[translated from *Des steppes aux océans. L'indo-européen et les "indo-européens,"* by André Martinet (Paris: Payot, 1986).]

1

Indo-European—Where and When

Most of the words we use every day are apt to take on different meanings depending on the circumstances or contexts in which we use them. We are used to this and it does not bother us. But things change when one begins to study a phenomenon carefully. In that case it is indispensable to describe precisely what we are going to deal with, and if we make use of a word from everyday language to refer to it, we shall have to specify which of its various senses is being selected in this instance. In many cases we are forced to find a new word for the object under study, and this is just what occurred with "Indo-European." Those who first used this term undoubtedly knew what they meant by it. But, since it was from the start an intellectual construct, it is not surprising that in the course of time the term should have taken on connotations that varied with different periods, scholars, and writers. It should come as no surprise,

then, if we attempt first of all to define the terms we have used in our subtitle.

It is important to distinguish from the outset between the adjective *Indo-European* and its corresponding substantive. The adjective was created to characterize languages that were thought to have descended, by regular evolution, from a single vanished and unattested language. These languages, long confined to the Old World from the Atlantic to the Bay of Bengal, are today spoken as first or second languages throughout the world. Thus the Indo-European languages are many, including French, English, German, Russian, and other lesser-known ones such as Bengali and Ossetic.

The substantive *Indo-European,* created from the adjective, most often refers to this unattested language itself. We hear such statements as "In Indo-European, 'horse' was *ekwos.*" But in this case comparativists are more precise, speaking of "common Indo-European," or as is usual in English, *proto-Indo-European,* and in German *Urindogermanisch* (the Germans preferring to use *Indogermanisch* rather than its international equivalent *Indoeuropäisch*). In the beginning this "Indo-European" was thought to be little different from Sanskrit, the sacred language of the Brahmins and the cultural language of India. It was the discovery of Sanskrit by Europeans in the eighteenth century that had led to its comparison with the classical languages of the west and given birth to

comparative linguistics. Experience with this new discipline quickly made it clear that Sanskrit could not be identical with the ancient language that was assumed to have existed in some distant past. Given this fact, an attempt was made to reconstruct this language, by simply selecting, from among the features actually attested in the various related languages, those that were most widespread and least apt to reflect individual innovations. Thus for "father" a form *pətēr* was restored, with the majority initial *p-* of Latin *pater,* Greek *patēr,* and Sanskrit *pitā(r),* while the *f* of Germanic (English *father*), the *h* of Armenian *(hayr),* and the zero of Celtic (Irish *athir*) were interpreted as later corruptions. In a second stage, an effort to interpret the reconstructed forms went beyond the equation *pətēr* = "father," first at the formal level, by interpreting the *-ə-* of the reconstructed form as a reduction (in an unaccented syllable) of an original group *-eH-,* where *H* is some kind of algebraic quantity, and afterwards at the semantic level, by positing for *pətēr* not just the meaning of "progenitor," but that of the head of the large, patriarchal family.

The discovery early in the twentieth century of new languages such as Tocharian and Hittite, which were clearly related to those already known to be Indo-European, came to reinforce the idea of an Indo-European that evolved over time (like all languages), by suggesting the possibility—indeed the likelihood—that there had been a succession of

separations from a common stem. Under these circumstances, what reconstruction gives us can no longer be a perfectly static-looking language, as we imagine our contemporary national languages to be. It becomes an evolutionary process, continuing from the remotest times down to our day. This leads us to reexamine the notion of a "common Indo-European" that could, with the archeologists' help, be located more or less exactly in time and space. From now on we must try to imagine it as a language in continual evolution, a community constantly in danger of seeing some of its constituents secede and settle elsewhere. Among the remainder—those who do not move away—preferential contacts may be established in specific areas, bringing with them, linguistically speaking, particular innovations. This will result, for one thing, in the appearance of different dialects, but at the same time also in the elimination of divergences that have begun to establish themselves. These ebbs and flows occur in all epochs, and we cannot imagine a point on the time line before which there was a homogeneous and unchanging language, and after which the languages attested later in texts or still spoken to this day appear separate and completely distinct. Should we then give up constructing extinct forms? By no means. But whenever we do so, we should be aware that each of these is at best only a stage: the form *pətēr* that we discussed above should not be discarded, but placed as an intermediate term between an earlier *pH˚ters* and the forms we find later

in the early texts and our modern-day languages. If we are reluctant to pronounce *pətēr,* and even more so *pH˚ters*, it is because these spellings do not pretend to reflect a precise oral reality. Each constitutes only a kind of formula, from which the comparativist can recover the various attested forms and the postulated relationships between this term and other terms reconstructed in the same way.

It must be understood, of course, that the transition from one stage to the next does not necessarily mean that the domain of the Indo-European languages will turn out to be discontinuous: though we distinguish a "western Indo-European," this is simply because we are poorly informed as to the linguistic forms that were in use among populations located geographically between these westerners and the linguistic ancestors of Greek or Slavic. In other words, this chronological outline reflects more the state of our knowledge than it does factual reality.

As the Indo-European domain becomes wider, breaks in continuity—that is to say wide spaces where other languages continue to be spoken—will necessarily occur. We can imagine Indo-European remaining for a long time, in one or another corner of the world, the language of a dominant class living in contact with a foreign-speaking majority. But this does not necessarily imply the breaking off of contacts among the dominant classes of the different islands thus formed. In the

first half of the first millennium before the common era, when the Celts were still newcomers, probably a minority in what would later be Gaul and Spain, links were maintained across the Pyrenees and the land of the Aquitanians (cousins of today's Basques), along a route dotted with forts, the various *Verdun*s of Celtic toponymy.

When we wish—understandably—to give more precise answers to the question of "when" by dating these hypothetical entities, and try to express an opinion on where such and such a variety of Indo-European ought to be located at a given date, we must resort on one hand to semantic reconstruction, in which one seeks to describe the things and ideas that correspond to linguistic units, and on the other to the results of archeological research.

Many comparativists have long been skeptical about the possibility of using data from outside their discipline to help fine-tune linguistic reconstructions. Their reluctance in this matter is readily understandable: one naturally hesitates to venture outside his own field of expertise. When seeking to interpret linguistic facts, philologists—which comparativists frequently are to begin with—are inclined to start with their knowledge of the culture of the classical civilizations, rather than using data from anthropology and contemporary archeology.

The archeological data, for their part, must also be interpreted in evolutionary terms. Every culture can be viewed as an ongoing process of

expansion or recession, and an effort should be made to reestablish, when it exists, the link between prehistoric movements, well-attested historical developments, and the processes that can be observed in the modern world. The conquest of the world by Indo-European-speaking peoples—who down to the present day have managed to lead the way in placing technical superiority at the service of violence—began with the subjugation of already existing populations from India to Ireland. It did not end with the winning of the American west or the conquest of northern Asia and colonial imperialism, for it continues in our day with the terror of the atomic age. There have been various vicissitudes, advances and retreats, but no real break in continuity from the youthful expeditions launched toward the conquest of Italia during the millennium before our era, down to the *conquistadores* of Hernán Cortés, the armored divisions of the 40s, and the napalm of Vietnam.

We can only begin to understand the Indo-European phenomenon if we cease to approach it solely in terms of the great cultures of the past—each of which already represents an amalgam. We must go beyond the conception, however stubborn, of a single, unique Indo-European diaspora with, originally, a definite number of new peoples matching those whom we know from the traces they have left in history.

Besides peoples like the Veneti of Italia and the Messapians, who apart from their names left us a few inscriptions that convince us that

they did indeed speak Indo-European languages, how many others, with related languages, of whom we know nothing must have vanished, conquered or absorbed by their neighbors? How many new contacts might have been established that brought together once very divergent dialects, to the point of making them variants of the same language? We shall see later what place must be assigned to language convergence in explaining the assimilation of immigrants to their new environments.

Before attempting to answer the two questions posed in the title of this chapter, we must formulate a third: Who spoke, or speaks, Indo-European? Considering only the strictly linguistic indicators—that is, limiting ourselves to the clearly structured parts of the languages without bringing in meanings, which gain in importance when collated with the archeological data—we can try to answer the "who," "where," and "when" if we are willing to be content with a relative and roughly dated chronology.

In a first, prehistoric period, the term "Indo-European" refers to the language of the (linguistic) ancestors of *all* those whom we recognize as belonging or having belonged to the group. Naturally we have to specify "linguistic ancestors," because in historical times, including our own, most of the genetic ancestors of those who spoke or speak Indo-European were very likely to have been speakers of other languages.

In a second period, one for which linguistic documentation is available, we distinguish first between (1) the *Anatolians,* who settled in Asia Minor in the third and second millennia before our era, but who may have split off much earlier, represented primarily by the Hittites, and (2) all the rest, those who remained associated closely enough to show common innovations, for example by establishing a distinction between a feminine and a masculine gender.

In a third period, a distinction develops among the latter group between (1) the populations in the east, who begin to palatalize their dorsal phonemes—that is, changing for example the *g* found in Latin *gnōscō* 'I know' to a *z,* or to the equivalent of English *z* in *azure* or *dj* in *adjust*—and (2) those who preserve their *k* and *g,* at least for the time being; these are located generally more to the west. The first group will comprise the Indo-Iranians, who will later be found in Asia from Mesopotamia to the Bay of Bengal; the Armenians; the Albanians; the Balts; and the Slavs. Greek, however, which avoided the palatalization and where *(gi)gnóskō* 'I know' therefore kept its *g,* must long have remained in close contact with the dialects of those who were to become the Indo-Iranians.

Western Indo-European, which would ultimately extend from the Baltic to the Mediterranean and the Atlantic, carried the seeds of the varieties that were to become Italic, Celtic, and Germanic.

For too long, efforts to answer the question of "where" were irreparably contorted by nationalistic prejudices, with everyone wishing to find an early Indo-European habitat as close as possible to his own homeland; we shall not reiterate here some German scholars' persistence in connecting such a habitat with, for example, the presence of the beech tree, which tended to push the original homeland of the "Indo-Europeans" to the west. As for the French, who from the start had to forgo finding Indo-European origins in their own territory between the Meuse and the Pyrenees, they have in general been uninterested in this problem.

Thanks to the progress made during the past decades by the archeological sciences, notably in the dating of material from excavations and the carefully planned exploration of new sites, we are able today for the first time in the history of this research to establish a link between linguistic data and archeological data with some chance of being heeded, if not convincing.

The foremost effort in this direction is connected with the name of the late Marija Gimbutas, and it is primarily on her writings that I draw in the outline that follows.[1] It is not my intention here to prove every one of my assertions. For the present I am not addressing specialists in reconstruction, who alone would be qualified to examine the points of view adopted. Any scientific theory is meant to be subject to adjustments

and competing theories. But in presenting it to a public not limited to specialists, we can aim only at offering food for thought and a framework within which to organize some data. The sketchiness, even Manichaeanism, is intentional here. My readers will be able to color in each in his own way the simplified and sometimes crude pictures I have supplied.

Five thousand years before the common era, the Indo-European-speaking people were located to the southeast of what is today Russia, in the so-called Kurgan region. Kurgans are tumuli in which are found the remains of men, thought to be chiefs, surrounded by often sumptuous treasures and the skeletons of a certain number of young women and servants. Setting aside for the moment the theories aimed at explaining the sociological or religious aspects of why the deceased's widow and relatives were killed, it is easy to understand the effectiveness of this practice in preventing any criminal attempts on the part of those close to him. These people had a highly hierarchized patriarchal society, as was to be expected from semantic reconstruction. Tombs of the same type are to be found throughout Europe as far as what is today central Germany. But as we move westward the datings are more recent, and less wealth and fewer sacrificial victims are found. This suggests a conquering thrust in a westerly direction, across areas where the earlier

burial types generally attest to more egalitarian beliefs, in death if not in life, where everyone had his own grave and people died unaccompanied.

The patriarchy of the Kurgan people lets us infer an essentially masculine pantheon reflecting three classes of society: priests, warriors, and herdsmen. They were in fact, originally, nomads more inclined to make use of what they found in their wanderings than to stimulate the creation of new resources by cultivating them themselves. They were stock-breeders, it is true, but they remained in a sense predators. The horse, driven in harness more than ridden, was to play an important role in their expansion.

In three successive waves dated from before 4000 to after 3000 b.c.e., and thus over a period of roughly a millennium and a half, the Kurgan people were to penetrate westward into what we know today as the Danubian Plain and the Balkans. Here they would come across an advanced civilization of a matriarchal and agrarian type, and thus culturally as different as possible from their own, with goddesses and fertility worship. In the end, of course, the Indo-Europeans would impose their language and certain members of their own pantheon, but not before an amalgamation took place that brings us, alongside the gods of thunder and war, goddesses such as Gē, Dēmēter, Persephone, and Athena, together with the Venuses, Junos, and Freyjas of societies

where woman is thought of, above all, as the "refuge of the warrior," the protectress of the hero.

It remains to be seen at what stage of this prehistory the separation of the Anatolians, and later that of the Indo-Iranians, should be placed. One may wonder by what route they came to Asia Minor from the Kurgan steppes. The Anatolians, whom we find permanently settled there, might be thought to have approached via the Caucasus and the eastern shores of the Black Sea. The Indo-Iranians, for whom Asia Minor could have been but one stage in their migration to Iran and India, we would imagine rather crossing the Balkans, which would accord well with the structural similarities that are noted between Greek and Sanskrit. Whatever the case, hypotheses on this topic would seem to be more subject to caution than those concerning the Indo-Europeanization of Europe.[2]

Now, what about the Indo-Europeans before -5000? Nikolas Trubetzkoy[3] has offered the hypothesis that they were the product of an amalgamation of different populations. This might allow us to explain certain linguistic heterogeneities. It is striking, for example, that in the counting system from one to one hundred—the only one that can be reconstructed for an ancient Indo-European (setting aside Anatolian, for which documentation is lacking)—the only stop consonants we find are those of the series traditionally referred to as voiced and voiceless stops, to the exclusion of the "voiced aspirates." Attic Greek, for example, has

from one to ten *heîs, dúo, treîs, téttares, pénte, héx, heptá, oktō, ennéa, déka,* with *éikosi* 'twenty' and *hekatón* 'one hundred'. There is no trace in this list of the *ph, th,* and *kh* that would indicate the presence of the aspirated stops. In the vocabulary as a whole, though, the frequency of these aspirates is comparable to that of the voiceless, and clearly greater than that of the simple voiced series. This does let us think that the number system comes from a language other than that which furnished the bulk of the lexicon, but suggests that this system was borrowed, rather than that two populations having different languages were merged.

Vittore Pisani[4] would imagine, originally, a meeting between warlike nomads roving the steppes and priests of Caucasian origin. The frequent temptation to bring in the Caucasus might be explained simply by geographical proximity. But in fact it derives primarily from the wish to support certain hypotheses regarding phonological and syntactic structures that are postulated for very early stages of the language.

As will be seen from what follows, it is thought today that the voiced consonants of the type *b, d, g,* which are found for example in English, originate in glottalized consonants, that is articulations involving closure of the glottis.[5] And the Caucasian languages are the only ones, in the western regions of the Old World, that show glottalized consonants today. Modern research, however, has demonstrated that this type is

prevalent in systems with three series of stops, such as that now postulated for early Indo-European. Consequently, the need to connect Indo-European with an area of glottalization including the Caucasus is by no means imperative. Let us recall that glotttalized consonants are similarly postulated as the source of the "emphatics" of contemporary Semitic languages.[6]

In matters of syntax, the very early stages of Indo-European have long been thought to have employed an ergative construction, that is a positive marker denoting the agent when it occurs in the same context as a passive object, while the latter appears without any functional marker, neither desinence nor particle. Here too, the Caucasian languages display a feature posited for an archaic stage of Indo-European. But the ergative construction is a very widespread phenomenon throughout the world, one that on reflection seems just as "logical" as the object construction we have become accustomed to from our modern European languages.[7]

We do not by any means exclude the possibility of contacts between the ancient Indo-Europeans and their Caucasian contemporaries, but up to now no clear evidence for them has come to light. The structural similarities that might be envisaged at a very remote date imply neither a common origin nor a period of symbiosis.

For a long time a kinship has been imagined with either the Hamito-Semitic languages in use today from the Persian Gulf to the Maghreb, or the Finno-Ugric languages spoken in Hungary, northern Europe, and even, as attempts have been made to prove, among the Indians of central California.[8] But all this remains in the realm of unverified, and perhaps unverifiable, hypothesis.[9]

In the foregoing pages we have seen forms that have been reconstructed through comparison and hypothesis. Such things will be met with frequently in what follows. There, as is traditional, they will be preceded by an asterisk, indicating that these forms are not attested in any of the existing texts, manuscripts, or stone inscriptions. In attempting to pronounce them, it should be remembered that the letters usually have the same values as in Latin. The *u* is pronounced like the *oo* in English *boot,* and the *e* as in French *café.* In *ei, eu, oi,* and *ou,* both letters are sounded. The sign *ə* can be pronounced like the *a* in *about.* A small superscript *o,* commonly used for "degree," denotes a similar vowel, as short as possible. To *H* varying pronunciations are ascribed, depending on the subscript number that accompanies it: H_2 can be reproduced as the *ch* of German *Bach* or the *j* of Spanish *jamás*; H_3 as the combination *ju* in Spanish *Juan.* As for H_1, it can be treated in practice as a mute *h.*

Phonetic notations are made using the International Phonetic Alphabet. For the fricatives, preference has been given to the forms with inverted circumflex: [š], [ž], corresponding to *s* and *z* in English *sure* and *azure* respectively. For the initial consonant of *thin* or Castilian *cinco,* we have preferred the Germanic *thorn* [þ] (which appears in cited forms in any case) to the Greek *theta,* which French students often call "the cigar." We have allowed certain modifications of the system wherever it was thought that this would help readers accustomed to the western values of letters to be better oriented: thus for the Russian word for "language," [iazyk] seemed preferable to [jazyk]. Notations placed between square brackets reflect details of pronunciation; those between virgules reflect the distinctive units of the language. Asterisked forms as well as those taken from the various cited languages are normally given in *italics.* Those that come from languages written in the Latin alphabet are reproduced as such; those normally written in another alphabet are transliterated, one letter (or occasionally two) of the Latin alphabet replacing one letter of the other alphabet. For languages with ideographic writing systems, such as Japanese or Chinese, there are official equivalents in Roman characters. For more specifics regarding types of articulation and phonetic notations, refer to the table on page 000.

Where reconstructed or ancient Indo-European forms are cited, it is often because we are interested in the root of the word, without concerning ourselves with the endings, which vary depending on the word's function within the sentence. To indicate that we are dealing with a root in this case, it is written with a hyphen: **newo-* 'nine, new'. **newo,* unhyphenated, refers to a period when the word could appear bare, without an ending. The hyphen is often used to illustrate the analysis of a word into its component parts: **owi-o-m* is composed of *owi-* 'sheep', the adjectival suffix *-o-,* and the nominative-accusative neuter ending *-m.*

The use of the adverb "regularly" in referring to a phonetic change means that, in the language and at the period in question, it was inevitable, and therefore predictable. The absence of this change would require us to search for a specific causal factor, such as analogy with another form, for example. Of course we cannot provide the documentation that would confirm the ineluctable nature of every one of these changes, and we simply ask our readers to take our word for it. We shall return to these problems in chapter 7 below.

It is not easy to give precise dates for the various events that mark the Indo-European expansion and the linguistic innovations that turned a single primitive language into a multitude of distinct idioms. When referring to centuries or millennia, we generally manage by using ordinal

numbers: the fifteenth century, the second millennium, for example; noting, whenever it is not apparent from the context, whether the date is from our era or the previous age. Where it is possible to specify an exact or an approximate date, the years before the common era are preceded by a minus sign: -106, for example, means 106 years before the presumed date of the birth of Christ, that is six years before the end of the second century, counting backward from that date.

NOTES: CHAPTER 1

1. See especially “Die Indoeuropäer,” in A. Scherer, ed., *Die Urheimat der Indogermanen* (Darmstadt, 1968), pp. 538-71; two articles in *Journal of Indo-European Studies,* “The First Wave of Eurasian Steppe Pastoralists into Copper Age Europe,” vol. 5 (1977), pp. 277-338, and “The Kurgan Wave 2 (*c.* 3400-3200 B.C.) into Europe and the Following Transformation of Culture,” vol. 8 (1980), pp. 273-315; and finally “Old Europe in the Fifth Millennium B.C., the European Situation on the Arrival of Indo-Europeans,” in Edgar C. Polomé, ed., *The Indo-Europeans in the Fourth and Third Millennia* (Ann Arbor, 1982), pp. 1-60. Additional bibliography will be found in the latter volume, hereafter cited as *The Indo-Europeans. . . .* All of this is taken into account in Patrice Leclercq's article “Les chemins de l'orgueil,” which appeared in *Le Monde,* 28 January 1983.

2. See for example Homer L. Thomas, “Archaeological evidence for the migrations of the Indo-Europeans,” *The Indo-Europeans . . . ,* pp. 61-80.

3. In “Gedanken über das Indogermanenproblem,” *Acta linguistica* I, pp. 81-89.

4. In *Indogermanisch und Europäer* (Munich, 1974).

5. Cf. the description of the shift of glottalized *k* to *g* in André Martinet, "La palatalisation 'spontanée' de *g* en arabe," *BSL* 54 (1959):90–102, reprinted in *Évolution des langues et reconstruction* (Paris, 1975), pp. 233–247.

6. See, by the present author, the explanation entitled "Remarques sur le consonantisme sémitique," *BSL* 49 (1953):67–78, reprinted in *Évolution . . . ,* pp. 248–61.

7. See for example André Martinet, *Syntaxe générale* (Paris, 1985), §§ 8–14 to 8–18.

8. Studies conducted by Otto J. Sadofsky first appeared in 1976 with "Report on the State of Uralo-Penutian Research," *Ural-Altaische Jahrbücher* (Wiesbaden) 48, pp. 191–204. "Contributions to an Ob-Ugrian-Maiduan Comparative Grammar," forthcoming.

9. Note N. D. Andreev's audacious attempt, in *Ranneindoevropejskij prajazyk* (Leningrad, 1986), to derive Indo-European from a proto-Boreal, which he says is the source of the languages of northern Eurasia.

[translated from *Des steppes aux océans. L'indo-européen et les "indo-européens,"* by André Martinet (Paris: Payot, 1986).]

The fate of the nominative -s

The particle *s,* which was eventually agglutinated to the root as *-s,* became established as the general marker of the agent of a process—that is, as an ergative. Where the root ended in the vowel *e/o,* the *-s* was generally retained in the most anciently attested languages, even when the form it marked had assumed the status of a nominative, that is, a form thought of as extrasyntactic. This is the source of all the words in Greek *-os,* Latin *-us,* and Sanskrit *-as.* The same is true of roots in *-eu-, -ei-,* such as **H₃ewei-* 'sheep', which lost their second vowel before *-s,* whence **H₃ewi-s,* Latin *ovis.* Where the root ended in a stop, the *-s* was probably eliminated many times, at least in certain contexts: for example when a *-t* + final *s* preceded a word beginning with *s-,* so that *-ts s-* became *-t s-.* The cluster *-ts* itself must often have ended up as *-s,* only to be analogically restored by later generations. Latin, for example, is at the *-s* stage in the nominative *mīles* 'soldier', versus the accusative *mīlitem* which preserves the *-t-* from the stem.

It is when the stem ended in a continuant, liquid, nasal, or "laryngeal" that the fate of this *s* chiefly presents problems. As long as it remained the marker of an agent case, with a well defined syntactic character, there too it must have been regularly restored whenever a

phonetic change tended to eliminate it. But when the *-s* case became a "nominative," that is to say a form that could be used extrasyntactically, it may have seemed rather natural for it to be confounded with the bare stem, and speakers were less tempted to restore the *-s.* This furnishes us forms in *-r* such as Greek *patḗr,* Latin *pater,* Gothic *fadar,* where there is no trace of *-s.*

The Sanskrit equivalent *pitā,* with loss of *-r,* may be the sign of a widespread process of the loss of old final *-r,* perhaps under the pressure of the shift of *-n* to *-r.*[1] In this case, the *-r* in the other languages would have been restored by analogy from the other cases. This disappearance of *-r* could have been related to the lengthening of the vowel that characterizes the nominative here as elsewhere (in consonant-final roots).

The common shifts of *s* to *r* that are found for example in Latin (*generis* for **genes-es,* from *genus* 'kind') and Germanic (Scandinavian plurals in *-r* vs. English *-s*: Danish *træ-er,* English *trees*) testify to the articulatory kinship of the two phonemes. A final *-r-s* was constantly liable to yield an *-r* (pronounced like the *s* of the time, with the tip of tongue raised), which later generations confused with the ordinary *-r.*

1. See p. 259 above.

The word for “salt” illustrates the possible treatments of a root in *-l:* Greek *hál*s shows the *-s* and the normal root vowel; Latin *sāl* has lost the *-s,* but on the other hand shows lengthening of the vowel.

In roots in *-s,* the nominative ending *-s-s* was regularly reduced to *-s,* with lengthening of the preceding vowel, as shown for example by Greek *eumenḗs* ‘kindly’ in the masculine-feminine, versus the bare stem in the neuter *eumenés.*

On the outcome of *-s* after roots in a nasal, comparing the Greek and Sanskrit forms of the word for “earth” gives a good illustration of the vicissitudes it was apt to suffer. Greek has nominative *khthṓn,* without *-s* and with a long vowel, versus the genitive *khthon-ós.* Sanskrit has nominative *kṣās,* with *-s,* long vowel, and loss of the nasal, versus the locative *kṣámi* and genitive *jmas* which attest the nasal *-m-.* In this very common word, analogy may have come into play in Sanskrit, as the child learned very early the various forms regularly resulting from phonetic change. Leaving aside the initial consonantism, which raises some questions as we saw above (p. 252), we posit a stem in *-om-.* The nominative *-om-s* can evolve to *-on-s,* and even to *-ōs,* with nasalization of the vowel. This undoubtedly is what gave the Sanskrit form, after the vowel was denasalized. From *-on-s,* analogy can extend the *n* to the word’s other forms, whence the genitive *khthon-ós;* the later stage *-õs* > *-ōs* furnishes the long vowel of the nominative, but analogy will reintroduce the *-n-* into it, whence *-ōns,* which is simplified to *-ōn.*

Latin displays the *-m-* throughout, in the related forms *humus* 'earth' and *homo* 'man' (that is, 'earthling', as opposed to the gods).

The case of roots in "laryngeals" is the most complex. We have seen that it is possible, at least for some of them, to assume that they were hardened into *-k-* before the nominative *-s.* But of course it is by no means a given that analogy will make the *-k-* form win out over the other cases. From roots in *-H_2,* for example, we can expect nominatives in *-ās* (Greek *neaníā-s* 'youth'), *-aks* (Latin *senex* < **senak-s*), or analogically in *-āks* (Latin *audāx* 'bold'). But we must also imagine that at some periods the usual treatment of a sequence **-eH_2-s,* always restorable by analogy from the other cases, may have been *-ās,* or with loss of *-s* after a continuant *H_2, -ā.* It is this last form that we find in masculine nouns of the type Latin *agricola* and Russian *voevóda,* versus the Greek *-ās* (or *-ēs* < *-ās*).

The case of the feminines is quite special. Here we must make a distinction between the sexual suffix and the gender marker. We saw above (p. 235) that the traditional suffix marking the feminine sex can be reconstructed as *-ye/oH_2-,* the latter can yield *-ik-,* and analogically *-īk-, -īs-,* or *-ī-,* paralleling what we found for the masculines just discussed. This *H_2* must be the same as that posited for the **-ā* whose reflex is found in *senex, audāx, agricola, voevóda,* or *neaníās.*