Linguistics of the Tibeto-Burman Area
Volume 27.1 Spring 2004

Implosive and preglottalized stops in Kiranti

Jean Robert Opgenort
Leiden University

1. Introduction

The Kiranti languages are members of the Tibeto-Burman (or Sino-Tibetan) language family. The ethnolinguistic term 'Kiranti' applies to the Tibeto-Burman peoples native to the hill tracts of eastern Nepal, specifically the Limbu and Rai groups. The Limbu are the easternmost group of Kiranti people. The Limbu language is spoken by roughly 254,000 people living in Nepal (HMG 1995). The ethnonym 'Rai' is used to denote different groups speaking closely related languages, i.e. Āṭhpahariyā, Bahing, Bantawa, Chiling, Chamling, Chintang, Dumi, Dungmali, Hayu, Jero, Khaling, Kohi, Kulung, Lohorung, Mewahang, Nachiring, Puma, Sām, Sampang, Sunwar, Thulung, Wambule, Yakkha and Yamphu. The various Rai languages are spoken by around 439,000 individuals in total (HMG 1995). The Kiranti languages were first investigated by Brian Houghton Hodgson (1857, 1858). Modern comprehensive grammatical analyses and sketches have been written on Thulung (Allen 1975), Khaling (Toba 1979), Hayu (Michailovsky 1981, 1988a), Limbu (van Driem 1987), Dumi (van Driem 1993), Āṭhpahariyā (Ebert 1997a), Chamling (Ebert 1997b), Yamphu (Rutgers 1998), Kulung (Tolsma 1999), Wambule (Opgenort 2002 and forthcoming a) and Jero (Opgenort, forthcoming b).

2. Implosive or preglottalized stops in Western Kiranti

Among the Kiranti languages, the Western languages Bahing, Sunwar and Wambule are characterized by the presence of implosive or preglottalized stops in their modern phoneme inventories. Since implosive or preglottalized stop phonemes are not found in other Kiranti languages and are apparently unrelated to the preglottalized stops reconstructed for Proto-Eastern Kiranti and Proto-Kiranti, the implosive or preglottalized stops in Bahing, Sunwar and Wambule must therefore represent a Western Kiranti innovation.

Indeed, it seems to be necessary to reconstruct a Proto-Western Kiranti preglottalized bilabial phoneme /*ʔb-/ (Michailovsky 1994) or perhaps /*ʔw-/ (my view) at some stage in the phonological development of Western Kiranti because of the correspondences between implosive or preglottalized bilabials in Bahing, Sunwar and Wambule. Michailovsky (1988b, 1994) mentions the presence of an implosive /ɓ-/ or preglottalized /ʔb-/ in Bahing and /ʔb-/ or /ʔw-/ in Sunwar. In Bieri and Schulze (1969, 1970, 1971a, 1971b, 1971c, 1973a, 1973b), this Sunwar sound is generally transcribed as /bw-/ followed by /a/. Michailovsky adds that this phoneme is pronounced as [ʔw] in some Sunwar dialects. The Bahing implosive appears before other vowels as well. Michailovsky (1988b) argues that the initial implosive or preglottalized Proto-Western Kiranti phoneme /*ʔb-/ represents a preglottalized manner-series or, another possibility, developed from labiovelar /*kw-/. He cites several examples in which Bahing /ʔb-/ corresponds to /kw-/ in the Tibeto-Burman languages Chepang, Magar and Kham. These three so-called 'Magaric' languages are closely related to Kiranti (van Driem 2001:773).

Wambule occupies a special place among the small group of Western Kiranti languages that possess implosive stops because Wambule has two implosive stop phonemes instead of just one, i.e. /ɓ/ and /ɗ/ (Toba VS 2052; Opgenort VS 2055, 2002). The voiced bilabial implosive /ɓ/ can be contrasted with the voiced plosive /b/. The voiced post-

alveolar implosive /ɗ/ can be contrasted with the retroflex plosive /ɖ/ and the alveolar plosive /d/. The phonemic status of the Wambule implosive stops is illustrated in the following series of words, which are transcribed in phonologically based orthography:

bwalcam 'buzz' (v.)	*ɓwalcam* 'mix, mix up, blend'
bamme 'they^{P} were, they^{P} sat'	*ɓamme* 'they^{P} ate us^{I}/him/them^{P}'
dakcam 'like'	*ɗakcam* 'chew, masticate'
ɖi 'liver'	*ɗĩ* 'name'

As in Bahing and Sunwar, Wambule implosives are generally found in word-initial position. Pre-consonantal implosives occur before each of the Wambule vowels and before the phonemic sequences /wa/ and /ya/, e.g. *ɓo* 'chicken, fowl', *ɓwalcam* 'mix, mix up, blend', *ɗĩ* 'name' and *ɗwam* 'sun'. However, implosive stops do not occur in clusters with /l, r/ as a second member, whereas bilabial plosives commonly do, e.g. *pli* 'penis' and *blo* 'bow (for shooting arrows)'. Syllable-final implosive stops have not been found.

Wambule supports Michailovsky's (1988b) idea of a labiovelar origin for Western Kiranti implosive or preglottalized stops and proposes a new source, i.e. modified nasal consonants. The systematic correspondences of the modern Wambule implosives and nasals at the Proto-Kiranti-Magaric, Proto-Kiranti, Proto-Western Kiranti and Proto-Wambule level are presented in 1. The Wambule implosive stops /ɓ-/ and /ɗ-/ are historically unrelated to the preglottalized stops /*ʔb-/ and /*ʔd-/, which are reconstructed for Proto-Eastern Kiranti and Proto-Thulung by Michailovsky (1994), and to the preglottalized stops /*ʔp-/ and /*ʔt-/ reconstructed for Proto-Kiranti by Starostin (1994, 2000). Table 2 shows that the Proto-Kiranti preglottalized phonemes correspond to plain stops and affricates in modern Wambule.

PKM	PK	PWK	PWA	WA	Examples
/*kw-/	/*kw-/	/*ʔw-/	/*ʔɓ-/	/ɓ-/	1-6 (7-11)
	/*m-/	/*m-/	/*ʔm-/		12-15
			/*m-/	/m-/	16-18
	/*n-/	/*n-/	/*ʔn-/	/ɗ-/	19-24
			/*n-/	/n-/	25-26

Table 1. *Correspondences of Wambule implosive stops and nasals*

PK^m	PEK^m	PK^s	PWK	WA	Examples
/*p-/	/*ʔɓ-/	/*p-/	/*p-/[1]	/p-/	28
		/*ʔp-/			31-32
/*t-/	/*ʔɗ-/	/*t-/	/*t-/[2]	/t-/	30
		/*ʔt-/			33-34
		/*ʔc-/	/*c-/	/c-/	35-36
		/*ʔk-/	/*k-/	/k-/	37-38

Table 2. *Correspondences of reconstructed preglottalized phonemes*

1 Except in Thulung, which has /ɓ-/.

2 Except in Thulung, which has /ɗ-/.

3. Origins of implosive or preglottalized stops in Western Kiranti

The following series of words with bilabial implosive stops in Wambule and Bahing might be traced back to Proto-Western Kiranti /*ʔb-/ or /*ʔw-/ corresponding to prior labiovelars because the preglottalized Western Kiranti segments correspond to /kw-/ in closely related and more distantly related Tibeto-Burman languages. Especially example (1) argues in favor of the development from Proto-Kiranti-Magaric /*kw-/ to Proto-Kiranti /*kw-/ to Proto-Western Kiranti /*ʔw-/ and Eastern Kiranti /kh-/. The Kham, Chepang and Magar forms in examples (2) to (5) also show traces of the cluster /*kw-/ at the Proto-Kiranti-Magaric level.

1. WA *ɓari* 'bruise, injury, wound'; JE *mari* 'bruise, injury, wound'; BA *ɓar* 'wound'; SU^{S} *gār* 'wound'; HA *buʔma* 'wound', HA^{h} *buma* 'wound'; TH^{m} *par* 'wound'; KH *'kwaar* 'bruise, wound, injury'; DU *kar* 'wound, boil, ulcer, blister'; BN *khenwara* 'wound', BN^{b} *khen* 'scar'; KU *k^{h}er* 'wound'; AT *khesik* 'wound'; LI *ka:mmaʔ* 'be wounded', LI^{m} *khe* 'wound'; PK^{s} **kər*, **ʔkər* 'wound'; KM *'khxtera, 'gxyh* 'wound'; CP *khay* 'wound' (v.).

2. WA *ɓala* 'spirit, presence in mind; shadow, shade'; JE *maʔla* 'spirit, presence in mind'; BA *ɓala* 'shadow', BA^{h} *bála* 'shadow'; TH^{m} *pel* 'shadow'; CP *kwa.laŋʔ* 'shadow', *par.ʔaŋ* 'shadow edge'.

3. WA *ɓallu* 'fishing net'; BA *ɓa:luŋ* 'fish-net'; CP *kwəlh* 'fish trap formed by blocking stream'.

4. WA *ɓacam* 'eat by biting and tearing the food'; JE *macam* 'eat by biting and tearing the food'; BA *ʔba-*, *ʔbat-* 'eat', BA^{h} *báwo* 'eat'

(imperative form); SU *'bwa-*, *bwaw-* 'eat'; TH^{m} *p(e)-*, *pet-* 'eat'; KH^{m} *bət-* 'eat'; KM *kxya-* 'eat (chewy or hard things)'.

5. WA *ɓo* 'chicken, fowl' and the modified bound form *ɓa-* in *ɓaɓaŋge* 'egg' (the second implosive might be analyzed as a reduplication of the initial implosive), *ɓaphlyam* 'wing' and *ɓasrumpha* 'pinion, feather'; JE *mɔkɔm* 'chicken, fowl', *maphlɛm* 'wing', *masrɛmpu* 'pinion, feather'; BA *ɓa* 'chicken', BA^{h} *bá* 'fowl kind'; SU^{m} *bwā*, *bwa:* 'chicken'; HA *xo·co* 'chicken', HA^{h} *khocho*, *khwocho* 'fowl'; TH^{s} *-wa* in *ʒāwwa* 'peacock', TH^{m} *po* 'chicken'; KH *phö* 'chicken'; DU *pawœm* 'chicken'; CH *wa-* in *wasa* 'chicken, bird'; BN *wa* 'chicken', BN^{b} *wā* 'chicken'; KU *wa:* 'chicken'; AT *wa* 'chicken'; YA *wa* 'chicken'; LI *wa?* 'chicken'; PK^{s} **wa* 'bird'; MA^{m} *gwā* 'chicken'; KM *baza* 'chicken'; CP *wa?* 'bird (general), fowl'; PTB **wa = (b)wa* 'bird'.

Note that the Proto-Kiranti cluster /*kw-/ does not always yield a bilabial implosive stop in Wambule and Sunwar. For instance, Sunwar has *gār* in the word for 'wound' in example (1). In addition, the word for 'water', which I propose to reconstruct as Proto-Kiranti **kwa* 'water', has an initial velar plosive /k-/ in Wambule, whereas Bahing and Sunwar have preglottalized /ʔb-/ or /ʔw-/.

6. WA *ka:ku* 'water'; JE *ka:ku* 'water'; BA *ɓɔ:ky* 'water', or *ka:ku* in baby-talk; SU *bwaakku* 'water'; TH^{s} *'wa-* in *'wa-je* 'lowland'; KH *ku* 'water'; DU *kɨ* 'water; source, tap'; BN^{b} *-wā* in *mukwā*, *makwā* 'tears', literally 'eye-water' (Cf. *muk*, *mak* 'eye'); KU *kawa* 'water'; AT *-wa* in *cuwa*, *cwa* 'water'; LI *wa* in *wabak* 'pond' and *wage:k* 'the monsoon, the wet season'; PK^{s} **wa* 'water, river'; PTB **klu·ŋ* 'river'. Reflexes of the PTB root **ti(y)* 'water' are found in HA *ti* 'water' and CP *ti?* 'water', and perhaps also in KM *'ri:h* 'water'.

The Wambule bilabial implosive phoneme /ɓ/ in examples (7) to (11) corresponds to various bilabial phonemes in other Kiranti languages. The implosive might also be traced back to Proto-Western Kiranti /*ʔw-/. I have not found direct evidence for the development from Proto-Kiranti-Magaric /*kw-/, except in example (7) perhaps. The Chepang verb *war-, warh-* 'throw (net)' might show the same development from Proto-Kiranti-Magaric /*kw-/ to Chepang /w-/ as *waʔ* 'bird (general), fowl' in example (5) above.

7. WA *ɓarcam* 'throw out'; BA *ward-* 'throw'; SU *bwar-* 'sow' (v.), SU^{m} ^{H}*ʔward-*, ^{H}*ward-*, ^{L}*ʔwar-* 'throw'; TH^{S} *par-* 'throw, discard'; KH *'waan-nä* 'throw'; DU *wərnɨ* 'toss overhand, throw out, toss out, throw away'; KU *bu:ma* 'pour out, overthrow, sow'; LI *phɛ:ma* 'let fly, release'; PK^{S} **bär, *bhär, *ʔpär* 'sow' (v.); CP *war-, warh-* 'throw (net)'.

8. WA *ɓambu* 'cheek'; JE *mambu* 'cheek'; TH^{S} *phosü, phosip* 'cheek'; KH *phosu* 'cheek'; DU *busu* 'cheek'; KU *pʰousi* 'cheek'; PK^{S} **phòsu* 'cheek'.

9. WA *ɓwalcam* 'mix, mix up' (v.); TH *phol-* 'stir'; KH *phwaal-nä* 'mix'; CH *hol-* 'mix'; KU *pʰelma* 'stir'; YA *phu:ma* 'stir'; LI *phupmaʔ* 'mix, blend'; PK^{S} **phòl* 'mix'; KM *bxre:-* 'mix'.

10. WA *ɓapcam* 'scratch' (v.); SU^{S} *bam-si-ca* 'scratch'; TH^{S} *phrap-* 'scratch', *bram-* 'grab, scratch'; KH *präm-nä* 'scratch'; BN^{b} *pāmma* 'scratch with the nails'; KU *pamma* 'scratch with the nails'; AT *papt-, wamd-* 'scratch'; PK^{S} **pʰrăp* 'scratch'; KM *'bxram-* 'scratch (as a thorn)'; PTB **pruk* 'scratch'.

11. WA *ɓasyam* 'shoulder'; JE *masɛm* 'shoulder'; SU^{S} *balā* 'shoulder'; TH^{S} *'balam* 'shoulder blade'; KH *'bhaataa* 'shoulder'; DU *bokto* 'shoulder'; KU *bouto* 'shoulder, shoulder blades'; AT *phaktaŋ* 'shoulder'; LI *phoːktaŋ* 'shoulder'; PK^{S} **bhák, *ʔpák* 'shoulder'; KM *'pon* 'shoulder'; CP *bal.(na)* 'shoulder and upper arm'.

Note that Proto-Western Kiranti /*ʔw-/ corresponds to Jero /m-/, e.g. *mari* 'bruise, injury, wound' in (1), *maʔla* 'spirit, presence in mind' in (2), *macam* 'eat by biting and tearing the food' in (4), *mɔkɔm* 'chicken, fowl', *maphlɛm* 'wing' and *masrɛmpu* 'pinion, feather' in (5), *mambu* 'cheek' in (8) and *masɛm* 'shoulder' in (11). The presence of nasals instead of implosive stops in Jero constitutes the most important phonological difference between Jero and Wambule, which are very closely related from a grammatical and lexical point of view.

4. Wambule innovations

In the following series of words, there is a systematic correspondence between Wambule /ɓ-/ and the bilabial nasal /m-/ in related Kiranti languages. Verbal morphology and internal reconstruction, a topic which will be dealt with below, argues in favor of the view that in this series of words, the implosive stop developed from the Proto-Wambule cluster /*ʔm-/.

12. WA *ɓico* 'wife, better half'; BA^{h} *ming* 'wife'; SU *'miish* 'wife'; HA *mixtso* 'woman', HA^{h} *-mi* in *romi* 'wife'; TH^{S} *mo-cü* 'woman', *mēsem* 'woman, female'; KH *mey* 'wife' (archaic), *mesbä* 'wife', *melsem* 'woman'; DU *meːʔe* 'wife'; KU *-ma* in *toːma* 'wife'; AT *me(n)-* in *me(n)chema, menjema* 'woman, female'; YA *meʔnamiʔ* 'woman'; LI *meːʔl* 'wife'; PK^{S} **mè, *mèn* 'woman, wife'; KM *men, 'ma* 'woman'; CP *momʔ.coʔ* 'woman'; PTB **mow* 'woman'.

13. WA *ɓimcam* 'remember', *ɓimta* 'memory, remembrance'; JE *mimti* 'memory, remembrance', *mimcap* 'to remember, think'; SU^{S} *mim-ca* 'remember'; TH^{S} *mim-* 'remember'; KH *mam-nä* 'remember'; DU *minnɨ* 'memory, remembrance'; KU *p^{h}um* 'memory, recollection, remembrance' (initial unexplained); YA *mimma* 'be occupied by thoughts or feelings'; PK^{S} **mìm* 'remember'.

14. WA *ɓisi* 'eye'; JE *misi* 'eye'; BA^{h} *míchi* 'eye'; SU^{S} *mīkci* 'eye'; HA *mak* 'eye', HA^{h} *mék'* 'eye' (with abrupt tone); TH^{S} *miksi* 'eye'; KH *mas* 'eye'; DU *miksi* 'eye'; CH *micu* 'eye'; BN^{b} *muk, mak* 'eye'; KU *muksi* 'eye'; AT *mik* 'eye'; YA *mik* 'eye'; LI *mik* 'eye'; PK^{S} **mìk, *mìk-cɟə̀* 'eye'; KM *'mi* 'eye'; CP *mik* 'eye'; PTB **mik ~ myak* 'eye'.

15. WA *ɓulum* 'tail'; JE *mɛʔlum ~ muʔlum* 'tail'; SU^{S} *'mīlu* 'tail'; HA^{h} *mun* 'tail'; TH^{S} *'mer* 'tail'; KH *mer* 'tail'; DU *miri* 'tail'; KU *meri* 'tail'; AT *mela(k)* 'tail'; YA *mira* 'tail'; LI *mi* 'tail'; PK^{S} **mé* 'tail'; KM *'mehn* 'tail'; CP *meʔ* 'tail'; PTB **r-may* 'tail'.

Compare these implosive-initial Wambule words with the following forms, which have initial /m-/ in Wambule and in closely and more distantly related languages:

16. WA *mama, mam* 'mother'; JE *mama* 'mother'; BA^{h} *mo* 'mother'; HA *umu* 'mother', HA^{h} *úmu* 'mother'; TH^{S} *mam* 'mother'; KH *'mäm* 'mother'; DU *mama* 'mother'; CH *ma* 'mother'; BN^{b} *māmā* 'mother'; KU *ma* 'mother'; AT *ma* 'mother'; YA *ma:ma* 'mother, mum'; LI *ma* 'mother'; PK^{S} **mā́, *mā́m* 'mother'; KM *'ama* 'mother'; CP *ma* 'mother' (unpossessed form); PTB **ma* 'mother'.

17. WA *mi* 'fire'; JE *mi* 'fire'; BA^{h} *mi* 'fire'; SU^{s} *mɪ̄* 'fire'; HA *me* 'fire', HA^{h} *mé* 'fire'; TH^{s} *mu* 'fire'; KH *mi* 'fire'; DU *mi* 'fire'; CH *mi-* in *mi-dhimi* 'ashes'; KU *mi* 'fire'; AT *mi* 'fire'; YA *mi* 'fire'; LI *mi* 'fire'; PK^{s} **mɪ̀* 'fire'; KM *'me:h* 'fire'; CP *mhe, hme?* 'fire'; PTB **mey* 'fire'.

18. WA *muyo* 'person'; JE *mucu* 'person'; BA^{h} *múri* 'mankind'; SU *muru, mur* 'person'; DU *mi:n* 'man, mankind'; CH *mi* 'person'; KU *misi* 'human being, person'; AT *-mi* in *yapmi* 'person, man'; YA *-mi* in *yami* 'body hair, moustache'; PK^{s} **mùr* 'person'; KM *'mi:* 'person'; CP *man.ta* 'person' (which is perhaps an Indo-Aryan loan).

The words given above suggest that a Proto-Wambule cluster /*ʔm-/ has split from Proto-Kiranti /*m-/ without obvious conditioning factors. Alternatively stated, one could suggest that Wambule gives evidence for the existence of the phoneme /*ʔm-/ (and perhaps also /*ʔn-/, as is demonstrated below) at the Proto-Western Kiranti or Proto-Kiranti level, which has assimilated to a plain nasal counterpart in all the Kiranti languages except Wambule. This viewpoint is in line with the more general observation that Western Kiranti is more conservative than Eastern Kiranti, but is in conflict with the idea developed above that implosives are best analyzed as a Western Kiranti innovation.

In the following series of words, Wambule initial post-alveolar /ɗ-/ systematically corresponds to the alveolar nasal /n-/ in closely and more distantly related languages. Verbal morphology suggests that the post-alveolar implosive /ɗ-/ generally developed from the Proto-Wambule cluster /*ʔn-/.

19. WA *ɗɪ̄* 'name' (n.); JE *ni* 'name'; BA^{h} *ning* 'name'; SU^{s} *ne* 'name'; HA *miŋ* 'name', HA^{h} *ming* 'name'; TH^{s} *nəŋ* 'name'; KH *nang* 'name'; DU *nɨ* 'name'; CH *nung* 'name'; KU *niŋ* 'name'; AT *niŋ* 'name'; YA *niŋ* 'name'; LI *miŋ* 'name'; PK^{s} **mìŋ, *nìŋ*

'name'; KM *'min* 'name'; CP *məyn*, *meŋ* 'name'; PTB **r-miŋ* 'name'.

20. WA *ɗ̀wa* 'knowledge, wisdom'; JE *niwa* 'knowledge, wisdom'; HA^{h} *thum* 'mind' (apparently a different etymon); KH *'nu* 'mind'; DU *nɨ* 'mind' (n.); KU *niwa* 'mind' (n.); YA *niŋa* 'mind, heart, faculty of thinking and feeling'; LI *niŋwa* 'mind, memory, remembrance; desire, satisfaction, intent'; PK^{s} **niŋ* 'mind' (n.); PTB **s-niŋ* 'mind' (n.).

21. WA *ɗ̀ucam* 'be well, be healthy, be good'; JE *nucam* 'be well, be healthy, be good'; BA^{h} *nyú-ba* 'good'; HA^{h} *noh'ka* 'good'; TH^{s} *nü-* 'be well, be right, be permissible'; KH *nü* 'all right'; DU *nɨnɨ* 'be good, be alright, be fine'; CH *nu-*, *nyo-* 'be good'; BN^{b} *nunnumā*, *nannumā* 'be content, be good, like'; KU *nəma* 'be good, get better'; AT *nu-* 'well (be, become)'; YA *numa* 'be good to'; LI *numaʔ* 'be alright, be well, be suitable'; PK^{s} **nù* 'good'; PTB **lyak-s* 'good' (Bodish).

22. WA *ɗ̀usum* 'nose' (n.); JE *nusum* 'nose'; SU^{s} *nẽ* 'nose'; HA *tsoʔno* 'nose', HA^{h} *cho'no* 'nose'; TH^{s} *nö* 'nose'; KH *nö* 'nose'; DU *nu* 'nose'; CH *nabro* 'nose'; BN^{b} *nābuk* 'nose'; KU *nap* 'nose'; AT *na*, *nabhuk*, *nabuk* 'nose'; YA *naʔu* 'nose'; LI *nɛbho:* 'nose'; PK^{s} **nə̀* 'nose'; KM *'sxni:* 'nose'; CP *neh* 'nose'; PTB **s-na ~ s-na·r* 'nose'.

23. WA *ɗ̀wam* 'sun'; JE *nɔm* 'sun'; BA^{h} *nám* 'sun, sunshine'; SU *naan* 'sun'; HA^{h} *nomo*, *numa* 'sun'; TH^{s} *'nem* 'day', *nepsuŋ* 'sun'; KH *nwaam* 'sun'; DU *na:m* 'daylight, sun, sunshine'; CH *nam* 'sun'; BN^{b} *nām* 'sun'; KU *nam* 'sky, sun, weather'; AT *nam* 'sun'; YA *nam* 'sun, sunshine'; LI *nam*, *na:m* 'sun, sunshine';

PK^{S} **nəm* 'sun, day'; KM *'nimi* 'sun'; CP *nyam* 'sun'; PTK **nam* 'sun'.

24. WA *ɗwabu* 'ear'; JE *nɔbu* 'ear'; BA^{h} *-nyéú* in *sámá-nyéú* 'ear'; SU^{S} *'nophā*; HA *noktshuŋ* 'ear', HA^{h} *nók'-chun'g* 'ear'; TH^{S} *nokphla, nəphla, nophla* 'ear'; KH *ngeco* 'ear'; DU *ŋitso* 'ear'; BN^{b} *nābāk* 'ear'; KU *nobo* 'ear'; AT *nubhek, nubek* 'ear'; YA *næʔæk* 'ear'; LI *nɛghoʔ, nɛkhɔʔ* 'ear'; PK^{S} **ńə* 'ear'; KM *na:* 'ear'; CP *no* 'ear'; PTB **g-na = r-na ~ g-na* 'ear'.

Note the presence of the prefixes *r-, *s- and *g- in the Proto-Tibeto-Burman etyma given here. The initial glottal stop in Proto-Wambule /*ʔn-/ might eventually be traced back to these prefixes, but this suggestion can only be made equivocally. Since no other conditioning factors can be given, it is still unclear why the Proto-Wambule cluster /*ʔn-/ has split from Proto-Kiranti /*n-/. The following words have initial /n-/ in Wambule and in related languages:

25. WA *nakso* 'family priest'; JE *nakso* 'family priest'; TH^{S} *nokcho* 'ritual officiant'; BN^{b} *nākchoṅa* 'priest, shaman'; KH *'nokco* 'priest, shaman'; DU *naksœ* in *naksœ-kɨbɨ* 'kind of shaman'; KU *nɔkcʰɔ* 'priest'; PK^{S} **näkcok* 'priest'.

26. WA *nyam* 'brain'; JE *nɛm* 'brain'; SU^{S} *'nipsi* 'brain'; TH^{S} *nepci, nöpci* 'brain'; KH *nes* 'brain'; AT *nakwajik, naʔwajik* 'brain'; YA *-nasi* in *taŋnasi* 'brains'; LI *nɛsik* 'brain, brains, marrow'; PK^{S} **nep, *nepsə* 'brain'; PTB **s-niŋ* 'heart, mind, brain'.

In the following example, the phoneme /ɗ/ anomalously corresponds to an alveolar plosive /t/ or /d/ in related languages.

27. WA *ɗaŋma* 'self'; JE *daŋma* 'self'; TH^{S} *tap* 'self'; KH *taam* 'own'; YA *taŋba* 'self'; PK^{S} **tàŋ(-ba)* 'self'; PTB **tay, *ŋay* 'self'.

In addition to comparative evidence, verbal morphology and internal reconstruction show that the Wambule implosive phonemes can be partially traced back to clusters of stops and nasals. That is to say, suffixes with an initial bilabial nasal <m-> in their basic form, such as the person and number agreement marker <-mi> (3/ns), which marks that minimally one of the actants involved in the verbal scenario is a third person and that minimally one actant, but not necessarily the same actant, is non-singular, have morphophonologically conditioned allomorphs with initial /ɓ-/ ~ /b-/ after verb stems that end in final or post-final <-t>, such as <japt-> 'buy'. By contrast, these suffixes have allomorphs with initial /m-/ in other morphophonological environments, such as after the bound root <-di- ~ -du-> 'go' and the verb stem <si-> 'die', which end in a vowel, and after the verb stem <dum-> 'become', which ends in a consonant other than final or post-final <-t>. Similarly, person and number agreement suffixes with an initial alveolar nasal <n-> in their basic form, such as the second person singular suffix <-nu> (2s), have allomorphs with initial /ɗ-/ ~ /d-/ (after consonants) ~ /ɖ-/ (after vowels) after verb stems that end in final or post-final <-t>, whereas allomorphs with initial /n-/ are used in the remaining environments. The plosive-initial person and number agreement allomorphs /-bi/ (3/ns) and /-du/ ~ /-ɖu/ (2s) are regularly used, whereas the implosive-initial free variants /-ɓi/ (3/ns) and /-ɗu/ (2s) can be heard in more carefully enunciated speech. The alternation between the various phonological forms of the Wambule person and number agreement suffixes with initial <m-> and <n-> in their basic forms is illustrated in the following finite verbs, which also take the post-agreement suffix <-me> (RES) of the affirmative.

<japt-mi-me> → /ja-bi-me/ ~ /ja-ɓi-me/ 'they^{p} buy it'
(buy-3/ns-RES)

<japt-di-mi-me> → /jaP-di-m-me/ 'they^{p} go and buy it'
(buy-go-3/ns-RES)

<si-mi-me> → /si-m-me/ 'they^{p} die'
(die-3/ns-RES)

<dum-mi-me> → /du-mi-me/ 'they^{p} become'
(become-3/ns-RES)

<japt-nu-me> → /jaP-du-me/ ~ /jaP-ɗu-me/ 'you^{s} buy it'
(buy-2s-RES)

<japt-du-nu-me> → /jaP-du-nu-me/ 'you^{s} go and buy it'
(buy-go-2s-RES)

<si-nu-me> → /si-nu-me/ 'you^{p} die'
(die-2s-RES)

<dum-nu-me> → /dum-nu-me/ 'you^{p} become'
(become-2s-RES)

These verb forms illustrate that the Wambule morphophonemes <m-> and <n-> are phonologically realized as /ɓ-/ ~ /b-/ or /ɗ-/ ~ /d-/ ~ /ɖ-/ under influence of the preceding morphophoneme <-t> of the verb stem. The existence of implosive-initial allomorphs of nasal-initial suffixes supports the idea that the implosive stops found in the modern Wambule words in examples (12) to (15) and (19) to (24) may be synchronically analyzed as clusters of stops and nasal consonants, viz. the complex initials /*ʔm-/ and /*ʔn-/.

5. Glottalization in Proto-Kiranti

It can be argued that the implosive or preglottalized stops in Western Kiranti are historically unrelated to the preglottalized stops which are reconstructed for Proto-Eastern Kiranti and Proto-Thulung by Michailovsky (1994), and to the preglottalized stops reconstructed for Proto-Kiranti by Starostin (1994, 2000). The absence of a historical link between the implosive or preglottalized stops in Bahing and Sunwar and reconstructed preglottalized stops in Proto-Eastern Kiranti and Proto-Thulung was first claimed by Michailovsky (1994:770), who observes that '... Bahing-Sunwar ?b- is an example of a second source of preglottalization, that is, development from complex initials, here labiovelars.'

The regular correspondences between Kiranti initial obstruents given in Table 3 are adapted from Michailovsky (1994). Michailovsky argues that the Kiranti languages have undergone complex phonological changes for the voiceless series of Proto-Kiranti obstruents depending on the place of articulation. The reconstructed Proto-Kiranti opposition between voiced and unvoiced initial obstruents is preserved in all Western languages except Thulung, in which the reflexes of Proto-Kiranti /*p-/ and /*t-/ are voiced. In the Eastern languages Kulung, Chamling and Bantawa, the opposition is the reverse for the bilabial and alveolar obstruents /*p-/ and /*t-/, the reflexes of which are voiced, whereas the reflexes of affricate and velar obstruents /*c-/ and /*k-/ are aspirated. Among the Eastern languages, Limbu is divergent because the Proto-Kiranti opposition of voice is completely lost.

	WESTERN						EASTERN			
PK^{m}	HA	BA	SU	DU	KH	TH	KU	CH	BN	LI
*p-	p-	p-	p-	p-	p-	b-	b-	b-	b-	ph-
*ph-	ph-	ph-	ph-	ph-	ph-	ph-	ph-	ph-	ph-	ph-
*b-	b-	b-	b-	b-	b-	b-	p-	p-	p-	p-
*t-	t-	t-	t-	t-	t-	ɖ-	d-	d-	d-	th-
*th-	th-	th-	th-	th-	th-	th-	th-	th-	th-	th-
*d-	d-	d-	d-	d-	d-	d-	t-	t-	t-	t-
*c-	c-, ts-	ts-	ky-, c-/ts-	ts-	c-	c-	ch-	ch-	tsh-	s-
*ch-	ch-	s-	s-	ts-	ch-	ch-	ch-	ch-	tsh-	s-
*ɟ-	dz-	dz-	gy-, ɟ-/dz-	dz-	ɟ-	ɟ-	c-	c-	ts-	ts-
*k-	k-	k-	k-	k-	k-	k-	kh-	kh-	kh-	kh-
*kh-	kh-	kh-	kh-	kh-	kh-	kh-	kh-	kh-	kh-	kh-
*g-	g-	g-	g-	g-	g-	g-	k-	k-	k-	k-
*kw-	-	ʔb-	ʔw-	-	-	p-	-	-	-	-

Table 3. Kiranti initial obstruent correspondences (adapted from Michailovsky 1994)

In order to account for the fact that the bilabial and alveolar voiceless obstruents /*p-/ and /*t-/ are voiced /b-/ and /ɖ-/ in Thulung (and not voiceless like /*c-/ and /*k-/), and that /*p-/ and /*t-/ are voiced /b-/ and /d-/ in Kulung, Chamling and Bantawa (and not aspirated like /*c-/ and /*k-/), Michailovsky (1994) proposes that in these four languages, initial /*p-/ and /*t-/ were preglottalized in a first sound change, which did not take place in the Western Kiranti languages and in Limbu, the latter of which must have split off from the other Eastern Kiranti languages by that time. Later, a second sound change occurred in parallel in Limbu and in the neighbouring Eastern languages. In Kulung, Chamling and Bantawa, the non-glottalized voiceless initials /*c-/ and /*k-/ were aspirated and merged with /*ch-/ and /*kh-/, whereas the voiced series /*b-/, /*d-/, /*ɟ-/ and /*g-/ were devoiced. In Limbu, all plain voiceless initials were aspirated and merged with /*ph-/, /*th-/, /*ch-/ and /*kh-/, whereas the voiced series /*b-/, /*d-/, /*ɟ-/ and /*g-/ were devoiced. Later, a third sound change occurred in the languages

with preglottalized /*b-/ and /*d-/, which converted into plain voiced /*b-/, /*d-/ or /*ɖ-/.

Michailovsky's analysis is quite intriguing, but fails to account for the fact that a number of etyma can be fruitfully reconstructed with initial /*p-/ and /*t-/, which have also /p-/ and /t-/ as regular correspondences in both Western and Eastern Kiranti languages. Here are some examples:

28. WA *papa, pap, po* 'father'; JE *papa* 'father'; BA^{h} *po* 'father'; HA *-po* in *uxpo* 'father', HA^{h} *úpú* 'father'; TH^{s} *pap* 'father'; KH *'päp* 'father'; DU *papa, pu* 'father'; CH suffix *-pa* 'father'; BN^{b} *pāpā* 'father'; KU *pa* 'father'; AT *pa* 'father'; YA *pa:ba* 'father'; LI *pa* 'father'; PK^{s} **pǎ, *pǎp* 'father'; KM *babu* 'father', which might be a loan from Nepali; CP *?a.pa, ba.pa* 'father'; PTB **pa = pwa* 'father'.

29. TH^{s} *per-* 'compress, press between two points'; KH *per-nä* 'to pick up with tongs'; DU *pyernɨ* 'pinch with tweezers'; KU *pirma* 'press, squeeze'; PK^{s} **pèr* 'compress'; PTB **pe·r* 'flat, thin'.

30. WA *tikcam* 'support, give assistance'; TH^{s} *tək-* 'support (as cooking pot while stirring), regale (guests with alcohol) etc.'; KH *'tu-nä* 'support' (see also 33 below); YA *to:kma* 'give support, place something as means of support'; AT *tokma* 'rest'; LI *tɔkma?* 'hold up, support, keep up straight; last someone (of a supply)'; PK^{s} **tǎk* 'support'.

Words which can be reconstructed with initial /*p-/ and /*t-/ in Proto-Kiranti and which have /p-/ and /t-/ as regular correspondences in the modern languages suggest that Michailovsky's (1994) sound change of preglottalization did not actually occur in Thulung and Eastern Kiranti.

The regular correlations of initial obstruents across Kiranti presented in Kiranti initial obstruent correspondences (adapted from Starostin 2000) is adapted from the system of correspondences which Sergei Starostin presented in March 2000 at Leiden University.

PK[S]	SU	TH	KH	DU	KU	YA	LI
*p-	p-	p-	p-	p-	p-	p-	p-
*ʔp-	p-	b-	p-	p-	b-	Ø	ph-
*ph-	ph-	ph-	ph-	ph-	ph-	ph-	p-/ph-
*b-	b-	b-	b-	b-	b-/p-	p-	p-/ph-
*bh-	b-	b-/bh-	bh-	b-/bh-	b-/p-	p-	p-/ph-
*t-	t-	t-	t-	t-	t-	t-	t-
*ʔt-	t-	d- (ḍ-)	t-	t-	d-	Ø	th-
*th-	th-	th-	th-	th-	th-	th-	th-
*d-	d-	d-	d-	d-	d-/t-	t-	t-/th-
*dh-	d-	d-/dh-	dh-	d-/dh-	d-/t-	t-	t-/th-
*c-	c-	c-	c-	c-	c-	c-	c-
*ʔc-	c-	c-	c-	c-	ch-	s-	s-
*ch-	s-/ś-[1]	ch-	ch-	c-	ch-	s-	s-
*ʒ-	ʒ-	ʒ-	ʒ-	ʒ-	ǯ-[2]	c-	c-
*ʒh-	ʒ-	ʒ-/ʒh-	ʒh-	ʒ-	ʒ-/c-	c-	c-
*k-	k-	k-	k-	k-	k-	k-	k-
*ʔk-	k-/kh-	k-	k-	k-	kh-	kh-	kh-
*kh-	kh-	kh-	kh-	kh-	kh-	kh-	kh-
*g-	g-	g-	g-	g- (/h-)	g-/k-/h-	h- (/k-)	Ø/h-
*gh-	g-	g-/gh-	gh-	g-/gh-	g-/k-	h- (/k-)	k-

Table 4. *Kiranti initial obstruent correspondences (adapted from Starostin 2000)*

[1] *The sound /ś-/ is a voiceless palatal fricative.*

[2] The sound /ǯ/ is a voiced post-alveolar affricate.

Proto-Kiranti is reconstructed on the basis of data from Sunwar, Thulung, Khaling, Dumi, Kulung, Yamphu and Limbu. Proto-Kiranti has 33 initial consonant phonemes. The bilabial, alveolar, affricate and velar series make a phonemic distinction between the voiceless, preglottalized voiceless, voiceless aspirated, plain voiced and breathy voiced consonants /*p-, *ʔp-, *ph-, *b-, *bh-/, /*t-, *ʔt-, *th-, *d-,

*dh-/, /*c-, *ʔc-, *ch-, *ʒ-, *ʒh-/ and /*k-, *ʔk-, *kh-, *g-, *gh-/. There is one glottal stop phoneme /*ʔ-/. The nasal phonemes are bilabial, alveolar, palatal and velar, viz. /*m-, *n-, *ń-, *ŋ-/. There is also an alveolar lateral /*l-/, an alveolar trill /*r-/ and a palatal trill /*ŕ-/, a bilabial approximant /*w-/, a palatal approximant /*j-/, and three voiceless fricatives, i.e. alveolar /*s-/, uvular /*χ-/ and glottal /*h-/. Note that preglottalized sounds are reconstructed at the Proto-Kiranti level. (See Table 4 above)

The following words illustrate that the regular correspondence of /*ʔp-/, /*ʔt-/, /*ʔc-/ and /*ʔk-/ in Wambule are /p-/, /t-/, and /c-/ and /k-/. Wambule /ɓ-/ and /ɗ-/ cannot be traced back to Proto-Kiranti /*ʔp-/ and /*ʔt-/.

31. WA *pa* 'pig, hog, swine'; JE *pa* 'pig, hog, swine'; BA^{h} *po* 'hog-kind'; SU^{s} *pō* 'pig, hog'; HA^{h} *pok'* 'hog kind'; TH^{s} *boa* 'pig, hog'; KH *'po* 'pig, hog'; DU *poʔo* 'pig, swine'; CH *bose* 'pig'; KU *bo:* 'pig (black species)'; AT *phak* 'pig'; YA *akma* 'pig'; LI *phak* 'pig'; PK^{s} **ʔpək* 'pig, hog'; KM *'u:* 'pig'; CP *pyak* 'pig'; PTB **pak* = *pwak* 'pig'.

32. WA *pwatcam* 'tie, tie up, tie together'; JE *pɔtcam* 'tie, tie up, tie together'; SU^{s} *'pajkca* 'tether'; TH^{s} *bət-* 'tie up (person, bale of straw)'; KH *'pwaan-nä* 'tie, wrap around'; DU *pa:tn̥* 'wrap, spool (e.g. thread), bandage, wrap up; join together, patch, mend'; BN^{b} *piimā* 'bind, tie'; KU *bəmma* 'tie in a bundle, wind around, wrap up'; KM *po:-* 'tie' (v.); CP *panʔ-*, *pyanh-* 'tie, tie up'; PK^{s} **ʔpát, *ʔpán* 'tether, tie up'.

33. WA *tu:cam* 'drink; smoke' (v.); JE *tu:cam* 'drink; smoke'; BA^{h} *túgno* 'drink' (imperative form); SU *tuu-* 'drink'; HA *tun-* 'drink', HA^{s} *Tuṉko* 'Drink it'; TH^{s} *ḍu(ŋ)-* 'drink'; KH *tu-nä*

'drink' (see also 30 above); DU *tɨŋnɨ* 'drink, smoke'; CH *duŋma* 'drink'; KU *du:ma* 'drink'; AT *thuŋs-* 'drink'; YA *uŋma* 'drink'; LI *thuŋma?* 'drink; smoke'; PK^{S} **?tùŋ* 'drink'; KM *o-* 'drink'; CP *tuŋ-* 'drink'.

34. WA *twapcam* 'strike; play an instrument', *tupcam* 'beat; strike'; JE *tupcam* 'beat; strike'; SU^{S} *'tapca* 'play instrument'; HA *top-* 'strike'; TH^{S} *ḍüp-* 'play instrument'; KH *'tam-nä* 'play musical instruments, play radio music'; DU *tɨpnɨ* 'play (an instrument), ring (a bell), cause to sound'; AT *thupt-* 'beat (on something)'; YA *upma* 'batter'; PK^{S} **?túp* 'beat (drum), play instrument'; KM *'txp-* 'play (music)'; CP *tayk-* 'hit (drum, etc.)'; PTB **tup ~ tip* 'hit'.

35 WA *cwakbo* 'bird'; JE *cipmu ~ cikmu* 'bird'; BA^{h} *chik'ba* 'bird-kind'; SU *'ciikbi* 'bird'; HA^{h} *chiṉchi* 'bird kind'; TH^{S} *cəkpu* 'bird'; KH *ci-* in *cicige* 'yellow-cheeked tit, *Machlolophus xanthogenys*' and *cipilim* 'willow warbler, *Phylloscopus affinfinis*'; DU *silpu* 'bird'; KU *c^{h}owa* 'bird'; PK^{S} **cĭk, *?cĭk* 'bird'.

36. WA *-ce* in *watce* 'needle' or *-cyam* in *watcyam* 'needle' (a compound with *wa* 'cloth, clothes'); JE *watcɛm* 'needle'; HA^{h} *chuschung* 'needle'; KH *cömä* 'needle'; DU *tsume* 'needle'; KU *c^{h}amei* 'needle'; AT *chomet* 'needle'; YA *samik* 'needle'; LI *sammi?l* 'needle'; PK^{S} **?cVm* 'needle'.

37. WA *kwakte* 'skin, leather, rind, peel'; JE *kɔkte* 'bark'; BA^{h} *kok'si* 'skin'; SU^{S} *'khe-ca* 'peel' (v.); HA *kuktsho* 'skin', HA^{h} *kòkchho* 'skin'; TH^{S} *kokte* 'skin, bark, peel'; KH *'kaa* 'skin'; DU *-kə* in *səkkə* 'skin, hide, integument, bark, peel, rind, shell'; AT *-kwa* in *hokwa* 'skin, bark'; PK^{S} **?kák* 'bark, to peel'; KM *ko:-* in *ko:-nya* 'skin' (v) or *-ko-* in *'bolkota* 'skin, bark, shell' (n.) and *'bokola:* 'bark (tree)'; PTB **kok = r-kwâk* 'skin'.

38. WA *kurcam* 'carry'; JE *kurcam* 'carry'; SU *kur-* 'carry'; TH^{S} *kur-* 'carry'; KH *kar-nä* 'carry'; DU *kɨrnɨ* 'carry; be with child, be pregnant'; CH *khur-* 'carry'; KU *k^{h}urma* 'carry on the back'; AT *khuy-* 'carry'; YA *khi:ma* 'carry on the back'; LI *ku:ma?* 'carry on one's back'; PK^{S} **kùr, *?kùr* 'carry'; KM *gur-* 'carry'.

6. Conclusion

Wambule, Sunwar and Bahing are characterized by the presence of implosive or preglottalized stops in their modern phoneme inventories. These phonemes have not been attested in other modern Kiranti languages and are apparently unrelated to the preglottalized stops which are reconstructed for Proto-Eastern Kiranti and Proto-Kiranti. Implosive or preglottalized stops must therefore represent a Western Kiranti innovation. Proto-Western Kiranti /*?b-/ or /*?w-/ can be reconstructed in Wambule, Sunwar and Bahing. Comparative evidence and internal reconstruction shows that Wambule occupies a special place among its closest relatives because the bilabial implosive stop /ɓ-/ can be traced back not only to Proto-Western Kiranti /*?b-/ or /*?w-/, but also to Proto-Wambule /*?m-/, and because the main source of the post-alveolar implosive stop /-ɗ/ is Proto-Wambule /*?n-/.

ACKNOWLEDGMENTS

The research for this article was sponsored by the Niels Stensen Stichting. I would like to express my thanks to an anonymous reviewer for his valuable comments.

ABBREVIATIONS

ˊ	high tone (also ^{H})
-	word-internal morpheme boundary
*	reconstructed form
~	alternates
/ /	phonological transcription
[ ]	phonetic transcription
< >	morphological transcription
<	derives from
>	yields
→	direction of a transitive relationship
Ø	zero
1	first person
2	second person
3	third person
AD	*anno domini*
AT	Āṭhpahariyā
^{b}	Bāntavā (author)
BA	Bahing
BN	Bantawa
CH	Chamling
CP	Chepang
d / ^{d}	dual
e / ^{e}	exclusive
DU	Dumi
^{h}	Hodgson

H	high tone (also ˊ)
HA	Hayu
HMG	His Majesty's Government of Nepal
i / ^{i}	inclusive
JE	Jero
KH	Khaling
KM	Kham
KU	Kulung
L	low tone
LI	Limbu
^{m}	Michailovsky
MA	Magar
n	non-
n.	noun
p / ^{p}	plural
PEK^{m}	Proto-Eastern Kiranti by Michailovsky
PK	Proto-Kiranti
PKM	Proto-Kiranti-Magaric
PK^{m}	Proto-Kiranti by Michailovsky
PK^{s}	Proto-Kiranti by Starostin
PTB	Proto-Tibeto-Burman
PWA	Proto-Wambule
PWK	Proto-Western Kiranti
RES	reifying marker
s / ^{s}	singular
^{s}	Starostin
SU	Sunwar
TH	Thulung
V	vowel

v. verb
VS Vikram Saṃvat era
WA Wambule

REFERENCES

Information about reconstructed Tibeto-Burman, Proto-Kiranti and modern Tibeto-Burman languages has been culled from the following publications:

Primary sources

Āṭhpahariyā by Ebert (1997a); Bahing, Bantawa, Hayu and Limbu by Michailovsky (1988b, 1994), based on his own field notes; Bahing^{h} by Hodgson (1857); Bantawa^{b} by Bāntavā (VS 2050); Chamling by Ebert (1997b); Chepang by Caughley (2000); Dumi by van Driem (1993); Hayu^{h} by Hodgson (1857); Jero by Opgenort (forthcoming b); Khaling by Toba and Toba (1975); Kham by Watters and Watters (1973), who represent the phoneme /ə/ as orthographic *x*; Kulung by Tolsma (1999); Limbu by van Driem (1987); Proto-Kiranti by Starostin (1994); Sunwar by Bieri and Schulze (1973a, 1973b); Tibeto-Burman by Paul Benedict (1972); Wambule by Opgenort (forthcoming a). Bahing and Hayu words culled from Hodgson (1857) are preceded by (^{h}). Words found in Bāntavā (VS 2050) are transliterated from the Devanāgarī script and preceded by (^{b}).

REFERENCES

Secondary sources

Magar^{m} by Michailovsky (1988b, 1994) based on Shepherd and Shepherd (1971); Sunwar^{s} by Starostin (1994) based on Hale (1973b), and Sunwar^{m} by Michailovsky (1988b, 1994) based on Bieri and Schulze (1969, 1970, 1971a, 1971c) and Genetti (1988, personal communication); Thulung^{s} by Starostin (1994) and Thulung^{m} by Michailovsky (1988b, 1994) based on Allen (1975). Forms culled by Michailovsky

(1988b, 1994) are preceded by (^{m}). Data used by Starostin (2000) are preceded by (^{s}) and rendered in Starostin's Starling format.

ALLEN, Nicholas K. 1975. *Sketch of Thulung Grammar with Tree texts and a Glossary.* East Asian Papers, No. 6. Ithaca: Cornell University.

BĀNTAVĀ, Ḍik. VS 2050, i.e. AD 1993. *Ḳirāt Rāī (Bāntavā) Śabdakoś.* Kathmandu: Śrī Bhakta Rāī and Śrīmatī DevRāī.

BENEDICT, Paul K. 1972. *Sino-Tibetan: A Conspectus.* Cambridge: Cambridge University Press.

BIERI, Dora, and Marlene SCHULZE. 1969. Sunwar Phonemic Summary. 31-page typescript in Vol. II of *Bodic Languages* by the Summer Institute of Linguistics.

_____. 1970. Sunwar segmental synopsis. In Austin Hale and Kenneth L. Pike, eds., *Tone Systems of Tibeto-Burman Languages of Nepal.* Occasional Papers of the Wolfenden Society, Vol. 3. Urbana: Department of Linguistics, University of Illinois.

_____. 1971a. *Sunwar Phonemic Summary: Revised Version.* Kathmandu: Summer Institute of Linguistics [38-page typescript].

_____. 1971b. *A Guide to Sunwar Tone.* Kirtipur [memeo].

_____. 1971c. *A Vocabulary of the Sunwar Language.* Kathmandu: Summer Institute of Linguistics [38-page typescript].

_____. 1973a. Chaining and spotlighting: Two types of paragraph boundaries in Sunwar. In Hale (1973b). Pp. 389-400.

_____. 1973b. An approach to discourse in Sunwar. Vol. I in Hale (1973b). Pp. 401-462.

CAUGHLEY, Ross Charles. 2000. *Dictionary of Chepang, a Tibeto-Burman language of Nepal.* Canberra: Pacific Linguistics, No. 502.

DRIEM, George van. 1987. *A Grammar of Limbu.* West Berlin: Mouton de Gruyter.

_____. 1993. *A Grammar of Dumi.* Berlin: Mouton de Gruyter.

_____. 2001. *Languages of the Himalayas.* Volumes 1 and 2. Handbook of Oriental Studies. Section Two: India. Leiden/ Boston/Köln: Brill.

EBERT, Karen. 1997a. *Athpare.* München: Lincom Europa.

_____. 1997b. *Camling (Chamling).* München: Lincom Europa.

GENETTI, Carol Elaine. 1988. Notes on the structure of the Sunwari transitive verb. *Linguistics of the Tibeto-Burman Area* 11.2:62-92.

HALE, Austin, ed. 1973a. *Collected papers on Khaling, Kulunge, Darai, Newari, Chitwan Tharu.* Kirtipur: Summer Institute of Linguistics and the Institute of Nepal and Asian Studies.

_____. 1973b. *Clause, Sentence, and Discourse Patterns in Selected Languages of Nepal* (Vols. I-IV). Norman, Oklahoma: Summer Institute of Linguistics.

HIS MAJESTY'S GOVERNMENT OF NEPAL. 1995. *Statistical Year Book of Nepal 1995.* National Planning Commission Secretariat. Central Bureau of Statistics. Kathmandu: His Majesty's Government Press.

HODGSON, Brian Houghton. 1857. Comparative Vocabulary of the Languages of the broken Tribes of Népál. *Journal of the Asiatic Society of Bengal* XXVI:333-371.

_____. 1858. Comparative Vocabulary of the Languages of the broken Tribes of Nepál. *Journal of the Asiatic Society of Bengal* XXVII 393-456. [Continued from Vol. XXVI].

MICHAILOVSKY, Boyd. 1981. *Grammaire de la langue hayu.* Ph.D. thesis. University of California at Berkeley: University Microfilms International [later published as Michailovsky 1988a].

_____. 1988a. *La langue hayu* (Collection sciences du langage). Paris: Éditions du Centre National de la Recherche Scientifique.

_____. 1988b. Phonological typology of Nepal languages. *Linguistics of the Tibeto-Burman Area* 11.2:25-50.

_____. 1994. Manner vs. place of articulation in the Kiranti initial stops. In Hajime Kitamura, Tatsuo Nishida and Yasuhiko Nagono,

eds., *Current Issues in Sino-Tibetan Linguistics*. Osaka: Organizing Committee of the 26th International Conference on Sino-Tibetan Languages and Linguistics. Pp. 59-78.

OPGENORT, Jean Robert. VS 2055, i.e. AD 1999. Ombule and Jero: linguistic and ethnic dimensions. *Libju-Bhumju* 10:47-48.

_____. 2002. *The Wāmbule Language*. Amsterdam: Jean Robert Opgenort [doctoral dissertation, 6 June 2002].

_____. forthcoming a. *A Grammar of Wambule*. Languages of the Greater Himalayan Region.

_____. forthcoming b. *A Grammatical Sketch of Jero*. Languages of the Greater Himalayan Region.

RUTGERS, Leopold Roland. 1998. *Yamphu. Grammar, Texts & Lexicon*. Research School CNWS. Leiden: The Netherlands.

SHEPHERD, Gary, and Barbary SHEPHERD. 1971. *Magar Phonemic Summary*. Kathmandu: Summer Institute of Linguistics [34-page typescript].

STAROSTIN, Sergei. 1994. Electronic publication on the internet site <www.iiasnt.leidenuniv.nl/starling.html>. Also presented at the Sino-Tibetan conference in Paris, 1994.

_____. 2000. Talk given at Leiden University in March 2000.

TOBA, Sueyoshi, and Ingrid TOBA. 1975. *A Khaling-English English-Khaling Glossary*. Kirtipur: Summer Institute of Linguistics and the Institute of Nepal and Asian Studies of Tribhuvan University.

TOBA, Sueyoshi. VS 2052. Implosive Stops in Umbule Rai. *Libju-Bhumju* 3:7-9.

TOLSMA, Gerard Jacobus. 1999. *A Grammar of Kulung*. Rijksuniversiteit te Leiden: Doctoral dissertation [2 June 1999].

WATTERS, David Eugene, and Nancy Jean WATTERS. 1973. *An English-Kham Kham-English Glossary*. Kirtipur: Summer Institute of Linguistics and Institute of Nepal and Asian Studies of Tribhuvan University.