

SOME PROBLEMS ARISING FROM THE ORTHOGRAPHY OF CONSONANTS ON THE KHMER INSCRIPTIONS

The interpretation of much of the Old Khmer (O.K.) vocabulary has been due to the stability of the Khmer consonants and the conservative character of the orthography. However, there have been some changes, such as *c* > *s* in O.K. *cdiñ* > Mod.K. *stũñ* 'river'. There are also some peculiarities of O.K. spelling with regard to Mod.K. register. It seemed useful, therefore, bearing in mind the need to identify more O.K. vocabulary, to attempt a diachronic study of the consonants. Initial consonants and some of the problems they present are the concern of this paper.

The first step taken was to set out the information available from known vocabulary. In Table 1 the initial consonants of O.K. and Mod.K. are placed side by side. The O.K. consonants in italic type in the Phonology columns are taken from a study carried out by the present writer (Jacob: 1960). The Mod.K. consonants in the Pronunciation columns are given in *phonetic transcription*. They are marked as being of the first or second register by the absence or presence of the accent (`) respectively. By "first" or "second" register consonant is meant one which is followed by a vowel of that series in the Khmer syllabary and in a majority of words. In Table 1 both sets of consonants are accompanied by a transliteration of the written symbol in italic type. The sign - - between two consonants indicates a correspondence supported by at least one pair of words. The order in which the consonants are presented and their description as "primary", "intermediate" or "secondary" is directly related to functions which will be examined in this paper.

Further corroboration of the correspondences indicated in Table 1 and of the natural or expected register is to be found in Tables 2 and 3, where pairs of corresponding words are given for all initial consonants operating as *C* in two word-patterns, *CV(C)* and *CCV(C)*. Slave-names or place-names, about whose meaning there is some doubt, are marked with a query. O.K. vocabulary is cited with its exact spelling; thus examples will be observed with the phoneme *b* spelled *v* and the phoneme *v* spelled *hv*. Mod.K. words are given in phonetic transcription (Jacob: 1968) which, like some of the O.K. spelling, marks aspiration or an anaptyctic vowel when these features occur prosodically between consonants which are operating phonemically. The pattern *CCV(C)* covers the occurrence of reduplicated initial consonants, e.g., O.K. *vave*, Mod.K. *pəpê*: 'goat'

Tables 1-3 suggest that Mod.K. has an extra dental and an extra labial plosive consonant in comparison with O.K. This is a question to which we shall return. Table 3 reminds us that the register of vowels immediately following the aspirate or a liquid or nasal is affected by a preceding

Table 1

KHMER INITIAL CONSONANTS

	O.K. surd Phonology Spelling	Mod.K. 1st Register Spelling Pronunciation	O.K. sonant Phonology Spelling	Mod.K. 2nd Register Spelling Pronunciation
Primary consonants	k -- c -- t -- p -- s --	k c t p s t p ^h	g j d b	k ^h c ^h t ^h p ^h
Intermediate consonants	ʔ a ¹² --	ʔ	r l m	r ^h l ^h m ^h
Secondary consonants	h h --	h	h h̃ n y v	h̃ ^h h̃ ^h n ^h y ^h v ^h

i A diacritic indicates voicelessness ii Vowel base

consonant, a second question to which we shall return.

The functions of initial consonants in both O.K. and Mod.K. are not confined to those illustrated in Tables 2 and 3, however. A further pattern, $C_1C_2V(C)$ was therefore illustrated in Table 4. This time, because of the question of register, the consonants which occur as C in this pattern are shown with separate examples, those in which C_2 is a member of the group: occlusive consonants, sibilant and glottal stop, *i.e.* the primary consonants and one intermediate consonant of Table 1; and those in which C_2 is a member of the group: aspirate, liquid or nasal consonant, *i.e.* the rest of the intermediate consonants and all the secondary consonants of Table 1. It will be observed that the only consonants which do not function as C_1 in this pattern are the secondary consonants of Table 1, except for minor O.K. instances such as *nrok* 'ox (name)' for which the alternative spellings *anrok* and *androk* occur.

Tables 5 and 6 show further initial-consonant patterns common to both states of the language, although correspondences were not found for all cases. With one exception, consonants occurring as C_1 in the pattern $C_1r/1C_2V(C)$ (Table 5) are the primary consonants of Table 1. The exception, O.K. *m*, is illustrated by the title, *mratāñ*, and could be supported by three other forms: the title *mratāñ* (which may be a variant of *mratāñ*) and two words, *mrahañ* and *mrasir*, which are either names or titles or variants of titles. The pattern $C_1NC_2V(C)$ (Table 6) concerns all primary consonants and just two of the intermediate class (*r* and *l*).

A high degree of correspondence has thus already been substantiated by the examples found for Tables 2-6. However, since they are based only on known vocabulary with regular correspondences, these tables ignore any initial sequences which may have irregular correspondences (*i.e.* those not supported by O.K. and Mod.K. spelling) or for which no correspondences have been found. Tables 7-9 were therefore prepared. They contain all noted¹ occurrences of all possible initial-consonant combinations in the patterns just given in Tables 4-6. Where correspondences have been established they have been indicated by the sign --. The examples on which they are based are given at the end of this paper. It should be mentioned that in Tables 7-9, where both O.K. and Mod.K. initial sequences are tabulated for comparison, the representation of aspiration *h* and of the anaptyctic vowel (O.K. *a*, Mod.K. *ɔ*, *ə*) between the consonants has been omitted, for the sake of clarity and simplification. Where O.K. *v* in the spelling of a word has not been established as phoneme *b* or *v* the sequence is entered in parentheses for both possibilities.

Finally, Table 10 was prepared to illustrate the regular development whereby a surd initial consonant in O.K. relates to a first register vowel in Mod.K. and a sonant initial consonant in O.K. relates to a second register vowel in Mod.K., in words with 2- and 3-place initial sequences. Table 2 showed these correspondences for monosyllables with a single initial consonant.

It is proposed now to discuss three questions which arise from the material presented by the tables:

Table 2

All O.K. and Mod.K. consonants shown as C in the pattern CV(C)

O.K.	k	<i>kat</i>	--	Mod.K.	k	<i>kat</i>	'cut'
	c	<i>cau</i>	--		c	<i>cau</i>	'grandchild'
	t	<i>tiñ</i>	--		ṭ	<i>dṽṇ</i>	'know'
	p	<i>pon</i>	--		p	<i>bu:ən</i>	'four'
	s	<i>so</i>	--		s	<i>sɔ:</i>	'white'
					t	<i>tṽṇ</i>	'taut'
					ḷ	<i>pɔ:ṇ</i>	'desire'
	ʔ	<i>oy</i>	--		ʔ	<i>ʔaoy</i>	'give'
	h	<i>hau</i>	--		h	<i>hau</i>	'call, be called'
	g	<i>ge</i>	--		g	<i>kè:</i>	'one, he, she, they, people'
	j	<i>jvan</i>	--		j	<i>cù:n</i>	'offer'
	d	<i>dok</i>	--		d	<i>tù:k</i>	'boat'
	b	<i>vyar</i>	--		b	<i>pì:(r)</i>	'two'
	r	<i>ram</i>	--		r	<i>rðəm</i>	'dance'
	l	<i>leñ</i>	--		l	<i>lè:ṇ</i>	'let, leave'
	m	<i>mok</i>	--		m	<i>mð:k</i>	'come'
	ṇ	<i>ṇiy</i> (name)	--?		ṇ	<i>ṇì:-ṇṽ:</i>	'wagging the head from side to side'
	n	<i>ñū</i> (name)	--?		ñ	<i>ṇù:</i>	'sullen'
	n	<i>nai</i>	--		n	<i>nèy</i>	'of, in connection with'
	y	<i>yeñ</i>	--		y	<i>yṽ:ṇ</i>	'we'
	v	<i>vā</i>	--		v	<i>vì:ə</i>	'slave title/3rd person pronoun (familiar)'

Table 3

All O.K. and Mod.K. consonants shown as C in the pattern CCV(C)

O.K.	k	<i>cke</i>	- -	Mod.K.	k	chkae	'dog'
	c	<i>kci</i>	- -		c	khcɣy	'young, green, new'
	t	<i>stau</i>	- -		ʈ	sdau	'go directly to'
	p	<i>cpār</i>	- -		p	cba:(r)	'garden'
	s	<i>psam</i>	- -		s	phsəm	'unite'
					t	phtɿl	'jar, vessel'
					p	rəpaoy	'fluttering'
ʔ		<i>sa-uy</i> (name)	- -	ʔ	sʔoy		'stinking'
h		<i>phon</i>	- -	h	pho:ŋ		'all, too'
g		<i>sgih</i> (name)	?- -	g	skũh		'sluggish, flabby'
j		<i>kjañ</i> (name)	?- -	j	khcɛəŋ		'answering loudly and rudely'
d		<i>cdiñ</i>	- -	d	stũŋ		'river'
b		<i>tvau</i>	- -	b	thpɿu		'sorghum millet'
r		<i>prak</i>	- -	r	prak		'silver'
l		<i>slā</i>	- -	l	sla:		'areca'
m		<i>jmoh</i>	- -	m	chmũəh		'named, name'
ñ		<i>tñai</i>	- -	ñ	thɳay		'sun, day'
n		<i>kñum</i>	- -	ñ	khɳom		'slave/I (pronoun)'
n		<i>cnañ</i>	- -	n	chnaŋ		'cooking-pot'
y		<i>kyol</i> (name)	- -?	y	khyɿl		'wind n.'
v		<i>tvāy</i>	- -	v	thva:y		'offer to god or king'

Table 4

O.K. and Mod.K. consonants shown as C in the pattern C₁C₂V(C), (i) with an occlusive consonant, s or ' as C₂, (ii) with a liquid, nasal or aspirate as C₂.

O.K.	Mod.K.	k	(i) O.K.	Mod.K.	kda:m	'crab'	(ii) O.K.	(ii) Mod.K.	khmae(r)	'Khmer'
c --	c	c	<i>cke</i>	chkae		'dog'	<i>cnam</i>		chnam	'year'
t --	t	t	<i>thpvañ</i>	tbo:ŋ		'south'	<i>tmo</i>		thmɔ:	'stone'
p --	p	p	<i>pkā</i>	phka:		'flower'	<i>pre</i>		praə	'use, order'
s --	s	s	<i>stac</i>	sdac		'go (royal vocab.)'	<i>smau</i>		smau	'grass'
		t							thnɔ:m	'abstinence'
		p							(tɔ:m)	
									phnaek	'section'
									(paek, baek)	
ʔ	a	a	<i>aji</i>			'ancestor'	<i>ʔnak</i>		nəək	'person'
g --	g	g	<i>gañh</i>			?	<i>glah</i>		khlēŋ	'storehouse'
j --	j	j					<i>gray</i>		crèy	'fig'
d --	d	d					<i>dhem</i>		thnũm	'yoke'
b --	b	b					<i>vnam</i>		phnũm	'hill'
r --	r	r	<i>radeh</i>			'cart'	<i>rhval</i>		rəvũl	'occupied'
l --	l	l	<i>lañc</i> (name)			'good-looking'	<i>lho</i>		lɣɔ:	'sesamum'
	m	m	<i>mcas</i>			'master'			mri:əm	'finger'
n	n	n	<i>nteh</i>			'(name)'	<i>nrok</i>			'(name)'

Note. The Mod.K. spelling of occlusive consonants is entered in column 2 as k, c, t, etc., even though in some cases the aspirated occlusive symbols are used in the spelling in order to represent the prosodic aspiration which occurs in the initial sequence.

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Table 5

O.K. and Mod.K. consonants shown occurring as C in the pattern C₁r/lC₂V(C). Where possible two examples are given for each consonant, one with a liquid, nasal or aspirate as C₂ and one with an occlusive consonant, s or the glottal stop as C₂.

O.K.	k	<i>kalmon</i>	--	Mod.K.	k	krəmu:ən	'wax'
		<i>krapi</i>	--			krəbvy	'buffalo'
c		<i>cralo</i> (name)	--?	c		crələ:	'plump'
		<i>crakān</i> (meaning unknown)				crəkaeŋ	'N. of a kind of fish'
t		<i>tralāc</i>	--	t		trələ:c	'gourd'
		<i>travañ</i>	--	t		trəpēəŋ	'lagoon'
p		<i>prahveñ</i>	--	p		prəvaeŋ	'length'
		<i>pradul</i>	--	p		prətūəl	'opposite'
s		<i>sramol</i> (name)	--?	s		sraməol	'shadow'
		<i>srageh</i> (object listed)				srəkūm	'N. of a tree'
g		<i>graliñ graloñ</i>		g		krəvi:	O.K. 'gracupeia nigrocollis'
							Mod.K. 'brandish'
		<i>gragar</i>	--			krəkô:(r)	'N. of a place'
j		<i>jraluḥh</i>	--	j		crəlūəh	'gully'
d		<i>dranap</i>	--	d		trəñdəp	'supporting layer, saucer, platform'
b		<i>vranen</i> (name)		b		prəh̃v:n	'arrogant'
m		<i>mratān</i> (title)					

Table 6

O.K. and Mod.K. consonants shown occurring as C in the pattern CNC₂V(C). Where possible two examples are given for each consonant, one with a liquid or nasal consonant or the aspirate as C₂, the other with an occlusive consonant, s or the glottal stop as C₂.

O.K. k	<i>kanloñ</i>	--	Mod.K. k	kənlɔːŋ	'gone, past'
	<i>kantāl</i>	--		kəndaːl	'middle'
c	<i>canhor</i>	--	c	cəŋhoː(r)	'stream'
	<i>camkā</i>	--		cəmkaː(r)	'plantation'
t	<i>tamrya</i>	--	t, ʈ	d/təmrvy	'elephant'
	<i>tañtyaṅ</i>	--		d/təndvŋ	'interrogate; ask for hand in marriage'
p	<i>pamre</i>	--	p	b/pəmraə	'serve; servant'
	<i>paṅgaṃ</i>	--		b/pəŋkũm	'greet respect fully with palms together'
s	<i>samrit</i>	--	s	səmrvɛt	'bronze'
	<i>samtəh</i> (name)	--?		səmdəh	'spittle'
			t, ʈ	d/təmnaeŋ	'that which is (< taeŋ) arranged; duties'
			p	b/pəmnɔːŋ	'wish (n.)' (< pɔːŋ)
ʔ	<i>amnoy</i>	--	a	ʔəmnaoy	'gift'
	<i>ampal</i>	--	a	ʔəmbaːl	'all'
g			g	kũmnəp	'salute'
				kũmdaeŋ	'lord'
j	<i>jamnon</i>	--	j	cũmnùːn	'offering'
d	<i>danle</i>	--	d	tũənlèː	'Tonle (Sap)'
	<i>damkop</i>			tũmpɪːə	'chew'
	(meaning unknown)				
b	<i>vamhā</i> (name)	--?	b	pũmŋɪːə	'sweetheart'
r	<i>ramhəp</i> (name)	--?	r	rũmŋəp	'kill'
l	<i>lamnān</i> (name)		l	lũmnvũ	'address'

1. How far can correspondences be established between O.K. and Mod.K. initial consonants?

2. At what stage did the imploded initial consonants *d* and *b* first operate alongside *t* and *p*?

3. How reliable are the correspondences which occur between the O.K. surd/sonant initial consonants and the Mod.K. 1st/2nd register vowels?

1. The extent to which pairs of corresponding words could be found for Tables 2–6 illustrating the initial consonant complexes in the main Khmer word-patterns was highly satisfactory. However, various instances of “irregular” correspondences have been found in words whose meaning has become clear and it was hoped that Tables 7–9, in which all collected O.K. vocabulary whether of known or unknown meaning was represented, would show up some interesting O.K. initial complexes for which there were empty slots in Mod.K. or would support the irregular correspondences about which we know. A further possibility of understanding O.K. vocabulary might thus be opened up.

In fact, Tables 7–9 show very close parallels in occurrences of consonantal sequences, including, as has been mentioned, the non-occurrence as *C* in the pattern *Cr/ICV(C)* (Table 8) of the members of the consonant group called ‘intermediate’ in Table 1, with one O.K. exception, *m*. These tables represent a considerable proportion of direct correspondences, more, probably, than is apparent. For example, O.K. *l̥nk*, for which there is a blank in Mod.K., might be linked with Mod.K. *ɲŋk*, since *r/l*, in all positions except that immediately preceding the vowel, are allomorphic in the speech of many speakers of Mod.K. Tables 7–9 do very little, then, to explain irregularities. There are two interesting phenomena in them, however:

(i) In Table 7, O.K. has a long paradigm of *ʔC*, where Mod.K. has virtually nothing² and Mod.K. has a full list of *mC* where O.K. has none. Many of the O.K. words are names, making the search for Mod.K. correspondence difficult. A hopeful glance across at the Mod.K. *mC* list was no help. Some of the O.K. words are known to have lost the glottal stop. These are: *ame* ‘mother’ *aji* ‘ancestor’, *anau* ‘remain’ *anak* ‘person’, for which the Mod.K. forms are: *mê:*, *ci:*, *n̥yũ*, *n̥æk*, respectively. However, this disposes of very few of the words involved. The pre-glottalised consonants of other dialects discussed by Haudricourt (1950) and Henderson (1965) come to mind; but, if such consonants were involved here, the variety of consonants would be unusually great and the examples of each remarkably few. Moreover, there is some support for the theory that the glottal stop behaved as a phonemic unit here in the fact that it occurs freely as *C* in the pattern *CNCV(C)* (Table 9), a pattern which may be held to presuppose a non-infixed form, *CCV(C)*, *i.e.* in such cases as these, *ʔCV(C)*.³

(ii) In Table 9 O.K. *knm*, *cnm*, *tnm* and *snm* are unparallelled in Mod.K. They remind one of words of known relationship in which O.K. has the dental nasal consonant and Mod.K. has not:

O.K. *kanmeh̃* Mod.K. *kme:ŋ* ‘youth’

All noted occurrences of C in the pattern CCV(C)

Primary consonants

O.K.	Mod.K.	O.K.	Mod.K.	t	O.K.	Mod.K.	O.K.	Mod.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.
	kk	c	ck	ck	tk	tk	p	pk	--	pk	s	sk	sk
			cg	ck	tg					pk		sg	sk
			cn	cn	tn	--				pn		sn	sn
	kc		cc	cc						pc			
	kj							pj		pc		sn	sn
	kn							pn		pn		sd	sd
	kt				td,dd			pt	--	pd		st	st
	kt				tt			pd		pt		st	st
	kt				td			pd		pt		st	st
	kn				tn	--		pn		pn		sn	sn
	kb				tp	--				pb,bb		sb	sb
										pp		sp	sp
(kv)	kp		(cv)	cp	tv	tp						sp	sp
km	km		cm	cm	tm	tm		pm				sm	sm
ky	ky				ty	--		py				sy	sy
kr	kr				tr	--		pr	--	pr		sr	sr
kl	kl				tl	--		pl	--	pl		sl	sl
(kv)	kv		(cv)	cv	tv	--						sv	sv
ks	ks				th			ps	--	ps		ss	ss
kh	kh				th			ph	--	ph			
k'	k'		c'	c'	t'	t'		p'		p'		s'	s'

Table 7 (continued) All noted occurrences of C in the pattern CCV(C)

g										
O.K.	Mod.K.	j	O.K.	Mod.K.	d	O.K.	Mod.K.	b	O.K.	Mod.K.
	kk`								vk	pn`
	kn`								vn`	pn`
gñ	kñ`								vñ`	pn`
gn	kn`	jn		cn`		dn	tn`		vn	pn`
gm	km`	jm		cm`		dm	tm`		vv	pp`
						dy	ty`	(vy)		py`
gr	kr`	jr		cr`		dr	tr`		vr	pr`
gl	kl`	jl		cl`		dl	tl`		vl	pl`
gv	kv`	(jv)		cv`			tv`			ps`
gh	kh`	jh		ch`			th`		bh	ph`
g`										
INTERMEDIATE CONSONANTS										
	m	r	l							
ʔk	mk	rk							lk	
ʔg		rk`				rg	rk`		lk`	
		rñ`					rñ`		lñ	
ʔc	mñ	mñ`					rñ`		lc	
ʔj	mc	mc`					rc`		lj	
ʔñ	mñ	mñ`					rñ		lt	
	md	md`					rd		ld	
		rt					rt			

Table 7 (continued) All noted occurrences of C in the pattern CCV(C)

O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.
ʔd		rd	rt				
ʔn	ʔn	rn	rn	--	rn	lp	lb
ʔp		rp	rb	--			
(ʔv)			rp			(lv)	lp
ʔm		rm	rm	--	rm	lm	lm
(ʔy)		ry	ry			ly	
ʔr							
ʔl							
ʔv (-ʔʔv)	ʔv	rv	rl			lv	ll
ʔs			rv			ls	lv
			rs	--		lh	ls
			rh			lp	lh
			rʔ				lp

SECONDARY CONSONANTS

O.K. Mod.K.

Nasal

Consonants

nn

nt

nn

nr

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

nn

No occurrences

h
y
v

All noted occurrences of \underline{C} in the pattern $\underline{C}r/ICV(C)$:

	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.
k	krk	krk	c	crk	crk	t	crk	trk	p	prg	prk	srk
		krk`			crk`		crk`	trk`			prk`	srk`
					crŋ			trŋ		prŋ		srŋ
	krc	--		crc				trc			prc	src`
		krc`						trc`			prc`	
	krŋn	krŋ									prŋ	
		krd						trd			prd	srd
		krt									prt	srt
										prd	prt`	srt`
	krn	krn			crn			trn			prn	srn
	krp	krb			crb		trp	trb			prb	srb
								trp				srp
		krp`					trv	trp`			prp`	srp`
		krm			crm			trm		prm	prn	srn
		kry						try			pry	sry
	krŋ	--		crŋ	crŋ		trŋ	trŋ			prŋ	srŋ
	krhv	--			crv		trv	trv		prhv	prv	srhv
	krs	--					trs	trs		prs	prs	sr
	krh	--			crh			tr`			prh	sr`
					cr`						pr`	

Table 8 (continued) All noted occurrences of C in the pattern Cr/ICV(C)

O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.
g	grg	j	krk`	d	crŋ`	b	trk` trŋ`	prŋ`	nrŋ								
			krc` krŋ`					trt` trn`	prŋ`	mrt							
		jrn	krm`	d	crn` crn`	v	trt` trn` trm` try`	prn` prn` pry`									
	grl	jrl	krl` krv` krs` krh`	j	crl`	vrl	trv`	prl` prv` prh`									
																	mrs mrh

Table 9
All noted occurrences of C in the pattern CNCV(C)

-- shows a correspondence between O.K. and Mod.K.

O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.	O.K.	Mod.K.
k	kjk	c	cnk, cmk	--	cnk, cmk	t	tnk	tnk	tnk
knc	--	kpc, kmc	(cnc)						
knj, knj	--	knc', kpc'	cnc						
		knj							
knt, kmt	--	knd, kmd							
		knt							
knd, kmd		knt'							
knn		knn							
knp, kmp		knb							
		knp							
		knp'							
knb		kmp							
knn		kmp'							
kny, kny									
knr, knr		knr							
knl, knl		knl, knl							
knv, knv--		knv							

Table 9 (continued) All noted occurrences of C in the pattern CNCV(C)

[illegible]

Table 10
Register of words on the Pattern CCV(C)
Cr/ICV(C) and CNCV(C)

Section 1. O.K. surd primary consonant in initial sequences – Mod.K.
1st register vowel

	O.K.		Mod.K.	
k	<i>khe</i>	--	<i>khæ</i>	'moon'
	<i>krom</i>	--	<i>kraom</i>	'under'
	<i>kalmon</i>	--	<i>krəmu:ən</i>	'wax'
	<i>kmi</i>	--	<i>khmvy</i>	'reclaim, be quick'
	<i>kñum</i>	--	<i>khɲom</i>	'slave/I'
	<i>kanloñ</i>	--	<i>kənlə:ŋ</i>	'gone, past'
	<i>kyol</i> (N.?)	--	<i>khyəl</i>	'wind'
c	<i>chau</i>	--	<i>chau</i>	'raw'
	<i>camren</i>	--	<i>cəmræŋ</i>	'increase'
	<i>cloñ</i>	--	<i>chlə:ŋ</i>	'cross, inaugurate'
	<i>cmā</i> (N.)	--	<i>chma:</i>	'cat'
	<i>cnam</i>	--	<i>chnam</i>	'year'
	<i>cañhvāy</i>	--	<i>cəŋva:y</i>	'skein'
t	<i>thās</i>	--	<i>tha:s</i>	'tray'
	<i>tralāc</i>	--	<i>trəla:c</i>	'gourd'
	<i>tlan</i>	--	<i>thlan</i>	'cobra'
	<i>tmo</i>	--	<i>thmə:</i>	'stone'
	<i>thai</i>	--	<i>thɲay</i>	'sun, day'
	<i>kantāl</i>	--	<i>kənda:l</i>	'middle'
	<i>tvāy</i>	--	<i>thva:y</i>	'offer (to god or king)'
p	<i>phoñ</i>	--	<i>phə:ŋ</i>	'all inclusive'
	<i>paon</i>	--	<i>ph'o:n</i>	'younger sibling'
	<i>rpam</i>	--	<i>rəbam</i>	'dance (n.)'
	<i>phu</i>	--	<i>phlo:v</i>	'road, way'
	<i>pamre</i>	--	<i>bəmræə</i>	'servant'
s	<i>sauy</i> (N.?)	--	<i>s'oy</i>	'stinking'
	<i>sru</i>	--	<i>sro:v</i>	'paddy'
	<i>slā</i>	--	<i>sla:</i>	'areca'
	<i>smau</i>	--	<i>smau</i>	'grass'
	<i>ransi</i>	--	<i>rūəŋsvy, rəsvy</i>	'bamboo'

Section 2. O.K. sonant primary consonant in initial sequence – Mod.K.
2nd register vowel.

	O.K.		Mod.K.	
g	<i>glāñ</i>	--	<i>khlēəŋ</i>	'storehouse'
	<i>gmum</i>	--	<i>khmum</i>	'bee'
	<i>gnā</i>	--	<i>kni:ə</i>	'together'
	<i>gvāl</i>	--	<i>khvi:əl</i>	'herd'

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Table 10 (continued)

Register of words on the Pattern CCV(C) Cr/lCV(C) and CNCV(C)

j	<i>jhe</i>	--	chÿ:	'tree'
	<i>jray</i>	--	crëy	'fig'
	<i>jloy</i>	--	chlÿ:y	'prisoner-of-war'
	<i>jmah</i>	--	chmüəh	'name, named'
	<i>jamnon</i>	--	cùmnù:n	'offering'
d	<i>danhum</i>	--	thùm	'perfume/smell v.'
	<i>danlè:</i>	--	tùənlè:	'Tonle (Sap)'
	<i>dnem</i>	--	thnùm	'pair, yoke, team'
	<i>pandval</i>	--	bontù:l	'respectfully inform'
b	<i>bhai</i>	--	mphèy	'twenty'
	<i>vrai</i>	--	prèy	'forest'
	<i>vanli</i>	--	pùənlèy	'Zingibar Cassumunar'
	<i>vhe</i>	--	phñi:	'flower, floral design'
	<i>vnam</i>	--	phnùm	'hill'
	<i>sbok</i>	--	spò:k	'tray'

Section 3. Examples of two primary consonants occurring together in sequence. The 2nd determines the Mod.K. register.

O.K.		Mod.K.	
<i>kadam</i>	--	khtùm	'hut'
<i>tadih</i>	--	tətùŋ	'width, across'
<i>pdai</i>	--	phtèy	'surface'
<i>tvau</i>	--	thpÿu	'sorghum millet'

Section 4. Examples of two secondary consonants occurring together in sequence, producing Mod.K. 2nd register.

<i>vave</i>	--	pəpè:	'goat'
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Section 5. The intermediate consonants shown with intermediate or secondary consonants. Glottal stop sometimes prevails, producing Mod.K. 1st register; otherwise, the result is 2nd register.

O.K.		Mod.K.	
ʔ <i>amlo</i>	--	mlù:	'betel'
<i>anak</i>	--	nèək	'person'
<i>amnoy</i>	--	ʔəmnaoy	'gift'
<i>rahval</i>	--	rəvùəl	'busy'
<i>ranoc</i>	--	rənò:c	'period of waning moon'
<i>ramah</i>	--	rəmèəŋ	'deer'
l <i>lho</i>	--	lɣò:	'sesamum'

<i>kanmek</i>	kme:k	'parent-in-law'
<i>sanme</i>	smaə	'equal, simultaneous'

The following names make sense if the dental nasal consonant (and its preceding prosodic short vowel) are absent:

O.K. <i>kan-ak</i>	Mod.K. kʔɔ:k	'having a sore throat'
<i>kan-at</i>	kʔat	'small water animal'
<i>kan-ān</i>	kʔa:ŋ	'noisy'

An infix *n* may have been involved here, no longer paralleled in Mod.K. since the infix *n* does not now occur between an initial consonant and *m*. The base words of the infixed forms would, if such is the case, be the direct correspondences for the Mod.K. words just given.⁴

2. We now turn to the question of the modern initial consonants *t* and *p* (1st register) for which there seemed to be no evidence in O.K. It was only in the 19th century that an orthographic distinction was made regularly between *t* and imploded *d*, *p* and imploded *b*. In Middle Khmer (Mid. K.) scribes experimented with diacritics and the use of the Sanskrit cerebral surd symbol, clearly trying to differentiate between these pairs of consonants. I noticed that the Mid. K. words with *t* and *p* initials were ones which I could not remember ever having seen in O.K., e.g., *tae* 'however', *ta:m* 'to follow' (O.K. *toy* - - *daoy*), *to:c* 'small' (O.K. *cmār*), *tɔ:* 'to join', *tak-taen* 'to arrange', *pɔ:ŋ* 'to desire'. Could these be new Mid. K. acquisitions? I went through the O.K. material to see whether any words which gave Mod.K. *t* or *p* could be found. I also went through the Mid K. texts noting all words with initial *t* or *p* and looked for Thai, Vietnamese or Chinese origins for them, but without much success. I pondered the fact that a very high proportion of Mod.K. words with initial *t* and *p* are reduplicative and phonaesthetic and therefore perhaps new. I was left with long lists of O.K. words with *t* and *p* initial consonants which produced Mod.K. *d* and *b* in pre-vocalic position (the only position in which the imploded consonants are heard as such)⁵. All O.K. words with initial *p* gave Mod.K. imploded *b* (1st register). For O.K. *t* there were four exceptions. Sanskrit and Pali words were also considered. Here there were two exceptions for *p* (*pañcā* 'five' and *pakṣa* 'section') which, however, could have acquired in Mod.K. times a different pronunciation as a matter of fashion, imitation of Thai, etc. The crucial exceptions, therefore, are the four non-Indian words with Mod.K. correspondences having initial *t*. These are:

O.K. *ta*, *ata* 'father' - - Mod.K. *ta:* 'grandfather'. This is usually accepted as a correspondence.

O.K. *tic* 'a little' - - Mod.K. *tec*, *id.* One occurrence of O.K. *tic* in a difficult phrase.⁶

O.K. *tañ* 'set up' - - Mod.K. *taŋ*, *id.* One occurrence, *tañ ājñā*, points clearly to this meaning. Other occurrences could just as easily be Mod.K.

də:ŋ ‘handle; way, along’⁷ or the presyllable dəŋ-.

O.K. *teñ/tāñ*. These words are titles and seem, from their apparent relationship with the other titles *mrateñ/mratāñ* and *kamrateñ/kamratāñ*, to be associated with Mod.K. *d* in the Mod.K. form of *kamrateñ*, namely *kūmdaεj*. However, it is difficult to ignore the Mod.K. words *taεj* ‘arrange’ and *ta:ŋ* ‘represent’ when considering the interpretation of some occurrences of *tāñ* and *teñ*.

One must therefore consider whether such a poor representation in O.K. suggests that only one dental and one labial consonant occurred in O.K., written *t* and *p* respectively, the above few examples being unconnected with future *t*. If so, one would expect that, as long as the consonants *g, j, d, b*, (written with sonant symbols) were still voiced, the consonants written with the surd symbols would be voiceless and that, as the voicing of the sonant series decreased, the voicing of future *d* and *b* would begin. The pre-glottalisation of *t* and *p* might have been present in O.K. times. Alternatively, and perhaps more wisely, one would not dismiss so lightly the above evidence for two dental surd consonants in O.K. This more cautious attitude would however involve the supposition that orthographic confusion was tolerated for thirteen centuries, *i.e.* until the 19th century!

3. One feels a general confidence in anticipating the Mod.K. register of a word met in O.K. Table 10 demonstrates that a written primary consonant in Mod.K. dominates any secondary consonant which occur after it and before the vowel nucleus, determining the register of the spoken vowel. Primary consonants which convey first register are derived from O.K. surds, while those which convey second register are derived from O.K. sonants.

This seems to be just what one had hoped for; however, there are some exceptions, *e.g.*, O.K. *tve* Mod.K. *thv̄:* ‘to do’. This O.K. spelling, which should give Mod.K. *thvaə*, is retained even in Mid. K. It seems quite possible that it was intended to distinguish between *dve* (Sanskrit ‘two’) and the Khmer word. However, there are other words like it in which one would expect a sonant in O.K.:

O.K. <i>caruk</i>	Mod.K. <i>cr̥uək</i>	‘pickle’
<i>karap</i>	<i>kr̥ɔ:p</i>	‘cover’
<i>tadiñ</i>	<i>tətũŋ</i>	‘width’

Conversely, there are words which seem to have a sonant where a surd is expected:

O.K. <i>dnał</i> (occurs as well as <i>tnał</i>)	Mod.K. <i>thnəl</i>	‘road, highway’
<i>vnur</i>	<i>phno:(r)</i>	‘hill’

These and similar cases seem to me to show that even in O.K. times the voicing of the occlusive consonants *g, j, d, b* was being lost in the position

of C_1 in the pattern $C_1C_2V(C)$ just as in Mod.K. the voicing of d and b , as in $daə(r)$ 'to walk' and $bo:l$ 'to prophesy' is absent in the infixed forms $thmaə(r)$ 'traveller' and $phno:l$ 'prophecy'. Confusion in the O.K. spelling would be understandable if such a change was taking place. Two words which have the unusual initial consonant sequence $g^ʔ$, seen in Table 7, *gaān* and *gaāy* (names), may thus perhaps be construed as representing $kaān$ and $kaāy$. They would then link with Mod.K. $k'a:ŋ$ 'noisy' and $k'a:y$ 'laughing'.

Finally, we return to the first table, in which the natural register of the Mod.K. written consonants was given—the register, it was stated, with which they occur in a majority of words. One might have expected that the Mod.K. occurrences of nasal and liquid initial consonants with the uncharacteristic register were modern, phonaesthetic, borrowed or, at all events, not paralleled in O.K. However, O.K. produces a few strong candidates for the future first register with liquid or nasal consonant initials:

O.K. <i>nā</i>	Mod.K. $na:$	which, any, some
<i>ley</i>	$laəy$	at all, ever
<i>ra</i>	$ra:$	(exhortative particle)
<i>māy</i>	$mə: ma:y$	widow

Just possibly the first three may be accounted for by the fact that they occur in exclamatory situations. The last is partly explained by its relationship with the Mon literary form *kmāy*, which would suggest first register, and with the Mon spoken form *mai*, both of which have the meaning 'widow'.

Here follow wordlists illustrating the correspondences indicated in Tables, 7, 8 and 9. O.K. forms are given in *italics*, Mod.K. forms in phonetic type.

WORDLIST FOR TABLE 7

O.K. <i>kcī</i> N.	Mod.K. $khevy$	(i) 'green, young'
<i>kñum</i>	$khnom$	(ii) 'borrow'
<i>ktām</i> N.	$kda:m$	'slave; I'
<i>kdiñ</i>	$khtuñ$	'crab'
<i>knet</i>	$khnaet$	' <i>callophyllum</i> '
<i>kmi</i>	$khmyy$	' <i>inophyllum</i> '
<i>kyol</i> N.	$khyol$	'period of waxing moon'
<i>krom</i>	$kraom$	'reclaim; be quick'
<i>klā</i> N.	$khla:$	'wind (n.)'
<i>khæ</i> N.	$khæ$	'below'
<i>cke</i> N.	$chkae$	'tiger'
<i>cnam</i>	$chnam$	'moon, month'
<i>cpār</i>	$chba:(r)$	'dog'
		'year'
		'garden'

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O.K.	<i>cmā</i> N.	Mod.K.	<i>cma:</i>	'cat'
	<i>caāp</i> N.		<i>c'a:p</i>	'smelling of fish'
	<i>jray</i>		<i>crèy</i>	'fig'
	<i>tnal</i>		<i>thnəl</i>	'made road'
	<i>tpvañ</i>		<i>tbo:ŋ</i>	'south'
	<i>tvau</i>		<i>thp̄v̄u</i>	'sorghum millet'
	<i>tmo</i>		<i>thmɔ:</i>	'stone'
	<i>trā</i>		<i>tra:</i>	'control, set a seal'
	<i>tlan</i>		<i>thlan</i>	'python'
	<i>tvāy</i>		<i>thva:y</i>	'offer to god or king'
	<i>thās</i>		<i>tha:s</i>	'tray'
	<i>dmā</i> N.		<i>thmi:ə</i>	'N. of large tree; hard heartwood, leaves edible'
	<i>dron</i>		<i>trūəŋ</i>	'be associated with, hold'
	<i>pkā</i>		<i>phka:</i>	'flower'
	<i>pdau</i> N.		<i>phdau</i>	'rattan'
	<i>prak</i>		<i>prak</i>	'silver'
	<i>ple</i>		<i>phlae</i>	'fruit'
	<i>psam</i>		<i>phsəm</i>	'unite'
	<i>phon</i>		<i>phɔ:ŋ</i>	'all inclusive'
	<i>paon</i>		<i>ph'ɔ:n</i>	'younger sibling'
	<i>vñā</i> N.		<i>phŋi:ə</i>	'sweetheart'
	<i>vñau</i>		<i>phpiəv</i>	'guest'
	<i>avai</i> (?)		<i>vvy</i>	'what'
	<i>radeh</i>		<i>rətəh</i>	'cart'
	<i>ranoc</i>		<i>rənò:c</i>	'period of waning moon'
	<i>rapam</i>		<i>rəbam</i>	'dance (n.)'
	<i>ramañ</i>		<i>rəmēəŋ</i>	'deer;
	<i>rahval</i>		<i>rəvūəl</i>	'concerned, busy with'
	<i>skār</i> N.		<i>ska:(r)</i>	'weasel'
	<i>sgih</i> N.		<i>ʔskūh</i>	'sluggish, flabby'
	<i>snat</i> N.		<i>sn̄at</i>	'quiet'
	<i>snā</i>		<i>sna:</i>	'cross-bow'
	<i>svok</i>		<i>spò:k</i>	'tray'
	<i>smau</i>		<i>smau</i>	'grass'
	<i>lho</i>		<i>l̄hɔ:</i>	'sesamum'
	<i>laddu</i> N. (?)		<i>rətù:</i>	'mumble'

WORDLIST FOR TABLE 8

O.K.	<i>kracok</i> N.	Mod.K.	<i>krəcɔ:k</i>	'toe/finger-nail'
	<i>kralā</i>		<i>krəla:</i>	'court'
	<i>krasop</i> N.		<i>krəsaop</i>	'embracing'
	<i>krahām</i>		<i>krəhɔ:m</i>	'red'
	<i>krahvañ</i> N.		<i>krəvaŋ</i>	'cardamom'
	<i>travañ</i>		<i>trəp̄əŋ</i>	'lagoon'
	<i>tralāc</i>		<i>trəla:c</i>	'gourd'

O.K.	<i>trasok</i>	Mod.K.	<i>trəsək</i>	'cucumber'
	<i>pradul</i>		<i>prətùəl</i>	'opposite'
	<i>praveñ</i>		<i>prəvaen</i>	'length'
	<i>prasap</i>		<i>prəsəp</i>	'bordering; united with, joining'
	<i>srahe</i> N.		<i>srəŋae</i>	'wild rice'
	<i>sramol</i> N.		<i>srəmaol</i>	'shadow'
	<i>sralañ</i> N.		<i>srələŋ</i>	'love'
	<i>jranyañ</i> N.		<i>crəniəŋ</i>	'N. of tree'
	<i>jraluh</i>		<i>crəlüh</i>	'gully'
	<i>dranap</i>		<i>trəndəp</i>	'layer underneath, support' (O.K. 'platform?')

WORDLIST FOR TABLE 9

O.K.	<i>kañcu</i> N.	Mod.K.	<i>kaŋco:</i>	'bad-tempered'
	<i>kañje</i> N.		<i>kəŋcɔ:</i>	'basket (20-litre capacity)'
	<i>kantāl</i>		<i>kənda:l</i>	'middle'
	<i>kamput</i> N.		<i>kəmbot</i>	'amputated, crippled'
	<i>kamvañ</i>		<i>kəmpùəŋ</i>	'water-front'
	<i>kanlañ</i>		<i>kənlə:ŋ</i>	'past, gone, deceased'
	<i>kañval</i> N.		<i>kəŋvəl</i>	'worry'
	<i>kansom</i>		<i>kənsom</i>	'bundle of twigs used to attract fish and so catch them'
	<i>kañheñ</i>		<i>kəmhəeŋ</i>	'menace' (O.K. 'power?')
	<i>cañkā</i> N.		<i>cəŋka:</i>	'chin'
	<i>camren</i>		<i>cəmrəeŋ</i>	'increase'
	<i>camlak</i>		<i>cəmlak</i>	'sculpture'
	<i>canhvāy</i>		<i>cəŋva:y</i>	'skein'
	<i>tañku</i> N.		<i>dəŋko:v</i>	'maggot'
	<i>tañtyañ</i>		<i>dəndvəŋ</i>	'ask'
	<i>tamnam</i>		<i>dəmnəm</i>	'plantation'
	<i>tampal</i>		<i>dəmbəŋ</i>	'area, place'
	<i>tamrya</i>		<i>dəmrəy</i>	'elephant'
	<i>tañhvāy</i>		<i>dəŋva:y</i>	'offering'
	<i>pañgam</i>		<i>bəŋkūm</i>	'greet respectfully with palms placed together'
	<i>pañjā</i>		<i>bəŋci:ə</i>	'cause to be/order'
	<i>pandval</i>		<i>bəntù:l</i>	'order' (royal vocab.)
	<i>pampat</i> ?		<i>bəmbat</i>	'cause to disappear'
	<i>pamre</i>		<i>bəmrəe</i>	'servant'
	<i>panlas</i>		<i>bənləs</i>	'exchange'
	<i>sañku</i>		<i>səŋko:v</i>	'medicine'
	<i>samnvat</i>		<i>so:t +</i>	'request'
			<i>-mn-</i> (not Mod.K.)	
	<i>samrit</i>		<i>səmrət</i>	'bronze'

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O.K. <i>samlo</i>	Mod.K.	səmlɔ:	'stewed meat'
<i>sam-ap</i> N.		səmʔɔp	'hated object'
<i>jamnon</i>		cūmnù:n	'offering'
<i>damnuñ</i>		tūmnɛɲ	'purchases'
<i>danle</i>		tūənlɛ:	'Tonle (Sap)'
<i>vamhā</i>		pūmɲi:ə	'sweetheart'
<i>vanli</i>		pūənlɛy	'zingiber'
<i>aŋvay</i>		ʔəŋkūy	'sit'
<i>aŋtañ</i> N.		ʔəntūəŋ	'eel'
<i>amnoy</i>		ʔəmnaoy	'gift'
<i>ampal</i>		ʔəmba:l	'all'
<i>amvi</i>		ʔəmpi:	'from'
<i>anle</i>		ʔənlɔ:	'place'
<i>añveñ</i>		ʔəŋvaɛŋ	'long'
<i>ransi</i>		rūəŋsvy/	'bamboo'
		rəsvy	

¹ Noted, that is, in my own glossary of the vocabulary of the O.K. inscriptions, which is as yet incomplete.

² n in the table represents the anachronistic spelling of nəək 'person', spelling *anak* and ʔv represents the word 'vy' 'what'. Otherwise in Mod.K. there are only the variant colloquial forms such as ʔəlūət < rəlūət 'extinguished'.

³ I gratefully acknowledge here, however, another hypothesis which may explain O.K. ʔC. At the conference at which this paper was presented, the suggestion was made by Dr. Gregerson, and supported by Professor Shorto, Mr. Janzen and others that the glottal stop, written a, may represent a name prefix like those which are found in other Mon-Khmer languages, with the form a or ā. This would fit in admirably with the fact that most of the O.K. words are names or kinship terms.

⁴ It happens that *gañh*, discussed on p.124, may represent the baseword of kan-āñ, *kañ.

⁵ See p.124 and the examples of Mod.K. t and p spellings in Tables 4-6.

⁶ K. 669, C. CCLXVIII, 1, 21, *ceh so tic nu hās 1*, translated by G. Cœdès, 'jarre blanc avec un peu d'argent'. The reading is clear but the use of *tic* is grammatically unlike Mod.K. uses of *tec*.

⁷ For example, K. 438,15, *tañ kamvañ* (Mod.K. dɔ:ŋ kəmpūəŋ 'along the waterfront'. (?))

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