THE IMPORTANCE OF SANSKRIT FOR THE LARYNGEAL THEORY

R. S. P. BEEKES

1. It would seem appropriate for me on this occasion to speak on Sanskrit and the laryngeal theory. We commemorate the discovery that Sanskrit is cognate with the languages of Europe. Therefore it is natural to concentrate on Sanskrit. The acceptance of the laryngeal theory, on the other hand, is one of the most important new developments in Indo-European linguistics, though it is not really a new discovery; in fact it is more than a hundred years old. But it is only in the last years that the majority of scholars have accepted it. The recent book of Bammesberger (Studien zur Laryngaltheorie, Göttingen 1984) and that of Lindeman (The triple representation of Schwa in Greek and some related problems of Indo-European phonology, Oslo 1982), which go far towards denying the theory, show that resistance is not yet dead. The debate on the exact form of the theory is now also coming to an end. There are still many details to be settled but, though these are very interesting, they do not affect the theory as such.

2. My teacher in Indo-European linguistics, F. B. J. Kuiper, who was professor of Sanskrit in Leiden university in the Netherlands, early recognized the importance of the laryngeal theory. He wrote e.g. in 1947 an article on the "Traces of Laryngeals in Vedic Sanskrit" (in the Festschrift Vogel). My dissertation was devoted to the laryngeals in Greek, and after that I wrote on several aspects of the theory. Thus Leiden has become a 'stronghold of laryngeals'.

3. It is a widespread misunderstanding that Hittite is essential to the laryngeal theory. In fact, the Hittite contribution is interesting and strongly confirmative, but it is not essential. The laryngeal theory was conceived when Hittite was not yet known. It is based mainly on Sanskrit and Greek, which are in general the two most archaic Indo-European languages. I will return to this point at the end of my lecture.

Let me briefly state the essential facts of the laryngeal theory, as I see it.

Proto-Indo-European had three laryngeal consonants, commonly called 'one, two' and 'three' (h_1, h_2, h_3). The second laryngeal changed an adjacent *e into a, the third one changed an *e into o. The first laryngeal did not affect an *e. A laryngeal that followed a vowel and stood before a consonant lengthened that vowel (mostly). Between consonants a laryngeal either disappeared or became a vowel. In Sanskrit it became an i if it did not disappear.

It should be stressed that this is nearly the whole system : in fact it is very simple.

4. Relatively little attention has been paid to the identification of the laryngeals. On the one hand this is not necessary : we can call them simply X_1, X_2 and X_3. On the other hand the reconstructed PIE language was a real language, and we should determine the phonetic nature of its phonemes. I cannot go into this matter now. Last year in Pavia, in Italy, I tried to show that the laryngeals were, respectively, a glottal stop, a pharyngeal and a labialized pharyngeal, and I pointed to the closest parallel to such a system, which is found in Shuswap, a language in Northern America. Thus :

h_1=glottal stop, ʔ
h_2=pharyngeal, ʕ
h_3=labialized pharyngeal, $ʕ^w$

Thus it cannot be objected that the laryngeals were no real sounds.

5. Other phonemes assumed for PIE must, as a result, be cancelled : the voiceless aspirates, supposed to live on in Skt. *ph, th, kh,* did not exist. Also I am convinced that PIE did not have the phonemes *a and *$ā$. But I see no reason to deny the existence of *e and *o.

6. I wanted to review shortly the Sanskrit evidence for the theory.

The laryngeal theory can be described as the view that the reduced vowel, *∂, the 'schwa', identified by the correspondence Skt. i—other languages a or zero, was a consonant. The result is that this sound (*∂) was not a reduction of a long vowel, as the ablaut *e/∂ etc. suggested, but an independent phoneme, that could occur in all positions. This aspect, that the laryngeal was a consonant that could occur freely,

like all other phonemes, has not been sufficiently stressed hitherto in presentations of the laryngeal theory.

7. That the PIE 'schwa' was a consonant is shown by Sanskrit in many ways. Let us take the best known example of the 'schwa', the word for 'father', Skt. *pitaʹr-*, Lat. *pater,* Goth. *fadar* etc. The correspondence Skt. *i*—other languages *a* points to, or rather is defined as, a 'schwa'. Already for this word we can show that this sound must have been a consonant, but then we need Iranian. In Gatha-Avestan the word for father is *ptā.* The essential point is that, if the word had always had a vowel, this could not have been lost, since vowels in the prehistory and early history of Indo-Iranian were not lost ; a consonant, however, could have been lost. Here, then, the evidence comes not from Sanskrit, but Sanskrit presents other evidence of this kind. In 1947 Kuiper already pointed to forms with and without *i,* as in *vaʹnitā* (RV 3.13,3) but plural *vantāraḥ.* It is clear that some forms of the paradigm had *i* whereas others had no vowel. Until now there is no general agreement on the distribution and the explanation of it ; in fact, attention has concentrated almost only on the words for 'father' and 'daughter', which must have had this alternation. Essential here is that we can only explain the phenomenon by assuming a consonant which was vocalized or not (and then lost).

In some special environments loss of the laryngeal has been assumed. Thus between *s* and *n,* as in the genitive of the word for 'blood', *asnaʹḥ,* as compared with Hitt. nom. *eshar,* gen. *ishanas.* Also before a *i* the laryngeal would have been lost, as in Skt. *kravyaʹ-*, if from **kreuh*$_2$- ; or in the oblique cases of *saʹkhā* 'companion', like dat. *saʹkhye* < **sok*^{w}*h*$_2$*-i-ei.* However, I am not certain that there are no other explanations, e.g. that the laryngeal was lost in the nom. *aʹsṛk* < **h*$_1$*esh*$_2$*-r* (-). Thus *saʹkhye* could have its stem from the nom. *saʹkhā* < **sok*^{w}*h*$_2$*-ēi.*

Loss of the laryngeal between consonants is also seen in the second member of compounds, as in *devaʹ-tta-* 'god-given' ; or in *bhaʹga-tta-* 'gift' < **-dh*$_3$*ti-.*

8. I shall now follow systematically the positions in which a laryngeal could occur in the word.

8.1. *At the end* of a word, *after consonant,* it became *-i*, as in the 1st pl. ending *-mahi,* Gr. *metha* < **-medhh*$_2$.

8.2. Word finally *after vowel* a laryngeal caused lengthening, as in the instrumental ending *-ā* < **-eh*$_1$. Both developments are not interesting, but in the latter case it has been observed that in the Rigveda before vowel, in pausa or at the end of a pada a long vowel could be shortened. Thus we find *vṛki, tanu* (voc.), *asura* (voc. du.), *pra'yukti* (instr.) for *-ī, -ū, -ā.* This shortening can only be understood as the loss of a final laryngeal, as was pointed out by my teacher, F. B. J. Kuiper.

9.1. *At the beginning* of a word, a laryngeal *before consonant* was lost in Sanskrit, as in most other languages. Only in Greek (and Macedonian ?), in Armenian and in Phrygma was it vocalized. Thus we have Skt. *rudhira'-* 'red' but Gr. *eruthro's* ; Skt. *na'r-* 'man' but Gr. *anēr,* Arm. *ayr,* Phr. *anar.* It is impossible to assume a vowel here, as there is nothing against Sanskrit forms ***irudh-*, ***inar-*, cf. *inaksati, irajya'ti.* The forms with the initial vowel can only be explained from a laryngeal. Thus this must have been a consonant which was vocalised in some languages but not in others.

That such a consonant was present in (prehistoric) Sanskrit, or at least in Indo-Iranian, is shown by the lengthening of a preceding vowel or the vocalization of the laryngeal after a preceding consonant. Thus we have *viśvā-nara-* 'belonging to all men' ; *sūna'ra-* with **h*$_2$*ner-* (as against *su-nīti-* 'leading well') ; or *gartā-ru'h-* 'ascending the chariot' (as against *garta-sa'd-*).

A special instance is the long augment in a form like *ānaṭ* (aor.) < **Ha-Hnaś-*, from *naś-* 'to attain'. Another special case are the negative adjectives, a type of which Sanskrit has only *āsat* 'not being' < **n̥-h*$_1$*sn̥t* (a further instance is demonstrated by Forssman in the Hoenigswald Festschrift). A fourth category where an original initial laryngeal can be seen is in the intensive republication of the type *varī-vṛt-.* This is traditionally explained by assuming that a root with a final laryngeal was repeated in the reduplication (***darH-darH-*). However, I pointed out that this is improbable, e.g. because two final consonants are never repeated in the reduplication. Therefore we must assume that a root initial laryngeal was vocalized

after the consonant of the reduplication, e.g. **Hnar-Hnar-* > **narinar-*.

9.2. At the beginning of the word *before vowel* a laryngeal was lost in Sanskrit, as in other languages (except in some cases in Hittite). Here again, of course, a consonant is concerned. The original presence of the laryngeal can be demonstrated in the case of *īja-* < **h₂i-h₂g'-e-*, which shows that *aj-* originated from **h₂eg'-*.

10.1. *Within the word,* a laryngeal *between consonants* gives the type *pitá'r-*, which we discussed at the beginning (section 7). Here it must be noted that a laryngeal in this position which was not vocalized aspirated a preceding stop, as appears from *duhitá'r-*, which got its *h* from *gH* in forms where the laryngeal was not vocalized.

10.2. *After consonant before vowel* several phenomena are found. The first are the cases where the laryngeal is lost without trace. Again this can only have occurred to a consonant. E.g. *já'nas* < **g'enh₁-os*. The most famous instance are the *nā*-presents, e.g. *punāti,* 1st pl. *punīmá'ḥ,* 3rd pl. *puná'nti*. Here the ablaut *ā/i* shows a laryngeal, which was lost in **pu-n-H-anti*. If the laryngeal/schwa had been a vowel, we would have expected a long vowel. The parallel with *yu-n-á'j-mi, yu-ñ-j-má'ḥ, yu-ñ-j-á'nti* confirms that we have to do with an original consonant.

Then there is the aspiration of a stop. I need not repeat such instances as the word for 'big', gen. *mahá's* < **meg'-h₂-o's* (where the laryngeal is shown by ntr. *má'hi,* Gr. *me'ga*) or the word for 'path', gen. *pathá'ḥ* < **pṇt-H-o's,* where Avestan still has the aspirate only in the expected places (cf. nom. *panta* < **po'nt-ēH-s*). It is mostly stated that only h_2 caused this aspiration, but I think there are good instances with h_1 : the 2nd pl. ending *-tha* must come from **th₁e,* because of the general *e*-vocalism of this form (Hitt. *-tani* does not prove *a*-vocalism ; note that it occurs in the primary ending, not in the secondary one) ; Skt. *sá'dhiṣ, sadhá'stha-* will come from **sed-h₁-* (h_1 because of Lat. *sēdēs*), as analyzed by Kuiper. Instances of *ph* are rare. Perhaps *raphitá'-* 'miserable' is one.

On the other hand I do not believe that the *b* of *pibati* < **pi-ph₃-eti* was caused by h_3. Not only is this the only ins-

tance of the supposed development, but there is reason to doubt that there was an opposition voiced : voiceless in PIE.

Thirdly a number of exceptions to Brugmann's law (PIE **o* in open syllable becomes Skt. *ā*) are due to a laryngeal. Of course, the laryngeal must here have been a consonant. It is found in isolated words (*jaˊna-* < **gˊonh₁-o-*, Gr. *goˊnos*), in causatives (*janaˊya-* < **gˊonh₁-eˊie-*), in the second member of compounds (*ā-havaˊ* 'invitation' < **gˊhouHo-*, as against *ā-hāvaˊ-* 'pail, bucket' < **gˊhouo-*. (Here however, there is a contradiction with the assumption that a laryngeal in the second member of a compound was lost ; see 7 and 12.2. Probably in some cases the laryngeal was restored.) The most famous exception is the 1st sg. perf. *cakaˊra* as against 3rd sg. *cakāra,* which is explained by assuming that the endings were *-h₂e* and *-e* resp. after the stem *-kʷor-*. The reconstruction *-h₂e* was confirmed by Hitt. *-hun* (for **-ha*), Luw. *-ha,* Lyc. *-xa.*

10.3. *After consonant before i, u* there followed metathesis when this sequence stood before consonant. Thus *pītaˊ-* 'drunk' must have developed from **pih₃taˊ-* from older **ph₃i-toˊ-*. Such a metathesis, of course, concerned a consonant and a vowel.

11. *After vowel* we must again distinguish different cases.

11.1. After vowel *before consonant* the vowel was lengthened, as we saw already when we mentioned that of the ablauting e/∂ (etc.) the ∂ was a consonant, the laryngeal. As it is a reduced form of *ē,* this must have consisted of *e*+laryngeal, the ablaut becoming thus parallel to *ei/i, er/r* etc.

A special instance is the occurrence of Skt. *a* instead of *i* in some roots with *ā,* as in *pāj-, pajraˊ-*. The solution was found by my colleague Lubotsky, who noted that this *a* occurred before voiced stops. Accepting the so-called glottalic theory that voiced stops were in reality glottalized, in fact preglottalized, sounds, he assumed that these forms had full grade, with -aH-, of which the laryngeal coalesced with the following glottalic element (at least before consonant), -aHˀg > aˀg > ag. This proves that the laryngeal was a glottal stop itself. Probably all laryngeals had fallen together in a glottal stop in Indo-Iranian.

11.2. After vowel and *before vowel* the laryngeal disappeared, but in some cases such forms still show hiatus, which

can of course only have been caused by a consonantal element between the vowels. Thus we find that *bhās* must still be read/ *bhaas/* < **bhaHas* < **bheh₂-os* ; *gnās,* nom. pl., must be read/ gnaas/ < **gnaH-as.* The gen. pl. ending *-ām* must often be read *-aam.* As this form is an Indo-Iranian creation (the PIE ending was just **-om*), it proves that in Indo-Iranian the laryngeal was still a phoneme in its own right. These cases are rare in the Rigveda but regular in Gatha-Avestan.

11.3. After vowel *before resonant.* Before a vocalic nasal, which became *a,* we have the word for 'wind', *vāta-* < **h₂ueh₁ṇto-,* which must still be read as a trisyllable (as in Avestan). I know no instance of this sequence before *ṛ* (PIE *ṛ* or *ḷ*). Before *i* and *u* the laryngeal disappeared, first leaving hiatus, as in the superlative *jye'ṣṭha-,* to be read as a trisyllable, < *jya H-iṣṭha-.* (It is often stated that before *i* a *y* developed, as in *rayim* from **Hreh₁-im,* which is incorrect. The *y* was here introduced analogically).

12. *Laryngeal after a vocalic resonant* forms a special category. Again we have to distinguish according to the following sounds.

12.1. *Before consonant ṛH* (and *ḷH*) resulted in *īr* (*ūr* in labial surroundings), *ṃH* and *ṇH* became *ā.* It was pointed out very early (1912, by Cuny) that the 'schwa' (of **g'en ə-*, Skt. *jani-ta'r-*) in the zero grade **g'nə-* cannot have been a vowel, as this form would have given ***jñi-*. Thus, instead of *pūrṇa'-* 'full' one would have expected ***priṇa'-*. Therefore the schwa=laryngeal must have been a consonant.

12.2. *Before vowel* we find *ir* (*ur*) and *am, an,* as in *tira'ti* < **tṛH-e'-ti,* or in *pura'ḥ* 'before', Gr. *pa'ros,* from **pṛh₂o's.* Here the mere fact that the resonant was vocalic, requires that the laryngeal was consonantal.

In compounds, both in the first member (before the stress ?) and in the second member (after the stress ?) a laryngeal was lost, so that the resonant became consonantal : *gru-muṣṭi-* 'handfull' from **gʷṛh₂u-* (Skt. *guru'-* 'heavy') ; or *a'-bhva-* 'monster' from ***n-bhuh₂-o-*. This explanation, again, was given by Kuiper.

13. Our short review, then, has established that by far the most developments can only be understood by assuming a consonantal sound. One might wonder how it is possible that

this was not realized, and accepted, much earlier. The answer is, I think, that it requires a genius to discover what seems so evident afterwards. A genius like De Saussure, who was not only the greatest of Indo-Europeanists, but also the founder of modern general linguistics.

14. It is not possible to establish on the basis of Sanskrit that there were three laryngeals. Still, it can easily be seen how one arrived at three laryngeals. Take the root Skt. *sthā-*. This goes back to **stā-*, as appears e.g. from Gr. (Dor.) *histāmi*. We have seen that such long vowel roots have a schwa, i.e. a laryngeal, in the zero grade. Thus the root was **staH-*. Now it is virtually excluded that this root had a PIE short vowel **a*. Apart from the fact that PIE did not have an **a* at all, there is no other verbal root with **a* ; and it would be extremely improbable if it occurred only in long vowel roots, i.e. before a laryngeal. Thus an *a*-colouring laryngeal is required (**steh*$_2$-). In the same way the long vowel roots in $\bar{o}$ and $\bar{e}$ require an *o*-colouring and a non-colouring laryngeal ($eh_3 > \bar{o}, eh_1 > \bar{e}$).

15. We have seen that the laryngeal theory can be, and in fact was to a great extent, deduced from Sanskrit. Only for the distinction of the (three) different laryngeals do we need the help of other languages : as in Sanskrit **e* and **o* merged with the *a*-sound which resulted from *h*$_2$*e*, the distinction between the three laryngeals became (mostly) impossible. Though there might be one exception. According to Brugmann's law an **o* in open syllable became *ā* in Sanskrit. Now there are a - very - few cases where it seems that an *o* resulting from *h*$_3$*e* did not result in *ā* (e.g. *áśnas* 'cart', Lat. *onus*, PIE **h*$_3$*enos* ; this explanation was suggested by Hamp ; my colleague Lubotsky is going to discuss these cases).

Thus as one might expect, the most archaic of IE languages provides full evidence for the laryngeal theory. It may be clear, even from this short survey, how important the laryngeal theory is. I regard it as the most important single discovery in the history of Indo-European linguistics, only comparable with the discovery that **e* and **o* were original PIE vowels, and the discovery of the vocalic resonants. But these were much easier affairs, as appears from the fact that they were quickly accepted ; in the case of the laryngeal theory it took a hundred years. As far as the results of the glottalic

theory can be evaluated at the moment, the laryngeal theory is many times more important.

16. This brings me to a final remark on the antiquity of the Sanskrit language. As is well known, it has been thought for a time that Sanskrit was itself the mother of the European languages. It is the merit of Sir William Jones, in his statement of which we celebrate the anniversary to-day, that he saw that Sanskrit together with the other languages derives from an older language which is lost.

Recently a leading scholar in the field of Indo-European linguistics, prof. Mayrhofer, described the history of the research as a gradual moving away from Sanskrit (Sanskrit und die Sprachen Alteuropas, Göttingen 1983, e.g. p. 127). He is undoubtedly right, and I think that the research will continue on this path.

But this does not alter the fact that Sanskrit is the most archaic of the Indo-European languages. Only three other languages could be considered for this position : Iranian, Hittite and Greek. Of the Iranian languages Gatha-Avestan is as a whole as archaic as Sanskrit, but phonologically it has moved a little farther away : you have to apply a number of sound laws to arrive from Sanskrit at Gatha-Avestan. And then the corpus is so much smaller than the Rigveda. Only in one thing is Gatha-Avestan more archaic : the laryngeals between vowels have been systematically preserved. Hittite has the drawback, at present, that so much is still not explained with certainty ; in many cases we are not yet further than possibilities. So much is clear, however, that, while Hittite retains very archaic elements, it suffered very many losses and therefore cannot take precedence over Sanskrit. Greek is very archaic indeed. It has the great advantage that *e-*, *o-* and *a-* vocalism (caused by h_2) have been preserved, also in the case of the laryngeals. But the loss of some intervocalic consonants and the subsequent vowel contractions make it less transparent than Sanskrit. On the whole, however, both in nominal and verbal morphology is Greek less archaic than Sanskrit.

As regards future research, I think that the effects of the laryngeal theory have now been mainly worked out. The glottalic theory will not bring so much news. As to the morphology of the noun and the pronoun, I have recently suggested new

perspectives (The Origin of the Indo-European Nominal Inflection, Innsbruck 1985 ; and "The Origin of the Indo-European Pronominal Inflection" in the Festschrift Polomé). Essential changes are to be expected for the morphology of the verb where Kortlandt's ideas must be worked out ("PIE verbal syntax", JIES 11, 1983, 307-324). At present we need consolidation of the recent advances. For my part, I am working at both a short and a longer introduction to Comparative Indo-European linguistics, in English.

I think that future research will take us far away from Sanskrit. In fact I think that PIE was fundamentally different from the IE languages we know and from the present reconstructions. Nevertheless the fact remains that Sanskrit is the most archaic of the Indo-European languages.

Notes

1. $h_1e>e$ $eh_1>\bar{e}$ h_1 = glottal stop, ʔ
   $h_2e>a$ $eh_2>\bar{a}$ h_2 = pharyngeal, ʕ
   $h_3e>o$ $eh_3>\bar{o}$ h_3 = labialized pharyngeal, ʕʷ
   CHC > Skt. *i* ; elsewhere *a* or zero (H = any laryngeal)
2. Skt. pitáṛ-, Lat. pater, Goth. fadar : PIE *$ph_2te'r$- ; GAv. ptā
   Skt. váṇitā, pl. vantāraḥ : PIE *uenH-ter-
   Skt. asnáḥ, Hitt. eshar, ishanas : PIE *h_1esh_2-r, gen. *h_1esh_2-n-o's
   Skt. kravyá-< *$kreuh_2$-
   Skt. sákhye < *sok^wH-i-ei ; sákhā < *sok^wH-ēi
   devá-tta- < *$deiuo$-dh_3 to-
3. -CH -mahi < *-med^hh_2
4. -VH instr. -ā < *-eh_1 ; vṛki < -iH
5. HC- rudhirá-, Gr. eruthrós < *$h_1rud^hro's$
   a) viśvā́-nara- < *viśva-Hnara-
   b) augment ā́ṇaṭ < *Ha-Hnaś-
   c) negat. adj. ā́sat < *n̥-h_1 sn̥t
   d) intens. red. not *darH-darH but *Hnar-Hnar- > *narinar-
6. HV- aj- < *h_2eg'- ; ī́ja- < *h_2i-h_2g'-
7. CHC duhitáṛ- : *d^hugh^tar- < *d^hugh_2ter-
8. CHV jā́nas- < *$g'enh_1$-os
   pu-n-ā́'-ti < -n-e'h_2-ti cf. yu-n-á'j-mi
   pu-n--ī-maḥ < -n-h_2-me's yu-ñ-j-maḥ
   pu-n- -á'nti < -n-h_2-e'nti yu-ñ-j-á'nti
   gen. pathaḥ < *pn̥t-H-o's ; Av. nom. panta < *po'nt-ēH-s
   2nd pl. -tha < *-th_1e ; sá'dhi-ṣ-, sadh-á'stha- < *$sedh_1$-
   raphitā́- ; pí'bati < *pi-ph_3-e-ti
   Brugmann's law a) jā́na- < *$g'onh_1o$- ; b) janá'ya- < *$g'onh_1$-

e′ie- ; c) ā-hava′- <*g′^{h}ouHo- ; d) 1st sg. caka′ra <*-k^{w}or-h_2e

9. CHi/u pīta′- <*piHta- <*p$h_3$ito-
10. VHC pāj- ; *peh$_2$g′ro- > *pa? ?jra- > *pa?jra = pajra-
11. VHV bhā′s = /bha′as/ <*bha′Has <*bhe′h$_2$os
12. VHR vā′ta- = /vaata-/ <*(H)vaHata- <*h$_2$ueh$_1$nto- ; jyeṣṭha- <*jyaH-iṣṭha-
13. RH-C *g′n∂- > **jñi- ; *pl ∂ no′- > **priṇa′- : pūrṇa′- <*pl̥h$_1$no′-
14. RH-C tira′ti <*tr̥h$_2$-e-ti ; pura′h <*pr̥h$_2$o′s
gru-musti′- : *g^{w}r̥h$_2$u- > *g^{w}ru- ; a′bhva- <*n̥-bhu(H)o-
15. Skt. sthā- : *stā- <*staH- = *steh$_2$-
Skt. a′nas-, Lat. onus <*onos = *h$_3$enos