CURRENT TRENDS IN LINGUISTICS

VOLUME 11

CURRENT TRENDS IN LINGUISTICS

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VOLUME 11

Diachronic, Areal, and Typological Linguistics

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1973
MOUTON
THE HAGUE · PARIS

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Mouton & Co. N.V., Publishers, The Hague.

The research reported herein was performed pursuant to a contract with the U.S. Department of Health, Education, and Welfare, Office of Education, under the authority of Section 602, Title VI, NDEA.

LIBRARY OF CONGRESS CATALOG CARD NUMBER: 64-3663

Printed in The Netherlands by Mouton & Co., Printers, The Hague.

EDITOR'S INTRODUCTION

With the publication of Vol. 10, *Linguistics in North America*, earlier this year, our geopolitically oriented survey of linguistics around the globe has ended. All but one of the previous volumes in the series, namely, Vol. 3, *Theoretical Foundations*, were organized according to some major areal segment of the world. By contrast, this book, and the two to follow, were designed to deal either with selected methodological issues that are, or ought to be, perennially focal to linguistic inquiry, as the problem of language classification; or with subjects currently of renewed internal concern to general linguistics, as its own historiography (Vol. 13); or, again, with burning topics of mutual interest that have emerged at the multiple interfaces of linguistics with its cognate disciplines, a wide array of which is being covered in Vol. 12.

The Editorial Board of Vol. 11 ingeniously conceived of *Diachronic, Areal, and Typological Linguistics* as consisting of a series of chapters devoted to a variety of methodological explorations, each to be followed by a case study exemplifying the particular mode of inquiry described. Accordingly, except for the introductory chapter by Robins, meant to provide a historical setting, this book is divided into two successive sections. These can be read in several ways: for instance, sequentially, through the nine methodological chapters, constituting Part Two, or crosswise, flipping from any methodological chapter directly to one or more of the ten corresponding case studies, which make up Part Three.

The fit is something less than perfect. While many pairs of authors wrote their respective contributions to Parts Two and Three in unison, others were unwilling or unable to cooperate, or even to consult with each other. In one instance, because of an editorial decision, there are two case studies for one methodological statement of lexicostatistic theory. In another instance, due to unforeseen difficulties, we have a case study, concerning the Altaic languages, unsupported by a separate methodological chapter, although this discrepancy is adjusted, to a degree, in Hoenigswald's introductory remarks to Part Two.

As reported in my Introduction to Vol. 7, the preparation of Vol. 11 was financed by the U.S. Office of Education, in the amount of $33,834, through a contract with the Indiana University Foundation, bearing the identification USOE-OEC-0-9-

097735-2488. This continuing support for the series is hereby gratefully acknowledged.

As announced in my Introduction to Vol. 10, written only two months ago, the colossal bulk of Vol. 12, *Linguistics and Adjacent Arts and Sciences*, makes it difficult to forecast the precise publication date of the three separate tomes that its seventy-some chapters are likely to occupy, but my editorial staff, working in a concerted effort with the publisher's, is still aiming for the end of 1973. There are, however, unprecedented problems to be solved, which may delay the appearance of Vol. 12 until 1974. Not the least of these is our desire to provide that book with a sophisticated Index of Subjects, supplementing the routine Index of Names and Index of Languages. The development of a viable topical index for Vol. 12 will also be good exercise for the immensely more comprehensive and challenging task of preparing an Index of Subjects covering the contents of the entire series, which is intended to constitute a main component of Vol. 14, the *Index to Current Trends in Linguistics, Vols. 1-13.*

The manuscripts for Vol. 13, *Current Trends in the Historiography of Linguistics*, are now being gathered in, and their editing is progressing apace. This book will certainly appear in 1974.

Discussions are under way for the continued implementation of the impulse that has motivated and the ideas that have informed this series since its inception, but, in the light of a decade's experiences, it is sure to alter both its constitution and guise in the future. If the publisher's plans mature by the time expected, an initial announcement about the sequel to *Current Trends in Linguistics* can be made at the XI International Congress of Linguists, in Bologna, convening August next. In the meantime, preparations go on for a large variety of 'spin-off' books rooted in the series, including *Native Languages of the Americas: Linguistic Essays*, the only one in which I have personally maintained a direct editorial hand, and which is scheduled for publication simultaneously with Vol. 13.

The Editorial Board for Vol. 11 consisted of only two scholars, Henry M. Hoenigswald, who has prime responsibility for the methodological chapters in Part Two, and Robert E. Longacre, who fostered the development of the case studies in Part Three. The technical preparation of this book for press was accomplished jointly by the veteran team of Alexandra Ramsay Di Luglio and Lucia Hadd Zoercher, who also compiled the Master List of Abbreviations and the two Indexes that facilitate access to the contents of this volume. To the two Editorial Board members, both of whom contributed introductory remarks to their respective sections, and one of whom, moreover, wrote an article for the book, to the rest of the eighteen authors, to my editorial staff, and to the invisible stage-managers and hands in The Hague, goes my deep appreciation.

Bloomington, April 1, 1972 THOMAS A. SEBEOK

CONTENTS

Editor's Introduction v

Master List of Abbreviations ix

PART ONE: INTRODUCTORY

The History of Language Classification, by R. H. Robins 3

PART TWO: METHODOLOGICAL

Introductory Remarks, by Henry M. Hoenigswald 45
The Comparative Method, by Henry M. Hoenigswald 51
Internal Reconstruction, by Jerzy Kuryłowicz 63
Mathematical Developments in Lexicostatistic Theory, by David Sankoff . . 93
On Comparative Linguistics: The Case of Grassmann's Law, by Paul Kiparsky 115
Areal Linguistics: Some General Considerations, by Werner Winter 135
The Typological Method, by Joseph H. Greenberg 149
The Social Setting of Linguistic Change, by William Labov 195
Written Records and Decipherment, by Ignace J. Gelb 253

PART THREE: CASE STUDIES

Introductory Remarks, by Robert E. Longacre 287
Otomanguean Isoglosses, by Calvin R. Rensch. 295
Internal Reconstruction and Finno-Ugric (Finnish), by Raimo Anttila 317
The Romance Data of the Pilot Studies for Glottochronology, by John A. Rea 355
Japanese Dialects, by Shirô Hattori 369

Deep-Surface Canonical Disparities in Relation to Analysis and Change: An Australian Example, by Kenneth Hale 401
Areal Linguistics and Middle America, by Terrence Kaufman 459
Diachronic Typology of Philippine Vowel Systems, by Lawrence Andrew Reid 485
Some Aspects of Decreolization in Creole French, by Albert Valdman 507
Linear B, by John Chadwick 537
Altaic Linguistic Reconstruction and Culture, by John R. Krueger 569

BIOGRAPHICAL NOTES 583

INDEX OF NAMES 589

INDEX OF LANGUAGES AND WRITING SYSTEMS 597

MASTER LIST OF ABBREVIATIONS

AAA-M	*American Anthropological Association, Memoirs.* Menasha, Wisc.
ACIAm	*xxxv Congress internacional de americanistas, México, 1962. Actas y memorias.* México, 1964.
AfrS	*African Studies.* Johannesburg.
AL	*Acta Linguistica Hafniensia.* International Journal of Structural Linguistics. Copenhagen.
AmA	*American Anthropologist.* Menasha, Wisc.
AnINA	*Anales del Instituto Nacional de Antropología e Historia.* México.
AnL	*Anthropological Linguistics.* Bloomington, Ind.
Anthropos	*Anthropos.* Revue internationale d'ethnologie et de linguistique/Internationale Zeitschrift für Völker- und Sprachenkunde. Freiburg, Switzerland.
ANZAAS	Australian and New Zealand Association for the Advancement of Science.
AO	*Archiv Orientální.* Praha.
AOH	*Acta Orientalia Academiae Scientiarum Hungaricae.* Budapest.
BAE-B	*Bureau of American Ethnology, Bulletin.* Smithsonian Institution, Washington, D.C.
BiOr	*Bibliotheca Orientalis.* Leiden.
BSOAS	*Bulletin of the School of Oriental and African Studies, University of London.* London.
BSE	*Brno Studies in English.* Brno.
CAJ	*Central Asiatic Journal.* The Hague and Wiesbaden.
CAnthr	*Current Anthropology.* A World Journal of the Sciences of Man. Chicago.
CFS	*Cahiers Ferdinand de Saussure.* Geneva.
CSSH	*Comparative Studies in Society and History.* An international quarterly. The Hague.
CTL	*Current Trends in Linguistics*, ed. by Thomas A. Sebeok. 14 vols. The Hague. (CTL 3 = Theoretical Foundations, 1966; CTL 4 = Ibero-American and Caribbean Linguistics, 1968; CTL 10 = Linguistics in North America, 1973; CTL 11 = Diachronic, Areal, and Typological Linguistics, 1973.)
ESA	*Emakeele Seltsi Aastaraamat.* Tallinn.
FL	*Foundations of Language.* International Journal of Language and Philosophy. Dordrecht, The Netherlands.
FLing	*Folia Linguistica.* Acta Societatis Linguisticae Europaeae. The Hague.
GL	*General Linguistics.* Lexington, Ky.
HJAS	*Harvard Journal of Asiatic Studies.* Cambridge, Mass.
HMAI	*Handbook of Middle American Indians*, ed. by G. R. Wiley. Vol. 5, Linguistics, ed. by Norman A. McQuown, 1967. Austin, Texas University Press.
IF	*Indogermanische Forschungen.* Zeitschrift für Indogermanistik und allgemeine Sprachwissenschaft. Berlin.
IJAL	*International Journal of American Linguistics.* Baltimore.
IUPAL	*Indiana University Publications in Anthropology and Linguistics.* Bloomington and The Hague.
JanL	*Janua Linguarum.* Series maior, minor, practica, and critica. The Hague.
JAOS	*Journal of the American Oriental Society.* New Haven, Conn.
JASPsych	*Journal of Abnormal and Social Psychology.* Washington, D.C.
JPS	*Journal of the Polynesian Society.* Wellington, N.Z.

JPSocPsych	*Journal of Personality and Social Psychology*. Washington, D.C.
JRSNSW	*Journal and Proceedings of the Royal Society of New South Wales*. Sydney.
JSocI	*Journal of Social Issues*. Society for the Psychological Study of Social Issues. Ann Arbor, Mich.
Kadmos	*Kadmos*. Zeitschrift für vor- und frühgriechische Epigraphik. Berlin.
KZ	*Zeitschrift für vergleichende Sprachforschung auf dem Gebiete der indogermanischen Sprachen*, begründet von A. Kuhn. Göttingen.
Langages	*Langages*. Paris.
Lg	*Language*. Journal of the Linguistic Society of America. Baltimore.
Lingua	*Lingua*. International Review of General Linguistics / Revue internationale de linguistique générale. Amsterdam.
Linguistics	*Linguistics*. An international review. The Hague.
L & S	*Language and Speech*. Teddington, Middlesex.
Minos	*Minos*. Revista de filología egae. Salamanca.
MSFou	*Mémoires de la Société Finno-ougrienne*. Helsinki.
MSLL	*Monograph Series on Language and Linguistics, Georgetown University*. Washington, D.C.
MT	*Mechanical Translation*. Cambridge, Mass.
NTS	*Norsk Tidsskrift for Sprogvidenskap*. Oslo.
Oceania	*Oceania*. A journal devoted to the study of the native peoples of Australia, New Guinea, and the islands of the Pacific Ocean. Sydney.
OL	*Oceanic Linguistics*. Special Publication. Pacific and Asian Linguistics Institute. University of Hawaii. Honolulu.
OLM	*Oceania Linguistics Monographs*. Sydney.
Orbis	*Orbis*. Bulletin international de documentation linguistique. Louvain.
PAPS	*Proceedings of the American Philosophical Society*. Philadelphia.
PhJL	*Philippine Journal for Language Teaching*. Quezon City.
Phonetica	*Phonetica*. Internationale Zeitschrift für Phonetik / International Journal of Phonetics. Basel and New York.
PICL 8	*Proceedings of the Eighth International Congress of Linguists / Actes du Huitième Congrès International des Linguists, Oslo, 5-9 August, 1958*. General editor, Eva Sivertsen. Oslo, Oslo University Press, 1960.
PICL 9	*Proceedings of the Ninth International Congress of Linguists, Cambridge, Mass., August 27-31, 1962*. Ed. by Horace G. Lunt. Janua Linguarum, series maior 12. The Hague, Mouton, 1964.
PJS	*Philippine Journal of Science*. Manila.
PL	*Pacific Linguistics*. Series A, B, C. Canberra.
PRSNSW	= JRSNSW
PSR	*Philippine Sociological Review*. Manila.
RLaR	*Revue des langues romanes*. Montpellier.
RLR	*Revue de linguistique romane*. Lyons and Paris.
RMEA	*Revista Mexicana de Estudios Antropológicos*. México.
RomPh	*Romance Philology*. Berkeley and Los Angeles.
SA	*Scientific American*. New York.
Science	*Science*. Journal of the American Association for the Advancement of Science. Washington, D.C.
SCL	*Studii si Cercetări Lingvistice*. Bucharest.
SG	*Studium Generale*. Berlin, Göttingen, and Heidelberg.
SIL	*Studies in Linguistics*. Buffalo, N.Y.
SJA	*Southwestern Journal of Anthropology*. Albuquerque, N.M.
SL	*Studia Linguistica*. Revue de linguistique générale et comparée. Lund.
SlPR	*Slavistic Printings and Reprintings / Slavistische Drukken en Herdrukken*. 's-Gravenhage.
SO	*Studia Orientalia*, edidit Societas Orientalis Fennica. Helsinki.
SS	*Slovo a slovesnost*. Praha.
SSlav	*Studia Slavica Academiae Scientiarum Hungaricae*. Budapest.

TAPS	*Transactions of the American Philosophical Society*. Philadelphia.
TCLP	*Travaux du Cercle Linguistique de Prague*. Prague.
TPhS	*Transactions of the Philological Society*. Oxford.
TRÜT	*Tartu Riikliku Ülikooli Toimetised*. Tartu.
UAJb	*Ural-Altaische Jahrbücher*. Wiesbaden.
UAS	*Indiana University Publications, Uralic and Altaic Series*. Bloomington, Ind.
UCPAAE	*University of California Publications in American Archaeology and Ethnology*. Berkeley and Los Angeles.
UCPL	*University of California Publications in Linguistics*. Berkeley and Los Angeles.
UUÅ	*Uppsala Universitets Årsskrift / Recueil de Travaux publié par l'Université d'Uppsala*. Uppsala.
VFPA	*Viking Fund Publications in Anthropology*. Wenner-Gren Foundation for Anthropological Research, Inc., New York.
Vir	*Virittäjä*. Kotikielen seuran aikakauslehti. Helsinki.
VJa	*Voprosy jazykoznanija*. Moskva.
Word	*Word*. Journal of the Linguistic Circle of New York. New York.
ZAS	*Zeitschrift für allgemeine Sprachwissenschaft*. Berlin.
ZPhon	*Zeitschrift für Phonetik, Sprachwissenschaft und Kommunikationsforschung*. Berlin.

PART ONE

INTRODUCTORY

THE HISTORY OF LANGUAGE CLASSIFICATION

R. H. ROBINS

The three methods of language classification comprised in the title of this volume, diachronic, areal, and typological, are recognized by modern scholarship as three legitimate and fruitful approaches to the comparative study of languages. It would be a source of satisfaction to be able to say that linguists have now overcome the confusions that have in the past beset comparative work.

Modern linguists are more explicit about the three separate systems they use, but it becomes quickly apparent that the same three have in one way or another controlled and characterized language classification from its earliest European days. Progress in scholarship, in this field as in others, has in great part lain in clarifying concepts and in sharpening the distinctions between theoretically separate but factually related methods, rather than in inventing entirely new modes of approach.

Logically the three classificatory methods are distinct, because the criteria employed to assign languages to classes in each are quite separate: diachronic (historical, or genetic, or genealogical) classes, or 'families', rest on the assumption of gradual divergence through time from a once more unitary state (cf. Vendryes 1921:349: 'Dire que le français est sorti du latin, c'est dire que le français est la forme prise par le latin en une certain région au cours des âges'); this was crudely expressed by Ross (1950, 1958:28) as 'Two languages are defined as related if and only if they were once one language', and dismissed by Allen (1953:88): 'Brothers if and only if they were once their father', which is a stronger objection to putting a cash value on the literal interpretation of much metaphorical terminology current in this field than it is to the methodology itself.

Areal classes group together languages spoken in geographically contiguous areas, and typological classes rest on shared but not universal features, at any level of analysis, that make certain languages significantly alike in structure in some respects.

However, while these three modes of classification are theoretically distinct, in fact their resultant classes overlap in membership, as a result of the natural course of events. The difficulties encountered in disentangling the three systems and their proper criteria comes largely from this empirical overlap of theoretically different methods.

Languages change in the course of transmission from one generation to the next. In the prolonged absence of a continuing need and opportunity for mutual under-

standing over an entire area, de Saussure's 'force d'intercourse', nothing prevents these changes from diverging further and further, as in the classic case of dialects of spoken Latin passing, imperceptibly at any one time, into the distinct Romance languages. But, without overseas migration or a successful penetration by speakers of a different language (e.g. the splitting of the Slavic speech area by Magyars c. 900 A.D.), historically related languages will continue to be areally contiguous; hence during the process of separation there is the possibility of changes spreading in 'waves' across a historically related community of diverging dialects and producing effects that blur an otherwise clearcut tree structure of historical relationships.

Particular words may be individually replaced more readily than phonological and grammatical structures; and not all parts of phonology and grammar change at an equal rate. The period of the 'great vowel shift' in English saw far more radical phonological changes than syntactic changes. In the absence of interference from extensive bilingual or substrate contacts, historically related languages are for some time likely to exhibit various structural and typological features in common.

So far empirical grounds have been given for expecting historical classes, genealogical families, of languages to share some areal contiguity and some structural similarity, at least for a certain time. But additionally areal and structural classes are themselves likely to overlap independently of inheritance. It hardly needs saying that intercourse across language divisions is most likely to occur in contiguous areas; and such intercourse, whose extreme developments are a bilingual community on the one hand or the suppression of one language by another in a few generations on the other, is a well known cause of the spread of structural features, phonological and grammatical, as well as some features of lexical structure, over whole regions (Sprachbünde) of genealogically distant or unrelated languages (Sandfeld 1930, Jakobson 1936, Emeneau 1956). Were this not the case, an areal classification of languages would be without linguistic significance. Jakobson (1957:524) summarizes the three methods: 'The genetic method operates with kinship, the areal with affinity, and the typological with isomorphism.'

It is legitimate for any linguist so to define the field of his operation as to exclude a particular type of classification from what he regards as strictly within the province of linguistics (cf. Allen 1953). It is also legitimate, though it may be dangerous, to apply criteria from more than one system of classification at once and to recognize the mixed nature of the resultant classes (as Guthrie 1948). More radically, the terminology of one system may be reinterpreted within the methods of another, as Trubetzkoy (1939a) suggested in a quasi-typological definition of Indo-European. The danger of such a mixture of methods lies in the likelihood of one's assuming that a dilution of criteria need not be accompanied by any weakening of inference. Trubetzkoy was perhaps himself misled in this respect, in his fallacious assumption that Indo-European could be simultaneously defined as a typological class and a genetic class having precisely the same membership. Possibly the best example of the near coincidence of geographical contiguity, typological similarity, and genetic relationship is to

be found in the Bantu languages, on the narrowest interpretation of the 'Bantu line'.

In the earliest European tradition of language classification these three systems are all found in operation to some extent. The ancient Greeks showed an almost total lack of interest in the structures and relationships of the non-Greek languages, despite the amount of bilingualism and professional interpreting that must have gone on in trading centers and at the periphery of the Greek world especially in and around the Greek 'colonies'. But at the same time they left records of a more detailed awareness of the dialectal differences within Greek than is available for any other language in antiquity. This is to be accounted for largely by the fact that among the Greek dialects several were the vehicles of literature recognized over the Greek world as a whole, and more than that number were literate, as is attested by the surviving inscriptions.

The linguistic and racial unity of the Greek-speaking world was recognized as a factor overriding its political fragmentation and frequent internecine conflicts. Herodotus (8.144.2) writing not long after the Persian wars, makes this, together with much common religious observance, a main ground for a united struggle against the barbarian Persians. Indeed, throughout Greek antiquity the major classification of the known languages of the world was a binary one of Greek versus barbarian.

Within Greek, however, a system of dialect classification appears to have been developed quite early in literary history and to have been maintained unaltered in essentials, save for the addition of the Hellenistic koinḗ, through the Byzantine period, and in fact up to very recent Greek scholarship, in which detailed epigraphic research has been applied to the traditional system, a system which had been based wholly on literary texts and, like so much Greek linguistics, had been greatly motivated by literary studies (Coleman 1963, Hainsworth 1967). The correctness and the adequacy of the Greek tradition are not here a prime concern; but what we see is a definite framework of four (pre-koinḗ) dialects: Attic, Ionic, Doric, and Aeolic. These dialects were themselves recognized as abstractions based on shared features, from a more delicate recognition of many individual city-state dialects. The terms *diálektos* and *glôssa* were in use when this distinction in delicacy was at issue. A Byzantine grammarian (Uhlig 1883:302–3) wrote: 'istéon dè hóti diaphérei diálektos glṓssēs, hóti hē mèn diálektos emperiektikḗ esti glōssôn: Dōrìs gàr diálektos mía, hyph'hḗn eisi glôssai pollaí, Argeíōn, Lakṓnōn, Syrakosíōn, Messḗnōn, Korinthíōn; kaì Aiolìs mía, hyph'hḗn eisi glôssai pollaí, Boiōtôn kaì Lesbíōn kaì állōn' (Note that *dialect* differs from *subdialect* in that a dialect embraces more than one subdialect; Doric is one dialect, under which there are many subdialects, those of the Argives, the Laconians, the Syracusans, the Messenians, and the Corinthians; and Aeolic is one dialect, under which there are many subdialects, those of the Boeotians, the Lesbians, and others).

The historical origin of the pre-koinḗ dialects in the movements of separate divisions (*éthnē*) of the Hellenic people was recognized in the tradition of Aeolos, Doros, and Xouthos, sons of Hellen and the founders of the Aeolic, Doric, and Attic-Ionic com-

munities (Uhlig 1883: 462–3). This tradition went back as far as Hesiod (perhaps c. 800 B.C.). Plutarch (*Moralia* 9.15.747) quotes a fragment: 'Héllēnos d' egénonto philoptolémou basilêos / Dôrós te Xoûthós te kaì Aíolos hippiochármēs' (Of Hellen the warlike king there were born Doros and Xouthos and the horseman Aeolos). The close kinship of Attic and Ionic was acknowledged, with Attic elevated to the status of a principal dialect, one suspects, because of its literary and cultural prestige. The special case of the koinḗ was admitted, but otherwise the picture of the Greek dialect situation was a static one, of a fixed classificatory tree; regional types of speech that did not fit the system were ascribed to racial mixtures from within the recognized subdivisions of the Hellenic stock (e.g. Thucydides 6.5, on the dialect of Himera in Sicily). Where the Byzantine grammarians referred to the phonological differences between dialects they stated these descriptively by reference to spelling conversion rules in relation to the koinḗ (e.g. Uhlig 1883:464: 'hē Atthìs trépei tò s pêi mèn eis t hoîon thálatta pêi dè eis x hôion xymphórā'; 466: 'hē Dōrìs tôi ā antì toû ē chrêtai, hoîon hāmérā' [The Attic dialect turns *s* in some words into *t*, as in *thálatta* ('sea', koinḗ *thálassa*), but in others into *x*, as in *xymphórā* ('misfortune', koinḗ *symphórā*); the Doric dialect uses *ā* instead of *ē*, as in *hāmérā* ('day', koinḗ *hēmérā*)]). There is no suggestion of any historical presuppositions or of historical ordering.

No such classificatory frame was applied to the barbarian languages, the other term in the over-all Greek system. Strabo, the first century B.C. geographer, stated the Greek dialect system in its accepted form (8.1.2); but in reference to the non-Greek languages of Asia Minor he goes no further than suggesting the appropriateness of neighboring languages being alike in various respects, without further comment (1.2.34). Despite the great interest evinced by Greek and Latin scholars in etymology, this was never seen in a really diachronic perspective, but rather as a means of discovering or inferring the correct meaning of a word from its relations with other words in the language (cf. Uhlig 1883:14: 'etymologíā estìn hē anáptyxis tôn léxeōn di'hês tò alēthès saphēnízetai' [Etymology is the unfolding of words by means of which their true meanings are made plain]). Examples of ancient etymologizing, which persisted from Plato until the Middle Ages, are notorious and incidentally cast a wholly unfair light on ancient competence in the west in linguistic studies generally.

The Romans might have enjoyed a linguistic advantage over Greek scholars, in that they were more interested in Greek than most Greeks were in Latin; and some comparative studies were made between Greek and Latin structures, such as those of Varro (first century B.C.) and Quintilian (first century A.D.) on the case systems, and that of Macrobius (c. A.D. 400) on the Greek and Latin verbs. Varro was probably the Latin scholar best disposed towards the historical treatment of languages, and he treated Latin at length both historically and descriptively in his partially extant *De lingua Latina*. But he, like all other Roman scholars, misinterpreted the (West) Greek origin of the Roman alphabet and the one-sided dependence of Roman art and literature on Greek sources so as to derive the Latin language from Greek dialects with

barbarian admixtures (cf. Collart 1954: chapter 3). All Latin words bearing an obvious formal resemblance to a semantically comparable Greek word were treated by Varro as direct inheritances from Greek, the relation of *domus* to *dómos* 'home' being for him just the same as the relation of *feretrum* to *phéretron* 'bier' (5.160, 5.166).

Secular antiquity showed no signs of further progress in language classification, either in the Latin-speaking west or in the Greek-speaking east. But the recognition of Christianity as the official religion of the Empire and the study of Biblical literature introduced new influences. Most obviously, Hebrew and afterwards Arabic in the later Middle Ages presented themselves as languages unlike Latin and Greek but not to be dismissed as mere barbarian tongues; but more importantly, western scholars became aware of the Hebrew system of language classification such as is preserved in Genesis, chapters 10 and 11, wherein the nations and speech communities known to the ancient Hebrews at the time were classified under three lists as being descended from the three sons of Noah: Shem, Ham, and Japheth.

The integration of this Biblical system into the existing and developing western scholarship determined the course of language classification for centuries; and it must be regarded as part of the more general process whereby secular knowledge and thought were assimilated within a Biblical framework, as is seen, for example, in the reconciliation of sacred and profane history and chronology by such Christian writers as Augustine of Hippo and Orosius.

The most important figure in the formalization of early Christian and subsequent mediaeval doctrine on the classification of languages was Isidore of Seville (seventh century), who in part followed Augustine of Hippo. Hebrew was the first language spoken on earth, and Hebrew together with Latin and Greek constituted the three principal and sacred languages of mankind (*Origines* 12.1.2). Each was distinct typologically, as regards its predominant phonetic characteristics, Hebrew being 'guttural', Greek 'palatal', and Latin 'dental' (*Ibid.* 9.1.8); Isidore's first observation here may be seen as a natural reaction of a Latin writer to the phonemically distinct velar and uvular consonants of Hebrew.

Isidore established the Japhetic branch of the seventy-two languages ordained by God (*Origines* 9.2.2, 9.2.37) as the parent of the languages of Europe, building on the Biblical inclusion of Gomer (the Cimmerians) and Javan (the Ionian Greeks) within this group of languages, which in general lay to the north and west of Palestine. The Spaniards, for example, were descendants of Tubal, a son of Japheth (*Origines* 9.2.29).

This system of classification, like that of the Greek dialects, was historical in form, tracing back the separate languages to ancestral figures and seeing the dispersal and spread of populations as the carriers of linguistic divisions. It was, however, largely static history. As with the rest of the early creation story in the Old Testament, the languages of the world, like its plant and animal species, were made by God in their present and permanent form, once for all time. Languages from outside the Biblical

text were fitted into it, without the suggestion of a continuous process of linguistic change and development.

Somewhat similar and based on the same felt need to integrate sacred and profane knowledge were the various lists of languages and peoples which are known from the third to the seventeenth century. These lists mostly contain seventy-two names, though there is a slight variation on either side, and they are explicitly referred to the post-Babel dispersion of the descendants of Noah. The numbers are, however, the feature of these lists most faithful to the Biblical tradition; languages and peoples unknown to the Bible story are included in them, at the expense of others. The first list includes the British, and a list of 1650 includes Japanese, Chinese, and 'Brazilian'. These lists and the tradition that they represent have been severely treated by later scholarship (Pott 1863:59–62, Borst 1957–63:931–2). But they do expound, for all their excentricities and failings, part of the long enduring conception of the languages of the world within and against which contemporary and later attempts at more genuinely historical classifications had to work.

Up to the nineteenth century any study of the classification of languages had to take the Biblical tradition into account. Different people treated it differently; it was attacked, defended, and adapted; what was not possible was to ignore it. As late as 1863 Pott found it worthwhile to publish a book expressly aimed at demolishing an interpretation of it put out only two years earlier (Pott 1863, Kaulen 1861). This was not an isolated occurrence in the history of western culture; it must be seen in the same context as the struggle of the catastrophists and the uniformitarians in relating geological discoveries to the tradition of the Flood and ultimately disassociating them from a strictly literal historicist interpretation of the early chapters of Genesis (cf. Greene 1959). Pott's defense of scientific evidence against a traditional system of explanation must be related to the near contemporary conflict of conscience suffered by nineteenth century thinkers in having to reconsider fundamentally man's place in the living world in the light of Darwin's evolutionary arguments.

During the long span of years between the later Middle Ages and the end of the eighteenth century one observes a number of strands of thinking about the languages of the world and their interrelations, and the ways in which by virtue of these they may be classified. Two major factors predominate: the progressive discovery of extra-European languages not hitherto envisaged and the development of a definite historical perspective on linguistic relationship. The Biblical tradition made no allowance for newly discovered languages, and its historical organization, like the rest of the creation story, was on a once and for all basis.

It would seem that from the time of Dante the study of the Romance languages in relation to Latin provided the main stimulus to historical classification. Their affiliations were obvious, and unitary Latin survived as a lingua franca of learning and in the usage of the Roman Church, still universal in western Europe. One notes from his *De vulgari eloquentia* that Dante (1265–1321) is clearly conscious of the major divisions and their subdivisions within the languages derived from Latin. But

a century before, Roderic, Archbishop of Toledo, drew up the first list of specifically European languages and assigned just one, namely Latin, to the whole western Romance area (Schott 1603:29). This difference of centuries reflects not an actual linguistic fact but the change in linguistic awareness on the part of Dante and the century he lived in.

In the Renaissance, with the rise in status and prestige of the vernacular languages of Europe, definite historical links were traced in the differences in word forms and in grammatical constructions between parent Latin and its modern offspring (e.g. the replacement of separate case forms by prepositional phrases). Etymology was now envisaged in a more diachronic sense, and the new historical perspective afforded greater security in etymological studies. Quite apart from divine intervention, languages could be seen to have changed in the course of time as the result of natural causes, in particular through the movements of peoples; the men of the second millennium were well aware of the part played by invasions and Völkerwanderungen in the formation of modern Europe.

The languages of Europe and the rest of the world so far as they were known and taken into account were classified on a historical basis, linked in one way or another with the Biblical divisions of the descendants of Shem, Ham, and Japheth. By the seventeenth century American-Indian languages as well as old world languages were being assigned a specific lineage within this system (Alsted 1650:251–66). This continued into the eighteenth century (several references in Pott 1863:178–80); but Thomas Jefferson (1784:181–2) kept an open mind on the ultimate origin of the Indian tribes of the continent; in an eloquent passage he set out what were later to be taken up as the methods of historical research into the native languages of the Americas and their genetic classifications, and he appealed for support for just the sort of programs now being undertaken by American universities and other agencies: 'Were vocabularies formed of all the languages spoken in North and South America, preserving their appellations of the most common objects in nature, with the inflections of their nouns and verbs, their principles of regimen and concord, and these deposited in all the public libraries, it would furnish opportunities to those skilled in the languages of the old world to compare them with these, now, or at any future time, and hence to construct the best evidence of the derivation of this part of the human race.'

Classifications were basically genealogical, diachronic, tracing different languages back to a common source in the Biblical tradition. But there was also a general feeling that such historical groups or families would show some sort of structural or typological kinship as a continuing mark of their common origin; this could be both in the form of obvious similarities in semantically associated words (there was scarcely as yet, prior to the nineteenth century, the more sophisticated concept of systematic correspondences of which mere similarity is only a special and superficially obvious case), and of similarities in grammatical structure and in pronunciation. The thirteenth century Bavarian Chronicle (Pertz 1879:221) distinguished the lan-

guages descended from Shem as guttural, those descended from Ham as palatal, and those descended from Japheth as dental. In this system Greek was classed as Semitic, Latin, German, and the languages of northern Europe as Japhetic, and the Slavic languages as Hamitic ('Horum generationes ex consono idiomatum vel loquelae discernuntur'). The designation of the Slavic languages as predominantly palatal presumably relates to their phonemic exploitation of the 'soft' and 'hard' and nonpalatal) consonant series ('filii Cham [loquuntur] in palato, ut Rutheni et Slavi').

This assumption of congruence between typology and history has already been seen in a somewhat different form much earlier in the formative work of Isidore. Three centuries after the Bavarian Chronicle, J.J. Scaliger (1540–1609), in setting up his four major language families of Europe, the modern Greek, Romance, Germanic, and Slavic groups, consistently denied any agreement either in word form or grammatical structure between them (1610:119–22: 'Matricum vero inter se nulla cognatio est, neque in verbis neque in analogia'). Akin to this structural assumption went the quest for a single diagnostic feature, synchronically available as evidence of genetic affiliation. Scaliger's choice is well known; each of his four groups (matrices linguae) show common forms for 'God' in their member languages, which are, however, distinct and unrelated to each other: *théos*, *deus*, *godt*, and *boge*. Earlier Dante had distinguished the Germanic group by their use of forms related to *iò* for affirmation, and he had further subdivided the neo-Latin group into three subgroups by their use of *si*, *oc*, and *oil* (*De vulgari eloquentia* 1.8).

The relation of languages, especially the modern languages of Europe and of the newly discovered lands beyond the seas, to the Noachian tradition differed somewhat from person to person and from age to age. Isidore's recognition of the languages of Europe being in general Japhetic maintained itself, though we have seen an example of the Slavic group being assigned, perhaps partly from political motives, to the descendants of Ham. As long as Hebrew was regarded as the first language on earth, and as the language of God and Adam, a monogenetic theory of linguistic origins had to be preserved. Such an assumption was common to Dante and to Bibliander (1504–64), among many others. But monogenesis was compatible with other claimants for primogeniture; Goropius's assertion that Dutch-Flemish ('Cimmerian') represented the surviving original of the Germanic languages and moreover the first language of mankind, untouched by the post-Babel dispersion (Goropius 1569) was only one of a number. Mylius (1563–1637) made similar claims, partly with the patriotic desire to raise at least one European vernacular language to the same level as the three sacred tongues, Hebrew, Greek, and Latin (Metcalf 1953). J. Webb (1611–72) argued (Webb 1669) that Chinese was Adam's tongue, and in a suitable reinterpretation of Biblical history maintained that the Chinese speakers had split off from the rest of mankind before the building and the destruction of the Tower of Babel. Webb argued structurally; Chinese, being monosyllabic and of the simplest possible structure (far simpler than Hebrew), must clearly be the primal language. This is just one facet of

the great impression made on European linguistic thought in the seventeenth century by the discovery of Chinese and of its allegedly unique and perspicuously simple structure; Wilkins's *Essay towards a real character and a philosophical language* and other attempts at a universal language were in part inspired by admiration for what people thought they saw in the grammatical organization of classical Chinese.

Others, rejecting the claims of Hebrew as known from Biblical texts to be the oldest language, rejected also a monogenetic account of the languages of the world as being unreasonable in the light of the evidence available. J.J. Scaliger refused to go back further than the various families (matrices linguae) that he set up. J. Perizon (1651–1715) and P.F. Suhm (1728–98) declared that the pre-Babel language was for ever lost and that all the known languages of the world had arisen since then, partly by natural causes (Perizon 1736:175–82, Suhm 1769:83). Leibniz (1646–1716) did not explicitly rule out monogenesis, but he firmly placed Hebrew, as just one language like all the others, into one of the two major classes of language into which he divided the languages of the world, 'Aramaic' or 'Arabic' (Semitic-Hamitic), languages of the south, and 'Kelto-Scythian' (Japhetic), languages of the north (Leibniz 1765:18–20, Arens 1955:79–81).

Leibniz's classification was in the main shared by H.S. Reimarus (1694–1768; 1781:93–8) and A.L. von Schlözer (1735–1809). Both were radically critical of the Biblical tradition, though they were monogenesists, Schlözer on the ground that God would do his work of creation in the most economical manner and that the splitting and multiplication of languages was a product of natural causes (Schlözer 1785:35, 149). Reimarus (1751:300–43) held that the story of Babel was allegorical rather than historical, and he rejected the traditional number of the post-Noachian languages. This number had caused trouble all along, but the strength of the Biblical tradition had made it necessary either to try to reconcile it with the facts or to give grounds for its rejection or modification. One of the latest lists of languages to preserve the Biblical number of seventy-two, by J.H. Alsted (1588–1638), comprises a set of languages bearing little resemblance to those set out in Genesis 10–11.

Up to this point we have seen the development of a genuinely historical conception of linguistic relations and a system of classification based thereon. But the elaboration of the full theory and method had to wait until the cumulative work of nineteenth century linguistics had borne its fruit. Indeed, one of the features of Renaissance and later pre-nineteenth-century historical linguistics was its rather fragmented character. Scholars observed and considered the vocabularies and the grammars of languages, and they paid particular attention to the relations between classical Latin and the Romance languages, but one does not find the connected chain of scholarly work in this field of linguistics, whereby each writer takes cognizance of the work of his contemporaries and immediate predecessors, such a striking characteristic of nineteenth century historical linguistics from Rask to Brugmann.

During the seventeenth and eighteenth centuries a different set of ideas was developing among those thinking about languages, in the direction of classification by

reference to structural type, on a basis different from that of etymological derivation, whatever inferences may have been drawn (then or since) from the one system to the other. This can be ascribed to a number of factors. In the first place the sheer volume and structural diversity of languages of which Europeans became aware after the end of the Middle Ages made a profound impression on a tradition of scholarship hitherto based almost exclusively on Latin and Greek, and later on Hebrew and Arabic, although the different structure of these two languages as compared with that of Latin had already been noticed (Reuchlin 1506). In particular the grammar of classical Chinese, though its proper analysis was misunderstood, and the structures of some of the languages of North and South America as reported to Europeans revealed new ranges of grammatical organization, the one supposedly of an extreme simplicity, the others of a frightening complexity.

Secondly the realization of the composition and history of the Romance language family showed people how in the course of centuries the more obvious aspects of grammatical structure could change and produce radically different types of language, as case inflection gave way to prepositional constructions with invariant noun forms and the variety of Latin tense and person inflections were in large part replaced by auxiliary verbs, periphrases, and the unmarked presence of subject pronouns preceding verbs. This consciousness of the possible extent of structural change was made all the greater by the fact that the Latin that was studied in historical relation with the Romance languages was classical literary Latin rather than the more directly ancestral colloquial ('Vulgar') Latin, which shared several of the features typical of the later Romance languages, for example a greater grammatical fixity of word order and the more extensive syntactic use of *quod* as a conjunction instead of the accusative and infinitive type of construction so typical of classical Latin and so untypical of the descendants of colloquial Latin. From a somewhat different point of view, the liberation of modern English grammar from the Priscianic framework, the work of a succession of empiricist-inspired English grammarians, of whom Wallis (1616–1703) was the most radical and is perhaps the best known, contributed to the same effect. Here again since Latin and the categories of Latin grammar were always present in the minds of such grammarians, the similar contrast between the Latin structural type and the structural type of English when subjected to an unbiased formal analysis brought to the forefront of men's attention the possible differences of typology between one language and another.

This increasing awareness of the typological or structural diversity of languages coincided with the rather general eighteenth century interest in the classification of nature and of the natural products of the earth. This was part of the rise of natural science that took place in the seventeenth and eighteenth centuries and as much as any other movement of thought helped to bring into being the intellectual stance of our own contemporary world. Of course systems of classification of one sort or another are as old as any form of science, and a comprehensive classification of living creatures was made by Aristotle (W. D. Ross 1923:114–7) and passed on through

the Middle Ages as the Scala naturae. But eighteenth century naturalists felt the need and the possibility of a general systematization of all nature, whose diversity had been so much increased as the result of geographical expansion and the discovery of fossil remains.

The century saw several classifications of nature, of which probably Linnaeus's (1707–78) *Systema naturae* and *Philosophia botanica* are the best known and have left their author's name recorded in the Linnaean system of plant nomenclature and in the Linnaean Society in London. Linnaeus's classifications were based on the empirical observations of attributes considered to be of particular significance or importance in the economy of nature. He declared (1775:249, 331–2, 438; 1787:lxviii) that in his work he acknowledged 'no authority but that of inspection' (in the case of plants giving prime attention to the reproductive organs); such an empiricism was not considered as necessarily contrary to piety, for he went on to say 'they [the parts of plants] are written by the hand of God; it should be our study to read them'. Buffon (1707–88) also stressed the necessity of observation and comparison between species and species in natural history (1785a:216, 1785b:62–3).

Classification was carried through by reference to the structure, external form, and arrangements of the parts of whatever was under consideration. Such work and the theory lying behind it occupied some of the greatest minds of the period. It was held to be compatible with the view of nature as the creation of fixed species (Cuvier (1769–1832) and Linnaeus, with reservations), and with an evolutionary view envisaging species developing and changing through the course of time (Lamarck [1744–1829] and Charles Darwin [1809–82]). Buffon's concern (Greene 1959:142–60) over the rival claims of a fixed creation and the apparent evidence for changes in species over the years, in part deliberately induced by man's actions, is typical of the intellectual agony that resulted from the impact of scientific observation on received authority during this period. Today, with these passions largely spent, it is hard to reconstruct such a climate of tension, but it dominated scientific and religious thinking, particularly as regards man's place in nature, until well into the nineteenth century.

The classification of nature could not be wholly divorced from the history of nature, though historical considerations could be stressed in varying degrees. Kant (1785), appropriately as one of the leading intellects of the eighteenth century, explicitly distinguished natural description (*Naturbeschreibung*) from natural history (*Naturgeschichte*), each leading to its own form of classification.

In the study of language we find attitudes corresponding to those of eighteenth century natural science. In addition to the historical perspective already considered, systems of classification by structural type, comparable to the classification of natural products by the structure and arrangement of their parts, made their appearance. Earlier generations had tended to assume that historically related languages would exhibit structural similarities, but by the eighteenth century the evidence of Romance history had shown that this was not a necessary inference; despite the ease with which

individual lexical items could be replaced, over the course of centuries structural type could change radically while leaving a substantial core of inherited roots and inflectional morphemes. Though typological and genetic classifications continued to interact on one another, some people were prepared to disassociate them.

In the entry 'langue' in the French *Encyclopédie* (Diderot and d'Alembert 1772) the writer distinguished two fundamental types of language, 'langues analogues' and 'langues transpositives', the distinction being based on the general character of their grammatical structure. Analogical languages were those with relatively little syntactically relevant morphology, and having a word order analogous to the order in the thought expressed; transpositive languages were those in which the grammatical construction of sentences involved a good many differences in the inflected forms of words. Hebrew, French, Spanish and Italian were said to be analogical languages, Latin and ancient Greek being transpositive languages. German was also transpositive, but under the influence of neighboring European analogical languages it had become less markedly transpositive than formerly.

For prudential or other reasons, the writer accepted the Biblical tradition of the Tower of Babel, the dispersion of languages, and the primogeniture of Hebrew, which as the oldest language appropriately exhibited a primitive, analogical character, a character to which the Romance languages had now returned.

From a modern point of view this binary distinction in grammatical typology was in some respects unclear and crudely drawn; the important point, however, that the article set itself to make was that the 'filiation' of the Romance languages with Hebrew, on the basis of their structural similarity, was of far more significance and certainty than their etymological connection with Latin, because syntax was 'le génie principal de langue', and on this count Latin was declared to be 'étrangère' to the modern Romance languages.

During the earlier years of the nineteenth century, when genealogical classification was itself making rapid strides towards its present day position, these typological classifications were being actively debated, not at first with direct reference to historical relationships. F. von Schlegel maintained a binary distinction similar to the one set forth in the *Encyclopédie* but based on a wider range of structurally diverse languages, between those in which the finer semantic specifications associated with plurality, time reference, and other grammatical categories were indicated by an alteration in the form of the word root, and those in which such specifications were indicated by the addition of specific words to it (1808:45: 'Entweder werden die Nebenbestimmungen der Bedeutung durch innere Veränderung des Wurzellautes angezeigt, durch Flexion; oder aber jedesmal durch ein eignes hinzufügtes Wort, was schon an und für sich Mehrheit, Vergangenheit, ein zukünftiges Sollen oder andre Verhältnissbegriffe der Art bedeutet.').

These two types, he said, were absolutely basic; all other typological species of language were only modifications of one or the other. He allowed for the division of non-inflecting languages into those making use of affixes and those lacking all grammatical

form, thus finding a place for the class of agglutinating languages. Languages of this sort, that rely on affixation, lay between the purely unstructured languages like Chinese and the fully inflected ones like Sanskrit, Latin, and Greek, but the distinction between independent words and independent affixes as the means of grammatical designation was of secondary importance (46–9). Schlegel envisaged the possibility of a historical progression in structural types, recognizing the stage reached by languages like Arabic (48), where the affixes had begun to lose their individual identity and so to pass towards the status of inflections. He also recognized the opposite process in the loss of inflections by the modern Romance languages and Germanic languages in relation to their earlier structural type (56). But he made it clear that while as structural types the inflecting languages were the best developed, individual languages of other types can and do produce their own excellences (e.g. Chinese [49] and Hebrew [55]). Moreover, again as exemplified by Chinese, there was no universal movement in typology; and, of great importance in the subsequent history of language classification, he clearly separated typological classes from genetic classes established by formal correspondences in the composition of 'roots'. Thus he recognized (46) many totally unrelated languages on the American continent, but like most later writers in the first half of the nineteenth century he grouped them all together into one typological class of a complex but still unsystematic affix-using type.

The now familiar threefold typological classification into the co-ordinate classes of isolating, agglutinating, and inflecting languages was set out soon afterwards by F. von Schlegel's brother, A.W. von Schlegel, again as a non-historical system of classes (1818:14): 'Les langues qui sont parlées aujourd'hui et qui ont été parlées jadis chez les différents peuples de notre globe, se divisent en trois classes: les langues sans aucune structure grammaticale, les langues qui emploient des affixes et les langues à inflexions'. A.W. von Schlegel, like his brother, made the point that the difference between affixing and inflecting languages was not simply a matter of whether serially placed affixes were used or not in the surface morphology, since a good many affixes were found in the inflecting languages. What was relevant to the distinction was whether the affixes themselves had a definable and isolatable meaning or whether as affixes they were devoid of identifiable content in themselves and only served to form a complete inflected word unity with its totality of specified meaning (15).

This latter distinction turns largely on the number of formally distinct affixes and the uses to which they are put. In typically agglutinative languages each affix has a specific single category and range of associated meanings assigned to it; in inflectional languages a single affix form may have a variety of entirely separate categories and meanings according to the class of word stem with which it is being used (e.g. Latin *-ēs* may be nominative singular, nominative or accusative plural, second personal singular indicative, or second person singular subjunctive). This last class of languages he called 'organic' (1818:15), and in a manner increasingly found in succeeding generations he regarded such languages as the most superior in internal structure.

Thereafter A.W. von Schlegel (1818:16–17) subdivided his organic (inflectional)

languages into synthetic and analytic, according to their recourse to usages such as prenominal articles, preverbal pronouns, and auxiliary verbs, in preference to extensive tense inflection and person inflection, and prepositional constructions in place of case inflection. The passage from synthetic organic to analytic organic might be a matter of history within a single language family as was instanced by the comparison of Latin with its Romance descendants. A.W. von Schlegel's system of classification was a more complex one than that of his brother, and in particular quite a wide range of languages could be included in the membership of his organic languages. Certainly at this time a language structure that could be so designated was to be favored, when a powerful movement of European thought was seeing the highest ideal of science in the conception of an organized whole that was so much more than the sum of its parts pieced together ('das zusammenbrennende, zusammentreffende Ganze').

The typological classification of languages, especially the triad isolating, agglutinating, and inflectional (sometimes called 'fusional' later) is traditionally and widely associated with the work of Wilhelm von Humboldt (1767–1835). He did indeed make frequent use of these terms, more especially in the *Verschiedenheit des menschlichen Sprachbaues* (1836), but his position is less simple and clear-cut than it is often represented as being, for example by Schmidt (1926:24–5).

Humboldt spoke of the contrast between isolation, agglutination, and inflection as the cardinal point (Angelpunkt) in the consideration of language structure (1836:114); but elsewhere, rather like F. von Schlegel, he recognized two typological poles only, highly developed inflection as best exemplified in Sanskrit and extreme isolation as exemplified in Chinese. The enthusiasm aroused by Sanskrit and the study of Sanskrit during the early nineteenth century had an effect on linguistic opinion comparable to that of the European discovery of Chinese and European misinterpretation of Chinese grammar in the seventeenth and eighteenth. This misunderstanding persisted in Humboldt; Chinese had, he said (1836:124, cf. 1827:66) no indications of different word classes. Between these two poles agglutination, a kind of hybrid species ('Zwitterwesen'), was not a clearly separated type but just an intermediate stage (1836:124–5, 294). He expressed doubts (298) whether a really comprehensive classification of languages was feasible on this basis, and inclined more to something like a continuous scale of structural types from the most highly organized (Sanskrit) to the least organized (Chinese), with the agglutinating languages (125: 'diese sogenannten agglutinierenden Sprachen') ranged within it (169–75). It is noticeable that Humboldt regarded Hebrew as lying near to Sanskrit and not among the isolating ('analogical') languages as had the writer of the *Encyclopédie* article.

Beside this system based primarily on word form in relation to the expression of grammatical relations and categories, Humboldt also set up a fourfold system of typological classification partly overlapping with the former, having reference to sentence structure: the Chinese type, the agglutinative type, the inflecting type, and the incorporating type, again with languages having the possibility of exhibiting the characteristics of more than one type (1836:272). Languages like Sanskrit showed

(151) by their word forms the grammatical relations of words within sentences; languages like Chinese had to rely on word order or the presence of other words; but a separate structural possibility was exemplified in particular among American-Indian ('Mexican') languages (152–3), wherein the grammatical core of the sentence was contained in a single word, more especially by the incorporation of the object noun or pronoun (151–4). Humboldt's description of this type is strikingly echoed by Allen's characterization of a Caucasian language, Abaza (1956:139): 'The typical Abaza sentence simply lists the nominals in the function of "topics", and the semantic relations between them are functions of the verbal complex.'

Humboldt's incorporating type is reflected in Duponceau's (1819) category of polysynthesis, whereby 'the greatest number of ideas are comprised in the least number of words', a language type which he and a number of early nineteenth century American linguists very generally took as characteristic of the native languages of the American continent as a whole. That this system is partly independent of the isolating — (eagglutinating) — inflectional scale is shown in another passage where Humboldt wrote (1836:294) that since incorporating languages cannot include all their syntactic relations within single word units they must themselves lie somewhere along this scale. One would agree with Schmidt (1926:25) that the incorporating type does not fit well into the otherwise tripartite system of classification, but it is scarcely fair to ascribe its introduction, as he does, to Pott (cf. Pott 1863:113).

So far we have been considering the typological classifications that were developed at the end of the eighteenth century from a purely synchronic point of view just as systems of descriptive classification. Thus, it seems, they were considered by the Schlegels; while they recognized the possibility and the fact of typological change in a language over the course of years, they clearly distinguished this form of language classification from classification into genealogical families on the basis of etymologies. Humboldt too laid his main emphasis on descriptive typology, but he also saw the different types as stages in an evolving sequence. This is certainly how he treated them in his 1822 *Entstehen der grammatischen Formen*, in which he regarded the order isolating — agglutinating — inflecting as marking a course of development and progress towards the full realization of the potentialities of human language. In 1836:295 he designated the inflecting languages as more advanced ('vollkommnere'); and he assigned the isolating type to a lower grade (1827:65–6, 69), but at the same time he insisted on the special excellence of the Chinese language, at least within its own type, praising the close correspondence of its sentences with the bare sequence of thought, in terms very reminiscent of the seventeenth century pioneers in search of a 'real character' and universal language (1827:64: 'fondant la construction presqu'exclusivement sur la suite des idées'; cf. Robins 1967:113–15). On the other hand he expressly rejected (1836:295) the equation of more advanced with later in time, less advanced with earlier in time, as if 'Chinese were the earliest and Sanskrit the most recent language', repeating that the scale was one of typology not history; and in fact he anticipated the position of von der Gabelentz (1901:255–58) and Schmidt (1926:26)

that languages are subject to a constant movement from isolation to inflection and then back, not to the original type of isolation, but to a comparable structural type (1836:169, cf. 258, where he contrasted an imagined form of Sanskrit, that like English had lost almost all its inflecting character, with the persistent and conservatively isolating Chinese).

During the late eighteenth century and early in the nineteenth grammatical typology was considered and studied from these two points of view, first as a means of classifying languages by reference to their observed structures and arrangements, in line with other contemporary classifications of natural phenomena in science, and secondly as an accompaniment and consequence of the historical process as it affected language. This latter became the dominant interpretation of structural typology in the eyes of most nineteenth century European linguists. The supremacy of historical linguistics in that century is well known, so well known indeed that historical linguistics is often referred to as traditional linguistics by those who choose to ignore the long tradition of European linguistic thought prior to it, cast largely in the frames of descriptive linguistics and of general synchronic theories of language.

The course of historical classification from 1800, largely the work of German or German-trained scholars, is familiar and well recorded (Pedersen 1931: chapter 7, Leroy 1963:15–60, Ivić 1965: chapters 1–12, Robins 1967: chapter 7). Genealogical, historical classification was now the ultimate goal of linguistic science, and etymological relationships of lexically essential root forms and affix forms, systematically established, were the evidence upon which these classifications were founded. Tracing the progress of this aspect of linguistics through Rask, Grimm, Bopp, Pott, Schleicher, and the Neogrammarians one sees the continuous development of method, theory, and resultant classification, for the most part worked out in Indo-European and in the genealogical families bearing some cultural kinship with I-E (i.e. written records of earlier stages of the family, possession of at least one language with an enduring literature, etc.).

F. von Schlegel (1808:28) held comparative grammar to be the key to genealogical relationships, and in Bopp's *Vergleichende Grammatik* (1833), as the title indicates, the elements brought into comparison were primarily the inflectional morphemes of the languages in association with their roots. At this time 'comparative grammar', still in use for example in Brugmann and Delbrück's (1886–1900) magnum opus and in Buck's (1933) classic textbook, was literally the proper designation of the comparative method. Later scholars, notably Pott (1833–36), broadened the method systematically to include the etymological study of whole lexica as far as the evidence permitted.

As etymological studies progressed, mere resemblance of forms gave way to the more subtle but much more powerful conception of systematic sound correspondences, and thereafter a stage of scientific maturity was achieved in the insistence of the neogrammarians (as part of method if not as literal matter of fact) that sound changes and therefore sound correspondences must admit of no haphazard, inexplic-

able, exceptions. In theory, the century saw the concept of a surviving 'oldest' language (still lingering on in the supposed 'antiquity' of Sanskrit as nearest to the Ursprache, held by F. von Schlegel among others) yielding place to the universal recognition of a non-extant 'reconstructed' language, with Schleicher in mid-century laying more stress on actual reconstruction than did the later neogrammarians. In the actual system of classification, the main outline of the Indo-European family, which became the model for other families and the principal field for linguistic research, emerged fairly early in its main membership, *Indo-European* dating from 1814 and *Indogermanisch* from 1823. More detailed research placed the subfamilies of I-E in their respective places, notably resulting in the downgrading of Sanskrit from its supposed position near the head of the family to membership of just one branch which itself had undergone at least two major shifts, in the reduction of the earlier vowel system to (at first) three vowels and in the consonantal changes that characterized the divergence of what were later to be called the satem languages (Whitney (1873:204) marks a stage when Sanskrit was not 'mother' but 'eldest sister in the family'). The subsequent discovery of Tocharian and the decipherment of Hittite in this century brought about certain changes in the internal organization of the I-E family. The geographical distribution of the centum and satem branches was no longer as simple as had first been supposed; and after some years of controversy over the relation of Hittite to the rest of the family, leading for a time to the assumption of 'Indo-Hittite', the language has now been generally accepted as a member of the Anatolian branch of I-E (Puhvel 1966).

In all this work typology played no major part methodologically. F. von Schlegel had already dissociated it from any necessary connection with genealogical classification; the neogrammarians were not particularly interested in it; and in articles first published in 1914 and 1924 Meillet summarily dismissed typological classification as no more than an 'amusette' (1948:76–7), and declared (1938:53): 'La seule classification linguistique qui ait une valeur et une utilité est la classification généalogique.'

'Nineteenth century historical linguistics' is generally said to have begun with Sir William Jones's 1786 paper, and Hockett (1965:185) recently expressed the view that this was the first of the only four really important breakthroughs in linguistics as a whole. A single passage from just one paper of Jones's numerous writings is reprinted in modern publications and accorded pride of place as having instituted scientific historical linguistics and the historical classification of languages. In a number of ways, however, Jones's position rests rather less on his actual scholarship, great though it was — and not just in historical linguistics as a glance at his collected works reveals — than on the fact that he first brought Sanskrit, both descriptively and historically, to the full attention of European linguists, and did so at the time most favourable for Sanskritic studies and historical linguistics to be taken up with enthusiasm and successfully developed (cf. Hoenigswald 1963).

Jones based the historical relations between Sanskrit and the classical languages of Europe on 'a stronger affinity, both in the roots of verbs and in the forms of grammar,

than could possibly have been produced by accident'. But his eulogy of Sanskrit as 'more perfect than the Greek, more copious than the Latin, and more exquisitely refined than either', while perhaps owing most to the work of the Sanskrit grammarians, whom Jones was one of the first to study, scarcely represents a scientifically objective description. Against his anticipation of later methods of historical classification must be set his denial, in the paragraph preceding his most famous quotation, of a descent of Hindi from Sanskrit, despite 'five words in six' being derived from it, because of a typological diversity between the two languages 'in the inflections and regimen of verbs'. His conception of a common source, no longer extant, for the languages he brought into historical relationship, though not yet universally accepted, had in fact been anticipated in the seventeenth century by the Swedish scholar Jäger (1686).

In wider ranges of linguistic history Jones accepted the Babel tradition, both in the paper just cited and more fully in his "Origin and families of nations" (1799:129–42), where he assigned the nations of the world to the three groups descended from the sons of Noah. Noah's language he considered lost, and he denied any historical connection between the original languages of these three groups. From Japhet, he wrote, sprang the north European and north Asian peoples ('Tartarians'), from Shem the Arabs and Jews, and from Ham the Indians, some of the inhabitants of southern Europe, and probably the rest of the human race.

A wider study of Jones's scholarship would show him to have been more a man of his time than the instant discoverer of modern historical linguistic theory and method. His claim to historical renown rests on a wider base than on the repeated but isolated quotation of a single paragraph.

At the beginning of the nineteenth century F. von Schlegel had regarded his typological distinction between inflecting and non-inflecting languages as marking 'die beiden Hauptgattungen aller Sprache' (1808:45). As we saw, this mode of classification continued and was further refined by von Humboldt; but with the steady and successful advance of historical linguistics and the great interest that this aroused, typological studies tended in mid-century to become subordinated to the search for the supposed stages in the historical evolution of genetic language families, and ultimately they fell out of general favour, as was evidenced in the opinions quoted from Meillet (1938, 1948), until the revival of synchronic studies in the present century.

Evolutionary ideas were gaining ground before the publication of Darwin's *Origin of species* in 1859. Steinthal (1850) set out a system of eight structural types of language, in which the more developed languages of the world represented the progressive development of the potentialities of language ('die Entwickelung der Sprachidee'). His views on structural types, when considered in successional relation to each other, were more akin to those of the earlier German Naturphilosophie, as expounded, for example, by Goethe as a man of science, than with Darwininan evolution; but the movement of nineteenth century thought in this respect, like that of contemporary scientific thought in general, is unmistakable (on Goethe's attitude to biological

classification and its relation to contemporary linguistics, see W. Haas 1956–57).

The classic exponent of the thought of this period was August Schleicher (1821–68), who, whatever the actual sources of his thinking (Hoenigswald 1963:6–8, Maher 1966), towards the end of his life saw the history of languages as closely corresponding to the history of living species set forth by his contemporary, Darwin (Schleicher 1863). He integrated typology and history within one view of linguistic evolution. Just as living species arose from simple living cells and passed through successive stages of organization to produce the variety of species actually found in the world, so all languages must be thought to have arisen from the allegedly simple state still exemplified by Chinese (1863:24, notice the centuries long persistence of this myth of the simple structure of Chinese!), and to have passed, through the agglutination of auxiliary words, ultimately into the highest form of inflectional structure represented by Indo-European in its classical period, before these languages began their period of decline. He likened the supposedly oldest stage of the I-E roots, and the roots of comparable language families, while as yet grammatically undifferentiated, to living cells with the potentialities of even more complex development and differentiation (25–6). Typology was now wholly subordinate to history, even though he recognized (28) that genetically unrelated languages in similar stages of typological evolution often occupy contiguous areas of territory. His attitude is best summed up in his own words (1850:15): 'Nur dadurch wird die Geschichte, das Werden dem Systeme adäquat, dass jede Periode einen Repräsentanten zurücklässt, wodurch eben das Nacheinander der Geschichte in das Nebeneinander des Systems umschlägt.'

Schleicher's historical conception of evolutionary typology was true to the spirit of his time, for all its naïveté. Such ideas continued to be expressed during the century, but in 1909 Finck (1909:6) explicitly denied any historical or evaluative grading in his exposition of linguistic types, and in 1921 Sapir broke decisively with all evaluative typology. The revival of such doctrines and their reduction to ideologically inspired absurdity can be seen in the theories of Marr, once highly spoken of in the Soviet Union until Stalin's ipse dixit put a brusque stop to it all (Simmons 1951, Thomas 1957).

With Darwin evolution had finally won the day in natural history over static creation. Schleicher saw the genetic families of languages and their subfamilies as the linguistic equivalents of natural species in the animal and vegetable kingdoms. Synchronic typological classifications had already been recognized, for example by von Humboldt, as very broad ones, difficult if not impossible to elaborate in detailed subdivisions before the development of strict descriptive quantification techniques. But close study of etymological relations and of shared innovations had enabled linguists by Schleicher's time to arrange the the I-E languages into groups and sub-groups, ending with living and historically attested dialects as infimae species (cf. Schleicher 1863: table), and the articulation of the I-E and other genetic families went on throughout the century. Schleicher, himself responsible for the Stammbaum model to display such family relationships (with its well known strong and weak points),

likened his picture of language classes to Darwin's picture of the evolutionary classes of living things (1863:13–16, Greenberg 1957:56–65).

The triumph of historical classification was the triumph of etymology. Etymological connections cumulatively worked into sound laws provided the justification for historical relationships and the means of refining and extending them. This reached its climax with the neogrammarians, but their field of investigation was I-E and other families of languages spoken in areas to some extent culturally comparable. In the field of the American-Indian languages very different conditions prevailed: almost complete illiteracy of the languages and consequently no records prior to European immigration (except for the 'classical' languages of Mayan and Aztec civilization), and a vast number of languages spoken by relatively small groups, almost all awaiting descriptive analysis for the first time. Here people argued throughout the nineteenth century over the relevance of typology of over-all structures as against the etymologies of individual words and morphemes for the establishment of historical classifications ('grammar or lexicon' [M. Haas 1969, where, as the whole course of the debate shows, *grammar* means grammatical structure, not the actual inflectional and derivational morphemes, such as Bopp and others in Europe were concentrating on, which would here fall under *lexicon*]).

In colonial days and at the end of the eighteenth century attempts had been made to classify some of the then known Indian languages of North America by reference to lexical cognations, and, as was noticed above, Jefferson had urged the collection of vocabularies for this purpose from the languages of North and South America, just as Leibniz had earlier encouraged the collection of vocabularies from the diverse languages of the Russian dominions (Arens 1955:85–6). But from the beginning of the nineteenth century, as knowledge of the native languages of North America increased with the western advance of the frontier, American scholars in company with several Europeans came to regard the alleged typological unity of the languages of the whole continent as the most significant basis of classification.

Duponceau (1819) used the term *polysynthetic* to designate the supposed type of American linguistic structure, and this term persisted, later reinforced with the Humboldtian *incorporating*. But as the century wore on the available facts began to make it clear that American-Indian languages were both less homogeneous in structural type and less peculiar in relation to the rest of the world than had been thought. From 1836 Gallatin carried out and published comparative work on the basis of lexical, etymological studies, declaring that this was the only proper foundation for the establishment of language families within the continent, though he still tried to work within the time span of a literally interpreted Biblical tradition. The rival claims of structural type as against lexical correspondences was argued up to the end of the century, when Powell's comprehensive classification (1890), which has in outline survived very well the revisions of later scholarship, confirmed that 'the evidence of cognation is derived exclusively from the vocabulary' (1891:11).

The controversy was not just about the claims of typology versus history in pro-

ducing differently based even though factually related classifications, as had largely been the case in early nineteenth century Europe, but it concerned the wider question, that was to be debated in other areas later on, of the extent to which structural type could itself be used as a criterion of historical relationship. Gallatin (1836:5–6) had himself agreed with the belief in an over-all unity of structure among the American-Indian languages proving an ultimate common origin of all the American languages historically anterior to the appearance of the lexically recognizable separate families. This view was shared by Whitney (1870:346–53), who, however, insisted that the immediate need was to apply to the known American languages the methods already being successfully used in I-E and other established families (for this period of American-Indian scholarship, see M. Haas 1969; for a recent view on the typology of these languages, Hoijer 1954).

The turn of the century witnessed both the recognition of maturity in the theory and methods of historical classification, at least as far as I-E and similar families of languages were concerned, and the rise, or rather the renewal, of synchronic studies stimulated and strengthened by the various interpretations and applications of de Saussure's structural conception of language. In historical linguistics, with the neogrammarian ascendancy still at the forefront of people's thinking, Pedersen felt able to write in 1924: 'Comparative linguistics has now attained full maturity and a clear consciousness of its methods and undertakings' (1931:245). Structural attitudes were to make their impact on historical studies, as is seen in such works as Jakobson 1931 and Hoenigswald 1950 and 1960, but these changes did not directly affect the basis of historical classification. A new interest was, however, given to structural, typological classification; greater insights had been made into the nature of linguistic structure at all levels, and linguists now felt free to range beyond the classifications of the previous century, which had dealt with only one or two rather obvious facets of grammatical organization, important and revealing as they had been. It is perhaps an exaggeration to say, with Stankiewicz (1966:495) that 'the development of modern linguistics is largely a history of oscillation between two complementary approaches to the comparison of languages, known respectively as the "genetic", or "reconstructive", and the "typological", or "general linguistic" approach'; but the revival of independent interest in the structural comparison and classification of languages and the developments in the classification procedures employed have been a notable characteristic of twentieth century linguistic work.

Twentieth century typology was not only wider-ranging than hitherto; it came to be deliberately independent of historical and geographical implications (although, of course, the contingent coincidences of history, geography, and structure were recognized). Schmidt (1926) sharply distinguished between *Sprachfamilien*, resulting from genetic classification, and *Sprachenkreise*, typological groupings based on some set or sets of shared features, perhaps correlating with wider *Kulturkreise*. The material evidence was different as between the two: for the former 'eine Untersuchung des Sprachmaterials im einzelnen, seiner einzelnen Wörter', for the latter 'eine Reihe

besonders charakteristischer Sprachelemente' (1926:271). But he was still concerned to set up continuous areas of languages showing the extension of particular features, and generally speaking he set out the membership of his *Sprachenkreise* in terms of the genealogical *Sprachfamilien*, thus making his two systems of classification less radically distinct than the basis of his working would have permitted.

Much more independent of all areal and historical considerations was the rather earlier typology of Sapir (1921). Sapir determined to investigate what he called (127) the 'structural genius' of different languages; he rejected (128), as had von Humboldt, any absolute determinacy of typological classification, such as is necessarily and inherently a feature of genetic classification (cf. p. 29), and reacting against the domination of structural questions by the evolutionary and evaluative conceptions of the previous century he took his ideas on typology far beyond the earlier tripartite and quadripartite schemes, which he felt were too superficial to bring in all that was relevant to the comparative study of linguistic structure. He drew up (chapter 6) three separate considerations which he claimed must all be involved in any satisfactory system of classification, leading to a more complex but more penetrating typology:

1. Types of concepts formally expressed in a language: 1. Roots; 2. Derivatives; 3. Concrete relations; 4. Pure relations (1 and 4 being universal).

2. Languages that primarily develop their morphological processes in relation to derivation, as against those that develop them in relation to inflection.

3. The 'techniques' involved (here belong the traditional distinctions between isolation, agglutination, and fusion (inflection)).

Sapir's system is highly interesting, though not easy to follow in detail, in part as the result of the idiosyncracy of his metalanguage, which he developed in advance of the later standardized terminology of American interwar descriptive linguistics. Martinet (1962:93–100) has suggested a more formal revision of Sapir's system, within his own theory of the 'moneme'.

Sapir recognized, as one must, that recent genetic divergence is likely to preserve much of the original typology, and that prolonged contacts between contiguous languages will tend to produce areal congruences of type (*Sprachbünde*); but the strength of his system lay in its total theoretical independence from areal, temporal, and genetic considerations. Thus Latin and Greek were shown to fall very close typologically to Takelma (S.W. Oregon) within one major type, and Turkish and Yana came together within another (150–2). Sapir's was pure typology; he explicitly rejected any connection between structural type and level of civilization or linguistic progress: 'When it comes to linguistic form, Plato walks with the Macedonian swineherd, Confucius with the head-hunting savage of Assam' (234).

In this Sapir in 1921 was more in sympathy with later linguistics than with the rather conservative Schmidt. Hjelmslev (1966, written in 1943), Voegelin (1954), and Saporta (1957), for example, all insisted on the distinction between typology and history as the sources of quite separate classifications, and the latter two have made use of the term *cross-genetic* in connection with typology. All agree that much detailed

observation and analysis must be brought in if the results are to be significant.

Saussurean structuralism had opened the way for detailed typological classifications at particular levels of analysis, whereby languages would be grouped together simply according to shared features of phonology, grammar, or semantics. Trubetzkoy 1939b: chapter 4 contains a now classical set of phonological system types, and this is followed on similar lines in Hockett's (1955: chapter 2) "Typology of phonologic systems". In both of these, languages are classed together by their possession of similarly structured sets of contrasts between phonemes and the distinctive features characterizing the phonemes. Structural phonology has suggested the possibility of the regrouping of dialects, not in direct line with attested or inferred history, but on the basis of similarities in sets of phonological contrasts. The general theory of this approach was put forward by Weinreich (1954), and with particular reference to the Slavic language area by Stankiewicz (1958); some detailed applications are made to the Scottish dialects by Catford (1957).

In morphology, Greenberg (1960a), in an issue of *IJAL* largely devoted to typology, developed Sapir's system of classification in the direction of greater formalism, setting up ten 'typological indices' (synthesis, agglutination, compounding, derivation, gross inflection, prefixing, suffixing, isolation, pure inflection, and concord), based on a statistical counting of specific features in sample texts of different languages; for example the index of synthesis was calculated by reference to the average number of morphemes to each single word, out of eight languages Eskimo coming at one extreme with 3.72, Sanskrit next with 2.59, and Vietnamese last with 1.06.

At the syntactic level Bazell (1949) proposed a typology of languages drawn from the essentially syntactic relations of (overt) succession or word order and (covert or functional) determination and subordination. At the level of semantics Ullmann (1953) has suggested a classification of languages by reference to characteristics of their lexica in relation to such features as their relative proportions of 'motivated' (self-explanatory) words and 'unmotivated' words (e.g. German *Handschuh* and *Schlittschuh* as contrasted with French *gant* and *patin*, and with English *glove* and *skate*), and their preferential use of generic or of specific words (cf. Martinet 1962:87–9 and Stan 1963). If Whorf's ideas could be worked out satisfactorily with application to a number of languages, his conception of different grammatical-semantic structures fostering different world views in their users would be a basis for a semantic typology of a far-reaching kind (cf. Carroll 1956).

The special problems facing comparative linguistics in largely or wholly illiterate language areas beset American linguists working on the native languages of their continent in the nineteenth century, and the controversy between typological and lexical comparison as the key to classification has already been noticed. In fact work on the native languages of America and on those of central and southern Africa provides good illustrations of the attitudes taken up during the last two centuries by different scholars on the question of language classification in largely illiterate areas; and for this reason work in these two fields is worth some particular notice in a historical survey of general principles.

During the nineteenth century a historical perspective was generally maintained by both sides, and the question turned on the relative claims of structure and lexicon as criteria for membership of language families. Some linguists of the present century, however, with the revival of non-historically orientated typology, have suggested that with languages in this condition genealogical classification is not really feasible. Such a view has been expressed by Lehmann (1962:49): 'for languages attested only today we may be limited to classification based on typology'. Much earlier, Boas (1929) had argued that in a field like that of native North America, in the absence of written records it is impossible to distinguish between the results of divergence from a common source and the results of subsequent interinfluences of languages in prolonged contact. This would be comparable to saying that under such conditions the heavy French influence on English since the eleventh century makes it impossible to assign English definitively either to the Germanic or to the Romance family (for a similar view in the Southeast Asian area, cf. Honey and Simmonds 1963). Indeed, within I-E, Schuchardt, who never accepted the full neogrammarian position, raised just such questions in regard to dialect classification ('geschichtlich verwandt oder elementar verwandt'). They are most acute in the classification of dialects because interdialectal intercourse favours the areal spread of features across dialect boundaries (Schuchardt 1928:166–88, 189–204, 248–53).

In a significant part of the North American languages the work of twentieth century scholars such as Sapir, Bloomfield, and M. Haas has more than validated the application of historical methods leading to historical conclusions and resulting in historical classifications (cf. Mandelbaum 1949:167–250; Hockett 1948; M. Haas 1966). In 1945 Voegelin complained of the potentially misleading irrelevance of purely areal groupings, not reinforced by strictly linguistic analyses of the languages involved, in some earlier subdivisions of the larger American-Indian families. In a review of work on South American languages, Rowe (1954) likewise confirmed scholars' confidence that historical classifications could there too be established by the comparative study of correspondences and similarities (cf. the later classification of these languages in Greenberg 1960b). In particular the comparative work of Bloomfield in the Algonquian family (Hockett 1948) demonstrated that differences in the state of the languages or in the culture of their speakers in no way required or permitted any lowered standard of scholarship in the application of comparative methods; in this Bloomfield bore out Meillet's claim (1938:69) that 'la grammaire comparative des langues indo-européennes fournit à l'ensemble de la linguistique historique un modèle à imiter' (cf. M. Haas 1966:120–1). But in this connection one must again stress the lesson learned over three generations of Indo-European historical linguistics, the necessity of working through systematic phonological correspondences between word and morpheme forms in the languages to establish genealogical relations, rather than relying on mere similarities (cf. Lehmann 1958).

The languages of central and southern Africa have given rise to a similar debate on the relevant criteria to apply in arriving at adequate classifications. As with expres-

sions like *American-Indian languages* the starting point is simply areal. In the first instance a set of languages is looked at for comparative purposes just because they are spoken in a geographically well defined stretch of contiguous territory. Earlier sporadic treatments of certain African languages had been carried out from the seventeenth century (Schmidt 1926:85–6), but the first major classification work in the field was that of Bleek (1862–69), in which the now general term *Bantu* first appeared. Bleek moved at once from the areal basis of his title to a typological one, citing as specific to the Bantu group of languages certain structural features including the now well known nominal prefix class concord systems (2–3, 93–108). The Bantu family started life as a typological group, however loosely defined, and so it continued at the hands of several scholars. Drexel ((1917–18) wrote of the Bantu type, and Johnston (1919–22) referred to 'Bantu and Semi-Bantu languages'. Meinhof (1899, 1906) was the first to set out a systematic historical treatment of these languages, classifying them by reference to their divergence from a postulated Ur-Bantu, which he established from sound correspondences between the different Bantu languages and the sound laws governing their history. But he classified the Bantu languages themselves within the larger class of *Klassensprachen* by the typological criterion of prefix class concord (1906:22–3), and elsewhere in Africa he was prepared to resort to typological criteria (e.g. the absence of nominal prefix classes) as evidence for historical classification (1916:110). For a general appreciation of Meinhof's African language work, one may consult Doke 1961 and Doke and Lestrade 1946.

These different approaches to what were broadly the same set of languages were reviewed by Guthrie in 1948. Guthrie distinguished three methods of classification (1948: chapter 3): the 'historical', the 'empirical', and the 'practical'. Historical classification he associated with Meinhof, and he dismissed as impossible 'true historical study ... in a field with practically no historical records' (1948:20). Guthrie's 'empirical' is in fact partly typological, based on the drawing of isoglosses to show the distribution of significant grammatical and phonological features, and partly comparative-lexical, involving the occurrence of words in different languages referable by systematic comparison to hypothetical formulae ('starred forms'). By 'practical' (27–8) he meant that where the application of 'empirical' criteria does not by itself lead to a satisfactory classification, decisions based on areal contiguity were to be called in, particularly in relation to the largest units of classification, the sixteen 'zones' (28: 'Since [the present work] is avowedly practical in its intention, similarities between widely separated languages are of little importance').

Following these principles Guthrie's Bantu family depended on a mixture of typological and what amounted to historical criteria. That there is a major congruence between the two may well be a special attribute of these languages; that there will be areas of non-congruence was inevitable and was allowed for differentially (1948:18–19); among the 'languages which are incompletely Bantu' those with an adequate shared common lexical stock but which lack the major typological features are called 'sub-Bantu', and those showing features such as nominal prefix concord but lacking Bantu lexical correspondences are 'Bantoid'.

Such a classification is admittedly a mixed one derived from criteria of different sorts; indeed Guthrie brings in the three sorts of classification referred to in the title of this volume. His later 1967 treatment does not substantially differ from that of 1948 as far as the delimitation of the Bantu languages is concerned (§13.01). The structural criterion of the presence of a class concord system, which was made a condition of membership in the Bantu family in the former work, is retained (§§11.22, 35.01); but, as the subtitle indicates, much more interest is shown in reconstructing the (pre-) history and geographical situation of the 'ancestor of the whole family' (§61.82, cf. §25.01–21).

Greenberg (1963) has taken a much more rigorous line, insisting on comparative lexical criteria alone (1: 'the sole relevance in comparison of resemblances involving both sound and meaning in specific forms' leading to 'a complete genetic classification of the languages of Africa'; but cf. here the observations of Lehmann 1958, referred to above, p. 26). Greenberg has classified the languages of Africa into four major genetic families, and the Bantu languages are classed as a single group in the much larger Congo-Kordofanian family.

It is to be noticed that in dealing with unwritten languages several nineteenth century scholars had pressed the claims for typology as being criterially relevant to a historical classification (as with the native American languages), but that twentieth century linguists have seen typological and historical comparison as separate methods leading to theoretically separate classifications, even though an 'empirical' mixed classification may on occasion be justified for practical purposes. One observation of general methodological importance arises very clearly from the consideration of the course of comparative Bantu studies: typological classification, inherently indeterminate, admits of scales ('more or less'), enabling people to write of 'Bantu', 'Semi-Bantu', 'Sub-Bantu', and so on, whereas genetic classification is always a matter of *Yes* or *No*. Von Humboldt (above, p. 16) had recognized the essential indeterminacy of typology, and the three traditional categories of isolation, agglutination, and inflection (fusion) are better understood as directions towards which languages tend in different degrees, or as major sets of characteristics which they share in different proportions, so that they are classified by that set which is preponderant, rather than being assigned wholly to one of a number of mutually exclusive classes.

Greenberg's (1960a) quantification procedures gave explicit recognition to this (above, p. 25), and so did the treatments of typological classification by Bazell (1958) and Uspensky (1968). Bazell suggested that languages could well be classified by reference to the relative ease of morphological segmentation on the one hand and grammatical identification of the resultant segments on the other. This leads to a reinterpretation of the triad, isolation, agglutination, and inflection, wherein fairly nuclear member languages are, respectively, Vietnamese (slightly less so Chinese) — in which it is easy to segment but hard to classify the segments unambiguously, Turkish — in which it is easy to segment and to classify the segments grammatically, and Latin — in which it is hard to segment unambiguously but easy to classify any segment in

terms of the grammar. Uspensky, like Greenberg, proposed the development of a formal interpretation of some of Sapir's ideas. He set up classes of root and of formative elements according to their syntagmatic possibilities (1968:39–43). His main proposal was that languages should be classified typologically by reference to a number of abstract 'étalon languages' or standard language models. These would be credited with particular structural characteristics, and actual languages or rather the grammatical structures of actual languages would be compared with one another in relation to these 'étalon languages', and would be shown to be more, or less, classifiable as of one or another type according to the number of conversion rules required to pass between their structures and that of one of the 'étalons' (1968:29). Uspensky's 'étalons', or models, are therefore not representatives of actual languages, but are structures endowed with features inductively abstracted from actual languages and then used as standards of comparison and classification. In this respect they are somewhat analogous to the cardinal vowels set up by D. Jones (1947: chapter 8) as ideal reference points for the phonetic identification and classification of actual vowel sounds. In grammatical structure Uspensky adapted the earlier fourfold system, proposing four models ('étalons'): amorphous (isolating), incorporating, agglutinating, and inflecting, in a rising scale of complexity (1968:55), but he admitted that an absolutely amorphous language not only does not exist, but could not exist (43). Birnbaum (1968) summarises and comments on Uspensky's system of classification, and associates typology closely with the deep structures of transformational-generative grammarians.

If historical classification is interpreted in the sense embodied in the quotation from Vendryes cited on page 3 of this article, then it is in principle nonsensical to say that a given language is 'semi-Indo-European' or 'semi-Germanic'. From the standpoint of history Meillet (1937:16) declared: 'La notion de parenté de langues est chose absolue et ne comporte pas de degrés.' Except in the very special circumstances of a pidgin created in the first place as a shared second language by speakers of two different mother tongues (Weinreich 1953:104–6), an unbroken line links speakers of any language of a genetic family to the assumed parent language, just as at no time during the years between colloquial Latin and modern French was there any generation aware of speaking any but the language of the previous generation (cf. Meillet 1948:81: 'La parenté de langues résulte uniquement de la continuité du sentiment de l'unité linguistique').

Of course this must not be misunderstood. Languages can be more, or less, remote from one another within a genetic family; Italian and Spanish are more closely related to each other than either is with English, and this can be diagrammatically indicated in the Stammbaum model, but all three languages are equally members of the I-E family. English has clearly a much greater admixture of Romance (French) lexical forms than has German or Dutch, and it has lost a lot more of the inherited Germanic inflectional system than any other Germanic languages, but this does not alter the fact of an unbroken consciousness of 'speaking the same language' that links modern English with

Old English, and further back in time with the assumed Common Germanic. English could have taken over still more non-Germanic lexical forms, for example if French prepositions like *sans* had proved viable or Latin ones like *ex* had moved beyond specific technical phraseology and extended their range so as to oust *without*, *out of*, etc.; but genealogically English would still have remained one of the Germanic languages in terms of historical classification.

Certain theoretical consequences of this must be recognized. It is clearly possible for a language to lose all recognizable or recoverable evidence of a genetic relation through the gradual processes of linguistic change (Meillet 1948:94: 'La parenté de deux langues peut donc être, et est souvent, indémontrable, même alors qu'elle est réelle'). In fact this has quite certainly happened over and over again. There is nothing special about Indo-European and the other major language families or about the *Ursprachen* 'reconstructed' with different degrees of confidence, except that they go back in history and prehistory as far as it is possible to go back on the evidence that is available and that is likely to be available. On certain borderlines there is indeterminacy in the evidence, as for example on the question of an even earlier genealogical relationship between I-E and Finno-Ugrian or as in the repeated attempts to establish some historical links between an American-Indian family and a family on the Asiatic mainland. The situation is quite different from that prevailing in typology, where the relationships themselves, not just the evidence, are inherently indeterminate and potentially quantifiable. In genealogical classification the evidence is often probabilistic (strictly speaking it is always so) and at a certain point becomes indeterminate and unreliable, but the question of relationship remains a *Yes* or *No* one, apart from the exceptional cases of genuine language mixture referred to above (cf. Collinder 1948; very recently [King 1969:152–3] it has been tentatively suggested that the techniques of generative grammar may enable certain very basic syntactic rules to be cited as evidence of genealogical relationships not otherwise recoverable, but at present this can be no more than an indication of possible research directions, subject to extreme caution).

In this light the question of monogenesis versus polygenesis in the ultimate history of languages is not one of theory, still less is it one of faith, as many mediaeval and later thinkers were forced to maintain by a literalist interpretation of the Biblical Babel tradition. It is simply the result of the disappearance of evidence, in the absence of linguistic equivalents of geological fossils, at a date in history far too recent to permit the reliable recovery of genetic relations remoter than those assumed for I-E and the other principal language families.

The potential value of quantifying probabilistic evidence and the problems facing genealogical classification in illiterate language families gave rise in the 1950s to lexicostatistic and glottochronological methods (the two terms are not exact equivalents). On the basis of an examination of controlled evidence it was held that under culturally normal conditions the basic vocabulary of languages tends to lose words and to replace them by noncognate (not directly inherited) near-synonyms at a fairly

constant rate (Hockett 1958: chapter 61, Hymes 1960). If all the theoretical and practical problems could be overcome, these methods might provide a useful tool in the uncovering of genealogical relationships and paths of divergence at time depths beyond the reach of history, especially where written records are scanty or non-existent. They have been so used, e.g. by Dyen (1962, 1965a, 1965b). However, in the light of objections that have been made and problems that still remain to be dealt with satisfactorily (Hoijer 1956, Chrétien 1962), some people have preferred to regard the findings of lexicostatistics as an independent and quantifiable measure of the degree of relationship between languages by reference to the number of cognate word forms that they share, expressly excluding time calculations and other diachronic considerations (cf. Cowan 1962).

Much of the brief survey made in the last few pages has been concerned with developments in linguistic classification that have been associated with languages outside the I-E family and have in part been conditioned by the actual circumstances of these languages and the nature of the material available. However, as might be expected, the insights and theoretical developments of structural descriptive linguistics have had their effects on the thinking of some linguists on the whole status of I-E and the corresponding families and on the nature of comparative-historical studies within general linguistics. This movement of thought is to be distinguished from the incorporation of structural concepts (e.g. the phoneme) into the continuing genetic classification system of historical linguistics (Jakobson 1931; Hoenigswald 1950 and 1960; cf. above, p. 23).

Trubetzkoy 1939a is illustrative at this point. Facing certain well known, but in fact not fatal difficulties in the traditional conception of the I-E family, in particular that beyond a certain time depth it becomes impossible to distinguish loanwords and inherited words and that one cannot assume a necessary single period when all the 'reconstructed' forms of I-E were copresent in a single *état de langue*, Trubetzkoy was led to redefine *family of languages* so that it required both a minimum of inherited lexical material shared between the languages and also broad agreement in structural type (*Ähnlichkeit des Sprachbaues*). For I-E he set up six criteria, which, he claimed, were individually found outside I-E but nowhere else occurred all together. To be counted as an I-E language, a language must exhibit all six. The criteria were both phonological, for example the absence of vowel harmony, and grammatical, for example the absence of the ergative construction (in I-E languages, he said that universally the subject of transitive verbs shared the same syntactical and morphological features as the subject of intransitive verbs). Benveniste (1952–53), in discussing Trubetzkoy's proposed I-E typology and other typologies, pointed out that the American-Indian Takelma language possesses all six features, though, of course, without any I-E lexical component.

Trubetzkoy was in fact reverting in a more sophisticated and informed manner to the assumption found in earlier centuries, that genealogical families would share a general typology. He did, however, accept the I-E family in its traditional form,

presumably selecting those structural features that in his opinion did characterize the whole family. But he made the important concession to typological classification that under his system a language could, at a determinable period, become I-E, and equally could cease to be I-E, when it either acquired or lost the set of six criterial *strukturale Merkmale*. Presumably Trubetzkoy would have accommodated Allen's (1950–51:69–70) criticism that in a branch of the accepted I-E family, Hindi and some other Indian languages, an ergative construction is found, by saying that these languages had now ceased to be I–E despite their stock of inherited morphemes.

The recurrent difficulties of a double-based classification such as was here proposed, arising from the non-congruence of structural classes and etymological, genealogical families, seem at least as formidable as those that led Trubetzkoy in the first place to seek the reintroduction of typology into the criteria for membership of the historical I-E family.

Trubetzkoy's proposed classification was based on a combination of shared lexical inheritance and typological resemblance. From an examination of the distribution of the excluded typological features he concluded that the I-E family was originally constituted as a group of dialects spoken over a wide area between the North Sea and the Caspian, between the Finno-Ugrian and Altaic languages on one side and the Caucasian and Semitic languages on the other.

Trubetzkoy's hypothesis rested in part on the recognition that geographically contiguous languages tend to share in the diffusion of typological features, at both the grammatical and the phonological levels. This has always been the basis of the linguistic relevance of areal classifications, of *Sprachbünde*, noticed earlier in this essay; and, as we have seen, the general idea of contiguous languages bearing resemblances to one another has been commonly accepted as borne out by observation. But the sharpening of genealogical language classification in the nineteenth century directed specific attention to geographical areas in which contiguous languages belonging to different families, or to distinct subfamilies within a family, displayed an obvious sharing of grammatical features. Nineteenth century scholars like Miklosich (1862:1–13) referred to such an area in southeastern Europe, and an areal classification of Balkan languages was fully recognized by Sandfeld 1930. Sandfeld made an exhaustive survey of the features shared by these languages, which comprised members of the separate Slavic, Romance (Rumanian), Albanian, and Greek branches of I-E, and by this he justified the treatment of 'les langues balkaniques' as a linguistic unity (1930:213–6), whether the result of substrate influences or, as he much preferred, the product of centuries of diffusion from the Greek language area under the cultural and religious domination of the Orthodox Church.

Emeneau's (1956) comparable designation of the Indian subcontinent as an areal linguistic unity has already been mentioned. Sebeok suggested in 1950 such a reinterpretation of the classification 'Ural-Altaic', as a typologically similar group of languages, for the most part areally contiguous and extending over much of Eurasia,

without the assumption of any necessary genealogical link between the Altaic and the Ural (Finno-Ugrian and Samoyed) families within it.

Following the lines of Jakobson's (1936) general account of 'affinités phonologiques', Weinreich (1953) published his comprehensive survey of areal diffusion resulting from language contacts, in which he drew examples from many areas and from all levels of linguistic structure.

A rather different interpretation of areal spread among contiguous speech communities has characterized the 'neolinguistic' movement, originating and largely centered in Italy and in part inspired by the antimechanistic outlook on language expressed by such idealists as Croce and Vossler. On lines similar to the objections raised by Schuchardt against a purely genealogical classification of dialects, 'neolinguists' like Bartoli (1925) and Bonfante (1945, 1947) wanted the processes of areal diffusion incorporated in the methodology of historical classification, not only in the recognition of innovatory and conservative (usually peripheral or isolated) areas within a family, but in modifying what they considered the too simplistic classification of some languages as either members of a certain family or branch, or not, thus denying precisely the unequivocal position of Meillet (1937, above, p. 29). Thus Bonfante (1947:350–1), on the basis of facts such as were noticed on pages 29–30, refused to regard English as simply a Germanic language, or Bulgarian as just Slavic; and somewhat on the lines of Trubetzkoy (1939a), though on rather different sorts of evidence, explicitly allowed that languages can shift their historical allegiance. Neither Meillet nor anyone else would dispute the facts here brought to bear on the question, but the accepted classificatory theory that Meillet was defending, rested firmly on the concept of linguistic continuity maintained over the generations, in relation to which areal diffusion of features, though part of a language's history, could not be part of its strictly historical classification.

More radical proposals for the reconsideration of lexical comparison such as form the basis for historical classifications of the accepted sort came from Allen (1953), in the article referred to earlier (p. 3). His arguments were expressly concerned not just with I-E, as Trubetzkoy's had been, but with the whole field of comparative linguistics, though his exemplification was largely drawn from I-E. Allen rehearsed the same difficulties mentioned by Trubetzkoy in relation to I-E and by Boas (cf. p. 26, above) in relation to other, less privileged areas of historical linguistic research; but the conclusion of his critique was different. Broadly speaking he was concerned with the accepted methods of systematic comparisons of semantically related word forms, and he maintained that, strictly as a part of general linguistic science, such methods should not need to give rise to a theory of historical relationship. He distinguished between theory and hypothesis; if in a given field of languages hypotheses of genetic relationships and consequent historical classifications were set up, this, he argued (Allen 1953:54), would be unobjectionable as long as it was realized that factors outside the science of linguistics had to be invoked in additional support: the contingent existence of earlier written records and in exceptionally favourable

cases the survival of something like the unitary source, as in Romance, support material not available everywhere and not, therefore, properly part of a general science of language universally applicable (cf. 1953:86). The postulate of a continuous process of unnoticed and unintended change, referred to by Meillet (1948:81, cf. above, p. 29), is in particular cited by Allen (103) as extralinguistic.

In Allen's view expressed here, traditional comparison between two or more languages simply provided the possibility that at the phonological level, on the basis of lexical correspondence series, a system of common units can be established, fewer in number than the sum of the separate unit systems of the languages themselves. The reduction achieved would be the measure of relationship (1953:89–95), a relationship no longer one of historical descent and so making legitimate the question 'How I-E is a given language?' (91). Traditional comparative theory was based on such phonological correspondences in lexical items, but Allen suggested (99–100) the possibility, given adequate means of linguistic control, of lexical systems themselves and grammatical systems being similarly treated.

Allen concluded that, within linguistics as an autonomous science, comparison is not concerned with historical truth or with history as such (87–8), and that linguistic relationship and therefore linguistic classification derived from such relationship is 'not of languages but of systems', and 'is not either-or but more-or-less' (92). In this respect he lined up the methods of lexical comparison with those of typological comparison. Allen's ideas were taken up and discussed by Levenston and Ellis (1963).

Despite some alarm expressed at the time, particularly after the delivery of the spoken version of this paper at Oxford, it must be kept in mind that Allen was expressly and deliberately not trying to exclude or to invalidate the historical, genealogical classification of languages where the evidence was available, but just to distinguish between particular hypotheses of genetic relations (which is precisely the term used four years later by Greenberg [1957:35]) and what he was putting forward as a universally applicable theory of linguistic comparison, and to discriminate between what, in his opinion, belonged strictly within linguistics as a science and what fell partly outside it (cf. Milner 1963). Certainly there has been no diminution of historical and historical-classificatory work in linguistics since 1953, either within the I-E field or in the application of this type of linguistics to other superficially less favored areas, for example native America, as evidenced by M. Haas (1966).

At the present time it is clear that typological classification has returned to scholarly favour, but without displacing interest in historical classification (a bibliography of recent work on the typological classification of languages up to 1965 may be seen in Allen 1965; for a bibliography of earlier work see Meillet and Cohen 1952:xvii–xxxv). Following Sapir (1921) linguists have been insisting on the importance of typology. Uspensky 1968 has already been mentioned; Bazell, in addition to his 1949 article, devoted his inaugural lecture in London to typology (1958); and both Hjelmslev (1966:123–59) and Martinet (1962: chapter 3) within their own attitudes to linguistic studies have stressed the necessity for typological classifications in contemporary

linguistics. Hjelmslev saw as a principal objective the delimitation of the possible forms that language structures could take (1966:128–9), though he did not go further than to suggest the lines on which a glossematic treatment of typology would move. Martinet has expressed the essential task of language typology as the classification of the different ways in which the comprehension of a complete statement about our experience may be made possible within the confines of the necessarily linear succession of language (1962:101–2), and he has further declared (67) that the present position of linguistics has made it now 'high time to tackle typological problems'.

Within the limits of the present essay an attempt has been made to follow the course of the theory and practice of language classification from antiquity to the present day. History as a narrative and an evaluation of the past must terminate with the present, but movements of thought and applications of theory go on. Future developments will arise from current work now in progress and will have to be interpreted in this light. The examination and exemplification of the contemporary state of language classification is the basis for the subsequent chapters of this volume.

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PART TWO

METHODOLOGICAL

INTRODUCTORY REMARKS

HENRY M. HOENIGSWALD

Many of the earlier volumes of *Current Trends in Linguistics* covered a geographic area each. This tended to be true in two senses: a volume would set out to chronicle linguistic work carried on in the region, but would also not untypically center on the languages of it. This is not to say that a good deal was not also communicated about concern with general linguistics coming from those particular parts of the scholarly world.

The present volume, as R.H. Robins' introductory chapter indicates so palpably, may be said to have diversity itself as its unifying theme. Diversity may be synchronic or diachronic, but the relations between the two varieties are intimate and exist on many levels; scholars have always known and now see ever more distinctly that change in time begets synchronic variability just as much as variability leads to further change. It is the aim of this volume to explore this mutual relationship.

Section II is given over to expositions of method — most of them to be matched, in the third section, by specific case studies. This plan expresses an equally strong distrust of shadowy abstraction unillumined by example and of raw data uninformed by theory. But then again, the matching scheme itself could not be, and was never meant to be, a rigid abstraction to be carried into execution no matter what. Therefore, no effort was made to confront specific doctrine with faithful practice, or induction with generalization; and none, of course, could have been dreamt of. Instead, the reader will come upon debate and disagreement, and even contradiction. Nor are the topics chosen for separate treatment in Section II neatly exclusive of one another any more than they add up to encyclopedic completeness. Some contributors have tended to take a more strictly circumscribed view of their topic while others have cast their net more widely. Generally they have followed their own bent in providing emphasis.

So do their attitudes toward history vary, with respect to both the earlier past and to 'current trends'. Against the background of the historical and critical mood so firmly set by R.H. Robins, the procedures for linguistic reconstruction are discussed in more expository fashion: first the 'Comparative' Method in the technical sense (with other aspects of comparison coming up for debate again and again throughout the volume), and then Internal Reconstruction as presented by Jerzy Kuryłowicz. David Sankoff, in his article on Mathematical Developments in Lexicostatistic Theory

deals critically with the core of a fairly recent subdiscipline of historical linguistics. Paul Kiparsky's paper on Comparative Linguistics (Grassmann's Law) is both a theoretical treatise on the generative approach to diachrony and a case study illustrating that vigorous 'current trend'. Werner Winter's purpose, as he writes on Areal Linguistics, is again expository. Joseph Greenberg treats the Typological Method with fullest reference to the climate of lively debate in which typology and the theory of languages universals have existed. William Labov, too, in analyzing the Social Setting of Linguistic Change, has a great deal to say about the antecedents as well as the present-day interdisciplinary aspects of the direction which he has chosen. Ignace J. Gelb's essay on Written Records and Decipherment is essentially systematic in plan but at the same time replete with comment on theoretical controversy and on examples of decipherment.

The third section contains a paper by John R. Krueger on Altaic Reconstruction and Culture. This paper was written to exemplify certain aspects of the extralinguistic interpretation to which linguistic reconstructions are open. Quite aside from its colorfulness and its extraordinary interdisciplinary attraction, this line of research has a special methodological interest because it involves the challenge of recovering lost meanings by means that can to some modest degree be described in formal terms. An example first offered by Paul Thieme (1953–54:549–50) may be cited. The Sanskrit word *sphyá-* denotes an archaic object: the wooden implement used in the Vedic sacrifice to trace designs in the ground. The word is nearly opaque, but not quite; it is not impossible to take it as an adjective derived by means of the suffix *-a-* ('consisting of ...' or the like) from an *-i-/-y-* stem noun (as in *ávya-* 'consisting of sheep ['s wool]' from *ávi-* 'sheep'). If this is done, we are left with a residual and unique ('huckle' [-berry]) morpheme, **sphi-*, which ought to have some such meaning as '(kind of) wood'. At this point we alter the nature of our reasoning. We determine that **sphi-* may be interpreted as a reasonable allomorph (cf. Sanskrit *vi-* : Latin *auis* 'bird') of the name of the *aspen* tree which recurs in those Indo-European sister languages that were or are spoken near the tree's habitat.[1] In other words, we first reconstruct internally an obsolete pre-Sanskrit term, complete with its meaning. Secondly, we subject this new piece of evidence to the 'comparative' method. Thirdly, we interpret the obsolescence itself archaeologically; in this case we see in it the result of migration from one botanic region to another.

Other examples may point to different interpretations. There are innumerable studies in which cultural or technological change is made to account for polysemy. German *Feder* has two separate meanings — separate presumably by any semantic analysis and not merely as a matter of English translation — 'feather' and 'writing pen'. Of course there was no crass polysemy as long as people wrote with quills and as long as such turns of phrase as *mit einer frisch ausgerupften Feder schreiben* 'write with a freshly plucked feather or quill' could therefore occur. To what extent we could reach

[1] Thieme 1953–54:15–16. See also Janert 1963–64 and Friedrich 1970:51–2. Note objections in Hiersche 1964:164–5.

the cultural inference if we had no direct knowledge of quills and pens is the kind of fascinating question which tests the efficacy of certain kinds of semantic analysis in the same way in which for instance sound change has been said to test the appropriateness of certain phonological theories. Suggestions are not lacking that fruitful work is possible. Most semantic analyses operate with recurring semantic features. On the other hand, historians of given languages and language families who are in the position of having to piece together a plausible picture from both language and non-language evidence, have always insisted on the systematic rather than atomistic nature of their conclusions. Now, to describe a conclusion as 'systematic' means, among other things, that it contains elements that recur elsewhere; that it forms part of a pattern. As Thieme (1964:594–7) points out, not only can Indo-European numerals be (phonemically) reconstructed, but there emerges a decimal *system*, with suggestions of another more archaic mode of counting in a special way from one to four. Basic kinship terms exist not only for father, mother, husband, wife, brother, sister, son, and daughter, but also for many of the woman's relatives by marriage. It has long been shown that this is consistent with the *institution* of a patriarchally organized joint family. Religion, in Thieme's opinion, centered around the family, with the 'father' of the house 'functioning as the family priest, in his ... role as butcher ... and host [at the sacrificial feast].' There seem to have been neither temples nor idols, but a rather thoroughgoing separation of the 'celestial' from the 'mortal' and 'possibilities of divinization of natural phenomena' recognizable from the presence of 'abstract methods of grammatical personification' and from the partial existence of a parallel vocabulary, animate and inanimate, for certain natural phenomena.

Clearly the system has to be seen as a whole. The testimony of the tree names and of other designations for stationary objects must have a cumulative, convergent effect to be believable; to the extent that such things ever work out without posing further problems, such an effect has been found. Not one, but many, formally independent etymologies contribute to give the Indo-European kinship terminology its characteristic coloring. Recently, Émile Benveniste (1970) has given excellent reasons why he thinks that the Indo-European word **peku* (the antecedent of English *fee*, but also of Latin *pecu* 'cattle' and of Modern German *Vieh* 'cattle') had the more general meaning, 'certain kinds of property' first and was only secondarily specialized to designate livestock; he could have added, among his parallels, the fact that *neat* 'animal of the ox kind' is known to have gone the same way (the word belongs with German *geniessen* 'enjoy', *Nutzen* 'use') under, presumably, like circumstances.

Just what makes a reconstruction of this sort plausible is not an easy thing to say. No doubt there are cultural universals, and there are certainly cultural expectations of a typological kind specifying what environments, institutions, or technologies are reasonable to reconstruct for a given (?) place and time. No doubt, also, there are similar universal and typological features that limit the linguistic choices, favoring the positing of one semantic change over another, though, in the words of one of the foremost language typologists (Greenberg 1957:58) 'it is often difficult to know what is

retention and what is innovation, for a semantic change that takes place in one direction can often just as easily occur in reverse fashion. A term for "day" often becomes "sun", but likewise a term that means "sun" frequently comes to mean "day"', or one denoting 'livestock' might, on general principles, just as easily go to 'possession' as the reverse.

'Innovation' and 'retention' are indeed the crucial concepts to apply when it comes to judging competing linguistic phenomena within a language family. As will be pointed out later, it is the special strength of the otherwise severely limited 'comparative' method in the narrow, phonological sense to include criteria for judgment within itself (57). Semantic reconstruction rests on a basis which is at once more fragile (methodologically speaking) and richer (because of the greater affinity of its material to the 'natural world'). Its linguistic side is essentially internal reconstruction, though, to be sure, multiple internal reconstruction. This became clear in connection with Thieme's aspen tree. In general, the linguistic properties that provide a lead for useful inferences are those well known in internal reconstruction: degrees and patterns of productivity and isolation, of analyzability and opaqueness. 'Attempts to infer the culture of the speakers of a reconstructed parent language wholly from the forms and meanings of the daughter languages are always dangerous,' says Charles F. Hockett (1948:117–18), but 'the danger is less ... if the forms compared are morphologically simple than if they are compounds.' From many older writers, and from such current ones as Benveniste, and Georges Dumézil, Manu Leumann, Oswald Szemerényi, and Thieme one learns how to reduce the danger even further, through a many-faceted approach which partly invites and partly resists formalization.[2]

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[2] It is a matter of great regret that no more than these brief notes could be devoted to this important subject as the volume goes to press.

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