1 PHONOLOGY

The phonemes are listed in Table 1 and are described below. For printing convenience digraphs are used for the alveopalatal stop and nasal.

	bil a bial	alveolar	alveopalatal	velar
stops	b	d	dj	g
nasals	m	n	nj	ŋ
resonants semivowels		l r	у	w
L		vowels	i	u
			e	a
		length	:	

TABLE 1

Phonemes

- /b/ [b] voiced lenis bilabial stop. This allophone always occurs following a nasal, and usually occurs elsewhere.
 - [b] voiced bilabial fricative. Sometimes occurs intervocalically or following /I/.
 - [p/p^h] voiceless bilabial stop, sometimes aspirated. Occasionally occurs word initially or in a stressed syllable.

		[b/p]inaŋ	''ear'' ²	
		mubar	''black''	
		ŋumbinj	''house''	
		wul[b/b]ani	''hid''	
/b/ con	trasts	with /w/.		
		bayni "hit"	wa :nji	"you(obj sg)"
/d/	[d]	alveolar stop. All	examples are	voiced.
		dulgal	''dirty''	
		bandaŋ	''axe''	

/dj/ [d] [d ^y]	voiced alveopalatal a	ffricate identio	cal with English "j". ³ op. Occurs in only two examples,
[u ,]	both preceding $/u$:/.	iveopalatar 30	op: Occurs in only two examples,
	$gi[d^y/d]u:m$ "old	man''	$[d^{y}/d]u:m]$ "fog"
1 dil anni mante	gi[u ³ /g]u.m Olu	man	
/uj/ contrasts	s with $/d/$ and $/y/$.	dongon	"fin compaile"
djangan	"lightning"	uangan	''fingernails'' ''fingers''
ajuŋguŋ	"black snake"	auŋgunj	ingers
djagu:l	"stranger" ⁴	yagu:I	"bandicoot"
	"stand up"	ya:na	"sit down"
/g/ [g]			allophone [b] this allophone always
	occurs following a na		
[g]			mes occurs, particularly following a
Ū	resonant, or precedir	ng /u/. Word :	initially preceding /u/ it was some-
	times perceived as /w	$\sqrt{1}$ or even $/\eta$ in	n Culham's speech, though the three
	phonemes (/g,w,ŋ/) a:		
\mathbf{k}	voiceless velar stop,	occasionally of	occurring word initially.
	[g/k]uru:man ¹ '	'kangaroo''	0
løl contrasts	with $w/and /\eta/$.		
gulani	"scrub tick"	wulaŋ	''leaf''
guinga.	"in the water"	wiina.	"your(sg)"
bugaw	"stink"	buŋaw	"bloodwood"
	an "sun"	yilŋan	"liver"
yai[g/g]		ymjan	nvei
Nasals a	re /m/, /n/, /nj/ (alve	opal atal), and	. /ŋ/. Word finally these sometimes
liave a homo	rganic stop onset, i.e.	the nasal pass	sage is opened just after the tongue
	s up its (or their) posit		о х , о
	wamgi:[nj/dnj]		
mali	"that"	guyu:mgan	"stars"
nana:ŋ	"sister"	djangan	"lightning"
		-in one	

	nana :ŋ	"sister"		djangan	"lightning"	
	njari	''name''		djunjgun	"clouds"	
	ŋali	"we"		djungun	"black snake"	
The	following	illustrate	contrast	between $/n/$ and	/nj/.	
	nana :ŋ ¯	''sister''		njanay	"leech"	
	1 1.	((1 ,))				,

djindi:n "a lot" mibinj "man (Aboriginal)"

/l/ [l] alveolar lateral.

/r/

 $[\tilde{r}]$ alveolar trill, occurs mostly syllable finally.

 $[\check{r}]$ alveolar flap, occurs mostly elsewhere.

[r] retroflexed continuant, often used by Culham in place of the flap or trill.⁶

|l| and |r| can be shown to contrast.

bilaŋ	''oak''	biraŋ	''tattoo''
wulu	''ankle''	muru:	"nose"
walagan	''shoulder''	darigan	''bone''
yili	"where"	yirimbam	''locust''
magil	"water lizard"	g a bir	''hungry''

Semivowels |w| and |y| are as in English and are illustrated by the examples below.

wamgi:1	ij "come"	ya:na	''sit down''
djiwa:	''goanna''	baya:r	"centipede"
bugaw	''štink''	dagay	"white man"
/i/ fin	high front woodd	Occurs hoterson	+ 1

/i/ [i] high front vocoid. Occurs between two alveopalatal consonants (viz. /dj, nj, y/).

[iv] slightly lowered from [i]. Occurs elsewhere.

- /e/ $[\epsilon]$ mid front vocoid. With rare exceptions this vowel only occurs with the length phoneme /:/.⁷
- |a| low central vocoid. Occurs in all environments in free variation with other listed allophones.
 - [aⁱ] usually occurs preceding /nj/.
 - $[a^1]$ may occur preceding |y|.
 - $[\mathbf{x}/\epsilon]$ low to mid front vocoid. Usually occurs following an alveopalatal consonant, also preceding /ya/ and following /ay/.
 - [a/2] low to low-mid back vocoid. May occur following a velar consonant (viz. /g,n,w/).
 - [o] mid back vocoid. May occur preceding /w/.
 - $|\mathbf{u}|$ $[\mathbf{u}^{\mathbf{v}}]$ high-mid back vocoid. Occurs in all environments.
 - [o] mid back vocoid. May occur following /aw/.

Because of the rarity of /e/ without length, contrast of vowels is shown with lengthened vowels also.

girinj	"tired"	bare:nj	"chips"	djurunj	''eel''
mi:ŋbar	"thundering"	-	î	mu:ŋ	"belly"
dire:ŋ	"stormbird"	bira:ŋ	''wide''	5	5
mure:r	"spotted gum"	gura:r	"long"		
gili	"this(close)"	gali	"this"		
mali	"that"	muli	"hill"		
1.1 longth	may occur with y	owole Impro	cionictically it	doubles the	longth of t

/:/ length may occur with vowels. Impressionistically it doubles the length of the syllable nucleus, though sometimes the effect is less marked.

biraŋ	"tattoo"	bira :ŋ	''wide''
guŋ	''water''	mu:ŋ	"belly"
wulu	''ankle''	muru:	''nose''
djali	"tree"	manaldja :li	"Beaudesert"
mibinj	''man''	dji:binj	"stinging tree"
	1 . (.1	1 11 11	.,,``

Alternate analyses of the vowels and length are possible if occurrences of $[\epsilon]$ without length are regarded as allophones of |i| and |a| or are omitted from the data.⁸

Distribution of phonemes

A syllable contains as nucleus a vowel with or without length. Stress occurs on the first syllable of the word, or on the first long syllable if such is present. Syllable patterns are of the form CV(:)(C), and words contain from one to five syllables. No one syllable words of the form CV were obtained, and no uninflected word or root had more than four syllables.

The resonants |l| and |r| do not occur word initially.

Stops do not occur syllable finally.⁹ The phoneme /d/ does not occur intervocalically.¹⁰ The least frequent consonant phonemes are /d/ and /w/.

The combinations |e:| and |a:| occur very commonly in verbs; |e:| is rather rare elsewhere. The occurrences of |e| (without length) are restricted to a few words ending in |le|, and to verbs where a hypothetical |e:| resulting from affixation is realised as a short vowel due to co-occurrence restrictions on long syllables.

yange:n = yana + past tense "went" "go" ya:ngen = ya:na + past tense "sat" "sit"

Frequency counts were made of vowels with and without length. One count was of 487 words in dictionary form, another was of a sample of 376 words in sentences (many of which were inflected for case, tense, etc.). The percentages of occurrences of each vowel with and without length are listed in Table 2. Of all possible CV(:) sequences, only /ne:/, /ne:/ and /wi:/ were not obtained.

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Consonant clusters (CC only) can occur word medially. Combinations are restricted by the distribution of consonants in syllables noted above. Geminate consonant clusters do not occur. Most nasal stop clusters occur, homorganic clusters being far more common than heterorganic. Clusters of different nasals occur. The only clusters with semivowels were /yb/ (fairly common), /ym/, /ly/, and /lw/ (rare). The frequency of clusters of resonant followed by /b/ or /g/ rivalled that of the homorganic nasal stop clusters.¹¹ One example of the cluster /ldj/ occurred, but there were no other clusters of resonant followed by /d/ or /dj/.

	Dictionary	Sentences
No. of words	487	376
No. of sylla bles	1053	95 6
a	42%	44%
u	26	18
i	16	14
a :	6	13
u :	5	5
e:	2	5
i:	3	1

TABLE 2 Frequency of vowel phonemes

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