eṛan	<i>cicada</i>

The vowels i, e, a, o, u contrast:

il	<i>he (3rd pers. sing.)</i>
el	<i>eye</i>
al	<i>fire</i>
ol	<i>long time</i>
ul	<i>they (dual nom.)</i>

and	aŋkiṛ	<i>went hunting</i>
	elgeṛ	<i>gathered</i>
	eŋkar	<i>thirst</i>
	eŋkor	<i>shade</i>
	aŋkur	<i>skin</i>

Phonetic Variants of the Phonemes

Phonetic features of the phrase, word and syllable, which are not assigned to any phoneme, have already been described. In this section, the discussion of etic variants of the phonemes will complete the account of phonetic facts observable in the data.

Stops p, t, tʷ, k occur aspirated and voiceless; b, g, d, dʷ, g occur unaspirated and voiceless, but become voiced when preceding a nasal. Voiced allophones sometimes follow l, r, ṛ:

[εṛáp ^h]	eṛap	<i>three</i>
[opáɿ]	obay	<i>soft</i>
[ʌbmáŋ]	abmaŋ	<i>someone's</i>
[ʌlk ^h áramp]	alkáramb	<i>bandicoot</i>

Stops t, d are retroflexed to some degree when following r:

[ardán]	ardan	<i>deep</i>
[órt ^h]	ort	<i>moon</i>

Fricative *f* represents the allophones [f, v, φ, β]. There is a strong statistical preference for the labio-dental, rather than the bilabial allophones, and a tendency to voicelessness. The final consonant of *edndařf white ibis* has been recorded at different times with all four allophonic variants.

Fricative *ɣ* tends to be voiceless in the word [íx] *iɣ shell sp.*

Nasals *m, ɱ, n, ñ, ŋ* occur without perceptible variation from their respective norms. *ɱ, ʃ, and ɟ* represent lamino-dental consonants.

Trilled *ř* is voiceless except in clusters where it precedes a consonant which is either voiced, or may take on voicing, as the unaspirated stops above.

[ař'íř]	ařiř	<i>hit, killed</i>
[éřtʲ ^h]	eřtʲ	<i>sandridge</i>
[ářŋk]	ařŋg	<i>child</i>

Continuant *r* may become voiceless in phrase final position:

[...ʌgŋář]	agŋar	<i>white man, ghost.</i>
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Lateral *l* is clear and voiced, and shares the apico-alveolar point of articulation with *d, t, n.*

[apá ^l]	abal	<i>tick</i>
[ɔlɔ ^l]	olol	<i>blue fly</i>

All vowels become more or less retroflexed before *r.*

[ɔřét]	ored	<i>wild honey, sugar bag</i>
[utʌlgár]	udalgar	<i>dingo</i>
[ʌʃ ^h úr]	aʃur	<i>pelican</i>

Vowels following nasal consonants are more or less nasalized: the degree of nasalization appeared to vary from speaker to speaker, was greater for speakers in a tired or ill state, and appeared to be greater following *ŋ* and *ñ* than when following *m, ɱ, or n.* Brief instrumental studies indicate that closure of the velic takes place at varying rates within the duration of the vowel. Nasalization has not been indicated in any of the transcriptions because of its variable extent.

High open front vowel *i* occurs with [i] as the norm, and a tendency towards the close allophone [i] in word initial position or in stressed syllables:

[if]	if	<i>liver</i>
[itáɫ] ~ [itáɫ]	idal	<i>waited</i>
[ælk ^h itʲʌʎ]	alkidʲay	<i>wire spear</i>

Mid open front vowel *e* has no further discernible variants:

[ɛyédʲntʲ]	ewedʲntʲ	<i>spittle</i>
[ɛlént]	elend	<i>awake.</i>

Low central vowel *a* fluctuates between [a] and [ʌ]; [æ] occurs between palatals and voiced alveolars or velars and voiced bi-labials, or in initial position before ɫ, with some fluctuation:

[ʌbm] ~ [ábɪm]	abm	<i>person</i>
[ʌwáɾ] ~ [ʌwáɾ]	awar	<i>east</i>
[itʲán] ~ [itʲán]	idan	<i>eat</i>
[ɛk ^h ámɪ]	ekamb	<i>frill neck lizard</i>
[ælfún]	alfun	<i>brothers and sisters</i>

High open back rounded vowel *u* occurs without other deviation from the norm:

[uk ^h úɫ]	ukuy	<i>tiger snake</i>
[uɫún]	uyun	<i>stoop down</i>

Mid close back rounded [o] occurs with [ɔ] as a fluctuating variant:

[ɔnp ^h ɔɾ] ~ [ɔnp ^h ɔɾ]	onpor	<i>old woman</i>
[ók]	og	<i>water</i>
[óɾt ^h]	ort	<i>scorpion</i>
[ɔŋɔól] ~ [ɔŋɔól]	ogɔol	<i>mosquito</i>

In fast speech vowels tend toward an indeterminate central position resembling [ə], with rounding and unrounding still pertinent.

Morphophonemic Alternation

Alternation between phonemes may result from grammatical processes; most of the alternations are the result of assimilation to the preferred patterns or canonical forms of the language.

l/r Alternation

The affix expressing ergative, locative, agentive, or instrumentive function effects this alternation in stems that terminate in *l*:

od ^ʷ ñol	<i>body of water</i>
od ^ʷ ñorñd ^ʷ	<i>in the water</i>
ulgngul	<i>fighting stick</i>
ulgngurñd ^ʷ	<i>with (a) fighting stick</i>

n/ŋ Alternation

The same functions are fulfilled by an affix that requires a stem final *n* to become *ŋ*:

eten	<i>hide, scalp</i>
eteng	<i>on the hide</i>
iyařaman	<i>horse</i>
iyařamaŋg	<i>horse (erg.)</i>

n/ñ Alternation

This occurs in a very few words; the grammatical significance of the affix is not yet established:

iyařaman	<i>horse</i>
iyařamañd ^ʷ	<i>horseman</i>
elwan	<i>sleep</i>
(el) elwañd ^ʷ ilg	<i>sleepy (eyes)</i>
adndur ekan	<i>scold, censure</i>
adndur ekekañd ^ʷ	<i>a scolding, admonition</i>

ŋ/ñ Alternation

The word udŋ *hornet* shows *ŋ/ñ* alternation in two cases of inflection:

ud ^ʷ ñimb	<i>hornet (erg.)</i>
ud ^ʷ ñiy	<i>for hornets⁸</i>

Another case involved reduplication of a verb:

elkeŋ	<i>used to return, were returning</i>
elkeñelkeŋ	<i>were still returning</i>

ɣ/g Alternation

The morpheme *-aɣ* applies to noun stems of more than one syllable. It means *to, for*.

(iŋ) oybóyay	for (a) wallaby
iñañáray	for (his) aunt

Stems ending in -n result in the reduction of this morpheme to -g:

olwong	to the mountain
eteng	for the hide

Alternation involving γ

The morpheme - γ applies to verb stems and conveys the sense of *ought to* or *should*. Following verb stems which end in *i* the γ assimilates to γ , and after stems ending in *u* the assimilation is to *w*.

ampiy	should taste
iguw	should go
elkey	should return

Fluctuation of Phonemes: Competing Forms

Within Oykangand, competing forms have been recorded as fluctuation of phonemes from speaker to speaker. A brief list of such forms follows:

edel	: adel	came, arrived
elfuriy	: alfuriiy	sweating
iyarwilyař	: iyalwiyarř	repaired (it)
olol	: alol	
ořukin	: uřukin : ořukan	place inside
ubur	: abur	split
onong	: enong	another
uđumbay	: uđumbay	in the middle of..

4.2. OLGOL, OKUNJAN, KAWARRANGG

All but a very few of the same contrasts were observed in each of the dialects, so that the phoneme inventory is in each case identical with that of Oykangand. Phoneme distributions and frequencies are considerably different, however. An aspirated stop in Oykangand frequently corresponds with an unaspirated stop in Olgol, while Okunjan and Kawarrangg will have aspirated stops more frequently than Oykangand. Fuller data on phoneme frequencies are given in Section 6.2.

While the labial fricative in Oykangand is most frequently labio-dental and voiceless, the norm in the other dialects is

bilabial and voiced. This is the most conspicuous difference in the phonetic realization of phonemes.

5.0. ILMBANDIY: AN AVOIDANCE LANGUAGE

A brief sample of the vocabulary used in social situations that require respect or avoidance has been elicited from Oykangand speakers. The writer was told that it was used by a man in the presence of his mother-in-law. He was able to observe its use in a respectful request: An elderly Olgol man was asked in the writer's presence not to throw his garden refuse over the fence onto the track to the pig pens. The request was made by an ageing woman of the same generation level (Sommer and Sommer 1967).

The form and the pattern of use of avoidance languages in Australia varies. It is understood (from personal communications with Professor Hale) that the variety includes phonologically innovative systems such as that on Mornington Island, and cases of reversion of lexical reference of stems (so that the regular form *up* becomes that for *down*). Ilmbandi follows more the pattern of ka--oyanoyan reported by Hale (1966) for the case of Linnitiy.

The intonation, word structure, and syllable pattern in this restricted language are identical with those in Oykangand. The phoneme inventory cannot be minimally established from such a small sample (fifty words) but patterns of consonant sequences and contrasts indicate that these also parallel Oykangand.

The morphology and syntax of Ilmbandi appear to be similar to Oykangand. Not all lexical items or concepts have an equivalent form. Based on elicitation of basic vocabulary, it is estimated that the total stock of Ilmbandi morphemes may not exceed 150, being supplemented by regular Oykangand forms as required.

Examples of avoidance vocabulary are listed below, with the equivalent in the ordinary vocabulary in parenthesis:

owllam	(olbon)	<i>blood</i>
elfan	(idnan)	<i>body</i>
algay	(ud)	<i>dog</i>
ublw	(uy)	<i>fish</i>
ampay	(egn)	<i>food</i>
alnul	(uyam)	<i>hand</i>

almalm	(adndur)	ear
adaŋ	(el)	eye
ulbay	(al)	fire
iñdʷáray	(iŋ)	meat, animal
algam	(abm)	person
elengel	(og)	water

Familiar consonant clusters were recorded in:

elbmbar	(atub)	back (anat.)
edolŋol	(ulŋŋul)	fighting stick
onebmban	(oneg)	neck

6.0. TEXT SAMPLES AND PHONEME FREQUENCIES : OYKANGAND AND OKUNJAN

Part of a personal anecdote recorded by a speaker of Okunjan is presented here for comparison with an Oykangand translation. The Okunjan transcription and Oykangand translation were made possible by the efforts of Mrs Kathleen Major, daughter of the author of the story, and a fluent speaker of both dialects herself.

Punctuation conventions are employed to represent phrase types:

Non-final	,	Question	?
Final	.	Imperative	!
		Exclamatory	!!

The entire text was used as the basis for a phoneme frequency count in the two respective dialects.

6.1. Text Samples

Okunjan: abm ay enun alen ar elínang

Oykangand: abm ay inun aŋgalangang ar igúnay

amb awurinan, aŋgar eŋdiŋ ay.

amb adnim, iŋnan aŋ ay.

(2) work altiŋaltíniŋin af awurinan, utʷuŋutʷin

work artartínam unŋul adnim, elkelkeŋ

ay.

ay.

- (3) ayd^y *garden* entuřínin, ořfin egđin, un
egŋ *garden* od^yod^yénam, anuřf ař, ongom

ukomal altil ay a^yun, ařŋgin an emel ay.
ampuw artin ay eřki^y, agař an iduř ay.
- (4) a^yun un uwel.
eřki^y aŋg uwand.
- (5) ibm amul ad^yñd^yářang e^yan ay, ayd^y *rice* ad^yñd^yan
al ampuw ařt^yen alol ay, egŋ *rice* ařt^yen

ay, awurinan a^yur omporamal e^yan ay e^yun,
ay, adnim eřk odndonguw alol ay i^yun,

Kathleen-a^y.
Kathleen-g.
- (6) awur ođambinang el *money* efúřang el.
adni^y elana^y il *money* afána^y il.
- (7) ipar elin ay, Maghera-^y.
ibar iguř ay, Maghera-g.
- (8) i^y alkit^y ed^yñd^yor efun ay.
i^y elkoy eřab afař ay.
- (9) ed^yñd^yor.
eřab.
- (10) ongol akop!!
ilimb awar!!
- (11) 'awey ali^y o^y ol [ey], elelínang ak unon
'awey ali^y uřaŋař [ey], igigúnay awar ongod

ak.
awar.
- (12) opiřigan akínang ali^y.'
on algng ařkařkínay ali^y.'
- (13) 'awaŋ ali^y ewulp! ak elínang.'
'awaŋ ali^y ednarñd^y! awar igúnay.'

- (14) 'iyan.'
'iyan.'
- (15) ak eyan, ak eyan, ak eyan, eyan, eyan,
awar alol, awar alol, awar alol, alol, alol,

eyan, elin, elin, ubman eyan opiřigan, opol efun ay.
alol, iguř, iguř, ubman alol on algng, ononggab afař ay.
- (16) 'unařan, en algnaň!'
'ongom, inañ algnaň!'
- (17) ak eyan ay, opolam ul efun ay.
awar alol ay, onong uw afař ay.
- (18) adn.
an.
- (19) edʸndʸor.
eřab.
- (20) alkitʸ.
elkoy.
- (21) ongol ak elelin ay [ey], 'abm un el
ilimb awar igiguř ay [ey], 'abm ongom il

shoot'em okol embin [ey]?'
shoot'em anul ikiř [ey]?'
- (22) 'abm Harris?'
'abm Harris?'
- (23) 'abm un el abm ak iřaly aňdʸinunon.'
'abm ongom il abm amb ařinan ambunan.'
- (24) 'abm un ađuňađ [ey], iyorak.'
'abm ongom ađuňeđ [ey], ak amb.'
- (25) '[ow]!'
'[oy]!'
- (26) abm ay un elelil [ow]!'
abm ay ongom igigun [oy]!'

(27) ak elin [ey], ak elin [ey], ak elin
 awar iguř [ey], awar iguř [ey], awar iguř
 [ey], el ađunay ilađ iřkiŋ.
 [ey], il ađun eláŋař eřgel.

(28) ilađ iřkiŋ el ađunay, Elizabeth, 'ewulp
 eláŋař eřgel il ađun, Elizabeth, 'nednaŋ
 [ey]? ...'
 [ey]? ...'

Translation

(1) I did not come up to you there like this, I was tired. (2) After I finished my work over there, I came home. (3) I watered the garden, with my shoulders sore; I was too busy, and I finished washing the clothes. (4) At home there to the west. (5) I went and made a great fire and cooked rice, then I went up to see Kathleen, a long way. (6) She sent for some money. (7) I travelled south to Maghera. (8) I caught three turtles (there). (9) Three. (10) Then off again eastwards. (11) 'To (his) wife we (will go), eastwards. (12) We'll follow the creek.' (13) 'Let's go, cousin, eastwards.' (14) 'Very well.' (15) We went eastward, eastward, eastward, going; going, going, going, going, up to our thighs in the creek, and I found one. (16) 'Here, you get it!' (17) Eastward I travelled, and I found another. (18) Finish. (19) Three. (20) Long neck turtles. (21) Then eastwards I went, "Who was that fired a shot?" (22) 'Could it be Harris?' (23) 'That man might kill us here.' (24) 'I don't know who he is; leave him be.' (25) 'Oh! (26) I'll go (and tell) him!' (27) Eastward we went, eastward, eastward--then (your) sister said to me, (28) Your sister Elizabeth said 'Cousin?...'

	OYK	OKU		OYK	OKU		OYK	OKU
p	0.48	1.28	f	0.55	0.89	y	4.45	3.15
b	2.62	2.24	ð	-	0.32	l	7.03	7.25
ʃ	0.18	1.28	ɣ	2.13	3.53	ř	3.96	1.66
ɖ	1.15	0.25	m	3.96	3.72	r	2.44	1.41
t	0.67	1.21	n	1.64	2.30	w	2.44	1.47
d	1.64	0.44	ɳ	6.29	9.24	i	8.55	7.83
tʰ	0.43	1.15	ñ	0.91	0.71	e	6.16	7.57
dʰ	0.79	0.83	ŋ	5.19	5.45	a	19.85	19.57
k	1.89	2.75				o	4.49	2.95
g	5.62	2.94				u	4.49	6.61

TABLE II

6.2. Phoneme Frequencies: Oykangand and Okunjan

Phoneme frequencies percent for Oykangand and Okunjan, showing
 (1) greater frequency of Okunjan aspirated stops and ð, and
 (2) greater frequency of Oykangand ř.

7.0. PROTO-PAMAN TO KUNJEN (OYKANGAND): A DIACHRONIC STUDY

7.1. INTRODUCTION

As is apparent from Sections 1-4 above, the phonological systems of the four Kunjen dialects are very similar. Little is known of how these dialects developed, but this study does not concern itself with the reconstruction of an intermediate proto-language. Rather, it seeks to establish the genetic relationship between the best studied dialect, Oykangand, and the parent language of all the Cape York Peninsula languages, Proto-Paman. The percentage of basic vocabulary items shared by Oykangand with other Paman languages (Table I, Section 1.5) indicates that there is a positive relationship between these.

Evidence for this relationship depends on form-meaning similarities between words in Oykangand and stems reconstructed for Proto-Paman by Professor Hale. Some 300 stems have been reconstructed by him on the basis of data in 30 Cape York Peninsula languages. These reconstructions relate with high frequency to forms having a similar meaning in Oykangand. Difficulties arise, however, in establishing the sound laws which governed the development of Oykangand from Proto-Paman. These difficulties require modification of some of the reconstructions, and show that others are inadequate to include the facts of Oykangand. Other reconstructions again are attested further by the Oykangand data.

Thus in this study the relationship between Oykangand and Proto-Paman is firmly established, but the details of the relationship are not clear. Solutions to some of the problems raised by the data will however, be suggested.

A list of Proto-Paman stems appears in Appendix II. These have been culled from the published articles and unpublished manuscripts of Professor Hale. On the basis of these reconstructed forms, Hale (1964) presents the following outline of Proto-Paman phonology:

The inventory of Proto Paman consonants and vowels is as follows.

	bilabial	apical	laminal	velar
stops	*p	*t	*tʸ (tʷ)	*k
nasals	*m	*n	*nʸ (ñ)	*ŋ
lateral		*l		
flap		*r (r̃)		
glides	*w	*R (r)	*y	

	front	central	back
high	*i		*u
low		*a	

Vowels may combine with the series generating component of length, thus, in addition to the short vowels above, there are the corresponding long vowels: *ī, *ū, *ā.

The comparative data indicate that all stems began in consonants and most stems ended in vowels. Most reconstructable stems are di-syllabic, and long vowels occur in the initial syllable only. Clusters in reconstructions are medial only and consist of a resonant (nasal, lateral, flap, or glide) plus a stop (e.g., *mp, *nt, *lp, etc.). Of these, clusters of nasal plus stop are by far the most common. The seldom attested final consonants in reconstructions are resonants only, in particular *n, *l, *r, *R, *y. In initial position all consonants except *l and *r are attested.

Since this outline appeared, Hale has reconstructed stems having more complex medial clusters, e.g. *kuliŋkul (*heavy*). The writer's study uses *tʷ, *ñ, *r̃ and *r (in parentheses in the chart) for *tʷ, *nʷ, *r, and *R respectively. Hale's long vowels are represented by digraphs, e.g. aa, li.

7.2. GENERAL DEVELOPMENT (OYKANGAND)

Two invariable sound changes operate between Proto-Paman stems and Oykangand: (1) the loss of the initial consonant of the stem, and (2) the loss of distinctive vowel length. As may be seen from even a cursory examination of the following data, all Oykangand words begin with a vowel, and none have phonemic length of vowels.

A further well attested sound change is the phonemic split of the laminal *tʷ and *ñ. This change increased the number of both stops and nasals from four to five.

But Oykangand has a series of both aspirated and unaspirated stops, making ten instead of the five that can be accounted for in the split. Nasals in medial position probably split in a similar fashion, being represented in Oykangand words as either nasals without change, or

as a homorganic stop/nasal sequence. In view of the problems that arise, the writer has avoided calling these form-meaning similarities, 'correspondences', or 'reflections'. Oykangand forms with similar shape and meaning to reconstructed stems have instead been termed 'representations' of these reconstructions, or 'related' forms. It is suspected that the dual representation of Proto-Paman stops (aspirated : unaspirated) and of nasals (unchanged : stop/nasal sequence) in Oykangand will probably be traceable to similar sets of conditions (see Section 8.1).

A further complication can be seen from a study of medial nasal/stop sequences. Clusters of this structure in Proto-Paman appear in Oykangand (1) as a nasal and unaspirated stop, (2) as a nasal plus aspirated stop, or (3) as a homorganic stop/nasal sequence plus stop (where the plosives are unaspirated). No way of accounting for these three developments of the Proto-Paman sequences has been found.

Additional minor changes took place with other consonants. It seems likely that *lt became rt in Oykangand, and that *r̄ became r following the second vowel of reconstructed stems.

There is no contrastive length on Oykangand vowels, but instead of Proto-Paman *i, *a *u, Oykangand has a five vowel system: i, e, a, o, u. Very little is understood of how this system developed.

7.3. EVIDENCE

Evidence follows for the sound changes assumed between Proto-Paman and Oykangand. In each case, every relevant pair of forms has been marshalled to support the assumptions made. Many gaps may be seen in this evidence, but this is due to our lack of knowledge of Proto-Paman phonology, and due to the limited range of reconstructions available rather than omissions by the writer.

*Proto Paman *tʷ and *ñ*

Before *i, the lamino palatal *tʷ does not change in point of articulation.

*kutʷiɾa	(two)	: udʷir	'two'
*ŋatʷi	(grand- parent)	: adʷiŋaɾ	'grandparent'
*katʷin	(yamstick)	: atʷin	'yamstick'

*pañtʷi	(burn)	:	añtʷir	'smoke'
*muuñtʷi-	(swim)	:	uñtʷi-	'swim'

In other environments, this stop became a lamino-dental plosive.

*ŋatʷu/i/a	(me)	:	a _u dun	'me'
*patʷa-	(bite)	:	a _u ta-	'bite'
*ŋañtʷi/a(n)	(we)	:	a _u ndan	'we (pl. excl. erg.)'
*tʷiñtʷu	(near)	:	i _u ndud	'where (close)'

It is assumed that the nasal *ñ split in similar environments. In Hale's reconstructions there is no case of *ñi relevant to Oykangand. However, consonant sequences of *ñtʷi show that *ñ did not change in this position (see above, under Stops). Before other vowels, there is evidence that *ñ became ŋ.

*waña/i/u	(who)	:	a _u ŋul	'who (erg.)'
*miña	(meat, animal)	:	i _u ŋ	'meat, animal'

One exception has been noted:

*muñtʷa	(charcoal)	:	uñtʷaŋ	'hot coals'
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Stops

No acceptable statement has been formulated to date which can account for the apparent development of the two series of stops-- aspirated and unaspirated-- in medial position in Oykangand. Stops became aspirated in the following cases:

*tʷaku	(left hand)	:	ekó _u may	'left (side)'
*katʷin	(yamstick)	:	atʷin	'yamstick'
*patin(a)	(skin)	:	eten	'hide, scalp'
*yaka-	(cut)	:	ekan	'cut'
*yuku	(stick, tree)	:	uk	'tree'

Unaspirated stops came from the same sources in the following:

*Catʷamp	(emu)	:	adʷamp	'emu'
*kati/kata-	(come, arrive)	:	ade-	'arrive'
*kutʷiřa	(two)	:	udʷir	'two'
*kuta(ka)	(dog)	:	ud	'dog'

*ŋatʲi	(grand- parent)	: adʲiŋaŋ	'grandparent'
*ŋuku	(water)	: og	'water'
*nupa/ula	(you)	: ubal	'you (dual erg.)'
*piipa/i	(father)	: ibáŋaŋ	'father'
*yapa	(older sibling)	: ebáŋaŋ	'older sister'

In two cases medial *p became f.

*tʲipa	(liver)	: if	'liver'
*yiipar	(south)	: ifañ	'from the south'
	(but	ibar	'to the south')

In one case an aspirated plosive came from stops preceded in cluster by *l.

*kalka	(spear)	: alk	'spear'
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Two cases show unaspirated stops from clusters of *l or *ŋ followed by a stop:

*yiŋka-	(spear)	: eŋge-	'speak'
*tʲaalpa	(wind)	: albar	'the dry season'

Nasals

Medial nasals became a homorganic stop/nasal sequence or else were unchanged. In the following the original nasal became a homorganic sequence:

*tʲamal	(foot)	: ebmal	'foot'
*tʲana	(they pl. erg.)	: edn	'they'
*kami	(grand- parent)	: abmíŋaŋ	'grandparent'
*kani	(up)	: adniy	'up'
*kaŋaŋ(a)	(reptile)	: adʲŋar	'wet'
*kuman	(thigh)	: ubman	'thigh'
*pama	(person)	: abm	'person'
*puŋa	(sun)	: uŋŋ	'sun'
*waŋal	(boomerang)	: eŋŋal	'boomerang'
*wuna-	(lie down)	: udna-	'lie down'

Nasals remain unchanged in the following cases:

*ŋaamur	(<i>armpit</i>)	: amur	' <i>armpit</i> '
*ŋaani/a	(<i>what</i>)	: anen	' <i>what</i> '
*ŋama/u	(<i>mother,</i> <i>breast</i>)	: amáŋaĩ	' <i>mother</i> '
*ñiina	(<i>sit</i>)	: ina-	' <i>sit</i> '
*piĩña	(<i>aunt</i>)	: iñáŋaĩ	' <i>aunt</i> '
*waña/i/u	(<i>who</i>)	: aŋ	' <i>who</i> '

Nasal/Stop Sequences

A sequence of nasal and stop are represented by Oykangand in three ways:

(1) as a nasal plus an unaspirated stop:

*ŋampul(a)	(<i>we</i>)	: ambul	' <i>we</i> (pl. incl. erg.)'
*ŋaĩtʷi/a(n)	(<i>we</i>)	: aŋŋan	' <i>we</i> (pl. excl. erg.)'
*ŋuŋku	(<i>there</i>)	: uŋgul	' <i>there</i> '
*tʷiĩtʷu	(<i>near</i>)	: iŋduŋ	' <i>where</i> (<i>close</i>)'

(2) as an unchanged nasal plus an aspirated stop:

*kaŋka	(<i>leaf</i>)	: aŋk	' <i>leaf</i> sp.'
*muŋka-	(<i>eat,</i> <i>drink</i>)	: uŋk	' <i>cooked</i> '
*muĩtʷa	(<i>charcoal</i>)	: uĩtʷaŋ	' <i>hot coals</i> '
*muuĩtʷi	(<i>swim</i>)	: uĩtʷi-	' <i>swim, dive</i> '
*ñuuŋka-	(<i>smell</i>)	: oŋka-	' <i>smell</i> '
*paĩtʷi-	(<i>burn</i>)	: aĩtʷi r	' <i>smoke</i> '

(3) by development of the nasal as a stop/nasal sequence; the stops remaining unaspirated:

*tʷaŋkar	(<i>laugh</i>)	: eŋgare-	' <i>laugh</i> '
*kunka	(<i>alive</i>)	: uŋg	' <i>alive</i> '
*kuŋkaĩ	(<i>north</i>)	: uŋgar	' <i>northwards</i> '
*ruŋkaĩ	(<i>cry</i>)	: uŋga-	' <i>frightened</i> '
*waĩtʷi	(<i>sore</i>)	: adʷĩndʷ	' <i>sickness,</i> <i>pain</i> '

A special case of (3) occurs when the nasal/stop sequence is preceded by a lateral in Proto-Paman:

*kuĩŋkul	(<i>heavy</i>)	: ulŋŋul	' <i>fighting stick</i> '
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Laterals and Glides

Oykangand does not appear to permit sequences of *lt* or *ld*. One case indicated that **lt* became *rt*.

**malta-* (*climb*) : *arti-* '*climb, raise*'⁹

Otherwise **l*, **r*, **y*, and **w* appear without change:

<i>*l</i> :	<i>*mala</i>	(<i>right hand</i>)	: <i>alay</i>	' <i>right (side)</i> '
	<i>*miyil</i>	(<i>eye</i>)	: <i>el</i>	' <i>eye</i> '
	<i>*ŋali</i>	(<i>we</i>)	: <i>aliy</i>	' <i>we</i> (dual incl. nom.)'
	<i>*ñilu</i>	(<i>he</i>)	: <i>il</i>	' <i>he</i> (erg.)'
	<i>*ñupa/ul(a)</i>	(<i>you</i>)	: <i>ubal</i>	' <i>you</i> (dual erg.)'
	<i>*pula</i>	(<i>two</i>)	: <i>ul</i>	' <i>they</i> (dual erg.)'
<i>*r</i> :	<i>*kari</i>	(<i>no, not</i>)	: <i>ar</i>	' <i>don't</i> '
<i>*w</i> :	<i>*tʷaawa</i>	(<i>mouth</i>)	: <i>ew</i>	' <i>mouth, hole</i> '
	<i>*kaaway</i>	(<i>east</i>)	: <i>awar</i>	' <i>eastward</i> '
	<i>*kuuwu</i>	(<i>nose</i>)	: <i>ow</i>	' <i>nose</i> '
	<i>*kuwa</i>	(<i>give</i>)	: <i>uwa-</i>	' <i>give</i> '
<i>*y</i> :	<i>*kuya</i>	(<i>fish</i>)	: <i>uy</i>	' <i>fish</i> '
	<i>*ŋayi/a/u</i>	(<i>I</i>)	: <i>ay</i>	' <i>I</i> (1st Sg. erg.)'

*Trill *r̄*

Following the *first* vowel of reconstructed stems **r̄* remained. (Oykangand *r̄*). Following the *second* vowel of such stems, **r̄* r:

	<i>*waṛa</i>	(<i>bad</i>)	: <i>aṛ</i>	' <i>spoilt, tired</i> '
	<i>*ñuṛa</i>	(<i>you</i>)	: <i>uṛ</i>	' <i>you</i> (pl. erg.)'
but	<i>*kaṇaṛ(a)</i>	(<i>reptile</i>)	: <i>adʷṇar</i>	' <i>wet</i> '
	<i>*kutʷiṛa</i>	(<i>two</i>)	: <i>udʷir</i>	' <i>two</i> '

Vowels

The five vowel system of Oykangand cannot yet be explained. The phoneme *e* traces consistently to **a* following an initial **tʷ* or **y*, but also appears in examples where it comes from **i* or **a* not in that environment. The phoneme *o* comes from **u* or **uu* in

the examples cited above, but so does Oykangand u. Statistically *i, *a and *u are most often unchanged, but unexplained changes also occur. There are no consistent sound changes for the vowels except for *a > e under the conditions stated above. Examples of *a > e are:

*tʷaawa	(mouth)	: ew	'mouth, hole'
*tʷaku	(left hand)	: ekómay	'left (side)'
*tʷamal	(foot)	: ebmal	'foot'
*tʷana	(they)	: edn	'they (pl. erg.)'
*tʷaŋkař	(laugh)	: eŋgare-	'laugh'
*yaka-	(cut)	: eka-	'cut'

7.4. PROBLEMS

The basic assumption of historical linguistics is that sound changes are regular, and storable in terms of phonological conditions. That is, a sound change A > B in the environment P__Q takes place for every occurrence of PAQ, without exception.

In the above representations, sound changes take place in apparent violation of this law. To take one case, Kunjen aspirated k and unaspirated g both appear to develop from *k, but no known environmental factor accounts for this differential development. Note the following:

*yuku/uk	: *k/k
*ŋuku/og	: *k/g

Initial *ŋ does not appear to be a factor since *p after initial *y may become b:

*yapa/ebáŋař	: *p/b
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For the nasals, no minimal contrast exists, but the following pair exemplify the differences in development of an intervocalic nasal. The segmental environments are very similar but one appears as a sequence.

*wuna-/udna-	: *n/dn
*wañu/aŋul	: *ñ/ŋ

Sequences of nasal and stop develop in three possible ways:

*ḡuḡku/ungul	:	*ḡk/ḡḡ
*muḡka/uḡk	:	*ḡk/ḡk
*kuḡkaḡ/ugḡgar	:	*ḡk/gḡḡ

The writer abandoned an early hypothesis that involved (1) the nature of the initial consonant (nasal or non-nasal) and (2) the degree of length on the first vowel as explanations of the above due to the large number of exceptions. The writer concludes that the Oykangand forms paired to Proto-Paman reconstructions in the body of this section, are indeed related, but he cannot offer any explanation for the apparently haphazard sound changes.

There are three possible explanations: (1) that the reconstructed forms are inadequate for this data, (2) that dialect borrowing has taken place on a large scale, or (3) that not all conditioning factors have been identified. These possibilities deserve further comment.

The inadequacy of the posited reconstructions for other Cape York Peninsula languages has already been a concern to Professor Hale. In an unpublished manuscript (D) he suggests that either a larger inventory of vowel phonemes, or a third degree of vowel length may be necessary before we can account for certain developments satisfactorily. Another feature--so far ignored in Proto-Paman comparative research--is stress. Contrastive length of vowels has survived in only a few of the daughter languages of Paman, but is reconstructable on that basis. Differential stress placement exists in three-, four-, and five-syllable words in Kunjen. The reconstruction of stress may be necessary from these words before developments evident in the di-syllabic Proto-Paman stems are understood.

Dialect borrowing is here not intended as a rug under which the difficulties raised may be swept. Rather, it is a suggestion as to another possible area of research. The Olgol, Okunjan and Kawarrangg data collected by the writer need considerable expansion before they will be adequate to establish the sound changes from Proto-Paman. Once this is done, it may then be possible to discover the extent and frequency of dialect borrowing and to determine whether this phenomenon adequately explains the inconsistencies noted above.

One possible conditioning factor will be discussed in the following section.

8.0 KUNJEN (OYKANGAND) PHONOLOGY: AN ALTERNATIVE ANALYSIS

8.1 INTRODUCTION

In this section the writer proposes an alternative analysis of the phoneme and syllable. It is presented as an outline of Oykangand, but could equally well be applied to the other dialects. Many more details would be necessary to make it a full descriptive statement.

This alternative involves a 'rephonemicization' (Harris 1951: 90-96), based on two distributional facts: (1) Stop/nasal sequences are always homorganic, and occur either early in the syllable margin, or else as the whole of it. (2) Aspirated stops may never precede a nasal nor may they co-occur with stop/nasal sequences in the same syllable margin. Aspirated stops occupy either the terminal part of the syllable margin, or else the whole of it. These facts are historically important.

By abstracting a feature of tensity¹⁰ from each of the cases above, it is possible to analyse each stop/nasal sequence as a nasal plus tensity, and the aspirated stops as a stop plus tensity. Tensity is limited to one occurrence per syllable and then only in a restricted position (see 8.3 THE SYLLABLE). Thus it is not possible for an aspirated stop to occur in the same syllable with a stop/nasal sequence. Tensity is thus a feature of the syllable which operates on segmental units (nasals and stops) in much the same manner as tone or length may operate.

Oykangand can be represented more economically and in a manner better indicative of historical development by making use of this feature.

8.2 THE PHONEME

The phonemes of Oykangand in this analysis are as follows:

Stops	p	t̚	t	tʰ	k
Fricatives	f		ð		ɣ
Nasals	m	n̥	n	n̄	ŋ
Lateral			l		
Trill			r̄		
Glides	w		r	y	
Vowels	i	e	a	o	u

Five fewer phonemes are required by this approach, the stop series reflecting more closely the four Proto-Paman phonemes.

8.3. THE SYLLABLE

This analysis yields seven syllable types, three more than required in the earlier description. The formulae are as follows with a colon representing tensity:

VC	VCC	VCCC
VC:	VC:C	VCC:C
	VCC:	

8.4. EXEMPLIFICATION

The combinations of nasal plus tensity (representing a homorganic stop/nasal sequence) and stop plus tensity (aspirated stop) are symbolized by upper case letters in the following illustrations.

(eŋ)	eNʰ	'food'
(aʔŋg)	aʔŋk	'child'
(alŋ)	aINʰ	'tooth'
(aʔur)	aʔur	'pelican'
(elkeŋ)	eIKeŋ	'returned'
(elgen)	eIken	'gathers'
(ugŋgan)	uNʰkan	'from the north'
(ulŋŋgul)	ulNʰkul	'fighting stick'
(albmb)	aIMp	'opossum'

Beside the economy of this description, attention is focussed on tensity as the phenomenon to be explained, instead of the problems connected with aspirated: unaspirated stops, and of nasal : stop/nasal sequences. For example the difference between aNʔur *fly (insect)* and aNtur *ear* is a single problem for the comparative linguist to solve. The distribution of tensity within the syllable may be the key to historical problems met in Section 7.

APPENDIX I

(100 item lexical list on which the cognate densities between Paman languages were calculated.)

armpit	egg	heart	nose	sun
ashes	elbow	hit	now	tail
belly	excrement	I (1 sg. nom.)	old man	thigh
big	eye	knee	one	three
bite	fail	later,	person	throat
black	far	soon	rib	throw
blood	fat	laugh	rotten	tongue
bone	finger nail	leaf	see	tooth
breast	fire	leave	short	tree
burn	fly n.	lie down	sit	two
chest	food	liver	skin	up
climb	forehead	long	small	urine
cry	get, fetch	many	smell v.	water
cut	give	meat	smoke	west
die	go	moon	south	what
dog	ground,	mouth	speak	where
down	earth	name	spear	who
ear	hair	near	spit	wind
east	hand	neck, nape	stand	woman
eat	head	north	star	you (sg.)
	hear		stone	

APPENDIX II

These reconstructions of Proto-Paman stems, together with the semantic area covered by the forms in modern Paman languages from which the reconstruction is drawn, are the work of Professor K.L. Hale, and represent part of the extensive historical work he has done in Cape York Peninsula. They are drawn from articles and unpublished manuscripts (see References) and are listed here for reference, with his permission.

*Caatʷi-	<i>burn</i>	*tʷalan	<i>mouth</i>
*Caañtʷa	<i>hurt, pain</i>	*tʷalpar	<i>flame</i>
*Catʷamp	<i>bird sp., emu</i>	*tʷamal	<i>foot</i>
*Cakuʷ	<i>skin</i>	*tʷami	<i>fat</i>
*Cañtʷi-	<i>fall</i>	*tʷampa-	<i>throw, give</i>
*Ciitʷul(a)	<i>west</i>	*tʷana	<i>they pl.</i>
*Ciipuy	<i>smoke</i>	*tʷana-	<i>stand</i>
*Cutʷuma	<i>dead</i>	*tʷaŋkar	<i>laugh</i>
*Cumpi-	<i>cut</i>	*tʷapa	<i>fork of tree</i>
*Cuuŋku	<i>long, far</i>	*tʷaru	<i>foot</i>
*tʷaalpa	<i>wind</i>	*tʷaṛa-	<i>stand</i>
*tʷaara	<i>mouth</i>	*tʷaṛa	<i>thigh</i>
*tʷaawa	<i>mouth</i>	*tʷaṛan	<i>hard</i>
*tʷatʷu-	<i>see</i>	*tʷata	<i>frog, green</i>
*tʷaku	<i>left hand</i>	*tʷata-	<i>go, come</i>
*tʷilli	<i>eye</i>	*kaapa	<i>flood, heavy</i>
*tʷina	<i>foot</i>		<i>rain</i>
*tʷinta-	<i>spear, to-</i>	*kaara	<i>nose</i>
*tʷiñtʷu	<i>near</i>	*kaaway	<i>east</i>
*tʷiipa	<i>liver</i>	*kaaway	<i>star</i>
*tʷiṛi	<i>arm</i>	*katʷa	<i>rotten, dead</i>
*tʷuti	<i>bird</i>	*katʷa-	<i>tie up</i>

*tyuli	woomera	*katyi	far
	spear-	*katyin	yamstick
	thrower	*kakara	moon
*tyulpi	stomach,	*kali-	go
	belly	*kalka	spear
*tyuma	fire	*kalmpar(a)	liver, flesh
*tyuŋku	black	*kalu-	take, carry
*tyunpi	star	*kami	grandparent
*tyu(u)n+V	tail	*kampal	sun
*kaatya	mother	*kampiy	up
*kaala	younger	*kampu(l/r)	stomach
	brother of	*kamu	water
	mother	*kamu	blood
*kaalka-	fall	*kani/kañi	up
*kaalu	ear	*kaŋka	leaf
*kaampa-	cook in	*kañāṛ(a)	reptile; croc-
	bush oven		odile, goanna
*kaaña	yamstick	*kapiṛ	moon
*kari/kara	no, not	*kuuku	speech, lan-
*kaṛi	sun		guage
*kaṛu	later, bye-	*kuuwu	nose
	and-bye	*kuwa	west
*kati-/kata-	come, arrive	*kuwu	nose
*kitya	moon, new-	*kuya/kuyu	fish
*kutyiṛa	two	*maari	eye
*kulan	opossum	*ma-	take, make
*kuli	anger	*mala	hand
*kuluŋkul	heavy	*mala	right hand
*kuman	thigh	*mana	ear
*kumpu	urine, liver	*manu	throat, neck
*kuna	excrement	*mara	hand
*kuni-	hit, cut	*maṛa	limb, wing
*kunka	alive	*maṬa-	climb
*kunta-	hit	*mayi	food, vege-
*kuŋkaṛ	north		table
*kupan	short	*milka	ear
*kuṛityala	eaglehawk	*mini	good
*kuru/kurun	eye	*miña	meat, animal
*kuruñtyi	blind	*miña	what
*kuta(ka)	dog	*miyil	eye

*kuTini	<i>cassowary</i>	*muka	<i>uncle,</i>
*kuutʻi(ma)	<i>two</i>		<i>maternal-</i>
/kutʻi(ma)		*muku	<i>bone, spine</i>
*mukur	<i>uncle,</i>	*ŋami	<i>hear</i>
	<i>maternal-</i>	*ŋampu	<i>tooth</i>
*muliř	<i>tooth</i>	*ŋampul(a)	<i>we (pl. incl.</i>
*mulu	<i>tail</i>	/ŋampa	<i>erg.)</i>
*muŋka	<i>ant hill</i>	*ŋamun	<i>breast</i>
*muŋka-	<i>eat, drink</i>	*ŋana	<i>we (excl. pl.)</i>
*muñtʻa	<i>charcoal</i>	*ŋan-	<i>I (1 sg.)</i>
*mutu	<i>back</i>	*ŋantu-na	<i>where</i>
*muuñtʻi-	<i>swim, to-</i>	*ŋañi-/ñaña-	<i>me (1 sg.</i>
*muuyu	<i>husband</i>		<i>oblq.)</i>
*naka	<i>east</i>	*ŋañtʻi/a(n)	<i>we (excl. pl.</i>
*ŋaamur	<i>armpit</i>		<i>erg.)</i>
*ŋaan(i/a)	<i>what, what</i>	*ŋañtʻar	<i>tongue</i>
	<i>for, who</i>	*ŋapa-	<i>swim</i>
*ŋatʻa-	<i>I (1 sg.</i>	*ŋara	<i>enter</i>
	<i>erg.)</i>	*ŋata	<i>fish</i>
*ŋatʻ(u/i/a)	<i>me (1 sg.</i>	*ŋay(a/i/u)	<i>I (1 sg. erg.)</i>
	<i>oblique)</i>	*ŋiitʻa	<i>put, apply</i>
*ŋatʻi	<i>grandparent</i>	*ŋuku	<i>water</i>
*ŋali	<i>we (pl. incl.</i>	*ŋula	<i>tomorrow</i>
	<i>erg.)</i>	*ŋula	<i>later, soon</i>
*ŋama/ŋamu	<i>mother,</i>	*ŋulu	<i>forehead</i>
	<i>breast</i>	*ŋuŋku	<i>there</i>
*ŋuuyŋku	<i>shade</i>	*nup(a/u)-	<i>you (dual</i>
*nukal	<i>ankle</i>	l(a)	<i>erg.)</i>
*ñā(tʻi)-	<i>see</i>	*ñūpun	<i>one</i>
*ñāmpi	<i>bird sp., emu</i>	*ñūřa/ñiřa	<i>you (pl. erg.)</i>
*ñāpil	<i>tongue</i>	*ñūutʻa-	<i>smell</i>
*ñālina	<i>sit</i>	*ñūuma	<i>smell</i>
*ñāiři	<i>nose</i>	*ñūuŋka-	<i>smell</i>
*ñāinka-	<i>sit</i>	*paatʻa-	<i>taste</i>
*ñ(i/u)nt-	<i>you (sg. erg.)</i>	*paatʻi-	<i>cry</i>
(a/i/u)		*paāŋa-	<i>dig</i>
*ñānu-/ñānu	<i>you (sg.</i>	*paapa	<i>breast,</i>
	<i>oblq.)</i>		<i>mother</i>
*ñ(a/i/u)-	<i>him (3 sg.</i>	*paāři-	<i>cry</i>
ŋu	<i>oblq.)</i>	*paawa-	<i>burn, to-</i>

*ñipi-	<i>one</i>	*paTya	<i>grass</i>
*ñipul	<i>you (non-sg.)</i>	*patYa-	<i>bite, eat</i>
*ñulu/ñilu	<i>he (3 sg. erg.)</i>	*paka-	<i>spear, bite, dig</i>
*ñumpa	<i>spit</i>	*pakay	<i>down</i>
*ñuŋku	<i>you (sg. oblq.)</i>	*pama	<i>person</i>
/ñiŋku		*pampu	<i>egg</i>
*ñunu/ñinu	<i>him (3 sg. oblq.)</i>	*pana	<i>water</i>
*paŋkal	<i>shoulder</i>	*paŋkaĩ	<i>skin, muscle</i>
/paaŋkal		*pulkan	<i>big</i>
*paŋkul	<i>wallaby</i>	*pulpu	<i>white</i>
*pañtʷi-	<i>burn, to-</i>	*puŋa	<i>sun</i>
*papi	<i>grandparent</i>	*puŋku	<i>knee</i>
*pati	<i>cry</i>	*punti	<i>elbow</i>
*patin(a)	<i>skin</i>	*puñtʷa	<i>elbow</i>
*piiku	<i>rib, side</i>	*puñtʷa	<i>arm</i>
*piima	<i>aunt</i>	*puřa-	<i>pull</i>
*pilmur	<i>aunt</i>	*puula	<i>grandparent</i>
*piĩna	<i>aunt</i>	*puuņa	<i>soft</i>
/piĩni		*raaku (r)	<i>ground, earth, place</i>
*piipa/i	<i>father</i>	*riřa	<i>tooth</i>
*piku(mu)	<i>finger nail</i>	*ruŋkařa	<i>cry</i>
*pina	<i>ear</i>	*taama-	<i>spear to-</i>
*pinta	<i>arm, shoulder</i>	*tumu	<i>chest</i>
*pipi	<i>water</i>	*wa-	<i>give</i>
*piri/puri	<i>fire</i>	*waatʷa	<i>bird sp., crow</i>
*piřa	<i>leaf</i>		
*pu(u)ņa	<i>soft</i>	*waatʷi-	<i>sick, hurt</i>
*puka	<i>rotten</i>	*waaņa	<i>liver</i>
*pula	<i>they (dual erg.)</i>	*waaři(mpa)	<i>where</i>
		*waaři(na)	<i>who</i>
*waata	<i>bird sp., crow</i>	*wumu	<i>nose</i>
		*wuna-	<i>lie down</i>
*waata-	<i>say, tell</i>	*wunpa-	<i>put</i>
*waayi	<i>who</i>	/wuņpa-	
*walu	<i>cheek</i>	*wuntu-	<i>look for, seek</i>
*walu	<i>ear, face</i>		
*wampa-	<i>put, give</i>	*wuņi-(řa)	<i>frightened</i>
*wanta-	<i>leave to-</i>	*yaatʷi-	<i>burn</i>

*want(a/i)	<i>fall</i>	*yaka-	<i>cut, to-</i>
*wantu-	<i>where</i>	*ya(na)	<i>go</i>
*waŋal	<i>boomerang</i>	*yaŋan	<i>hair of head</i>
*waŋkar	<i>up</i>	*yapa	<i>older</i>
*waña/i/u	<i>who</i>		<i>sibling</i>
*wañtʸa	<i>where</i>	*yaputʸu	<i>younger</i>
*wañtʸi	<i>sore</i>		<i>brother</i>
*wañtʸu	<i>who</i>	*ylipar	<i>south</i>
*warapa	<i>creek</i>	*yitʸa-	<i>put</i>
*wari-	<i>dig</i>	*yini-	<i>fear, fright-</i>
*wařa	<i>bad</i>		<i>ened, be-</i>
*wiipa	<i>shade</i>	*yinta-	<i>spear, with</i>
*wiiya/wiya	<i>other,</i> <i>another</i>		<i>multi-pronged</i> <i>spear, to-</i>
*wu-	<i>give</i>	*yipañ	<i>south</i>
*wuiā-	<i>die</i>	*yipi	<i>woman</i>
*yiřka-	<i>speak</i>		
*yuku	<i>fire-stick</i>		
*yuŋku	<i>ironwood</i>		
*yupa	<i>later, soon,</i> <i>bye-and-bye</i>		
*yuri	<i>kangaroo</i>		
*yuri	<i>sharp</i>		
*yuřu	<i>elbow</i>		
*yuuka	<i>sand</i>		
*yuyku	<i>mountain</i>		

N O T E S

1. The test list on which the figures of Table I are based is detailed in Appendix I. It was forced upon the writer by gaps in the available data.
2. Since on information supplied by Reverend A. Hall, Koko-Yak shares 84 per cent of the writer's 100 item vocabulary list with the neighbouring Koko-Thayorr.
3. Stress, described later in this section, will only be indicated in a phonemic transcription when it falls on other than the final syllable, or in pertinent examples.
4. Loan words and onomatopoeic nouns sometimes retain an initial consonant. *tařawat'* *trousers*, *tʷalpin* *sharpen*, *kinkin* *flying fox*. In normal speech, conformity to the emic vowel initial pattern is frequently achieved by the addition of an indeterminate central vocoid.
5. Jakobson and Halle (1956:37) maintain that 'Since many languages lack syllables without a pre-vocalic consonant and/or with a post-vocalic consonant, CV (Consonant + Vowel) is the only universal model of the syllable.' If this statement implies that CV is a syllable type common to all languages, it is refuted by the empirical evidence of this language.
6. The other forms are - and and -am:

olwon	<i>mountain</i>	olwónŋand	<i>from the mountain</i>
enkor	<i>shade</i>	enkbóram	<i>from out of the shade</i>
albmálan	<i>mussel sp.</i>	albmálanam	<i>out of the mussel.</i>
7. Jakobson (in a personal communication, cited by Hockett 1963:25) suggests that one 'synchronic generalization about phonological systems' is that a 'language does not contrast unaspirated and aspirated stops unless it has a separate phoneme /h/.' Kunjen is an exception to this generalization.
8. The alternation could just as well be stated as one between *gn* and *dʷñ*, since stop/nasal sequences are always homorganic.

9. Hale has *maTa (*climb*) but a medial cluster is indicated by Okunjan alti- *climb*, and *l appeared to be preferred over *r as the missing phoneme on the basis of the Oykangand restriction of lt sequences.

10. Hale (d) finds the tense/lax distinction of use in describing the consonantal development of other daughter languages of Proto-Paman also.

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