CHAPTER ELEVEN

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AN EXCEPTION TO THE FIRST SOUND SHIFT

"Eine Ausnahme der ersten Lautverschiebung,"
Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der Indogermanischen Sprachen, 23.2 (1875), 97-130

Verner's may be the single most influential publication in linguistics. It is so lucid that it scarcely needs comment. Yet since a later generation often wonders why a publication had the impact it did, a few of the reasons may be mentioned.

First, the article is excellently written. Verner presented all the relevant material in exemplary form. Comparison with even the careful Grassmann, not to speak of the discursive Lottner or earlier scholars, will indicate Verner's superior marshalling of the data. The argument too is at all times lucid and persuasive. One need only read articles published by well-known scholars even after Verner's time to observe the refreshing clarity of Verner. Alone as an essay, the article is superb.

Further, through the primary purpose of the article Verner solved the most troublesome contemporary problem — "the last set of exceptions to Grimm's law." To be sure an explanation had been offered and had even been acknowledged by scholars as competent as Lottner and Grassmann. But it was fuzzy, scarcely in accordance with other observations on the functioning of language. Verner's explanation was immediately convincing. Moreover, it removed from linguistics an awkward attempt to rely on imprecise relationships, and it suggested that linguistic phenomena must be accounted for with the rigor demanded in the physical sciences.

Because this explanation was at once adopted, the reasoning on which it was based and its implications for general theory had a tremendous influence. Attention was drawn to suprasegmentals. The journals after Verner are full of articles proposing explanations of linguistic phenomena by means of accent, such as the various attempts to give an explanation for the development of Gmc -jj-

-ww- to -dd/ggj- -ggw- in Gothic and North Germanic. And since such suprasegmentals came to their attention, linguists began to devote a great deal of interest to the use of suprasegmentals in selected patterns of language, to metrics. This scrutiny of suprasegmentals for improved understanding of linguistic phenomena was important, but of greatest importance for general linguistics was the effort to account for all phonological phenomena: not only consonants and vowels, but also stress, pitch, quantity, juncture. Control over these was not achieved at once, but the efforts leading to that control were largely touched off by Verner's article.

Further, Verner saw the clinching evidence for his explanation in its accounting for morphophonemic variation. Since there was a direct relationship between the consonant variation, the variation in accent, and the stem changes in the preterite and preterite participle, Verner concluded that the variation must be regularly conditioned. This attention to morphophonemic variation led to greater examination of morphological structure in its relation to the phonological system of language, and in this way to the method of internal reconstruction. Verner's second article, which stands immediately after this one, KZ 23.2.131 - 38, dealt with Indo-European ablaut. Other linguists made the important contributions to its understanding: Brugmann by positing vocalic nasals; Saussure by positing laryngeals. Both scrutinized morphological patterning in arriving at their conclusions. Both, especially Saussure, came to be increasingly proficient in the method of internal reconstruction.

In providing his explanation, Verner sought to account for all the data. Grimm had recognized the general relationship between the Germanic obstruents and those in the other Indo-European dialects, and he noted only in passing problems like the -d- in Gothic fadar etc. Grimm's successors had clarified some particulars. In clarifying the remainder Verner accounted for all the residues. In this way he applied the principle of accounting for all data in a language. His predecessors were moving toward such methodological standards. When Lottner and Grassmann, for example, published their articles they also discussed the remainders which were not yet accounted for. But since imprecise sets of exceptions remained, their articles had not exerted the dramatic impact on general linguistics of Verner's. After his it seemed clear that linguists could

and must provide a total accounting of the data in any given language.

It is understandable that with its tremendous contributions to Germanic, Indo-European and general linguistics the article led to excesses. After its publication many obscure problems were examined for possible explanation by means of supra-segmentals, and solutions were given which never were widely adopted. Yet of greatest general impact was the conviction that language undergoes change regularly, even mechanically: that sound change takes place without exception. The linguists at Leipzig, who brought Verner down from Copenhagen, were strengthened in this mechanical view of language by his remarkable article; his explanation helped establish the highly influential neogrammarian school which dominated linguistics for the next two generations.

Karl Adolf B. Verner (1846-1896) was himself very modest. The article which brought him fame was published at the insistence of Vilhelm Thomson. Although he was well-known after this publication, he preferred a simple position in a library at Halle. When there was a vacancy in Slavic Philology at his own university, he became Reader there in 1883 and spent the rest of his career at the University of Copenhagen. Not least of his qualities was his capacity for self-criticism. He published very little, all of it high in quality. The impact of his work resulted from his capable formulation as well as the discovery itself. For a fine account of his manner of work and his personality see Otto Jespersen's essay in his volume of collected papers, Linguistics.

In the eleventh volume of this journal (pp. 161-205), Lottner subjected the exceptions of the first sound-shift to a careful examination. He investigated all developments of the Indo-European stops (tenues, mediae, and aspiratae) which seem to forsake the scheme

IE	k	=	Gmc	h,	IE	g	=	Gmc	k,	IE	gh	=	Gmc g
	t	=		þ,		d	=		t,		dh	=	d
	p	=		f,		b	=		p,		bh	=	b,

and the now dead researcher found essentially two categories of exceptions, exclusive of the cases where no shift occurred due to certain consonantal combinations (IE sk, st, sp = Gmc sk, st, sp; IE kt, pt = Gmc ht, ft). On the one hand, Lottner found that g, d, b were

sometimes present in Germanic unshifted, as for example in Goth. gredu-s 'hunger' beside Skt gṛdh-yati 'he is eager for', Goth. dauhtar 'daughter' beside Skt duhitar 'daughter', Goth. bindan 'to bind' beside Skt bandh 'to bind', and others. On the other hand, these same Germanic voiced stops (g, d, b) appeared in many cases not as correlatives of the Indo-European aspirates, as was to be expected, but as correlatives to the Indo-European voiceless stops (k, t, p); thus, for example, the Germanic form tegu 'decade', which corresponds to IE dakan 'ten', Gmc modar = IE mâtar, OHG ebar = Lat. aper, Goth. bairand 'they carry' = Skt bharanti etc.

The first class of exceptions, however, was soon afterwards accounted for by Grassmann. In his well-known article in the twelfth volume of this journal "On the original presence of roots, whose initial and final contained an aspirate," he establishes the fact that the anomalies cited by Lottner are only apparent, since in Skt gṛdhyati, duhitar, bandh and the like, we do not have the original Indo-European initial sound, which was rather an aspirate, as a comparison with other Indo-European languages attests, and therefore the voiced stop in the Germanic form is fully justified.

Compared with the first very extensive class of exceptions found by Lottner, the second class may not be cleared up in such a way. Here there is really a violation of the sound laws and apparently the guilt falls exclusively on Germanic. The irregular sound change occurs only medially and then only in a voiced environment. I cite some examples of this irregular shifting with differing sound-positions medially:

Gmc g = IE k. Gmc saga f. 'saw' (ON sǭg, OHG saga); compare Lat. sec-o, OSl. sěką 'I hew', Lith. sýki-s 'strike, time'. Gmc sagjan 'to say' (ON segja, OS seggian, OE secgan, OHG sagian) = Lith. sak-ýti, -aú 'to say'; compare ἐν-νεπ-ε for *ἔν-σεπ-ε and OLat. in-sec-e 'quote, tell'. Goth. hals-aggan- m. 'curve of the neck', OE angan- m. 'point, arrowhead'; compare Skt anka- m. 'hook, clasp; joint, side, lap' = ὄγχο-s = Lat. uncu-s 'hook'. Gmc þegna- m. 'boy, servant, warrior' (ON þegn 'free man, warrior', OS thegan 'boy, man, warrior', OE þegn 'knight', OHG degan 'boy, servant, warrior') = τέκνο-ν 'child'. Along with this compare successively the following examples of the regular shift in similar medial sounds: Goth. haiha- 'one-eyed' = Lat. caecu-s 'blind'. Gmc hlahjan 'to laugh' (Goth. hlahjan, ON hlæja, OE hlehhan, hlyhhan, OHG hlahhan); compare Skt kark 'to laugh', κλώσσω for *κλωκ-jω 'I cluck, click (the tongue)'. Gmc fanhan 'to catch' (Goth. fâhan, ON fá, OS fâhan, OE fôn, OFris. fâ, OHG fâhan); compare Skt pâç-aya-ti 'he binds', Lat. pac-iscî, pax, pâc-is. Gmc laihna- n. 'fief' (ON lân, OE læn, OHG lêhan) derived from lêhvan 'to lend' (Goth. leihvan, ON ljá, OS far-lîhan, OHG lîhan); compare Skt ric, pres. riṇak-ti

and recati 'to leave' = λείπω, ἔ-λιπ-ον = linquo, lîqui = Lith. lẽk-u, lìk-ti.

Gmc d = IE t. Goth. fadi- m. 'master', only in compounds, as for example brûþ-fadi- 'bridegroom' = Skt pati- m. 'master, husband' = πόσι-s = Lith. pàt-s 'lord and master'. Gmc þeuda- f. 'people' (Goth. þiuda, OS thioda, OHG diota) = Lith. (Zemaitic) tautà, Latvian tauta, Umbrian tūtu. Gmc þridjan- 'the third' (Goth. þridjan-, ON þriði, OS thriddio, OE þridda, OHG dritjo, dritto) = Skt tṛtîya-, Lat. tertiu-s, Lith. trécza-s, OSl. tretii. Gmc fedvôr 'four' (Goth. fidvor, ON fjórir, OS fiuuar, OE feóver, OHG fior) = Skt. catvâras, τέσσαρες, quatuor, Lith. keturì, OSl. četyrije. Gmc and- 'against, ant-' (Goth. anda-, and-, ON, OE and-, OHG ant-); compare Skt anti 'against' ἀντί, ἄντα 'against'. Lat. ante. Gmc andja- m. 'end' (Goth. andja-, ON endi-r, OS endi, OE ende, OHG enti- m.n.); compare Skt. anta- m. 'end', antya- adj. 'he who is final, the last'. Gmc skordi- f. 'to shear, cut' (ON skurð-r m. i-stem, 'cutting, mowing', OHG scurt- f. 'tonsure') formed from the root skar 'to cut' by means of the suffix -di = IE -ti. Gmc skoldi- f. 'guilt' (ON skuld, skyld, OS sculd, OE scyld, OHG sculd) by means of the same suffix from the root skal 'should'. Compare with this the following cases of regular shifting: Gmc hvaþara- 'both' (Goth. hvaþar, ON hvár-r, OS hueðar, OE hväðer, OHG hwedar, wedar) = Skt katar- = πότερο-s, Ionic κότερο-s = Lith. katrà-s. Gmc hleuþa- n. 'hearing, listening, silence' (Goth. hliuþa-, ON hljóð) = OBactrian çraota- n. 'hearing'. Gmc niþja- m. 'relative, cousin' (Goth. niþja-, ON nið-r, OE niðas pl.m. 'men'); compare OSl. netii m. 'nephew', ἀ-νεψιό-s 'cousin, relative' from a base form *napatja-, compare Skt. napât-, naptar- 'grandson, nephew, descendant', Lat. nepôt-. Goth. saliþva- f., only in the pl. saliþvos 'shelter, lodging', formed by means of the suffix -þva = IE -tva fromthe verb stem salja- 'to put up at'. Gmc tanþu-, tanþ- m. 'tooth' (Goth. tunþu-, ON tönn f., OS tand m., OE tôð, OHG zand) = Skt. dant-, dantà- m., ὀ-δούς, ὀ-δόντ-os m., Lith. dantì-s m. f. Gmc an-þja- n. 'forehead' (ON enni, OHG andi); cp. ἀντίο-s 'that which is opposite, opposed', Lat. antiæ 'hair on the forehead'. Gmc morþa- 'murder' (ON morð, OE morð, OS morð, OHG mord), formed from the root mar 'to die' by means of the suffix -þa = IE -ta. Goth. vulþu- m. 'grandeur' = Lat. vultu-s, from the root val 'to desire' by means of the suffix -þu = IE -tu.

Gmc. b = IE p. Gmc seban 'seven' (Goth. sibun, ON sjau, OS, OHG sibun, siban, OE seofon) = Skt saptan, ἑπτά, septem. On the other hand with regular shifting: Gmc nefan- m. (the Germanic basic form must be posited with f after OHG nevo 'nephew, sister's son, uncle, relative'; ON nefi, OE nefa); cf. Skt. napât- m. 'descendant, grandson', Lat. nepôt-.

But this differentiation of the originally voiceless stops takes

place not only, as in the above examples, in forms originating from different roots; it also appears very frequently within word formations belonging to the same root, so that some derivations show in Germanic voiceless fricatives in the root, the other derivations voiced stops. Thus beside Gmc tehan 'ten' (Goth. taihun, ON tíu, OS tȳn, OHG zehan = Skt daçan, δέκα, decem) is found a substantive tegu- m. 'a ten' (Goth. tigu-, ON tig-r, tug-r, OHG -zig, -zog); beside Gmc hauha- 'high' (Goth. hauha-, ON há-r, OS hôh, OE heáh, OHG hôh) a form hauga- m. 'hill' (ON haug-r, MHG houc, gen. houges); beside teuhan 'to draw' (Goth. tiuhan, OS tiohan, OHG ziohan = Lat. dûco) Gmc tuga- 'pull' (ON tog n., OHG zug m.), Gmc taugi- f. 'cord' (ON taug f., OE teág) and Gmc haritugan- m. 'commander-in-chief' (ON hertogi, OS heritogo, OE heretoga, OHG herizogo); beside Gmc fanhan 'to catch' the substantive fanga- 'catch' (ON fang n., OHG fang m.); beside Gmc slahan 'to beat' (Goth., OS, OHG slahan, ON slá, OE sleán) Gmc slaga- 'blow' (ON slag n., OE slagu f., OHG slaga f.); beside OHG swehur m. and OE sveor m. 'father-in-law' (= Skt çvaçura-, ἑκυρό-s, socer, OSl. svekrŭ, Lith. szeszura-s) OHG swigar f., OE sveger f. 'mother-in-law' (= Skt. çvaçrû, ἑκυρά, socru-s, OSl. svekry); beside ON flá from *flahan 'flay' ON flaga wk. f. 'layer' and flagna 'come off (the skin from the flesh)'; beside Gmc felhan 'to hide' (Goth. filhan, ON fela, OHG felahan) Goth. fulgina- 'hidden' and ON fjalg-r in compounds 'safe, well kept', and others. In the dental series we have for example Goth. hinþan 'to capture, take prisoner', Swed. hinna st.verb, Dan. dialect hinne 'to reach' beside the Germanic form connected with it handu- 'hand' f. (Goth. handu-, ON hönd, OS hand, OE hond, OHG hant, hand); Gmc finþan 'to find' (Goth. finþan, ON finna, OS fîðan, OHG findan) beside ON fund-r, stem fundi- m. 'gathering'; Goth. fraþan 'to understand, to be reasonable' beside Gmc frôda- 'intelligent, reasonable' (Goth. froda-, ON fróð-r, OS, OE frôd, OHG fruot); Gmc lîþan 'to go' (Goth. leiþan, ON líða, OS lîða, OS lîðan, OE lîðan, OHG lîdan) and liþu- m. 'limb' (Goth. liþu-, ON lið-r, OE lið, OHG lid) beside Gmc laidjan 'to lead' (ON leiða, OS lêdian, OE lædan, OHG leittan) and laida- f. 'way' (ON leið, OE lâd); Goth. soþa- m. 'satisfaction' ga-soþjan 'to sate' beside Gmc sada- 'satisfied' (Goth. sada-, ON sað-r, OS sad, OHG satt = OSl. sytŭ cf. Lat. satur, sat, satis) and others. In the labial series, f and b have fused through secondary sound changes into one sound in most of the Germanic languages, thus obliterating the differentiation originally present. From Gothic, which, like Old High German, kept the two sounds distinct, these forms can be cited: af-lif-nan 'remain over' beside laiba- f. 'remainder'.

If one surveys the cited examples, one may easily be tempted to explain this entire differentiation of the originally voiceless stops as a caprice of the language, to ascribe simply to mere chance the

appearance of the voiced stops in many cases where the voiceless fricative would be expected. Yet just to cite still another striking example, the three identically formed Indo-European relationship terms bhrâtar, mâtar, patar correspond to the Germanic correlatives brôþar, môdar, fadar, though there is no apparent reason why môdar and fadar do not follow the regularly shifted brôþar. One cannot however persist in the hypothesis that this was a chance occurrence. Comparative linguistics cannot, to be sure, completely deny the element of chance; but chance occurrence en masse as here, where the instances of irregular shifting are nearly as frequent as those of regular shifting, it cannot and may not admit. That is to say, in such a case there must be a rule for the irregularity; it only remains to discover this.

Let us first clarify the phonological event. One can readily accept the fact that the Germanic voiceless fricative resulted directly from the Indo-European voiceless stop by a relaxing of the oral closure. On the other hand, the Germanic voiced stop cannot have resulted directly from the Indo-European voiceless stop by voicing, for this would be a sound innovation directly counter to the main direction of the sound shift, which produced a voiceless stop from the Indo-European voiced stop. One must therefore attempt to arrive indirectly from the voiceless stop to the voiced stop, and then the best proposal is Scherer's explanation in the fine section concerning the sound-shift (Geschichte der deutschen Sprache, p. 82): "I now assume that all irregularly shifted tenues were first shifted regularly to voiceless spirants, that these, particularly in frequently used words (like fadar, môdar), were under the influence of the surrounding voiced elements also produced with voice and then, with the beginning of the third part of the shift, took the direction of all the remaining voiced spirants or voiced affricates." If one wants to assert that in the above explanation the so-called affricates (Rumpelt, Deutsche Grammatik I, section 27) must generally be substituted for spirants, then one may do this; it is itself of little importance and especially for our purposes will be a matter of complete indifference, since it is enough for us to have determined that the irregular shifts also followed at one time the sound stage of the regular shifts; from there, however, they progressed further.[1] And we can now phrase the question of the etymological explanation thus: Why did the sound current of the shift in some cases stop with the voiceless fricative and in other cases progress further through the voiced fricative to the voiced stops?

The only person who has sought an answer to this question, as far as I know, is Scherer in the passage just cited. He assumes that the shift to voiced stops occurs "in frequently used words (like fadar, môdar)"; consequently the regular shift occurs in less frequently

used words. I believe that the venerable author did not wish to attach great weight to this attempt at explanation and that he permitted himself to mention it only as a conceivable possibility. A careful scrutiny of the Germanic vocabulary is not favorable to his thesis. Is it probable that fadar and môdar were used more frequently than brôþar? In Ulfila's writings moreover môdar does not even appear, the word aiþei always being used instead; and he uses fadar only once, otherwise however atta, while his broþar has no parallel synonym at all.

Could fehu-, the Germanic epitome for material well-being, cattle, money, wealth, possessions and the like, have been a more infrequently occurring word than, for example, lagu- 'lake' (ON lǫg-r, OE lagu = Lat. lacu-s)? May one assume that our Germanic ancestors used the numbers 4 and 100 (fedvôr, hund) more frequently than the number 10 (tehan)? More such examples could be cited; I will, however, find occasion in what follows to demonstrate the improbability of that thesis.

An attempt to find an etymological rule for the differentiation of the Proto-Germanic voiceless fricative into voiceless fricative and voiced stop by means of a juxtaposition of the Germanic word stock with the comparable word stock of the other Indo-European languages cannot lead to any certain result; for precisely because the differentiation manifests itself so actively in word formation, one cannot be satisfied with a comparison of root-related words; rather, a juxtaposition of words which are identical wherever possible is required, and in this way the comparable materials will become too small for something reliable to be built on it. Happily, however, the investigation can be transferred to another sphere which is significantly more circumscribed and where we can find certain bases for our conjectures. Not enough importance has been placed on the fact that the differentiation of the Proto-Germanic voiceless fricative also appears in the conjugation of certain verbs.[2]

When, for example, we have for OE lîðe 'navigo, proficiscor' a participal form lidan, then here there is apparently the same differentiation as in lið 'limb' as against lid 'vehicle'. That Germanic philology has until now so readily ignored this fact, which is very interesting in itself and demands reflection — for a modification of the root consonant for the purpose of conjugation does not belong to the realm of the commonplace — may have its basis in the fact that Gothic, from which one usually proceeds in a comparison, does not even know this differentiation in the conjugation. It can, however, be established through compilation of the relevant materials that this differentiation in the conjugation originally belonged to all the Germanic languages, and consequently that it must also at one time have been present in Gothic. The Germanic voiceless fricatives and

voiced stops which arose from the Indo-European voiceless stops are so distributed in the conjugation, that all present tense verb forms (inf., pres. ind., subj., imper., and part.) as well as the singular forms of the preterite indicative show voiceless fricatives and all remaining verb forms show voiced stops. I must completely disregard the labial differentiation in the following compilation; it was alluded to above that the differentiation of the labial in word formation was almost completely effaced by later falling together of the sounds; there is no longer any trace to be found in the conjugation.

A. Verbs, whose roots in Indo-European end in k, in Germanic in h (hv), g:

1) root slah, slag 'ferire'[3]
ON slá, sló, slógum, sleginn.
OS slahan, slôh (slôg), slôgun, slagan.
OE sleán, slôh (slôg), slôgon, slägen.
OFris. slâ, slôch, slôgon, e-slein.
OHG slahan, sluoh (MHG sluoc), sluogum, slagan.
OS, OE slôg, MHG sluoc through the influence of the plural forms; thus frequently in the following forms.

2) root þvah, þvag 'lavare'.
ON þvá, þvó, þvógum, þveginn.
OS thuahan, (thuôg), [thuôgun, thuagan].
OE þveán, þvôh, þvôgon, þvägen.
OHG dwahan, dwuoh (MHG dwuoc), dwuogum, dwagan.

3) root lah, lag 'vituperare'.
OS lahan, (lôg), [lôgun, lagan].
OE leán, lôh (lôg), lôgon, [lägen].
OHG lahan, (luog), luogum, [lagan].

4) root flah, flag 'excoriare'.
ON flá, fló, flógum, fleginn.

5) root klah, klag 'fricare'.
ON klá, kló, klógum, kleginn.

6) root vah, vag 'mentionem facere'.
OHG [ge-wahan], -wuoh, -wuogum, [-wagen].

7) root hlah, hlag 'ridere', makes its present forms by means of -ja-.
ON hlæja, hló, hlógum, hleginn.
OS ? [hlôh], hlôgun, hlagan.
OE hlehhan hlyhhan, hlôh (hlôg), hlôgon, [hlägen].
OHG hlahhan, (hluoc) ? ?

8) root fah, fag 'laetari'.
OE ge-feón, -feah, fægon, [fegen].
OHG ge-fehan, -fah, -fâhum, -fehan has abandoned the differentiation.[4]

9) root sahv, sagv 'videre'.
OS sehan, sah, sâgon sâuuun (sâhun), seuuan (sehan).
OE seón, seah, sægon sâvon, seven.
OFris. sia, (sag), sagen, sien.
OHG sehan, sah, (sâhum), sewan (sehan).
The v, which is only manifested in the preterite forms, must also be regarded as a kind of differentiation.
ON sjá, sá, sáum, sénn does not show the differentiation.

10) root falh, falg 'commendare, abscondere'.
ON fela, fal, (fálum), folginn.
OE feolan (felgan), fealh, fulgon (fêlon fælon), (folen, feolen).
ON fulgum is to be expected in the preterite plural; fálum is formed by analogy with fela fal, as if the verb belonged to the second ablaut class (stela, stal, stálum); likewise OFris. bi-fellan for *bi-felhan has gone over to the second ablaut class (bi-fel, -fælon, -felen). OS bi-felahan, -falah, -fulhun, -folhan and OHG felahan, falah, fuluhum, folohan are without differentiation.

11) root tih, tig 'demonstrare, nuntiare'.
OS tîhan, [têh, tigun, tigan].
OE teón tîhan, tâh, [tigon], tigen.
OHG zîhan, zêh, zigum, zigan.
ON tjá has become weak.

12) root þih, þig 'crescere, proficere'.
OS thîhan, [thêh, thigun], thigan.
OE þeon þîhan, þâh (þeah), þigon (þugon), þegen (þogen).
OHG dîhan, dêh, digum, digan.

13) root sihv, sigv 'colare, liquare'.
OE seón, sâh, sigon, [sigen].
OHG sîhan, sêh, [sigum], sigan siwan (sihan).

14) root vrih, vrig 'operire'.
OE vreón vrîhan, vrâh, vrigon, vrigen.
OHG (int-) rîhan, [-rêh] -rigum, -rigan.

15) root lihv, ligv 'commodare'.
OS (far)- lîhan, [-lêh], -liuuum (-lihun), -liuuan.
OE lîhan, lâh, [ligon, ligen].
OHG lîhan, lêh, liwum, liwan (lihan).
Compare No. 9 — ON ljá, OFris. lîa have become weak.

16) root tuh, tug 'trahere'.
ON ----- ----- ----- toginn.
OS tiohan, tôh, tugun (tuhun), togan.
OE teón, teáh, tugon, togen.
OFris. tîa, tâch, tegon, tein.
OHG ziohan, zôh, zugum, zogan.

17) root þluh, þlug 'fugere'.
OS fliohan, flôh, [flugun, flogan].
OE fleón, fleáh, flugon, flogen.
OFris. flîa, ----, flegen, flain.
OHG fliohan, flôh, flugum, flogan.

B. Verbs, whose roots in Indo-European end in t, in Germanic in þ, d.

Old Norse cannot be compared here, since þ and d medially fell together in one sound. Also in the conjugation, Old Saxon merged the two sounds in ð, while keeping them otherwise distinct. It can however be perceived from ON finna, OS fîðan, that both languages at one time recognized the difference in the conjugation, even in the dentals. In OHG, Gmc þ is shifted to d medially (in the Low Franconian Isidore to dh) and Gmc d is shifted to t (in Isidore to d).

1) root kvaþ, kvad 'dicere'.
OE cveðan, cväð, cvædon, cveden.
OHG quedan, quad, quâtum (quâdum), quetan. In Isidore quhedhan (quhedan), quhâdum, quhedan.

2) root fanþ, fand 'invenire'.
ON finna, fann, fundum (funnum), fundinn (funninn).
OS fîðan (findan), (fand), fundun, fundan.
OHG findan, fand, funtum (fundum), funtan (fundan).
OE findan, OFris. finda with d throughout.

3) root varþ, vard 'fieri'.
OE veorðan, vearð, vurdon, vorden.
OFris. wertha, warth, worden, worden.
OHG werdan, ward, wurtum, wortan. In Isidore uuerdhan (uuerdan), (uuard), uurdum, uuordan.

4) root liþ, lid 'ire, proficisci'.
OE lîðan, lað, [lidon] (liðon), liden (liðen).
OHG lîdan, leid, litum, litan.

5) root sniþ, snid 'secare'.
OE snîðan, snâð, snidon, sniden.
OFris. snîtha, snêth, sniden, snein (snithen).
OHG snîdan, sneid, snitum, snitan.

6) root vriþ, vrid 'ligare, torquere'.
OE vrîðan, vrâð, [vridon] (vriðon), [vriden] (viðen).
OHG rîdan, [reid, ritum, ritan] (ridan).

7) root miþ, mid 'evitare'.
OE mîðan, mâð, [midon, miden] (miðen).
OHG mîðan, meid, mitum, mitan.

8) root skriþ, skrid 'gradi'.
OE scrîðan, scrâð, scridon [scriden] (scriðen).

9) root suþ, sud 'coquere'.
OE seóðan, seáð, sudon, soden.
OHG siodan, (sôt), [sutum], sotan.

10) root hruþ, hrud 'ornare'.
OE hreóðan, [hreáð, hrudon], hroden.

The above verbs all belong to the various ablaut classes; of the verbs which in Germanic originally formed their preterite by means of reduplication, only two show differentiation; they, however, do so in such a way that the voiceless fricative is found only in the present forms, while the preterite singular conforms to the remaining preterite forms and shows a voiced stop.

1) root fanh, fang 'capere'.
ON fá, fékk (for * fénk, *féng), féngum, fenginn.
OS fâhan, fêng, fêngun, fangan.
OE fôn (from *fôhan, * fonhan, *fanhan), fêng, fêngon, fangen.
OFris. fâ, fêng, fêngon, fangen fenszen.
OHG fâhan, fiang, fiangum, fangan.

2) root hanh, hang 'pendere'.
ON (hanga), hékk, héngum, hanginn.
OS [hâhan, hêng, hêngun], hangan.
OE hôn, hêng, hêngon, hangen.
OHG hâhan, hiang, hiangum, hangan.

Certainly no one would think of interpreting all these cases as special developments within the individual languages. It would be quite unthinkable that the five languages here treated changed the h in the preterite participle of slahan, for example, to g independently of one another. The differentiation in conjugation must therefore have existed already at a stage of development common to the five languages; indeed even where this differentiation can be established only for one particular language, it may be viewed as a common possession, for a phenomenon which operates in such a special sphere and is due to an insignificant acoustical difference would hardly have been able to produce forms by analogy. If, however, the

differentiation in conjugation was common to the five languages, then Gothic must also once have participated in it. This language, which recognizes the differentiation in word formation, shows consistently the voiceless fricative in the conjugation of verbs, which in the other Germanic languages have the differentiation: slahan, sloh, slohum, slahans; leiþan, laiþ, liþum, liþans; vairþan, varþ, vaurþum, vaurþans; fâhan, fai-fâh, fai-fâhum, fâhans etc. The more frequently occurring present forms won out over the preterite forms and forced their root consonants on them; in this we may see a manifestation of the strong tendency toward uniformity of this language idiom, which also manifests itself elsewhere, for example, in Gothic i, u as against the e, i and o, u respectively of the other Germanic languages. The differentiation in conjugation, therefore, already belonged to the Germanic original language.

If, however, the differentiation in conjugation had its origin in the same language period in which the differentiation in word formation also originated, then it is self-evident that both are simply manifestations of one and the same sound shift; they must therefore be interpreted from one unified viewpoint, a common explanation must be sought for them. The following equation will be generally valid:

$$\frac{\text{Gmc tehan}}{\text{Gmc tegu-}} = \frac{\text{slahana- (inf. stem)}}{\text{slagana- (pret. part. stem)}} = \frac{\text{brôþar}}{\text{môdar}} = \frac{\text{kveþana- (inf.)}}{\text{kvedana- (part.)}}$$

An explanation which is suitable only for one of the differentiations or only for quite isolated cases of the differentiation[5] has thereby the appearance of improbability. Even if the above-cited explanation by Scherer could with great difficulty be adapted to the differentiation in word formation, it still could not be applied to the differentiation in conjugation because one would then have to make the foolish assertion that the plural forms of the preterite indicative, which show the voiced stop (OS slôgun), are more frequently used than the plural forms of the present indicative, which have the voiceless fricative (OS slahad), and that the preterite participle (OS slagan) is more frequent than the infinitive (OS slahan).

From the regular occurrence of differentiation in the conjugation of these verbs, the important conclusion may now be drawn that the differentiating force must be sought in a certain phonetic relationship which varyingly accompanied the conjugation. Through this conclusion the investigation is confined to rather narrow limits. The differentiation took place after the sound-shift had begun; therefore it is peculiar to Germanic. The differentiating impetus, on the other hand, must be older and may very well have already belonged to the Indo-European language. Consequently, this impetus must be sought in that language stage which has its end members in the

underlying Indo-European forms on the one hand and on the other, in the forms to which one can attain through a compilation of the Germanic languages. Fortunately, the principal forms of the Germanic strong verbs are transparently clear back to Indo-European. The Indo-European conjugation is based on the following four means of formation:

1) varying ending
2) varying root vowel
3) the use or non-use of augment and reduplication
4) varying accent

These and no others.

If one now looks at a series of Germanic basic forms, for example:

kveþana-,	kvaþ,	kvâdum,	kvedana-,
slahana-,	slôh,	slôgum,	slagana-,
lîþana-,	laiþ,	lidum,	lidana,

it is readily apparent that the phonetic basis for the differentiation cannot lie in the phonological material of the endings: the endings of the infinitive stem (kveþ-ana-, slah-ana-, lîþ-ana-) is the same as that of the participle stem (kved-ana-, slag-ana-, lid-ana-) and yet differentiation is present. Secondly, the basis cannot be sought in the quantitative aspects of the roots, for the voiceless fricative appears with long as well as short root vowels (lîþana-, slôh; kveþana-, kvaþ, slahana-); the same is true of the voiced stop (slôgum; kvedana-, slagana-). And these same quantitative conditions were already present in Indo-European. Thirdly, and finally the use or non-use of reduplication — the augmented verb forms have been lost in Germanic — could not have caused the differentiation, since then we would have to have for some forms the same root consonants in the entire preterite indicative, which is not the case; for others outside the conjugation, a special explanation would have to be given for the differentiation, since reduplication is essentially a purely verbal process.

Consequently, only one explanation remains and it is no desperate hypothesis, to which I must take recourse because all other attempts at explanation have failed, but rather a decision which has of necessity thrust itself upon me by sober argumentation: The differentiation must be based on the fourth means of formation of the conjugation, on the varying Indo-European accent. This assumption is confirmed in the highest degree by a confrontation of the Germanic verb forms with the corresponding forms of the Sanskrit verbs. When the accent in Sanskrit rests on the root syllable, we have the voiceless fricative for the root final in Germanic; on the other hand,

when the accent in Sanskrit falls on the ending, the Germanic forms show a voiced stop for the root final. In the following compilation, I am juxtaposing to the Sanskrit forms first the etymologically corresponding Germanic paradigm and then a paradigm with the differentiation. Since we are concerned here only with the root final, I am citing the Germanic forms with Gothic endings.

A. The accent rests in Sanskrit on the root; the root final is a voiceless fricative in Germanic.

a. Skt pres. ind. = Gmc pres. ind.

sg. 1.	bhédâmi	=	bîta	lîþa
2.	bhédasi	=	bîtis	lîþis
3.	bhédati	=	bîtiþ	lîþiþ
pl. 1.	bhédâmas	=	bîtam	lîþam
2.	bhédatha	=	bîtiþ	lîþiþ
3.	bhédanti	=	bîtand	lîþand

b. Skt pres. potential = Gmc pres. subj.

sg. 1.	bhédeyam	=	bîtau	lîþau
2.	bhédes	=	bîtais	lîþais
3.	bhédet	=	bîtai	lîþai
pl. 1.	bhédema	=	bîtaima	lîþaima
2.	bhédeta	=	bîtaiþ	lîþaiþ
3.	bhédeyus	=	bîtaina	lîþaina

c. Skt. pres. imper. = Gmc pres. imper.

sg. 2.	bhéda	=	bît	lîþ
pl. 2.	bhédata	=	bîtiþ	lîþiþ

d. Skt pres. part. act. = Gmc pres. part. act.

	bhédant-	=	bîtand-	lîþand-

e. Skt verbal substantive = Gmc infinitive

	bhédana-	=	bîtan	lîþan

f. Skt perf. ind. sg. = Gmc pret. ind. sg.

1.	bibhéda	=	bait	laiþ
2.	bibhéditha	=	baist	laist[6]
3.	bibhéda	=	bait	laiþ

B. The accent in Sanskrit rests on the ending; the root final is a voiced stop in Germanic.

a. Skt perf. ind. pl. = Gmc pret. ind. pl.

1.	bibhidimá	=	bitum	lidum
2.	bibhidá	=	bituþ	liduþ
3.	bibhidús	=	bitun	lidun

b. The Vedic Sanskrit forms vavṛjyús, tuturyâma and the like, first recognized by Westergaard as perfect potential = Gmc preterite subjunctive.

sg. 1.	bibhidyâm	=	bitjau	lidjau
2.	bibhidyâs	=	bitîs	lidîs
3.	bibhidyât	=	biti	lidi

pl.	1. bibhidyā́ma	=	bitîma	lidîma
	2. bibhidyā́ta	=	bitîþ	lidîþ
	3. bibhidyús	=	bitîna	lidîna

c. Forms in -ná- in Skt., usually called perf. part. pass. = Gmc pret. part. pass.

bhin-ná- for *bhid-ná- = bitana- lidana-[7]

Before I pursue further the rule which is disclosed here, I must make a short digression concerning a relationship which has until now remained obscure, but which finds its answer in this context. I am referring to the relation between s and z(r) in the Germanic languages. The IE s corresponds in Gothic partly to r, partly but more seldom and never initially, however, to z, whose phonetic value must be established as a voiced dental fricative. The latter corresponds in the other Germanic languages to an r, which is to be regarded as a further development. In all respects, this differentiation of the original s to s and z(r) in the Germanic languages is parallel to the above-treated differentiation.

Thus we have for example Gmc auzan- n. 'ear' (ON eyra,[8] OS ôra, OE eáre, OHG ôra = Lat. auris f. for *ausis, Lith. ausì-s f., OSl. ucho, stem ušes-); Gmc deuza- n. 'animal' (Goth. diuza-, ON dýr, OS dior, OE deór, OHG tior; from the root dhus, which is in OSl. dŭch-nǫ-ti, dyš-ati 'to breathe', duchŭ 'anima', duša 'soul'); Gmc baza- 'bare' (ON ber, OS, OE, OHG, bar = OSl. bosŭ, Lith. básа-s 'barefoot') etc. with voiced dental fricative; whereas Gmc lausa- 'loose, empty' (Goth. lausa-, ON lauss, OS lôs, OE leás, OHG lôs; from a root lus in Goth. fra-liusan 'to lose'), Gmc mûs-, mûsi- f. 'mouse' (ON mús- f., OE mûs- f., OHG mûs- f. = Skt. mûsh-, mûsha- m., μῦς, μυ-ός, Lat. mûs mûri-s, OSl. myšĭ- f.), Gmc nasa- f. (ON nõs, OE nāse, OHG nasa = Skt. nâsâ f., Lat. nâsu-s, OSl. nosŭ m., Lith. nósi-s f.) and others have preserved the voiceless fricative.

The same differentiation is also found in the conjugation. One example will suffice:

ON	kjósa, kaus, kurum kørum, korinn kørinn,
OS	kiosan, cos, curun, coran,
OE	ceósan, ceás, curon, coren,
OFris.	kiasa, kâs, keron, keren,
OHG	kiosan, kôs, kurum, koran.

Therefore, s and z(r) are distributed in the conjugation in full accord with the distribution of h g, and of þ d.

Here too Gothic avoids the differentiation, i.e. the voiceless fricative of the present forms has spread to all the forms of kiusan, friusan, fraliusan, driusan, visan etc.

All this demonstrates sufficiently that the differentiation of the

s to s and z(r) must in every way be viewed like the differentiation of the Proto-Germanic voiceless fricatives to Germanic voiceless fricatives and voiced stops. If at a certain time and under certain circumstances the three voiceless fricatives of the language: h (Brücke's χ^2), þ (B.'s s^4) and f (B.'s f^1) were voiced, i.e., to the sounds which Brücke designates by y^2, z^4, w^1, it follows almost out of necessity that the fourth and last voiceless fricative of the language: s (B.'s s^3) must also have been voiced (B.'s z^3) at the same time and under the same conditions.[9] Therefore the basis for the differentiation of s to s and z(r) must likewise be sought in earlier accentual relationships, and we can augment the equation set up on p. 144 by the two members.

$$= \frac{\text{Gmc mûsi-}}{\text{Gmc deuza}} = \frac{\text{keusana-}}{\text{kuzana-}}$$

For the differentiation in its entirety, as will be clear from what follows, where the instances of differentiation also occurring outside root syllable are taken into consideration, the discovered rule must be formulated as follows:

IE k, t, p first shifted to h, þ, f in all environments; the voiceless fricatives thus originating, together with the voiceless fricative s inherited from Indo-European, then became voiced medially in voiced environments, but remained voiceless when they were the final sounds of accented syllables.

A simulated Indo-European word *akasatam developed in the Germanic region first to * $ax^2as^3as^4am$ (with Brücke's notation), then, however, further to *$\acute{a}x^2az^3az^4a(m)$, *$ay^2\acute{a}s^3az^4a(m)$, *$ay^2az^3\acute{a}s^4a(m)$, *$ay^2az^3az^4\acute{a}(m)$, according to whether the accent rested on the first, second, third, or fourth syllable. Later, the new Germanic accent principle came into being; z^3 remained a fricative; the other voiced fricatives, however, shifted to voiced stops; and IE *akasatam would then have appeared in Gothic in one of the following forms: *ahazad(am), *agasad(am), *agaza þ(am), *agazad(am).

The fact that the voiceless fricatives did not follow the general tendency and become voiced in accented syllables, is easy to explain physiologically. For the older period of Germanic we have to start with an accent which was not purely chromatic like the accent in Sanskrit and the Classical languages, but which, like modern accentuation, had something expiratory[10] about it, that is, was based on greater activity of the muscles of expiration and to the subsequently stronger exhalation of air. The essential distinction between the voiceless and voiced consonants is dependent on the position of the vocal cords (Brücke, Grundzüge der Physiologie, p. 8.56). For voiceless consonants, the vocal cords are wide open; the air stream

from the chest cavity has free passage: it is therefore more forceful than for voiced consonants, and this stronger expiration of air manifests itself in the stops by a more rigid muscular occlusion and a more powerful explosion. For voiced consonants on the other hand, the vocal cords are brought together almost until they touch; the narrow glottis hinders the free expiration of air; the air-stream is therefore weaker, the occlusion in the oral cavity accompanying the voiced stops and the explosion itself are not as energetic as those of the voiceless stops. Therefore, the stronger expiration of air is an element which the expiratory accent has in common with the voiceless consonants. Accordingly the intensified air-stream in the accented syllable could keep the voiceless fricative voiceless; that is, it could hinder the vocal cords from becoming narrowed for voicing, as happened with the normal expiration of air in the unaccented syllable.

I probably need not remark that here we must not employ the modern hyphenation fa-dar, fin-þan; all the consonants following the vowels belonged to the preceding syllable (fad-ar, finþ-an), as indeed Germanic versification also attests (the Old Norse hendingar, assonance rimes).

I have deduced my rule from the presence of differentiation in the conjugation and it has been shown above that it suffices completely for the explanation of the root final in the conjugation. This is, however, not enough. If the rule is to have general validity, then it must also be able to explain the differentiation in all other cases; it must also be applicable to those root consonants outside the conjugation and finally even for the endings, both inflectional and derivational. I shall now turn my attention to this final test. I shall conscientiously bring up even those isolated cases where the law is not valid. I must again use Sanskrit as comparative member; only rarely do I bring in Slavic and Lithuanian.

The enigma brôþar, môdar, fadar is resolved first of all. The Sanskrit accentuation is bhrấtar-, but mâtár-, pitár-, and according to the rule, in Germanic we must have brôþar in contrast with môdar, fadar. Among other kinship names can be cited: Gmc snuza f. 'daughter-in-law' (OHG snura, OE snóru f., ON snør f.), which entirely corresponds with the Sanskrit word of the same meaning snushấ (= νυό-s, Lat. nuru-s, OSl. snъ̆cha, Russ. snochá). Gmc nefan- m. 'descendant, nephew' = Skt nápât. Gmc svehra- m. 'father-in-law' (OE sveor, OHG swehur, MHG sweher; Goth. svaihran-) = Skt. çváçura-, 'father-in-law' (ἑκυρό-s, Lat. socer, Lith. szészura-s, OSl. svekrъ̆, Russ. svjókor), whereas Gmc svegrâ f 'mother-in-law' (OE sveger f., OHG swigar f.) goes back to Skt çvaçrû́ f. 'mother-in-law' (ἑκυρά, Lat. socru-s, OSl. svekry, Russ. svekróv' f.).

Of the numerals, Skt. daçan 'ten' and pañcan 'five' are paroxytone; to these correspond in Germanic tehan and fimf (Goth. fimf, ON fimm, OS fîf, OE fîf, OHG fimf, finf = πέντε, πέμπε, Lat. quinque, Lith. penkì, pènkios, OSl. pęti). On the other hand are Gmc fedvôr 'four' and hunda- n. 'hundred' (Goth. hunda- n., ON hund, OS hund, OHG hunt) = Skt. catvâras m., catvâri n., catúr- and çatá- n., for *çantá- (ἑ-κατό-ν, Lat. centu-m, Lith. szìmta-s, OSl. sŭto, Russ. sto n.). Gmc seban 'seven' corresponds to Skt. saptán (Vedic Sanskrit, in the classical language accented sáptan = ἑπτά, Lat. septem). Lith. túkstanti-s, OSl. tysąšta, tysęšta f. (for *tysantjâ), Russ. týsjača f. 'thousand' is Gmc þûsundja- f.n. (Goth. þûsundi f., þûsundja n.pl., ON þúsund f., OS thûsint n.pl., OE þûsend n., OHG dûsunt n pl.). Gmc þridjan- 'third' corresponds to Skt. trtîya-. Gmc fedvôrþan- 'fourth' (ON fjórði, OS fiorðo, OE feówerða, feórða, OHG viordo) does not correspond to Skt. caturthá-; perhaps the accentuation in Gmc fedvôrþan- was however in agreement with the accentuation of the Sanskrit cardinal number; cf. Lith. ketvîrta-s, Russ. četvjórtyj, Bulg. četvrŭti.

Other comparable words are:

Gmc fehu-n. 'cattle' (Goth. faihu n., ON fé, OS fehu, OE feó, OHG fihu) is completely identical with Skt. páçu n. 'cattle' (so accented in the Vedas; the masculine form paçú-s is oxytone; Lat. pecu n.).

Gmc ehva- m. 'horse' (ON jó-r, OE eoh, OS ehu-skalk 'groom') = Skt. áçva- m. 'horse' (ἵππο-s Lat. equu-s).

Gmc volfa- m 'wolf' (Goth. vulfa- m., ON ulf-r, OS uulf, OE vulf, OHG wolf: the f of the Germanic base form assured by Gothic and OHG f) corresponds to Skt. vṛ́ka- m 'wolf' (λύκο-s, Lat. lupu-s, Lith. vîlka-s, OSl. vlŭkŭ, Russ. vołk, gen. vółka).

Gmc angan- m. 'curve, arrowhead' corresponds to Skt. aṅká- m.

Gmc haidu- m. 'appearance, way, manner' (Goth. haidu- m., ON heið-r, OE hâd, OHG heit m., cf. Einheit, Gleichheit etc.). Skt. ketú- m. 'appearance of light, brightness, clarity; appearance, form, figure'.

Gmc raþa- n. 'wheel' (OHG rad n.) = Skt. rátha- m. 'vehicle' for *rata- (Lat. rota, Lith. ráta-s).

Gmc hardu- 'hard, stringent' (Goth. hardu-s, ON harð-r, OS hard, OE heard, OHG hart) = κρατύ-s.

Gmc anþara- 'the other' (Goth. anþar, ON annar-r, OS ôðar, OE ôðer, OHG andar) = Skt. ántara- 'the other' (Lith. àntra-s).

Gmc undar- adv. and prep. 'under' (Goth. undar, ON undir, OS undar, OE under, OHG untar) = Skt antár adv. 'within', prep. 'under' (Lat. inter, Oscan Umbrian anter).

Gmc tanþu-, tanþ- m. 'tooth' = Skt. dánta- m. 'tooth'.

Gmc sanþa- 'true' (ON sann-r, OS sôð, OE sôð) = Skt. sánt-,

present participle of the root as 'to be' (ἐόντ-, Lat. praesent-)

Gmc anadi-f. 'duck' (ON önd, OE ened, OHG anut) = Skt. âtí- f. 'a certain waterfowl' νῆσσα, Lat. anati-, Lith. ántis f.).

Gmc maþla- n. 'speech' (Goth. maþla- n., 'place of assembly', but maþljan, 'to speak'; ON mál, OE mäðel) = Skt. mántra- m. 'saying, poem, agreement, advice' (cf. OSl. moli-ti 'to ask, pray', Bohem. modliti, Pol. modlić for *motliti = Lith. maldý-ti 'to ask', Goth. maþljan 'to speak'; Pol. modly f.pl. 'prayers', Lith. maldà f. 'prayer').

Gmc hleuþra- n 'hearing' (OE hleóðor) = Skt. çrótra- n, 'hearing, ear' (Avestan çraothra- n. 'hearing, causing to hear, singing').

Gmc þaþrô 'there' (Goth. þaþro, þaðra) = Skt. tátra 'there'.

Gmc feþra f. 'feather' (ON fjöðr, OS feðara weak f., OE feðer st.f., OHG fedara) = Skt. pátra-, páttra- m. and n. 'wing, feather' (πτέρο-ν, OSl. pero n.).

Gmc rôþra- m.n. 'oar, rudder' (ON róðr m., OHG ruodar n.) = Skt arítra- m. 'rudder', áritra- and arítra- n. 'steering rudder'.

Gmc nôsa f. 'nose' (OE nôsu; cf. ON nös f., OE näse f., OHG nasa f.) = Skt. nâsâ f. 'nose' (Lat. nâsu-s, Lith. nósi-s f., OSl. nosŭ m.).

Gmc hazan- m. 'hare' (ON héri, OE hare, OHG haso, in which z has reverted to s) = Skt çaçá- m. for *çasá- 'hare'.

Gmc fersna f. 'heel' (Goth. fairzna, OE fiersn, OHG fersna) = Skt. pârshṇi f. 'heel' (= πτέρνα).

Goth. amsa- m. 'shoulder' = Skt. áṁsa- m.n. 'shoulder' (ὦμο-s, Lat. umeru-s).

Of the words for which the rule is not valid, I have noted the following:

Gmc hvaþara- 'both' (Goth. hvaþar, ON hvár-r, OS hueðar, OHG hwedar), but Skt. katará- (πότερο-s, Ionic κότερο-s, Lith. katrà-s).

Gmc hersan- m. 'head' (ON hjarsi, hjassi), but Skt. çîrshán- n. 'head'.

Gmc hvehvla- n. 'wheel' (ON hjól, OE hveól, hveohl), but Skt. cakrá- m.n. 'cart-wheel, circle' (= κύκλο-s).

Gmc maisa- m.f. 'sack, basket' (ON meis-s, OHG meisa), but Skt. meshá- m. 'ram, the fleece of the sheep and what is made from it' (Lith. maísza-s 'large sack', OSl. měchŭ m. 'hide, skin': Bugge, Zeitschr. XX, p. 1).

Gmc fadi- m. 'master, husband', only as the last member of a compound (Goth. fadi- m.), but Skt. páti- m. 'master, husband' (πόσι-s, Lith, pàti-s, pat-s).

In the Sanskrit causatives, the accent falls on the ending: bhâráya- sâdáya-, vedáya-, etc. The Germanic causatives agree with this accentuation, as may be seen from the following examples:

Gmc hlôgjan 'to make laugh' (ON hlœgja; Goth. uf-hlohjan with h by analogy with the basic verb), causative of hlahjan 'to laugh'.
Gmc hangjan 'to cause to hang' tr. (ON hengja, OHG hengan, henkan), causative of hanhan 'to hang' intr.
Gmc laidjan 'to lead' (ON leiða, OS lêdian, OE lædan, OHG leittan), causative of lîþan 'to go'.
Gmc fra-vardjan 'to spoil', causative of Goth. fra-vairþan 'to be ruined'.
Gmc sandjan 'to send' (Goth. sandjan, ON senda, OS sendian, OHG sentan; cf. Lith. siunczù 'I send'), causative of a lost verb sinþan 'to go', cf. sinþa- m. 'course, time' (Goth. sinþa-, ON sinn n., OS sîð, OHG sind).
Gmc nazjan 'to save' (OS nerian, OE nerjan, OFris. nera, OHG nerian: Gothic again by analogy nasjan), causative of nesan 'to recover'.
Gmc laizjan 'to teach' (ON læra, OS lêrian, OE læren, OHG lêran: Gothic by analogy laisjan), causative of a verb lîsan 'to know' inferable from Goth. lais 'I know'.

On the other hand, no Germanic causatives occur with h, þ, s, as root final, since lausjan 'to loosen' (Goth. lausjan, ON leysa, OS, OHG lôsian, OE lŷsan) is not the causative of leusan 'to lose', but rather the denominative of lausa- 'loose'. We can therefore (as a pre-Germanic form of the Skt. sâdáya- 'to set') assume a form *satája-, more correctly perhaps *satíja. With the appearance of the new principle of accentuation, we would have sátija-, and only then the earlier stressed vowel of the ending was lost and satja- resulted. In hlôgjan as against hlahjan, the evident contrast between the causative-forming and the present tense-forming -ja should be observed by the way; the latter required root stress (the fourth class in Sanskrit).

In Sanskrit, from the substantives which signify a masculine being, the corresponding feminine forms are frequently constructed by means of the suffix -î: devá- m., 'god', devî- f. 'goddess'; putrá- m. 'son', putrî- f. 'daughter'; meshá- m. 'ram', meshî- f. 'ewe'; sûkará- m. 'boar', sûkarî f. 'sow'; mátsya- m. 'fish', f. matsî; çván- 'dog' f. çunî; tákshan- m. 'carpenter', takshnî f. 'wife of the carpenter'; dhártar- 'carrier, supporter', f. -trî; bhártar- 'supporter, maintainer', f. -trî etc. The feminine form is oxytone even when the masculine form is accented otherwise. The Indo-European form of this suffix must be posited as -yâ, as may be seen from the corresponding Greek forms: σώτειρα for *σώτερ-jα, τέκταινα for *τέκταν-jα = Skt. takshnî for *takshan-yâ. This feminine-forming suffix is also evident in Germanic, although more seldom; thus we have from þeva- m. 'boy, servant' (Goth. þiu-s, stem þiva-, þEWAR in the oldest Runic language, OE þeóv) a form

þivja- f. 'woman slave, maid-servant' (Goth. þivi, stem þiuja-, ON þý, gen. þýjar, OS thiui, OHG diuwa) against galtu- m. 'castrated swine' (ON gǫ̃lt-r) a form goltja- f. 'sow' (ON gylt-r f.). Also explained thus is ON ylg-r f. 'she-wolf', stem ylgja-; the Germanic form is *volgja, the feminine of volfa- m., which stands for *volhva-, just as fimf for *finhv.[11] Gmc *volgja, therefore, also agrees in its accentuation with vṛ́kī of the same meaning, just as volhva- agrees with Skt. vṛ́ka-.

As can be seen, those cases of the differentiation of root consonants occurring outside the conjugation fit very nicely into the proposed rule. All that now remains is to establish the validity of the rule even for those cases of differentiation occurring in the endings. In the above, we have already encountered an example in Gmc þûsundja-; if the Pre-Germanic accent was situated on the first syllable of this word, then the t of the ending had to appear in Germanic as d. Since the strong verbs in Germanic can, with only a few isolated exceptions, be traced back to verbs of the first and fourth Sanskrit classes, which accentuate the root syllable, we have to expect Gmc d for the frequent t in the Indo-European conjugational endings. This is, in fact, the case. So we have Gmc d for IE t in the following endings:

Gmc 3rd sg. pres. ind. berid (OS -d, OHG -t, Goth. -þ, according to the Gothic law of finals for -d, which also occurs) = Skt. bhárati, φέρει, fert.

Gmc 2nd pl. pres. ind. berid (Goth. -þ, for -d, which also occurs; OHG -t) = Skt. bháratha, φέρετε, fertis.

Gmc 2nd pl. pres. subj. beraid (Goth. -þ for -d, which also occurs; OHG -t) = Skt. bháreta, φέροιτε, ferâtis.

Gmc 2nd pl. pres. imper. berid (Goth. -þ, -d, OS -d, OHG -t) = Skt. bhárata, φέρετε, ferte.

Gmc 3rd pl. pres. ind. berand (Goth. -nd, OHG -nt) = Skt. bháranti, φέρουσι, ferunt.

Goth. 3rd sg. pres. ind. pass. bairada = Skt. bhárate, φέρεται.

Goth. 3rd sg. pres. subj. pass. bairaidau = Skt. bháreta, φέροιτο.

Goth. 3rd pl. pres. ind. pass. bairanda = Skt. bhárante, φέρονται.

Goth. 3rd pl. pres. subj. pass. bairaindau = φέροιντο (Skt. bháreran).

Goth. 3rd sg. imper. (mid.) bhairadau (atsteigadau ℓ Matthew 27, 42) = Skt. bháratâm.

Goth. 3rd pl. imper. (mid.) bhairandau (liugandau I Cor. 7,9) = Skt. bhárantâm.

Gmc pres. part. act. berand = Skt. bhárant-, φέροντ-, ferent-.

The s in the Indo-European conjugational endings becomes z in the Goth. 2nd sg. pres. ind. pass. bairaza = Skt. bhárase, φέρῃ; in subjunctive bairaiza = φέροιο (Skt. bhárethâs).

The second singular present form causes difficulties. The 2nd

sg. pres. ind. bhárasi in Sanskrit would according to our rule lead to a Germanic basic form beriz. ON berr presupposes this basic form; Goth. bairis can be traced back to beriz or beris; OS, OHG biris only to beris; OE byrest and OFris. berst have been extended by an epenthetic t. The 2nd sg. pres. subj. bháres, φέροις, ferâs would lead to the Germanic basic form beraiz, which may also be assumed from ON berir, OE and OFris. bere; Goth. bairais on the other hand can be traced back to beraiz or to berais, OS beras and OHG berês only to berais. I shall attempt an explanation of these irregularities. For all the Germanic languages the basic form beriz was at one time valid in the second singular present indicative. The -z must have become -s in the special life of Gothic. In Old Norse the -z remained and became -r in the further course of the sound development. In the West Germanic languages, the -z should have disappeared in accordance with the laws of finals applicable to these languages; see Scherer, Zur Geschichte der deutschen Sprache, p. 97ff. One would therefore expect in the West Germanic area a form *beri or *ber for beriz; this apocopated form was, however, too short for the language and could easily have been confused with other forms; hence, the language sought, for the purpose of clarity, to preserve the fuller form, a fact which so affected Old Saxon and Old High German that they made the -z, which was impossible in final position, voiceless; whereas Old English and Old Frisian changed the -t originating in the 2nd person of the preterite-present (OE þearf-t, vil-t, OFris. skal-t, wil-t) to s. The situation of the subjunctive form is similar; the posited basic form beraiz regularly becomes ON berir, Goth. bairais, OE, OFris. bere, whereas Old Saxon and Old High German on the other hand have again established -s.

The ending -tá- in the perfect participle passive in Sanskrit corresponds in the Germanic weak verbs to the ending of the preterite participle passive -da-: Goth. tami-da = Skt. dami-tá, Lat. domi-tu-s; Goth. sati-da = Skt. sâdi-tá-; frijô-da-, habai-da- etc. With this same suffix are formed: Goth. munda- 'believed', participle of munan = Skt. matá- for *mantá-. Gmc kunda- (Goth. goda-kunda- 'of good birth', OE feorran-cund 'originating from afar' = Skt. jâtá- 'born' for *jantá-. Gmc hlûda- 'loud' (OE hlûd, OHG hlût) Skt. çrutá- 'heard', κλυτό-s, Lat. (in)clutu-s. Gmc kalda- 'cold' (Goth. kalda-, ON kald-r, OS kald, OE ceald, OHG calt) from the root kal, ON kala strong verb 'to freeze': cf. Lat. gelu, gelidus, gelare. Gmc alda- 'old' (OS ald, OE eald, OHG alt) = Lat. altus, cf. ad-ultu-s, from the root al in ON ala = Lat. alere. Gmc dauða- 'dead' (ON dauð-r, OS dôd, OE deád, OHG tôt, but Goth. dauþa- with þ by analogy with the juxtaposed substantive Gmc dauþu- m., Goth. dauþu, ON dauðr, OS dôð, OE deáð, OHG tôd), from a root dau, ON

deyja, OS dôian, 'to die'. Probably here belongs also the fem. Gmc þeuda 'people' from the Indo-European root tu, 'to grow' = Lith. dialect tautâ, Latvian tauta, Umbrian tūtu).[12]

In Sanskrit, the primary suffix -ti- forms the feminine nomina actionis, which are sometimes paroxytone, sometimes oxytone: gáti- 'way, going' from the root gam 'to go', sthíti- 'standing' from the root sthâ 'to stand', yûti- 'joining' from the root yu 'to yoke', pîtí- 'drink' from the root pā 'to drink', pûrtí- 'filling, granting' from the root pṛ̂ 'to fill', etc. That oxytonation was more widespread earlier is seen from the fact that a great many of these forms are oxytone in the language of the Vedas which appear as paroxytone in the later classical language; so for example kîrtí- 'thinking, mentioning', ishṭí- 'impulse, wish', paktí- 'cooking, digestion', bhûti- 'powerful existence, vitality', matí- 'devotion, opinion, insight', râti-, 'bestowal, gift', vittí- 'finding, discovery', vîtí- 'enjoyment', vṛshṭí- 'raining' and others; in the Classical language kírti-, íshṭi-, pákti- etc. In Germanic this suffix is -þi- or -di-. Only rarely does it occur in the form -þi-: Goth. ga-qum-þi f. 'meeting', cf. the above-cited Skt. gáti- for *gámti-; Goth. gabaurþi- f. 'birth' (root bar 'to bear'); more frequently, however, the suffix occurs in the form -di-: Goth. ga-mun-di- f. 'memory' = Skt. matí- for *mantí- 'understanding, opinion', Gmc spôdi- f. 'success' (OS spôd, OE spêd, OHG spuot) = Skt. sphâtí-[13] 'growth, thriving', root sphâ, sphâ-yati 'he puts on weight, becomes stouter' = OSl. spě-jetъ 'he has success' = Lith. spė́-ja 'he has time, opportunity' = OE spê-v-eđ 'he succeeds'; Gmc sâdi- f. 'seed' (Goth. m. mana-sedi- 'crowd of men', ON sáđ, OHG sât) from the root sâ 'to sow'; Gmc skordi- f. 'shearing' (OHG scurt 'tonsure'), root skar 'to shear, cut', cf. κάρσι-s 'shearing' and others.

By means of the secondary suffix -tâ f., Sanskrit quite frequently forms abstracts from adjective stems; which accent the syllable preceding the suffix, as for example çuklátâ 'white substance' from çúkla- 'white' âryátâ 'an honorable bearing' from ârya- 'Aryan, venerable', nyûnátâ 'defective condition' from nyûna- 'defective', krûrátâ 'cruelty' from krûrá- 'cruel', paṅgútâ 'lameness' from paṅgú 'lame', pṛthútâ 'breadth' from pṛthú 'broad' etc. The formations in -þa f. in Germanic which correspond in every way are very numerous: so for example Gmc folliþa f. 'fullness' (OHG fullida) = Skt. pûrnátâ 'fullness', from Gmc folla- 'full' (Goth. fulla-, ON full-r, OS full, OE ful, OHG fol) = Skt. pûrná-, 'fullness'; Goth. gauriþa f. 'grief' from Goth. gaura- 'grieved', which is perhaps to be compared with Skt. ghorátâ 'horribleness' from ghorá- 'horrible'; Gmc hailiþa f. 'health' (OHG heilida) from haila- 'healthy, well' (Goth. haila-, ON heil-l, OS hêl, OE hâl, OHG heil), to which Skt. *kalyátâ from kalya- 'well' would correspond; Gmc sâliþa f.

'happiness' (OS sâlôa, OE sælð, OHG sâlida) from sâla-, sâlja 'happy' (Goth. sela-, ON sæl-l, OE sêl); Gmc deupiþa f. 'depth' (Goth. diupiþa, ON dýpt) from deupa- 'deep' (Goth. diupa-, ON djúpr, OS diop, OE deóp, OHG tiuf) etc.

Goth. þivadva- n. 'servitude' from þiva- m. 'servant' corresponds to the frequent Sanskrit secondary forms in -tva-, as for example pitṛtvá- n. 'fatherhood' from pitár- 'father'; patitvá- n. 'wedlock' from páti- m. 'husband, master'; jñâtitvá- n. 'kinship' from jñâti- m. 'kinsman'; brâhmaṇatvá- n. 'Brahmin priesthood' from brâhmaṇá- m. 'Brahmin'. I do not know the feminine form of this suffix for Sanskrit; it appears however in Gothic in fijaþva f. 'enmity' from fijan 'to hate', frijaþva f. 'love' from frijon 'to love', saliþva, only pl. f. saliþvos 'lodgings, quarters' from saljan 'to stop at', and seems to be used for forming abstracts from verbal stems and in this is like the corresponding OSl. suffix tva- f., for example in žrŭ-tva- f. 'sacrifice' from the root žrŭ, inf. žrě-ti 'to sacrifice'; bitva f. 'battle' from bi-ti 'to beat'; klętva 'oath' from klę-ti 'to swear'; žętva 'harvest' from žę-ti 'to reap'; molitva 'prayer' from moli-ti 'to pray'; lovitva 'hunt, chase' from lovi-ti 'to chase'; selitva 'settling, dwelling' from seli-ti sę 'to settle, establish oneself'; cf. O někotorychŭ zakonachŭ Russkago udarenija Ja. Grota, St. Petersburg 1858, p. 41 (off-print from the Reports of the Second Department of the Academy, vol. VII). The newer Slavic languages which have maintained the free accent show an accentuation of the syllable preceding the suffix: Russ. žértva; Russ. bítva; Russ. kljátva = Bulg. klétvŭ = Serb. klêtva, which according to certain laws[14] stands for klétva; Russ. žátva = Bulg. žétvŭ = Serb. žȅtva for žètva; Russ. molítva = Bulg. molítvŭ = Serb. mòlitva for molítva; Russ. ~~l~~ovíta. The þ in the Germanic form of the suffix agrees with this accentuation; perhaps Goth. saliþva from saljan is the same word as OSl. selitva from seliti, although the latter goes back to *sedlitva from *sedliti (Bohem. sedliti, Pol. siedlić).

The primary suffix -as in Sanskrit forms neuter substantives which in meaning are usually nomina actionis and have the accent on the root syllable. Forms of this sort are found in all Indo-European languages; thus in Greek the neuter substantives in -ϵs-, nom. -os, also with the accent always on the first syllable, in Latin in -or-, -er-, nom. -us: Skt. jánas = γένος = Lat. genus, Skt. árças 'wound' = ἕλκος = ulcus 'ulcer', Skt. sádas 'seat' = ἕδος, Skt. ándhas 'herb, plant' = ἄνθος 'flower', Skt. vácas 'word' = ἔπος, Skt. çrávas 'fame' = κλέος, Skt. sáras 'water' = ἕλος 'swamp', Skt. mánas 'spirit' = μένος 'courage, power', Skt. nábhas 'cloud' = νέφος, Skt. rájas 'dust, darkness' = ἔρεβος 'darkness of the underworld', Skt. yáças 'fame' = Lat. decus, Skt. ápas 'work' = opus, Skt. râdhas 'strength, wealth' = Lat. rôbur, Skt. áyas 'metal, bronze' = Lat. aes. In

agreement with the accentuation in Sanskrit the suffix in Germanic has the form -ez(a); so Gmc aiza- n. for *ajez- 'ore' (Goth. aiza-, ON eir, OE ær, OHG êr) = Skt. áyas, Lat. aes; Gmc seteza- n. 'seat' (ON setr n. 'domicile', sólarsetr n. 'sunset') = Skt. sádas, ἕδος; Gmc rekveza- n. 'darkness' (Goth. riqiza-, ON rökkr n.) = Skt. rájas, ἔρεβος; Gmc bareza- n. 'barley' (ON barr n., Gothic in bariz-eina- adj. 'barley') = Lat. far, gen. farr-is 'spelt'; Gmc hateza- 'hate' (Goth. hatiza-, ON hatr); Gmc faheza- n. 'sheep' (ON fær, OSwed., ODan. fár; see Steffensen in Tidskrift for filologi, New Series, II, p. 70) = Lat. pecus, oris 'cattle'. Here Fick's correlation of Gmc aruza- n. 'scar' (ON örr n.) with Skt. árus n. 'wound' can also find its place.

The Sanskrit gradation suffixes, comparative îyaṁs- and superlative ishṭha- require accentuation of the stem syllable, even when the accent falls on the endings in the positive degree: vára- 'excellent', várîyaṁs-, várishṭha-: dîrghá- 'long', drâghîyaṁs-, drâghishṭha-; gurú-, βαρύς, gárîyaṁs-, gárishṭha-. This retracting of the accent also occurs in Greek, as is well-known: ἡδύ- 'sweet' = Skt. svâdú-, comp. ἡδιον = Skt. svâdîyaṁs-, sup. ἥδιστο- = Skt. svâdishṭha; ἐλαχύ 'easy' = Skt. laghú-, comp. ἐλασσον- = Skt. lághîyaṁs-, sup. ἐλάχιστο- = Skt. lághishṭha-; κακό- 'bad' κάκιον-, κάκιστο-, etc. The accentuation of the newer Slvaic languages also indicates this accent change, which may therefore be established as Indo-European. In agreement with the root accentuation attested by Sanskrit, Greek, and Slavic in gradation, the comparative suffix in Germanic appears in the form -izan-, -ôzan-, in the adverbially used neuter forms as -iz, -ôz: Gmc batizan-, 'the better' (Goth. batizan-, ON betri, OS betiro, OE betra, OHG beȝiro); Gmc blindôzan- 'the blinder one' (Goth. blindozan-, ON blindari, OS blindoro, OE blindra, OHG blindoro); Gmc batiz adv. 'better' (ON betr, OS bat, bet, OE bet, OHG baȝ); Gmc nâhviz, nâhvôz adv. 'nearer' (Goth. nehvis for nehviz, ON nærr, OS OHG nâhor); Gmc sîþôz adv. 'later' (ON sîðar, OS sîðor, OHG sîdor). In Gmc junga- 'young' (Goth. jugga-, ON ung-r, OS OHG jung, OE geong = Skt. yuvaçá- 'youthful', Lat. juvencu-s, basic form *yuvanka-), comp. Gmc junhizan - (Goth. jûhizan- for *junhizan-, ON œri, according to Thórodd with nasal œ for *jõhizan-, *junhizan-) and superl. ON œst-r for *junhista-, may reflect the change of accent in svâdú-, svâdiyaṁs-, svâdishṭha-, ἡδύ-, ἥδιον-, ἥδιστο-; ON yngri, yngstr, OS jungaro, OE geongra, gyngra, geongost, gyngest, OHG jungiro and the like may then be viewed as later analogy formations.

Finally, what may be said about the s, which occurs frequently in Indo-European declensional endings? In the nominative singular masculine the ending -s was to be expected according to our rule for all originally oxytone and one-syllable stems: jungás, daudás,

hardús, haidús, kûs = Skt. gaus 'cow', hvas = Skt. kas 'who' etc.; for all other stems, the ending -z: vólfaz, ámsaz, máisaz, sanþaz, ánþaraz, dáuþuz, éhuz etc. In the genitive singular of the feminine a-stems, -s and -z would similarly be expected according to the accentuation: snuzós, þeudós, but nósôz, férsnôz, follíþôz, salíþvôz etc. So too in other declensional endings which include IE s. Germanic, however, generally shows only -z[15]: n. sg. m. volfaz (Goth. vulfs, according to the Gothic law for finals for *vulfz, ON ulfr, oldest Runic language -AR; in the West Germanic languages with regular loss of the -z: OS uulf, OE vulf, OHG wolf); gen. sg. fem. gebôz (Goth. gibos for *giboz, ON gjafar, OS gebo, geba, OE gife, OHG gebo); n. pl. m. volfôz (Goth. vulfos for *vulfoz, ON ulfar, OHG wolfa) etc. The language observed unity of inflectional endings. Where the phonetic development would have impaired unity, the language suspended the sound law and monopolized the most frequently occurring ending, and in the above case, that was the inflectional ending of the non-oxytone stems. The third pl. ind. sind (Goth., OS, OE sind, OHG sint) is just like this; Skt. sánti led to Gmc *sinþ; the ending of the third plural indicative was -nd elsewhere however, and sinþ had to submit to this.

We can now survey in broad outline the history of Germanic accentuation from the oldest Indo-European time up to the present. The Indo-European accent was by nature purely chromatic, in position absolutely free. We must assume that in the Sanskrit accentuation — when we disregard the clearly non-original Svarita — we possess a relatively true picture of that ancient accentuation. In the common European language period, the accent still had its original character: that it was still purely chromatic is assured by the accent of the Classical languages; that, moreover, it still had its full freedom is assured by the free accentuation of Lithuanian and several New Slavic languages. Only after Germanic had separated from its closest neighbor, Slavo-Lithuanian, and had begun its special life, do we encounter the accent somewhat changed in nature; it had become expiratory or perhaps, since it probably still retained along with the expiratory accent its chromatic character, chromatic-expiratory. But the Proto-Germanic accentuation had maintained, with surprising integrity, the second characteristic feature of the Indo-European accent, freedom. The transition to fixed accentuation (root accentuation) which followed is an analogical formation which was thoroughly carried out. Those instances in which the accent rested on the root syllable were already in the majority under the old accent principle, and this method of accentuation then spread in Proto-Germanic, when those word forms which had the accent on the ending gradually retracted it to the root syllable. From the strict carrying out of root accentuation in all living Germanic

languages, it might be surmised that the transition to the new accent principle was already accomplished before the Germanic basic languages split into dialects. Contrary to this, however, are the pronominal forms unsih, inan, imo, iru, ira, which often count as oxytone in Old High German versification; their accentuation is difficult to explain otherwise than as an inheritance from the time of free accentuation, for the last four forms correspond successively to the Sanskrit oxytone forms imám, asmaí, asyaí, asyâs (cf. Scherer, Z.G., p. 152). It must therefore be accepted, that, in the division of the Germanic basic language, the accentuation of the root syllable was indeed dominant, that, however, at the same time, forms with the old accentuation still survived which only gradually conformed in the individual languages to the main trend.

The conclusions, to which my investigation has led me, will perhaps be considered highly remarkable. It may of course seem strange that an accentual principle which perished in grey antiquity may be subsequently traced today still in the Germanic verbal forms ziehen gezogen, sieden gesotten, schneiden geschnitten. It is astounding that Germanic consonantism gives us the key to the prothnic accentuation, whereas this had formerly been sought vainly in the Germanic vocalism. If my conclusions, however, are found to be remarkable, then I hope that they will not to the same degree be found improbable. Remember the course of the investigation. Proceeding from a seemingly irregular point in the conjugation by apagogic reasoning — a means of proof which is not despised even by exact mathematics — I have arrived at an explanation which was not only completely satisfactory for that point; but at the same time a series of language phenomena also viewed previously as irregularities were proved in this way to be completely organic products of the development of the language. Precisely in the harmonic interrelationship of various language phenomena with one another and with the total development of language as discovered through this explanation, I find the best confirmation for the correctness of my demonstration.

If my conclusions are accepted by the critics, we have in them a starting point for a further investigation into Proto-Germanic accentuation. In that way we will get nearer to the great question of the origin of ablaut. That the basic principle in Holtzmann's ablaut theory, the assumption of a far-reaching influence of accentuation on the vocalism, is certain, is for me a settled matter; but the form which Holtzmann has given his theory can not be brought into accord with the one arrived at here and must be completely modified.

The most important new results of the above investigation are briefly the following:

1) Germanic still had the free Indo-European accent after the beginning of the sound-shift.

2) The accent however, was no longer purely chromatic as in Indo-European, but was at the same time expiratory.

3) If IE k t p are sometimes found in Germanic as h þ f, sometimes as g d b, this was conditioned by that older accentuation.

4) Likewise, the bifurcation of IE s into Gmc s and z medially depends on the earlier accentuation.

5) The first sound-shift – making allowance for the unconditional non-shift in certain consonant complexes – allows no large groups of exceptions.

Copenhagen, July 1875

Notes

1. It is therefore incorrect, for example, to speak of a differentiation of IE t into Gmc þ and d; it was Gmc þ that divided into þ and d.

2. Compare Braune's essay "Ueber den grammatischen Wechsel in der deutschen Verbalflexion" in the Beiträge zur Geschichte der deutschen Sprache und Literatur by H. Paul and W. Braune, I. 513ff. Footnote by editor (presumably A. Kuhn).

3. The forms in () are analogical formations; the forms in [] do not occur, or more correctly, I cannot verify them.

4. The Old Norse adj. feginn 'happy' may in form be the preterite participle passive to the root fah fag (compare Old English); it is however better attributed to OS fagan, OE fagen, which have the same meaning; umlaut was then caused by the palatal (k, g with following e, i) as frequently happens in ON: lengi adv. = OS, OHG lango, OE lange; degi dative sg. of dag-r; the participles ekinn, tekinn, dreginn, sleginn, fenginn, etc.

5. This is true, for example, of Pauli's attempt (Zeitschrift XIV, p. 102) to explain the d in fadar, môdar as against the þ in brôþar by a folk etymological association with Germanic fôjan 'pascere' or môdi- f 'anger, courage'. Apart from the fact that it requires very vivid, popular linguistic fantasy to associate the concept present in 'mother' with that in 'anger, courage', the explanatory words themselves require an explanation, since fôdjan and môdi likewise have a d from IE t. Do we then have to assume a folk etymological association for these words also?

6. The second person preterite indicative in the West Germanic languages (OS biti, lidi; OE bite, lide; OHG bizi, liti) is the subjunctive form which has penetrated into the indicative = Goth. biteis, liþeis.

7. Leo Meyer relates the Germanic preterite passive with the Sanskrit forms in -ânâ- with reduplication, thus bitana = bibhidânâ-; also in this case the voiced stop in lidana- agrees with the Sanskrit accentuation.

8. The z arising from r brings about in Old Norse (very seldom in Old Swedish and Old Danish) umlaut of the directly preceding root vowel: ker, 'vessel', gær 'yesterday', dýr 'animal' dreyri 'blood', ber 'loose, empty', reyr 'reed', frörinn 'frozen', kýr 'cow' sýr 'sow'. Cf. Bugge, Tidskrift for Philologi VII, p. 320; Wimmer, Fornnordisk Formlära, Lund 1874, Section 12, note 2; Steffensen, Tidskrift, new series, II, p. 71.

9. The following additional conclusion would be tempting: If at one time all voiceless fricatives of Germanic came to be voiced under certain conditions, then the voiceless stops k, t, p under like circumstances must also have become voiced (g, d, b). This however, as is known, did not occur. Therefore – as can be inferred – the differentiation took place at a time when the language did not yet know these sounds in a voiced environment, i.e., before the last part of the sound-shift, the transition of the IE g, d, b, to k, t, p, had taken place. Such a conclusion is, however, inadmissible. Latin shows a similar transition of Proto-Latin h, þ, f (Ascoli, Zeitschr. XVII, p. 241), arising from IE gh, dh, bh, which also became voiced in a voiced environment. The s here too follows the other voiceless fricatives and develops further to r. Medial c, t, p were, however, not at all affected by this sound shift.

10. The accent is of twofold nature in the Indo-European languages. Either the accentuation of a syllable occurs by the vocal cords becoming more strongly tensed; in that way a higher pitch is produced in opposition to the lower pitch of the unaccented syllables. The Sanskrit and Classical accent was of such a kind, and this is also the original meaning of the name accentus, προσῳδία. I call this accent chromatic. On the other hand the accentuation of the syllable consists in this that the muscles of expiration are set in greater activity, the stronger expiration of air intensifies the voice, and thus a relative forte is produced in opposition to the piano of the unaccented syllables. This may be called expiratory accent; Brücke describes it in his work: Die physiologischen Grundlagen der neuhochdeutschen Verskunst, Vienna 1871, p. 2. There is also a combination of both accents when the voice in the accented syllable can not only be raised, but also intensified, and in the cited work, p. 3, Brücke shows how the expiratory accent tends to take on a stronger or weaker chromatic coloring. This accent must be called a chromatic-expiratory accent. Skt mánas, Gk μένος have the pure chromatic accent on the first syllable; this can be given the musical expression  . The Serbian accusative vodu 'aquam' has the pure

expiratory accent on the first syllable, musically expressed  ; Vuk Stefanović denotes this accent by \\. In the nominative of this same word, voda, on the other hand, a chromatic-expiratory accent is found on the first syllable, which might be indicated by  ; this accent Vuk Stefanović denotes by \. When Brücke (in the above-cited work) asserts "it is incorrect to attempt to distinguish a word accent consisting in tone elevation from a word accent consisting in tone intensification," then on this point I cannot agree with this expert in physiology. Anyone who has heard the Swedes pronounce the peculiar articulation of their kalla, gata, ögon, syster, saker and such words, will have to admit, firstly that the syllable with the expiratory accent does not necessarily lie higher on the tone scale than the unaccented syllables; secondly, that there can be a raising of the voice (chromatic accent) in addition to and independent of the expiratory accent; for in these Swedish words the expiratory accent rests on the root syllable, but the voice is raised on the final syllable at the same time that it decreases in expiratory power ("hvaruti, om än utan ljudvigt, rösten liksom svänger sig uppför," Rydqvist, Svenska språkets lagar IV, p. 211). This pronunciation could be musically designated thus:  . Therefore, the mentioned words have two accents, so to speak, a purely expiratory one on the root syllable and a purely chromatic one on the final syllable. An ancient Greek ear would perceive only the last syllable as accented (kalla = καλλά); the Swedish ear hears only the accent on the first syllable, which is why the native grammarians speak of a "low tone" ("låg ton") for this syllable, though this, of course, is not quite correct, since the syllable is not beneath but on the level of the normal speech tone, while the final syllable is raised above that level. Norwegian also has this method of accentuation. In an article in Christiania Videnskabs-Selskabs Forhandlinger 1874, p. 296, Joh. Storm explains: En général les syllabes atones ont ici un ton plus haut. Ceci est contraire à l'usage de la plupart des langues européennes et montre que l'élévation de la voix (angl. pitch) et le renforcement ou l'appui (angl. force) sont deux choses différentes, comme l'a très bien fait ressortir M. Ellis dans son travail sur l'accent (Transactions of the Philological Society, 1873-4, Part I p. 113 ff).

11. The sound change xv-(xf-) f is also known elsewhere. It is found, for example, in the South Slavic languages: Bulg. falŭ, Serb. fala, OSl. chvala 'praise'; Bulg., Serb. fat 'a linear measure' for chvat; Bulg. fraste 'branches' for chvraste and others. Furthermore, in Lapp loan-words: fadno = ON hvönn, feres = ON hverr, fales = ON hvalr; see Thomsen "Ueber den Einfluss der germanischen Sprachen auf die finnischlappischen", p. 68.

12. Gmc kunþa- 'known', (Goth. kunþa-, ON kunn-r, OS kûð, OE cûð, OHG kund; pret. part. pass. of kunnan) may not be cited as

contrary to the rule. The phonetic phenomena accompanying the nn of certain roots are still not clear. One should remember, that an s was often inserted (as one likes to term it) in word formation along with these: OHG cun-s-t, Goth. an-s-ti-, Goth. ala-brun-s-ti-, German gun-s-t and that the nn can change a following d = IE dh to þ: Gmc unþa (ON unna, OE ûðe, OHG onda) pret. ind. of unnan for *unnda; Gmc kunþa (Goth. kunþa, ON kunna, OE cûðe, OHG conda), pret. ind. of kunnan for *kunn-da. If, however, the pret. ind. kunþa represents the expected *kunnda, then the pret. part. pass. kunþa can also represent *kunnda-.

13. As accented by Benfey, Vollständige Grammatik, p. 162 above; the Petersburg dictionary does not give the accentuation for this word.

14. See C.W. Smith, De verbis imperfectivis et perfectivis in lingvis Slavonicis (Universitätsprogramm, Copenhagen 1875), p. 31f.

15. In the genitive singular of the masculine and neuter a-stems, the ending is Gmc -s, volfas (Goth. vulfis, ON ulfs, oldest Runic language -AS, OS uulfes, OE vulfes, OHG wolfes). The s was retained here, because it was actually ss and, as such, had to retain its voiceless character (IE várkasya = Gmc *volf-asj, *volf-ass, volfas), see Ebel in Zeitschr. IV p. 149 bottom.