

The Indo-Aryans of Ancient South Asia

Indian Philology and South Asian Studies

Edited by
Albrecht Wezler and Michael Witzel

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The Indo-Aryans of Ancient South Asia

Language, Material Culture and Ethnicity

Edited by
George Erdosy



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In Memoriam

Gyorgy Erdosy Sr. (1928–1991)

George F. Dales Jr. (1928–1992)

Walter A. Fairservis Jr. (1921–1994)

Foreword to the Series

This is the first volume of a new series called *Indian Philology and South Asian Studies* – which is not intended to be a simple updating of Bühler's great collection of monographs, i. e. the *Grundriss der Indo-Arischen Philologie und Altertumskunde* that began to appear at the end of the 19th century. Scope, objectives and methods of Indology and South Asian Studies have changed considerably since then. We are no longer as optimistic as our predecessors nor, hopefully, as selective (or limited) in our approach as they were a hundred years ago when attempting a first summary of the knowledge, accumulated in the first 100 years of Indology and indeed considerable, within the covers of a few volumes.

The new *Indian Philology and South Asian Studies* thus do not aim at a simple positivistic listing up of facts and figures in a limited number of fields. Rather, we aim at a comprehensive coverage of all the fields of South Asian Studies, including, wherever possible, the indigenous understanding of South Asian Culture in all its aspects. Certain areas and fields, like literary or religious history where Indian *śāstric* sciences do not possess a corresponding approach, will, it is true, have to be described by using Western norms and approaches only (e.g. philology in the strict sense or history). The new *Indian Philology and South Asian Studies* will therefore reflect the ongoing complex process of the “encounter” and the “dialogue” between India and the West, and (and, as far as possible, also the “encounters” of India with East and South East Asia as well as that with the Near East and Central Asia).

We aim at a complete description of the various aspects of South Asian Civilization, based, first of all, though of course not exclusively, on texts – in short, a description which is philological, philology being understood as a ‘Kulturwissenschaft’ based on texts. *Indian Philology and South Asian Studies*, however, go beyond what some may regard as the narrow confines of the discipline they call “Indology” as opposed to a supposedly wider discipline of “Indian” or “South Asian Studies”. This necessitates the investigation and comparison of all aspects of South Asian culture, especially but not only of those reflected in the texts. Note must therefore be taken of fields as diverse as metrics, medicine, astronomy, flora and fauna, local geography, music, or the belief systems of tribal peoples.

The aim of each volume in the series is a brief and structured presentation of reliable knowledge in each particular field, discipline or sub-discipline, including all important facts and figures expected in a survey as well as the more important literature on the subject treated; and of course a discussion of the outstanding problems in each field will be added, as also of research desiderata or possible future avenues of research.

We propose to include reflections on method, ways of procedure commonly agreed upon, and the rarely mentioned, often unconscious presuppositions we work on— in short, we wish to include, wherever advisable, a discussion of the methodology of the various subjects treated in *Indian Philology and South Asian Studies*.

We also wish to contribute to discussion in the field of the history of ideas as revealed by the texts and by other documents of the South Asian cultures, and, naturally enough, this will include treatment of those areas which bridge two or more traditional disciplines.

Indian Philology and South Asian Studies are divided into various sections dealing with the major branches of enquiry: language, philosophy, history, religion, art, etc.; each section has its own editor. We have a framework in mind but we will be flexible in order to accommodate new developments in the various fields, and the list will hence be updated from time to time. And this is just one of many reasons for the decision to publish the plan of *Indian Philology and South Asian Studies* only later, and to count the volumes of the series in the order the authors present them for publication.

It should, however, be noted that we will also publish volumes that do not fall within one sole section, or even part of a section of the system adopted by us, but which nevertheless are, in our view, of great significance for Indian Philology and South Asian Studies. This holds good for the present volume, too, with which the series begins. For archaeology and the study of the prehistory and early history of South Asia have made great progress over the past fifty years. However, the evaluation of the materials discovered and studied has suffered from a number of drawbacks, among which the following are important: (a) the persistence of older models of interpretation in archaeology, such as the identification of a certain material culture with a certain "people"; (b) the (recently increasing) nationalistic trend in the evaluation of texts and archaeological finds; and (c), most importantly, a vicious circle in the interpretation of the various materials which still persists in the exchange of opinions and results between archaeologists, linguists, philologists and historians. For example, archaeologists all too frequently build the interpretation of their materials on the work of philologists and linguists, who, in their turn, have reached their conclusions on the basis of the work of archaeologists

— who have depended on the latter. This vicious circle has to be broken through close cooperation between scholars of the said disciplines. It is hoped that the proceedings of the Toronto Conference now being published are a beginning in this sense. The present volume offers an up-to-date view of the problems confronting the study of the earliest (pre-) historic period in South Asia, neighbouring Iran and Central Asia as far as these areas are of importance for the prehistory of South Asia.

Finally we should like to state that we invite all colleagues to make proposals and to participate in this great undertaking. It can be carried out only with the enthusiastic assistance of all interested in the progress of our discipline.

September 1995

Albrecht Wezler
Michael Witzel

Preface

Sir William Jones' *Third Anniversary Discourse on the Hindoos*, delivered to the Asiatic Society of Bengal on 2 February, 1786, marks the genesis of an idea which influences perceptions of South Asia to this day: to wit, the distribution of modern languages and ethnic groups, and frequently strained social relations, are all habitually expressed in terms of a racial divide, which is attributed to an "Aryan invasion" of the Subcontinent some 3500 years ago. Adherents of the "Aryan hypothesis" ranged from imperial administrators to nationalist leaders in the 19th century and from prominent scholars to religious fanatics in the 20th. Although its support of the *status quo* will probably ensure its survival on the political stage,¹ the idea has recently been challenged by archaeologists who – along with linguists – are best qualified to evaluate its validity. Lack of convincing material (or osteological) traces left behind by the incoming Indo-Aryan speakers, the possibility of explaining cultural change without reference to external factors and – above all – an altered worldview (Shaffer 1984) have all contributed to a questioning of assumptions long taken for granted and buttressed by the accumulated weight of two centuries of scholarship.

However, archaeology offers only one perspective, that of material culture, which is in direct conflict with the findings of the other discipline claiming a key to the solution of the "Aryan problem", linguistics. The membership of Indic dialects in the Indo-European family, based not only on lexical but structural criteria, their particularly close relationship to the Iranian branch, and continuing satisfaction with a family-tree model to express these links (Baldi 1988), all support migrations as the principal (albeit not sole) means of language dispersal. In the face of such conflict it may be difficult to find avenues of cooperation, yet a satisfactory resolution of the puzzles set by the distribution of Indo-Aryan languages in

¹ In spite of spirited opposition, which has intensified recently – cf. Biswas 1990; Choudhury 1993; Telagiri 1993. Unfortunately, political motivation (usually associated with Hindu revivalism, ironic in view of Tilak's theory of an Arctic home) renders this opposition devoid of scholarly value. Assertions of the indigenous origin of Indo-Aryan languages and an insistence on a long chronology for Vedic and even Epic literature are only a few of the most prominent tenets of this emerging lunatic fringe.

South Asia demands it. The present volume aims for the first step in that direction, by removing mutual misconceptions regarding the subject matter, aims, methods and limitations of linguistics and archaeology, which have greatly contributed to the confusion currently surrounding "Aryans". Given the debates raging on these issues within as well as between the two disciplines, a guide to the range of contemporary opinion should be particularly valuable for anyone wishing to bridge the disciplinary divide. Although the studies focus on the transition from Bronze Age urbanisation on the Indus to Iron Age urbanisation on the Gaṅgā, their conclusions will profoundly affect our perception of the subsequent course of South Asian civilisation. At the same time, the range of issues addressed by the papers should find relevance well beyond the geographical confines of the Subcontinent; indeed, the volume neatly encapsulates the relationship between two disciplines intimately involved in a study of the past.

The papers presented here were first delivered during a conference on Archaeological and Linguistic Approaches to Ethnicity in Ancient South Asia, held in Toronto on the 4th, 5th and 6th of October, 1991.² They are organised into two sections. The first contains papers which explicitly addressed theoretical issues involved in a study of material culture, paleoethnicity and language change, particularly concerning the nature of source materials, the definition of fundamental analytical units, and procedures for the construction and testing of hypotheses combining linguistic and material-cultural evidence. It begins with a survey of theoretical issues, along with a plea for interdisciplinary cooperation, by G. Erdosy. He argues that linguists and archaeologists have been studying two different (albeit related) problems – the current distribution of languages in South Asia on the one hand, and the transition between the Indus and Gangetic Civilisations on the other – and that much of the present confusion has been engendered by the view that an invasion of Indo-Aryan speaking races in the 2nd millennium B.C. explains both. Only recently have scholars of both disciplines begun to unscramble the

² With the exception of contributions by P. O. Skjærvø and K. R. Norman, which were solicited in order to fill certain gaps in the range of subjects covered. Conversely, the conference included presentations by T. C. Young ('The Iranians: Medes and Persians') and K. K. Young ('Tamil identity as portrayed in Sangam literature') which, due to constraints of time, could not be revised by their authors for publication. Lack of time also prevented R. H. Meadow from participating in the revision of a joint paper with F. T. Hiebert for publication; their original presentation ('Late prehistoric interactions between Central and South Asia') is now entitled 'South Asia from a Central Asian perspective', under the sole authorship of F. T. Hiebert. Although thus excluded from the final publication, I wish – as organiser – to register my gratitude to the above scholars here for their stimulating contributions to the conference itself.

various processes conflated into an “Aryan invasion(s)”, thereby laying the foundations for more meaningful cooperation. Erdosy also suggests, that for all its shortcomings, Renfrew’s study of Indo-European origins³ is on a sound methodological footing when it insists on comparisons of cultural dynamics derived independently from linguistic and material-cultural data, instead of the traditional grouping for languages and linguistic boundaries in the archaeological record. This point is illustrated with reference to the problems of the initial dispersal of Indo-Iranian languages, and of the widespread adoption of Old Indo-Aryan in South Asia after its arrival there, in the context of the transition from the Indus to the Indo-Gangetic cultural tradition.

The second paper, by K. A. R. Kennedy, offers of a historical overview of linguistic, archaeological and, particularly, physical-anthropological research. The author’s principal conclusion, based on his own studies, is that while discontinuities in physical types have certainly been found in South Asia, they are dated to the 5th/4th, and to the 1st millennium B.C., respectively, too early and too late to have any connection with “Aryans”. What is more, since the latter are a cultural, not a biological, construct, they could never be identified in the osteological record.

Questions of identity, and the nature of our source materials, so crucial to the resolution of the “Aryan problem”, occupy the attention of M. M. Deshpande, as well. Written from the standpoint of the linguist, to complement the preceding statements by, respectively, an archaeologist and a physical anthropologist, his paper assesses the quality of the linguistic data preserved in the *R̥gveda*. It also revisits the controversies surrounding the contact and convergence of Indo-Aryan and Dravidian languages in prehistoric times, as exemplified by the development of retroflex sounds in the former. In his conclusions, Deshpande argues for the careful separation of ethnic, linguistic and cultural groups; and while he deplores their loose identification with archaeological assemblages, he remains cautiously optimistic about interdisciplinary cooperation.

The succeeding contribution, the first of two by M. Witzel, also begins by assessing the quality of linguistic (and historical) data obtainable from the *R̥gveda*, along with the potential of a study of linguistic stratification, contact and convergence. Next, the evidence of place names, above all hydronymy, is scrutinised, followed by an evaluation of some of the most frequently invoked models of language change, in light of this analysis. As Witzel stresses, images of mass migration may have originated with 19th century linguists, but exist today principally in the minds of

³ presented in the greatest detail in Renfrew 1987, although anticipated in Renfrew 1973, and summarised in Renfrew 1988 (followed by an extensive critique from a variety of authors), 1989 and 1990.

archaeologists and polemicists. In conclusion are outlined some obstacles to a writing of early South Asian history, including outmoded models of language change, overreactions to them (by denying the validity of any migrationist model) by both archaeologists and Hindu fundamentalists, and the continued uncritical use of late, Epic and Puranic, materials in research.

Placed against Witzel's contribution, the paper by J. Shaffer and D. Lichtenstein will illustrate the gulf still separating archaeology and linguistics. It reflects recent disillusionment with the traditional paradigms dominating archaeological explanation be the cyclical models of cultural growth-florescence-decay, the continuing prominence – in South Asian archaeology at least – of diffusionism, or the obsession with the “Harappan Civilisation” at the expense of other social groups constituting the cultural mosaic of the Greater Indus Valley. Apart from the influence of 19th century ideas on the civilising mission of European powers, such views have also been fostered by an inadequate definition of “cultures” as recurring assemblages of artefacts (after Childe 1929). The authors, therefore, attempt to construct new analytical units based on a study of material culture, with special focus on the concept of “cultural tradition”. The paper builds on an earlier study Shaffer (1991), by placing emphasis on hitherto neglected structural features of cultural traditions; more importantly, it demonstrates by way of an example the potential of this method to lay bare the dynamics of long-term cultural change. The new concepts mark a significant advance in ways of handling the material culture of South Asia. Although they could certainly accommodate models of language change, however, the authors stress the indigenous development of South Asian civilisation from the Neolithic onward, and downplay the role of language in the formation of (pre-modern) ethnic identities.

The last two papers, contributed by O. Skjærvø and A. Sharma, broaden the horizons of the volume in different ways. The former assesses the potential of ancient Iranian (particularly Avestan) literature for a study of linguistic and cultural change on the Iranian Plateau – an issue of considerable interest to Indologists, given the close relations between Indic and Iranian languages, which argues for their common descent. Although not as extensive, or well preserved, as the Vedic tradition, the Avestan texts could shed considerable light on the evolution of Iranian languages and society, once (formidable) problems of chronology are resolved. Sharma, by contrast, outlines, and pleads for more careful consideration of, traditional attitudes towards such issues as the dating and historical veracity of Vedic literature; in addition, he considers some of the contemporary, South Asian dimensions of the “Aryan problem”, which continues to inform political relations in various parts of the Subcontinent.

Although papers in the second section also contain discussions of theoretical issues, their principal aim has been to illuminate aspects of the "Aryan problem" through extensive case studies. They thus provide an excellent cross-section of the range of issues examined, and of approaches adopted, within both disciplines even if they (with the exception of Southworth's contribution) rarely venture outside their own field of specialisation. The first three papers have been contributed by archaeologists, who may be classified into two groups: those who accept that some movement of people from Central to South Asia took place in the 2nd millennium B. C., and those who feel that the dynamics of South Asian cultural traditions are sufficient to explain the transition from the Indus to the Gangetic Civilisations. The contribution of F. T. Hiebert belongs to the first category: it provides an exhaustive analysis of the history of interactions between Central and South Asia, made possible to a large extent by the recent opening up of Russian Turkestan to foreign scholars. The strength of contacts, according to this analysis, reaches a peak in the 1st quarter of the 2nd millennium B. C., when even some – small scale – population movement can be detected in the direction of the Indo-Iranian Borderlands. It is at this time that the khanate structure of Central Asia came to be adopted by South Asian social groups, leading to the type of society described in the earliest South Asia literature. It is this process, rather than the bare fact of population movements, which plays a decisive role in the course of South Asian history.

In a similar vein, W. A. Fairervis compares the social structure described in the *R̥gveda* to that revealed by excavations at the major Bronze Age urban centre of Altyn Depe. Several crucial arguments follow: 1) During the Bronze Age, major urban civilisations flourished in Central and South Asia, which we may tentatively ascribe to Elamo-Dravidian speakers. 2) They were connected to one another – at least partly – by mobile pastoral groups existing on their periphery and, perhaps, speaking Indo-Iranian languages. 3) Towards the early 2nd millennium B. C. dominance shifted from the sedentary urban to the mobile pastoral group in both areas; although this may have entailed some population movement, it is this shift in power between two coexisting groups which is crucial. 4) The shift in power also fostered the adoption of Indo-Iranian (OIA) languages in South Asia along with a class based social structure first developed in Turkestan. Although the finer points of this elegant scheme remain to be worked out, it will provide a valuable stimulus to further discussion, and only deepens our sense of loss at the tragic death of the author just prior to the publication of this volume.

By contrast, the final discussion, by Kenoyer, stresses that the cultural history of South Asia in the 2nd millennium B. C. may be explained without reference to external agents. The points is illustrated by a study

of craft traditions and long distance trade networks. On the one hand, the former exhibit a surprising degree of continuity from the Indus Civilisation onwards; on the other, the latter are severed precisely at the time when the postulated "Aryan invasion" from Central Asia took place. Neither is it correct to speak of a systems collapse since several areas continued to support a hierarchy of settlements and flourishing craft traditions, the latter relying now on a more limited range of raw materials thanks to the said collapse of long distance trade networks. Such views will serve as a much needed antidote to traditional explanations, although they remain to be reconciled with the principal concern of South Asian linguistics, namely the evidence for the external origins – and likely arrival in the 2nd millennium B. C. – of Indo-Aryan languages. They are also a reaction to the concept of cataclysmic invasions, for which there is little evidence indeed, although such concepts are principally held by archaeologists nowadays, not by linguists who postulate more gradual and complex phenomena.

An illustration of the last statement is provided by the first of three contributions by linguists. F. Southworth begins by defining speech communities as basic units of analysis and continues by examining the history of the two most prominent speech communities in South Asia, namely Indo-Aryan and Dravidian. Their internal subdivisions and evolution are studied, followed by their interaction in pre- and protohistoric times. The central theses are that the distribution of Dravidian speakers must have been much wider in the past and, based on the evidence of substratum influences on Indo-Aryan, that they must have adopted an Indo-Aryan language throughout the northern part of South Asia. Acculturation, therefore, and not genocide or forcible expulsions are responsible for the present dominance of Indo-Aryan languages.

Southworth's broad survey is followed by the much keener focus K. R. Norman on the existence of dialectal variation in Old Indo-Aryan. This must largely be reconstructed from Middle Indo-Aryan due to the suppression (in oral transmission) of much of the variation in the earlier literature under the influence of Pāṇini. In particular, MIA variants of forms that are clearly Indo-Aryan, but are unattested in Old Indo-Aryan, are brought together in order to show the existence of OIA dialects. The existence of such dialects is, in turn, ascribed to the arrival of Indo-Aryan speakers in several waves, and to their subsequent isolation from one another, and interaction with the speakers of non-Indo-Aryan languages, within South Asia. Dialect variation also occupies the attention of R. Salomon, who takes his analysis a step further: apart from identifying dialectal variation he examines whether they may be correlated with certain literary genres and whether the latter can, in turn, be ascribed to certain social groups.

Together, the last three papers exemplify the painstaking research required even to create the building blocks for linguistic theories, and the progress already made in that direction. Similarly, M. Witzel's second paper demonstrates that the study of the spatial and temporal parameters of the R̥gvedic hymns has advanced far beyond the simplistic notions generally held, especially in English (only)-speaking academic communities. His study (one in a series of important contributions – see also Witzel 1980, 1987, 1989, 1991) takes a major step towards the writing of early South Asian history, by removing two misconceptions: 1) that the R̥gveda is a particularly difficult, indeed impenetrable, text and 2) that its study for the reconstruction of history is ultimately not very rewarding.

Rounding off the volume are two papers concerning the *somalhaoma* cult, which is at the centre of Old Indo-Aryan literature and ritual. The first, by Asko Parpola, draws on recent archaeological discoveries in Bronze Age Margiana and refines this author's earlier views regarding the spatial and chronological relationships of Indo-Iranian languages and of archaeological cultures in Central and South Asia (Parpola 1988). Parpola's paper is complemented by a study of the botanical evidence by H. Nyberg. He concludes that the effects of certain substances on humans, the characterisation of *somalhaoma* in R̥gvedic ritual texts, and the geographical distribution of certain plant species, when considered systematically, suggest *ephedras* as the likeliest raw materials for the sacred Indo-Iranian libation.

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papers. Arrangements for publication of the proceedings were made with the help of Prof. Michael Witzel, one of the participants in the Conference. Last but not least, I could not have devoted the time and effort, to both the organisation of the sessions and the eventual publication, without the security of a Canada Research Fellowship awarded by the Social Sciences and Humanities Research Council of Canada. I hope the present volume will serve as a fitting tribute to their continuing commitment to academic excellence in Canada.

The progress of the present volume from conception to eventual birth was punctuated by the sad demise of my father in 1991, and of both founding fathers of the scientific study of South Asian prehistory, George Dales (in 1992) and Walter Fairervis (in 1994). This volume is affectionately dedicated to their memory.

Toronto, September 1995

George Erdosy

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George Erdosy

1. Language, material culture and ethnicity: Theoretical perspectives

Since the aim of the conference on palaeoethnicity has been to bring together linguists and archaeologists, it would be appropriate, by way of an introduction, to evaluate their relationship in the field of Indology and to identify recent developments which could facilitate their cooperation. This will be followed by a brief overview of the "Aryan problem", the most extensively documented case of ethnicity in ancient South Asia. The paper will conclude with suggestions for an interdisciplinary approach. As stressed in the initial invitation to contributors, our aim must, for the present, be to outline avenues to a solution, not to grope for the solution itself, and it is in this spirit that my observations are offered. Furthermore, given Kennedy's extensive historical survey (in Chapter 2), I have concentrated on recent, theoretical trends and on complementing the keener focus of succeeding chapters on individual issues. Finally, although the papers in this volume focus on a specific problem - the "Aryan invasions" of South Asia in the 2nd millennium B.C. - the theories and methods they invoke should be applicable to any study of palaeoethnicity.

Without the stigma of association with Nazism, the search for "Aryans" in South Asia has flourished, and ever since Wheeler's accusing finger pointed to Indra as the destroyer of Harappa, archaeologists have been enthusiastic participants.¹ However, combining the discoveries of archaeology and linguistics has been complicated by mutual ignorance of the aims, complexity and limitations of the respective disciplines, in spite of extensive, mutual borrowing of results. For example, ignoring fatal flaws in the definition of "culture" as a recurring assemblage of artefacts, linguists continue to seek the material traces of Indo-Aryan speakers in such entities as the "Ochre Coloured Pottery Culture".² For

¹ Wheeler 1947: 82. The idea was, in fact, mooted by Ramaprasad Chanda as early as 1926.

² See, e.g., Witzel's attempt to link Vedic schools and dialects with a succession of "cultures" defined by outstanding ceramic types (Witzel 1989: 241ff.). However, since archaeologists disagree amongst themselves about the principles established by Kossinna (1902) and Childe (1929), it would be unfair to expect linguists to discard them when they appear to serve their purposes well.

their part, (as Witzel points out in Chapter 4 of the present volume) archaeologists seldom achieve a profound understanding of either linguistics or the Vedic tradition, and continue to test simplistic models of “migrations” and “invasions” which no sensible linguist would advocate. Their conclusions are, nevertheless, seized upon by linguists, unaware of the shaky foundations on which those stand and desperate to find the physical traces of their elusive subjects. In addition, the two disciplines actually focus on two different problems: one is interested in explaining the current linguistic map of South Asia, the other strives to understand the transition between the Indus and Gangetic Civilisations. Consequently, the former regards “Aryans” first and foremost as speakers of a particular language, while the latter categorises them (often implicitly) in racial terms, a distinction that has seldom been appreciated. *It is the perception that the same process (namely an invasion of Indo-Aryan speaking races in the 2nd millennium B.C.) may explain their respective concerns, which brings linguists and archaeologists together.* This perception, however, combined with a partial understanding of each discipline by the other, has created a feedback cycle of misinformation upon which even the most seemingly unassailable theories depend. One of the first challenges posed by the “Aryan problem” will thus be the establishment of a more rational relationship between archaeology and linguistics.

As long as the conclusions pointing to “Aryan invasions” appeared to be mutually reinforcing, several inconsistencies were overlooked. However, having failed to identify the material traces of newcomers, archaeologists have grown weary of the concept, laying particular stress on the lack of convincing foreign parallels for any of the traits labelled “Aryan”. I have already reviewed their arguments elsewhere (Erdosy 1989) and need only repeat that their opposition is based as much on a misreading of literary sources as an earlier generation's acceptance had been. For example, the local invention of iron smelting (Chakrabarti 1977b) is not in conflict with a theory of invasions, since it can be argued both that the authors of the *R̥gveda* did not know iron (Pleiner 1971; or, even, Macdonell and Keith 1912,1: 31-32) and that the *R̥gveda* contains no convincing evidence of invasions (Erdosy 1989). Neither is Painted Grey Ware of crucial importance (*pace* Gupta 1978, 1986), since its spatio-temporal distribution recalls the Late Vedic texts; viewed in this light, its lack of foreign prototypes is hardly surprising. On the other hand, physical anthropology's failure to demonstrate a racial divide in South Asia in the 2nd millennium B.C. (see Chapter 2 of the present volume) is quite conclusive, even considering the limitations of the available data.

Denial of the traditional model, however, also exposes a growing rift, precipitated by the collapse of Childe's model for the Near Eastern origins of European civilisation (Renfrew 1973) which dealt a crushing blow to migrationist explanations in archaeology. This is reflected here by the tendency to reject external stimuli as explanations either for the decline of the Indus Civilisation or

for the rise of complex societies in the Gaṅgā Valley. As Kenoyer's contribution (see Chapter 10) demonstrates, all these developments may be explained by the internal dynamics of South Asian cultures, an approach which threatens to render the entire problem of Indo-Aryan languages and their speakers irrelevant. By contrast, linguists, in attempting to explain the current linguistic map of the Subcontinent, continue to assume the immigration of Indo-Aryan speakers at the very same time that the transition from the Indus to the Gangetic Civilisation took place. On the surface of it, the chasm dividing the respective disciplines could not be wider. Where, then, does progress lie?

The first important development concerns terminology, always a good index of clarity. Until recently, archaeologists, and to a lesser extent linguists, had persistently confused "Aryans" with "Indo-Aryans".³ The careless use of labels, of course, reflects the view that a single process produced both entities. Yet, the first term (based on the self-designation of the Vedic poets) denotes a multitude of ethnic groups subscribing to a newly emerging ideology, and the second identifies speakers of a subgroup of languages within the Indo-Iranian branch of the Indo-European family. Neither is coterminous with racial groups (Erdosy 1989, in press; Kuiper 1991; Chapters 2 and 3 in this volume). Now, for reasons discussed below, there is little disagreement about either the external origin of Indo-Aryan languages spoken today in South Asia, or the role played by migrations in their dispersal. However, the emergence of an *ārya*⁴ ideology can be traced just as confidently to the geographical milieu of the Ṛgvedic hymns, bounded by the Indus and Sarasvatī rivers, and need not be linked to the spread of Indo-Aryan languages. Although the language of the Ṛgveda provides vital evidence for the study of the latter process, its contents do not: the hymns neither use language or race as markers of ethnic affiliation,⁵ nor refer (expli-

³ Note, for example, Allchin 1980: "Indo-Aryan" denotes (correctly) a linguistic entity on p.70, a cultural one on p.73 and an ethnic one on p. 89 where it is used in the same breath as "Aryan", which is otherwise regarded (correctly) as a cultural category. Masica (1991: 35-37) likewise equates "Aryans" with the speakers of an Indo-Aryan language and defines "Aryanisation" as the adoption of an Indo-Aryan language.

⁴ In view of the conceptual baggage already attached to the term "Aryan", the use of the term *ārya* appears preferable - it is after all, the name the authors of the Ṛgveda gave themselves. As Szemerényi (1977 - quoted in Mallory 1989: 276) notes, it is of Ugaritic origin, meaning "kinsman" or "companion". Since Iranian contains the cognate *Airiya*, one must conclude (with Basham 1979) that the parent Indo-Iranian language already contained this expression.

⁵ Unlike later texts which refer to "Aryan" and "Brahmin" speech (Macdonell and Keith 1912,2: 279-280), and note regional differences and barbarisms, the Ṛgveda contains only a few scornful references to hostile or uncouth speech (*mṛdhra-vāc*). As Macdonell and Keith (1912,1: 348) note, the term is applied in one instance to an indisputably *Ārya* tribe (the *Pūrus* in RV 7.18.13) and this alone renders Muir's translation of "unintelligible" speech unlikely. Monier Williams renders *mṛdhra* as "enemy", and thus the compound *mṛdhra-vāc* as "hostile speech"; Böhlingk and Roth (1877,4: 888) likewise interpret the term as "scornful, abusive [speech]".

citly) to a home outside South Asia,⁶ even if they were composed in Old Indo-Aryan. Instead of such traits, it is adherence to social and religious norms which was required of *āryas*, and the ferocity with which they clung to them is a clear indication of the inadequacy of alternative criteria.⁷ The latter must have included place of origin: although it may sometimes be in the interests of a dominant group to deny external roots, it is significant that migrations within South Asia were frequently referred to in later tradition, which was also aware of dialectal differences.⁸ The inescapable conclusion is that while Indo-Aryan languages have an external origin, the *āryas* of the *Ṛgveda* were not their carriers into South Asia (Kuiper 1967: 101).

The isolation of distinct, although not unrelated processes that have been conflated in a theory of "Aryan invasions" - dispersal of languages, ethnogenesis and the emergence of a new ideology in the wake of systems collapse in Late/Post Harappan times⁹ - is a significant first step. The recognition that the *Ṛgveda* has little to say (directly) about the first of these processes is just as important, since it allows for far greater freedom in defining the timing and nature of the appearance of Indo-Aryan languages in South Asia. Clarification of the linguistic and literary evidence will also help the incorporation of material culture into the analysis: the three processes just isolated will affect different aspects of the archaeological record, which will no longer have to be forced into the strait-jacket imposed by conformity to the hymns of the *Ṛgveda*.

Just as important has been the realisation that the first Indo-Aryan speakers were not expanding into a linguistic vacuum. Although such a conclusion is obvious to anyone remotely familiar with the archaeological record, the - often unstated - assumption that the speakers of Indo-Aryan either annihilated the bearers of other tongues, or expelled all of them from their original habitat, fostered a simplistic view of language replacement. The pioneering research of Emeneau (1954, 1956, 1962 and 1974) regarding the South Asian linguistic area

⁶ For a contrary view of textual references to places outside South Asia, however, see Witzel in Chapters 4 and 14 of the present volume.

⁷ Witness frequent diatribes against "god-less", "rite-less", "phallus-worshipping" and "niggardly" *dasyus* (Erdosy 1989: 37).

⁸ Consider, for example, the oft-quoted passage (ŚB 1.4.1.14-17) describing (erroneously at that!) the colonisation of Videha; the distinction between *Āryas* who "moved eastward" and those who "stayed at home in the West" in BŚS 18.44 (Witzel 1989: 235; further examples quoted on p. 103, n. 12) and references to the wanderings of famous *purohitas* from one *janapada* to another. In the *Ṛgveda*, although there are references to migrations (e.g. 6.47.21), they are given without a geographic referent; one must also remember that the Punjab measures several hundred kilometres across and offers plenty of room for movement!

⁹ More recently characterised as the Localisation Era of the Indus Valley Cultural Tradition (Shaffer 1991; see also Shaffer and Lichtenstein in Chapter 5 of the present volume). On the whole, Shaffer's nomenclature is much more informative than the traditional Early/Mature/Late Harappan classification which should now be discarded.

(where genetically distant languages exhibit lexical and structural parallels) has been followed by systematic analyses of substratum influences on Indo-Aryan tongues (Kuiper 1967; Masica 1979; Southworth 1974, 1990). The degree, nature and timing of the interaction between speakers of Munda, Dravidian and Old Indo-Aryan may remain a subject of heated debate (Hock 1975; Deshpande 1979, Chapter 3 of this volume), but the need to pinpoint specific processes leading to the predominance of new languages in the northern and western regions of South Asia is firmly established. Studies by Witzel, once again following leads provided by Emeneau (1966), regarding the subsequent formation of Vedic schools and dialects, are also significant in their emphasis on the social correlates of linguistic processes. Thus, at the same time that a simplistic theory of "Aryan invasions" has been discarded, the links between the appearance and spread of Indo-Aryan languages in South Asia and important social changes have been reaffirmed.

It is at this point that archaeology and linguistics truly come into contact. It may never be possible to identify languages within material culture; however, as Renfrew (1988: 438) has observed, socio-cultural changes facilitating the convergence, divergence and replacement of languages are legitimate subjects of archaeological research. Recent expositions of the internal dynamics of South Asian societies by archaeologists, ironically borne out of opposition to migrationist explanations, have provided a much improved understanding of the Indus and Gangetic Civilisations, to parallel the linguists' concern with social factors.¹⁰ Evidence in material culture for systems collapse, abandonment of old beliefs and large-scale, if localised, population shifts in response to ecological catastrophe in the 2nd millennium B.C. must all now be related to the spread of Indo-Aryan languages. At the same time, the possibility of tracing migrations within the archaeological record has not been ruled out. Dramatic discoveries of Indo-Iranian ritual practices in Bactria, Margiana, and the Urals (Mandel'shtam 1968; Gening 1979; Sarianidi 1986, 1990a, 1991), and of the intrusion of Central Asian traits into the assemblages of the Indo-Iranian Borderlands (Hiebert and Lamberg-Karlovsky 1992; Parpola 1988; Sarianidi 1979, 1990b) may well shed new light on the initial dispersal of Indo-Iranian languages. As is the case with South Asia, the postulated movements within Central Asia can now be placed in a processual framework, thanks to recent studies of the complex societies of Bronze Age Bactria and Margiana (Askarov 1973; Biscione 1973; Kohl 1984; Sarianidi 1990b, 1991; as well as Chapters 8 and 9 of the present volume).

¹⁰ See, for example, papers by Jarrige and Meadow (1980), Kenoyer (1989, 1991, Chapter 11 of the present volume), Mughal (1970, 1990a, 1990b), Possehl (1990), Shaffer (1986, 1991), Shaffer and Lichtenstein (1989, Chapter 5 of the present volume) and Yash Pal et al. (1984) for the Indus Valley Cultural Tradition, and by Lal (1984) and Erdosy (1988, in press) for the Gangetic Civilisation.

Such a convergence of interests around the impact of ethnogenesis and social change, on language on the one hand and on material culture on the other, replacing simplistic concepts of “diffusion”, “migrations” and “invasions”, lays the foundations for cooperation. It is in this light that two issues central to the “Aryan problem” need to be examined: 1) the emergence and initial dispersal of Indo-Aryan languages, out of the Indo-Iranian parent group and 2) the spread of Indo-Aryan languages within South Asia, and their links to ethnicity and the re-organisation of ideology and society during the transition from the “Indus” to the “Indo-Gangetic” Cultural Tradition. In both cases a discussion of linguistic facts will precede an examination of the archaeological record. Having urged contributors to focus on their own disciplines I shall refrain from offering specific solutions myself, reserving, instead, for the concluding section comments on the difficulties involved in reconciling the different classes of evidence at our disposal. The aim of the discussion is to set the stage for the narrower concerns of the succeeding chapters.

The origin and spread of Indo-Iranian languages

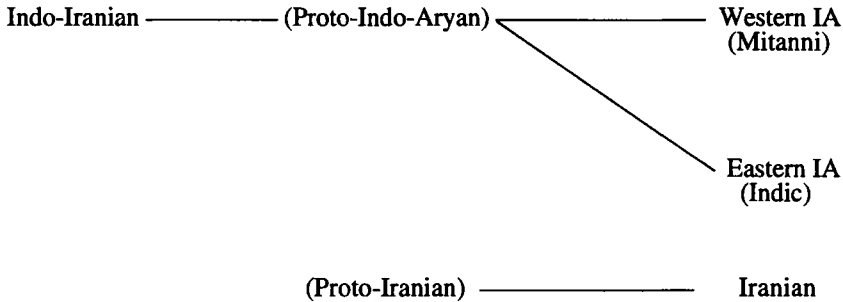
Occasional dissent notwithstanding, there is general agreement in placing the origin of the Indo-Aryan languages outside South Asia, above all due to their unassailable membership in the Indo-European family. A local origin of Indo-Aryan would have to assume either the South Asian roots of all Indo-European languages, or the existence of a vast area inhabited by PIE-speakers where there was sufficient communication for Schmidt’s wave effects to produce distinct dialects. The first explanation makes no sense even for the narrower Indo-Iranian family, and as no historical entity comes even close to spanning the gap between the Elbe and the Indus, the second may also be ruled out.¹¹ A third model that would allow a South Asian origin for Indo-Aryan languages sees the creation of the Indo-European family by the convergence of distinct languages through communication, but it has been dismissed as an eccentric footnote to the otherwise distinguished career of the Russian linguist, N. Trubetzkoy (Baldi 1988).¹² Besides, several positive reasons in favour of an external origin can be cited: 1) surviving PIE names for trees in Indo-Aryan indicate a cold climate, while numerous plants and animals native to South Asia carry either borrowed or coined names - e.g. *hastin* (elephant); 2) evidence for contacts with Finno-Ugric langua-

¹¹ Although, interestingly, Mallory (1989: 257) postulates the presence of Indo-European speakers in a broad area between the Rhine and the Urals in 4500-2500 B.C., this is still well short of the geographical spread required in order to submit the Indo-Iranian branch to the wave theory.

¹² The limitations of convergence can be seen, after all, in the clear distinction remaining between Indo-Aryan and Dravidian languages in South Asia in spite of extensive interaction, frequently involving bilingualism, over four millennia - see the following section for details.

ges which are native to northern Eurasia; 3) evidence for non-Indo-European languages being spoken in South Asia prior to Indo-Aryan, which is afforded by substratum influence on the latter (to be discussed below) and by the current linguistic map of the Subcontinent.

Thus, questions about the emergence of Indo-Aryan languages cannot be answered without reference to the broader, Indo-Iranian group whose homeland, in turn, can only be determined on the basis of the internal subdivisions of the Indo-European family and the geographical location of its members. While the range of possibilities is narrow in comparison with Proto-Indo-European, it still extends from the Pontic-Caspian steppes to the southern Urals (Klejn 1984). Assuming, however (with Ehret 1976), that the best explanation is the one which requires the least displacement of people, it may be deduced that the most evolved stage of a still undifferentiated Indo-Iranian dialect was spoken in western Turkestan, with distinct languages emerging in the wake of migrations thence. The history of such movements has been the subject of a century of research, which it is impossible to review here. Yet, while differences persist over details, the key relationships within the Indo-Iranian family may be captured in the following diagram (which, for the sake of simplicity, omits the Nūristānī dialects of the Hindukush):



Following our model (based on Burrow 1973; see also Chapters 3 and 12 of this volume), Indo-Aryan languages emerged prior to their Iranian cousins. From a family-tree perspective, therefore, their speakers would have left the ancestral home first, appearing in both the Near East and South Asia by the mid-2nd millennium B.C. at the latest.¹³ The realisation that the Indo-Iranian linguistic fragments preserved in Mitanni documents belong with the Indo-Aryan group

¹³ As discussed elsewhere (Erdosy 1989, in press) the lack of references to urban centres in the Rgveda on the one hand, and the characterisation of the Sarasvatī as a mighty stream on the other, point to a mid-2nd millennium B.C. date for the hymns. Thanks to the long history of literacy in the Near East, the emergence of Mitanni in the Near East can be traced through securely dated inscriptions of the 14th century B.C..

led Burrow (1973) to postulate a “Proto-Indoaryan” staging area in Eastern Iran prior to the separation of the Western (Mitanni) and Eastern (Indic) branches by 1500 B.C.. This area was subsequently colonised by Iranian speakers, also issuing from the north, although not until most of their Indo-Aryan-speaking predecessors had already departed for their new homes. While the earliest historical records of Iranian speakers are furnished by the annals of Shalmaneser III (858-824 B.C.), the fact that they place the former near the Zagros mountains suggests that the movement into Eastern Iran had occurred considerably earlier. Recent views of the date of Zoroaster's reforms (Boyce 1975, 1: 3, 190; Burrow 1973) support this contention.

Although few will argue with the broad genealogical outline, several issues remain hotly debated: the position of the Nūristānī dialects,¹⁴ the relationship of languages (especially in northeastern India) which retained PIE *-l- to those (such as Mitanni and the dialects of northwestern India) that did not (Deshpande in Chapter 3 of this volume), the timing of substratum influences on Old Indo-Aryan, or the relationship between speakers of Iranian and Proto-Indoaryan in Eastern Iran, to mention a few. Further, remarkable similarities between R̥gvedic Sanskrit and Old Avestan on the one hand, and the language of the Yajurveda *mantras* and Young Avestan on the other (Witzel 1989: 237-8), bely Burrow's view of an early separation of Indic and Iranian, unless one assumes that the similarities are due to shared innovations induced by the geographical proximity of these two groups of emerging languages. More seriously, there is no agreement either on the homeland of Indo-Iranian, or on the timing, nature and specific routes of dispersal of its speakers, the mechanism which linguists continue to invoke in explaining the spread of Indo-Iranian languages. In such a situation it is tempting to turn to archaeology for help and the quality of assistance that could reasonably be expected must be the next subject of discussion.

The archaeology of Indo-Iranian speakers

It would be premature, here, to test hypotheses regarding the precise location of the Indo-Iranian homeland, since the archaeological record is far too sketchy for the purpose. One may start, instead, with the already stated assumption that the most evolved stage of an undifferentiated Indo-Iranian language was spoken in western Turkestan. As this area has well documented contacts with both West Asia and South Asia one might expect traces of migrations, perhaps even of the

¹⁴ Masica (1991: 21) quotes a consensus of recent opinion in favour of treating them as a separate group, rather than as part of the Indo-Aryan subdivision. See also Strand 1973; Morgenstierne 1975; etc..

two distinct waves predicted by Burrow's model, to appear in the archaeological record. Before proceeding, however, a note of caution must be struck. It would be futile to search for languages in material culture;¹⁵ as Renfrew (1988, 1990) observed, we can only aspire to identify cultural processes which *may* result in linguistic change, such as migration, conquest, or systems collapse resulting in the adaptation of a new ideology (which, if couched in a new language, enables the latter to spread). Since Indo-Iranian languages are assumed (by linguists) to have been brought into South Asia by migrants, we must begin by examining the archaeological record for evidence of migrations, and then justify the link between these and the spread of the Indo-Iranian languages. The first of these tasks is accomplished with reference to material culture, the second proceeds by a comparison of the spatial-temporal parametres revealed by archaeology with that offered by linguistics. Our work will not be complete, however, until the postulated migrations are set within the broader framework of the cultural evolution of Central Asian societies or - should no migrations be identified - until alternative explanations are offered for the spread of Indo-Iranian languages.

The earliest links between Central and South Asia are provided by similarities, already remarked upon by Piggott, between the pottery of the Quetta Valley¹⁶ and of the Namazga III phase of southern Turkmenistan. According to Lamberg-Karlovsky (1987), they were a by-product of the proto-Elamite colonisation of the Iranian Plateau (from the southwest) around 2900 B.C., with Shahr-i-Sokhta acting as an intermediary between the peripheral regions of Central Asia and South Asia. Neither the limited range of parallels in ceramic designs, nor the general direction of their dispersal, allows for an identification with any spread of Indo-Iranian languages or their speakers. Subsequently, during the Integration Era of the Indus Valley Cultural Tradition, dated by Shaffer (1991) to 2600-1900 B.C., Harappan colonies were established at Shortugai and neighbouring settlements, probably for the exploitation of lapis mines nearby. Unlike previously, interaction was extensive and direct as evidenced, for example, by the appearance of Harappan seals at Altyn Depe. However, it was precipitated by developments in the Indus Valley and shows no convincing traces of any movement of populations from Central to South (and West) Asia. Neither is it likely that the adoption of a new language (which could well have taken place without extensive migrations of Indo-Iranian speakers) occurred at the high point of a civilisation noted for its conservatism in material culture.

¹⁵ One must note the obvious exception of literate civilisations, among which we may number the Harappan even though its script remains undeciphered and its language a matter of conjecture. For recent views on this subject see Fairervis 1992; Joshi and Parpola 1987.

¹⁶ See Fairervis 1956. For (admittedly more tenuous) parallels see the ceramics of the sites of the Gomal Valley: Gumla II (Dani 1971) and Rehman Dheri I (Durrani 1986; Durrani, Ali and Erdosy 1991).

It is towards the end of the Integration Era, around 2000 B.C., that Central Asian traits intrude upon the cultural repertoire of the Indo-Iranian Borderlands, at the same time that certain ritual practices with clear Vedic and Avestan parallels arise in both areas. Such evidence is frequently quoted in support of hypothetical migrations and must be examined. Beginning, in reverse order, with rituals, we may note the occurrence of post-cremation urn burials in both northern and southern Baluchistan (Periano Ghundai II, Mughal Ghundai III, Dabar Kot, Mehi, Sutkagen-dor - Gupta 1972; Singh 1970). Cenotaphs in the South Cemetery of Mehrgarh were also inferred by Santoni (1984) to have represented cremations, as they were dug into extensive burnt deposits. By the mid-2nd millennium B.C. the practice can be observed in Swat (Stacul 1966, etc.), Dir (Dani 1967) and Zarif Karuna (Khan 1973); by the beginning of the first it has entered the Gaṅgā Valley, where the cremated remains were deposited in unlined pits instead of urns (at Chirand, Sonpur, Rajgir and Rajghat - Singh 1970). Since historical times, of course, cremation has been the predominant mode of disposal of the dead among the Hindus of the Subcontinent.

The practice of cremations is clearly preferred in the *R̥gveda*, although not to the exclusion of inhumations. Its occurrence in the Indo-Iranian Borderlands, and its gradual spread East and South at the expense of the older custom must be viewed as significant. What is more, in several areas of the Borderlands it gives way to fractional burials, a custom associated with early Iranian speakers on the testimony of the *Vendidad* (Boyce 1975,1: 109-129, 325-330). Apart from examples found at Nal in southern Baluchistan which Stacul (1975: 325) dates to 3000 B.C., the first occurrences may be dated to the early 2nd millennium B.C. at Khurab in southeastern Iran (Stein 1937) and at Burzahom in Kashmir (Stacul 1975: 326). They are followed by examples from Cemetery H in Harappa (Vats 1940; Wheeler 1947), from Periods V and, especially, VI of the Swat sequence (Stacul 1966), and from the final period at both Timargarha (Dani 1967) and Zarif Karuna (Khan 1973). It is in the last two areas, and to some extent in Swat, that fractional burials succeed cremations, and since all are presently inhabited by speakers of an Iranian tongue (Pashto), it is tempting to suggest a confirmation of the linguistic evidence. This urge is reinforced by the general NW-SE gradient of both cremations and fractional burials within the Subcontinent, suggesting an external origin for them.

Unfortunately, when seen in a wider perspective, the picture becomes blurred. Cremations may be well documented in South Asia, but they are presently rare in the Bronze Age of Central Asia. Only the cemeteries of southern Tajikistan show extensive use of this practice, especially at Tulkhar. Although Kohl (1984: 230) dates the burial complex to 1800-1500 B.C., the excavator prefers a 14th-13th century B.C. date for the cremations, and assigns the 13th-9th centuries B.C. to the pit burials (Mandel'shtam 1968: 99). The only other site to show possible evidence of cremations is Dashly-3, where cenotaphs were found; how-

ever, there is no mention of extensive burnt deposits in their vicinity, and they could have been used - for example - in fractional burial rites (as in Swat - Stacul 1966), or to accompany simple internments. If anything, on present evidence, cremations appear to have originated in the Indo-Iranian Borderlands and spread northwest (and southeast) thence, against the grain of postulated movements of Indo-Aryan speakers.

Unlike cremations, fractional burials are extensively documented in Central Asia not to mention the more distant region of the southern Urals: at Dashly-3 in southern Bactria by the beginning of the 2nd millennium B.C.,¹⁷ at Zaman-baba in northern Bactria by 1800-1500 B.C. (Klejn 1984; Kohl 1984), and at the steppe cemetery of Sintashta a century or so later (Gening 1979). Several additional traits habitually associated with Indo-Iranian speakers are found within these complexes:

Fire worship: The recently excavated fortified structure of Togolok-21 has been interpreted as a temple for fire- and *soma/haoma*-rituals (Sarianidi 1991). Although the botanical samples have not yielded any traces of Ephedra, the species thought to be the principal ingredient in *soma/haoma* (Nyberg, this volume), the evidence for fire worship finds widespread support. At Dashly-3, for example, ash-pits raised on brick platforms were found in a circular temple (Sarianidi 1977). At Sintashta in the Urals, funeral pyres were placed on top of several burial mounds (Gening 1979). At Tulkhar, in southern Tajikistan, inhumations included circular fireplaces for women and rectangular ones for men, recalling, respectively, Vedic *grhapatyas* and *āhavanīyas* (Mandel'shtam 1968). As for cremations, next to the lower cavity of the funeral chamber, containing ashes and fragmentary bones, one at times finds bricks laid out in solar or swastika-patterns (Grave 63: Mandel'shtam 1968: 43 and figure 28; Grave 64: *Ibid*: 44 and figure 29). Similar arrangements were also revealed at the site of Baba-shov on the Amu Darya (*Ibid*: 96-97 and figure 35).

Fortifications: A diversity of fortified enclosures - circular (Dashly-3 (inner), as well as numerous sites in the vicinity of Sintashta in the southern Urals), square (Dashly-3 (outer), Sapalli-tepe), rectangular (Gonur, Togolok-21) and even polygonal (Togolok-1) - exists. The layouts have been likened at times to the *var* of Yima as related in the Avesta, perhaps most convincingly in the case of Sapalli-tepe. Although the excavator acknowledges differences between the society pictured in the Avesta and the settlement at Sapalli (Askarov 1973: 137), he sees parallels in the evidence for craft specialisation, for residen-

¹⁷ See Sarianidi 1977: 54: although the graves are often disturbed, being near the surface, several unmistakable examples of fractional burials can be detected. A similar observation was made by Stein (1937: 122) in the course of his explorations in Khurab. At least one example of a fractional burial is also indicated by the illustrator of the Djarkutan graveyard, in spite of the excavator's identification of it as an extended burial: Grave 55 (Askarov 1977: Plate XXXVII on p. 107).

tial organisation around patriarchal families living in communal houses, and for the leadership of a headman or *vispati*. The palace at Dashly-3 is likewise compared (Parpola 1988: figures 29a-b) to Tantric *maṇḍalas*.

Horsemanship: In view of the importance of horse-drawn chariots in warfare, their burial alongside the dead at Sintashta is of great interest. The cemetery may be dated to the 17th-15th centuries B.C. (Gening 1979); it is thus contemporary with the first occurrence of horses (and camels) at Pirak in Baluchistan, and slightly predates the find of horse bones and horse furniture in graves in Swat and Dir.

Once again, however, fractional burials are at least as early in South Asia as in Central Asia, while fire altars on large platforms have been reported even from the Integration Era site of Kalibangan (Thapar 1973, Dhavalikar and Atre 1989). As for fortifications, none have as yet been reported from the Localisation Era of the Indus Valley Cultural Tradition (1900-1000 B.C.). Only the horse can be seen as a clear import into South Asia.

To sum up, several cultural traits with good Vedic and Avestan parallels have been found widely distributed between the southern Urals, Central Asia and the Indo-Iranian Borderlands. However, even allowing for the uncertain chronology of Central Asian sites, few of these traits show the northwest-southeast gradient in chronology predicted by our linguistic models. Rather, in the manner of certain "Aryan" traits within South Asia (Erdosy 1989), they originate in different places at different times and circulate widely, undoubtedly through the extensive interaction networks built up in the mid-3rd to early 2nd millennia B.C.. They thus form, not a set of attributes inherently associated with Indo-Iranian speakers, but, rather, a range of cultural practices from which emerging ethnic groups could choose the proper symbols of their distinct identities.¹⁸ The crystallisation of ethnic identities must have taken considerable time and this may explain why there is seldom a clear separation of "Vedic"/"Indo-Aryan" and "Avestan"/"Iranian" traits; how, for example, the funerary urns of Cemetery-H could carry "Vedic" motifs on the one hand (Vats 1940), and be used in the "Iranian" practice of fractional burials on the other.¹⁹

It is impossible, thus, to regard the widespread distribution of certain beliefs and rituals, which came to be adopted by Indo-Iranian speakers, as evidence of population movements. Just such reasoning led B.G. Tilak to believe that the

¹⁸ Some of these ethnic groups may well have included the speakers of other language families; for example, the builders of the South Indian Megaliths, who frequently resorted to fractional burials themselves.

¹⁹ Even at the Andronovo-Alakul cemetery of Sintashta which reflects principally Avestan practices (fractional burials, separation of the dead from the earth by means of stone or timber-lined graves, burials of dogs - Klejn 1984 after Gening 1979), certain Vedic elements (especially horse sacrifices and horse burials) may be detected. As for the complexes at Togolok-21 or Dashly-3, fire and *soma/haoma*-rituals can be assigned to either tradition.

"Aryans" originally inhabited the polar regions due to their knowledge of the fixed pole star and of polar days and nights, knowledge which was probably obtained from contact with Scythian tribes (Bongard-Levin 1980). There remain, nevertheless, impressive parallels in material culture between Central Asia and South Asia in the Late Bronze Age. Shared traits include: specific vessel shapes (bottles, footed goblets, dishes-on-stand, spouted bowls and vessels with applique animals on the rim); kidney-shaped vases of steatite; alabaster columns, discs and statues; shaft-hole axe/adzes; bronze mirrors with anthropomorphic handles; circular stamp seals with snake-motifs; and so on (Sarianidi 1990: 86-87, figures 14-15). What is more, these traits are all Central Asian in origin, frequently used as grave furniture (Pottier 1984) and, at least in some cases, found together in funerary deposits from cemeteries in the Borderlands that otherwise contain exclusively indigenous grave goods. Hiebert and Lamberg-Karlovsky (1992) justly assume that such examples do represent the burials of migrants from Bactria-Margiana. The so-called Grave L₁ from Khurab, originally reported by Stein (1937) contains the best example of a Central Asian burial in an otherwise local cultural tradition; others come from Shahdad, Tepe Yahya, Quetta and the South Cemetery at Mehrgarh (Hiebert and Lamberg-Karlovsky 1992; Jarriige and Hasan 1988; Santoni 1984).

As must be evident from the foregoing, we are a long way from fully correlating the linguistic and the archaeological evidence. We may, however, note the existence of an extensive interaction network linking Central Asia and South Asia from the middle of the 3rd millennium B.C. onwards. It was initiated by the Harappans' demand for mineral resources such as lapis and tin, but maintained even after the end of the Integration Era on the Indus. Along the routes of this network circulated not only raw materials, but also a rich repertoire of artefacts frequently associated with the disposal of the dead, and rituals which came to be adopted by ethnic groups speaking Indo-Iranian languages. That some of this interaction entailed the movement of peoples has been shown by Hiebert and Lamberg-Karlovsky in their study of burials; consequently, the last centuries of the 3rd and the first centuries of the 2nd millennium B.C. represent the best archaeological dating for the entry of Indo-Aryan languages into the Borderlands of South Asia.

That the timing of the dispersal is earlier than generally expected should force the reevaluation of linguistic and historical evidence, thus showing the value of consulting the archaeological record. Indeed, if one accepts that the migrations of Indo-Aryan speakers into South Asia already entered the realm of mythology at the time of the Rgvedic hymns, and that the latter were composed from ca. the 15th century B.C. onwards, the chronology suggested by the archaeological evidence already makes perfect sense. The limited scale of migrations revealed by Hiebert and Lamberg-Karlovsky's 1992 study will probably receive a warmer welcome, especially by those linguists and historians who may be un-

easy with the image of conquering Aryan hordes. Most important, however, is the revelation that the Bactria-Margiana Archaeological Complex (the source of the Central Asian traits - and people - appearing in the Borderlands around the close of the 3rd millennium B.C.) represented a highly sophisticated civilisation; this, surely, rules out the popular view of the invasion of South Asia by a virile, yet barbaric race. Overall, it may be seen that the archaeological evidence not only provides broad confirmation for hypotheses drawn from solid linguistic data, but also helps to eliminate wilder speculation rooted in the cultural *milieu* of the 19th century pioneers of Vedic studies.

At the same time there is no confirmation of even a simplified, two-wave pattern of migrations which was derived from Burrow's study of the break-up of the Indo-Iranian language family. One may argue that the archaeological record is not sufficiently sensitive to detect population movements, but that is belied by the preceding discussion, as well as by the findings of biological anthropology (summed up in Chapter 2 of this volume), which reveal discontinuities in population in the fifth/fourth and first, but not in the third or second, millennia B.C.. The alternative explanation is that the linguistic model is too simplistic which, considering the limitations of the evidence, is hardly surprising. Unlike Indo-Aryan or Iranian languages, which survive as tangible entities, preceding stages of the Indo-Iranian family exist only as reconstructions - from cognates within the daughter languages and from occasional archaisms surviving as loan-words in other (principally Finno-Ugric) languages. It is difficult to compare a proto-language with the actually existing daughter languages from which it was pasted together, and, consequently, difficult to construct hypotheses on the social processes accompanying the change from one to the other, without lapsing into circular arguments. All we can do initially is draw up a family-tree which, as Baldi (1988) states, encapsulates the *result*, not the *process* of language change. Reliable means of identifying languages, or even linguistic boundaries, from material culture could, of course, lead to a testing of the accuracy of the tree but, as has been amply demonstrated, such means have thus far eluded us. On the other hand, the wealth of circumstantial evidence from archaeology, frequently contradicting assumptions that linguists have taken for granted, may perhaps be ploughed back into a renewed study of processes of word-retention/loss, which might throw new light on the social changes accompanying the evolution of Indo-Iranian languages. In general, recent archaeological research has provided broad support for the idea of language dispersal in Central and South Asia through migration on the one hand, and has questioned the utility of an unspecified two-wave model on the other.²⁰ The next step surely belongs to linguists;

²⁰ According to Witzel's analysis of the historical evidence contained in the R̥gveda (in Chapter 14 of the present volume), several waves, probably involving only limited numbers of people, can be discerned.

until they provide more realistic models for archaeologists to test, little new will be revealed about the arrival of Indo-Aryan languages in South Asia. As regards the fortunes of Indo-Aryan languages within South Asia, however, it is archaeological research which is in immediate need of considerable refinement, a point to which we must now turn.

Old Indo-Aryan dialects in South Asia

Although the historical traditions preserved in the Vedas shed no light on the movement of Indo-Aryan languages into South Asia,²¹ they are valuable in illustrating their spread within the Subcontinent. By the time of the *R̥gveda*, itself composed long after the initial influx (Kuiper 1967), Indo-Aryan dialects (Emeneau 1966; Witzel 1989) were current in the Northwest. Indeed, judging by the fact that *āryas* and their principal adversaries, *dāsas*, spoke mutually intelligible tongues (Parpola 1988; Erdosy 1989), Indo-Aryan dialects must have been predominant in this region by 1500 B.C.. Later texts testify to the expansion of the Vedic universe to include the Indo-Gangetic Divide in later books of the *R̥gveda* (datable to roughly 1000 B.C.), and the Gaṅgā Valley itself by the time of the later Brāhmaṇas and Upaniṣads (along with an awareness of southern regions, as in AB 7.18). Vague references to “uncouth”/“hostile” speech (*mṛdhra-vāc*)²² in the *R̥gveda* are replaced by the acknowledgement of regional characteristics (Witzel 1989) with the simultaneous veneration of northwestern forms of speech helping to pinpoint the direction of the spread. With the consciousness of linguistic differences comes the crystallisation of ethnic groups and the social order, observable in the Dharmaśāstras as well as in the earliest Buddhist tradition (Wagle 1966). The process culminates - by the 4th century B.C. at the latest - in the rise of territorially based political units commanding armies, ruled by bureaucracies, supporting a vigorous urban culture and fighting for political supremacy (Erdosy 1988).

In contrast with preceding periods we now have actual languages for study rather than just hypothetical protolanguages. Thanks to the oral transmission of early Indian literature, of course, the linguistic record is not without problems. Although the contents of the *R̥gveda*, at least, have been preserved with exceptional accuracy, the language of even that text has undergone changes in the process of redaction (see Chapter 3 of this volume; Witzel 1989). Later, es-

²¹ For an influential view to the contrary, however, consult Witzel's contributions to the present volume (in Chapters 4 and 14)

²² Which in at least one instance is used to characterise an *ārya* tribe (the Pūrus - RV 7.18.13). See note 5.

pecially post-Vedic, texts are notorious for their long period of composition and multiple authorship, which renders them virtually useless as historical documents, even if they compensate for this deficiency in other ways. Nevertheless, there is ample evidence for the long-term evolution of Indo-Aryan languages and their interaction with other tongues, from which archaeologically testable hypotheses could be drawn.

I have already listed reasons for considering Indo-Aryan dialects to be external to South Asia, and spreading in a roughly northwest-southeast gradient within. Here I need only repeat the last of these, namely the evidence for the presence of other languages, now confined to central, eastern and southern India, in areas that came to be dominated by the speakers of Indo-Aryan. To begin with, a multitude of terms relating to agriculture cannot be traced to any of the known linguistic families of South Asia (Masica 1979), which suggests the presence of a now vanished language during the first transition to an agricultural economy on the Indo-Iranian Borderlands; whether this language may also have been used (perhaps along with several others) in the still undeciphered Harappan inscriptions remains a tantalising possibility, which would at least partly account for the enormous difficulties faced in the task of decipherment (Joshi and parpola 1987 etc.).

Of still greater interest is the evidence of structural borrowing from Dravidian by Indo-Aryan languages (dental-retroflex contrast, use of the particle *iti*, and use of multiple gerunds in a sentence concluded by a single finite verb), indicating extensive interaction between the respective speakers. As we shall discuss below, this topic has been extensively debated since the 19th century, and disagreements now centre principally around the timing and extent of the borrowings. That Dravidian languages once extended well beyond the limits of their present distribution, is also no longer disputed, principally for the following reasons (outlined in detail in Southworth 1990): 1) the survival of Dravidian languages as islands in a sea of Iranian and Indo-Aryan speakers: most notably, Brahui in Baluchistan and Kurux and Malto in Central India; 2) the tentative identification of a postulated proto-Elamo-Dravidian linguistic family linking southwestern Iran and the lower Indus Valley by the 3rd millennium B.C. (see McAlpin 1981); 3) Dravidian influence on place-names in areas such as Maharashtra, which are presently inhabited by Indo-Aryan speakers; and 4) the permeation of certain kinship structures by Dravidian principles in spite of the Indo-Aryan labels used in description. Indeed, following the second point, we may even surmise that the Dravidian languages (like their Indo-Aryan counterparts) themselves originated well outside the area where they are presently concentrated. This hypothesis was advanced in the following synthesis of archaeological and linguistic evidence by Fairservis and Southworth (1989), summarising the linguistic (pre-)history of South Asia which, for its final stages, agrees well with the historical information just presented:

[illegible]

Although the absolute chronology of this scheme remains open to question, the general direction and relative sequence of the spread of Dravidian and Indo-Aryan languages is well supported by the evidence which includes the vast corpus of Vedic literature. Setting aside, for the moment, the possible presence of an unidentifiable language in the Indus Valley, our immediate problem is to pinpoint the process which resulted in the replacement of Dravidian with Indo-Aryan languages over a wide area. In this regard, I have already stressed that the interaction evident in structural borrowing argues against simplistic explanations such as the extermination or expulsion of a "native" population by "invaders". A demography-subsistence model of the kind advocated by Renfrew (1987) for the spread of Indo-European languages in Europe is also out of the question.²³ Although the later Vedic sources make reference to migrations (see note 7, above), these frequently involve only members of the priestly class. Disregarding the undoubtedly fictitious account contained in ŚB 1.4.1.14-17²⁴ they offer no examples of large-scale colonisation of uninhabited tracts, only localised movements and battles. While several new ethnic groups are mentioned, few (e.g. the Pañcālas) are treated as migrants into the area they occupied.

The most plausible explanation for the presence of Dravidian structural features in Old Indo-Aryan, in fact, assumes that the majority of OIA speakers had Dravidian as their first language, which they shed after a period of bilingualism. Such would particularly be the case for the emergence of retroflex sounds, which must have resulted from native speakers of Dravidian interpreting Indo-Aryan sounds in terms of their own phonemic system. This idea, expressed most forcefully by Kuiper and Emeneau, was first advanced by Caldwell in the 19th century (Kuiper 1967). Although the opposition to it has just as venerable a history (*Ibid*) and has been led by such distinguished scholars as Bühler, Bloch and Renou, the principal area of disagreement today concerns the timing of the switch from Dravidian to Indo-Aryan languages, not its actual occurrence.²⁵ Assumptions of a Proto-Elamo-Dravidian language family (McAlpin 1981) would argue for early contact, possibly already on the Iranian plateau; at the

²³ It may, however, be used profitably to explain the interaction of Indo-Aryan and Muṇḍa languages, where the latter appear to have been spoken by economically backward social groups who were gradually pushed to peripheral areas where they are found today.

²⁴ Excavations at Chirand in the very territory of Videha, as well as at several sites in West Bengal, have revealed a flourishing agricultural economy well into the 2nd millennium B.C. (Sinha 1974; Agrawal 1982). Likewise, Sharma (et al. 1980) has demonstrated that the earliest settlers of the central Gaṅgā Valley came not from the West but from the Mesolithic and Neolithic settlements of the Vindhyan hills.

²⁵ Later Vedic literature itself offers examples of the incomprehensible speech of the Mlecchas (ŚB 3.2.1.23-4), which show that it is the linguistic efforts of certain Indo-Aryan speakers that are being ridiculed, not non-Indo-Aryan tongues. The difficulties of the Vṛātyas in speaking the "language of the initiated" also hint at the recent adoption of an Indo-Aryan language by certain (clearly despised) social groups.

other end of the spectrum as already noted, Deshpande (1979, Chapter 3 of this volume) would place the interaction in the period of the transmission of Vedic literature, and, geographically, in the northeastern regions of the Subcontinent.

The factors which could have induced Dravidian speakers to switch to Indo-Aryan must be considered next. Since language is closely bound with ethnic identity, it will not be readily abandoned. One glance at Barth's analysis of ethnic boundary maintenance on the Northwest Frontier (Barth 1969b, partially summarised by Mallory 1989: 260-261) is sufficient to show a complex interplay of factors, arguing against uncritical adoption of an "elite dominance" model (Renfrew 1987; cf. Chapter 4 of this volume), which has generally been favoured. In particular, it seems that acephalous ethnic groups with demanding codes of behaviour (such as the Pathan tribes) find it difficult (as well as frequently undesirable) to absorb outsiders into their fold; at the same time their members will readily assimilate in alien surroundings, where the price of social success (submission to authority) is judged to be excessive by their traditional value system. Hierarchically organised ethnic groups (such as Baluchis and Panjabis), on the other hand, are capable of absorbing large numbers of aliens through systems of clientage, which imply no dishonour to those entering the fold. Indeed, in fertile regions the engagement of new clients can be turned to great profit, and would be actively pursued. Barth also observes that frequent interaction will generally lead to linguistic and ethnic assimilation, at times even against the wishes of a dominant ethnic group (as in the valleys of Swāt).

In a South Asian context, it must be remembered that the adoption of Indo-Aryan languages was combined with the adoption of an ideology couched in those languages; indeed the organising principles of society and religion extended even beyond the confines of Indo-Aryan speakers. As language would not be abandoned lightly, one must assume that the advantages offered by the adoption of a new ideology were vital in inducing the switch. The likelihood of this increases if one considers that Indo-Aryan languages first emerged in the Borderlands during the dissolution of an urban civilisation. Such a sudden collapse as seems to have characterised the Localisation Era - abandonment of urban centres, large-scale relocation of population due to the drying up of the Sarasvatī River, loss of foreign contacts, decline in arts and crafts - could not but have a negative impact on the ideology of the Harappans. Although the evidence is limited, it has been suggested that the limited number and poor condition of stone images has resulted from their deliberate destruction (Ardeleanu-Jansen 1985). The writing of the Harappans was another casualty of this systems collapse.

The actual advantages offered by the ideology of the Vedas have been discussed elsewhere (Erdosy in press). Above all, the *ārya* social system was able to justify the incorporation of social groups in a ranking system with reference to their cultural and ritual practices. Unlike the "lawless" *dāsas* and *dasyus*, the *āryas* had the means of assigning rank to social groups which, even if dependent

on power relations, could be expressed through cultural differences. Since the second millennium B.C. saw not only the collapse but also the gradual rebuilding of complex societies, in which territorial expansion took an increasing part, a social system that could absorb newcomers in increasingly poly-ethnic contexts provided significant adaptive advantage for the language - in this case Old Indo-Aryan - in which it was expressed. In time, that language would become the property not only of the ruling elite but of the general populace as well; not surprisingly, in light of Barth's analysis of ethnic processes in Swāt which has just been referred to (Barth 1969b).

The hypothesis is not without problems: it ignores the possibility that speakers of several languages, not just Dravidian, could have adopted an Indo-Aryan tongue; it fails to explain why the process of linguistic conversion was not carried into South India where Dravidian speakers continue to predominate, and so on. It is offered here rather as an example of the process of reasoning one must follow, than as a specific solution to our puzzle, even if it answers several important questions. It certainly demonstrates that the linguistic history of South Asia is documented to a degree that allows the drawing of hypotheses about social changes which may then be tested against the archaeological record.

However, while in the case of the break-up of the Indo-Iranian language family it was linguistics which failed to come up with realistic explanations, here it is archaeology which lags behind. To be fair, it was archaeology which revealed the disintegration of one cultural tradition, and it has also supported the literary evidence for the emergence of its successor. I have already alluded to traces of an ideological crisis such as the destruction of stone images and the disappearance of the Harappan script.²⁶ Settlement patterns mirror the collapse of urbanism, the shift of population to the eastern Punjab upon the drying up of the Sarasvatī river-system,²⁷ the gradual reemergence of complex societies and trading networks, and so on (Mughal 1984; Shaffer 1986, 1993; Kenoyer in Chapter 10 of this volume, Erdosy in press). However, beyond the evidence of settlement patterns little information has been unearthed regarding the cultural dynamics of the late-2nd/early-1st millennia B.C.. Much effort is still expended on the identification of "Aryans" in material culture - be it through Copper Hoards, Painted Grey Ware, or even the Indus script - as if "Aryans" actually existed, or the archaeological record were capable of revealing languages and

²⁶ In spite of efforts (e.g. Dani 1963), no convincing links can be demonstrated between the writing of the Harappans and the protohistoric Brahmi script.

²⁷ This may account for frequent references to battles and migrations in the Rgveda (at times clearly due to population pressure on shrinking resources as in RV 6.47.21) and for the expanded horizons of its later books (cf. RV 10.75). It is the only documented instance of significant population shift; after ca. 1000 B.C., little movement can be discerned.

rac²⁸. Until large-scale exposure of the lower levels of protohistoric sites is undertaken, few questions regarding the emergence of complex societies will be answered, and there will continue to be no reasons why linguists should look to archaeology for answers to their problems.

Conclusions

As stated at the outset, archaeologists and linguists were brought together by the false expectation that an invasion of Indo-Aryan speaking races could explain both the transition from the Indus to the Indo-Gangetic Cultural Tradition, and the present linguistic map of South Asia, whose northern half is dominated by Indo-Aryan speakers. It must be increasingly evident that this traditional model is inadequate - it is not supported either by the archaeological evidence, or even - on closer inspection - by the historical traditions contained in Vedic literature. Indeed, as Shaffer (1984) argued, the model of "Aryan invasions" is firmly rooted in 19th century attitudes about the civilising mission of European powers, combined with a desire to find a non-Semitic past for themselves. That it survived for so long may be attributed to its utility for both imperialists and nationalists in South Asia: to the former it provided historical justification for their mission; to the latter it afforded the prestige of common descent with the very power that ruled over them.

That said, there are compelling reasons for maintaining contacts between archaeology and linguistics. Both disciplines have the power to delve into the past, illuminating different, but related facets, of cultural evolution and it has been the object of this paper to demonstrate that there are ways in which information from one can be utilised by practitioners of the other. It only remains to distil some principles of collaboration, both from the preceding discussion and from other, recent, attempts at combining the research of the two disciplines.

Given the degree to which (mis)information is already shared, the virtual absence of theoretical discussion is particularly serious. Apart from Renfrew's controversial account of Indo-European origins (Renfrew 1987, 1988), and its fallout (particularly on the pages of *Current Anthropology* 29.3: 437ff.), a single collection of papers in *World Archaeology* (Volume 8,1 (1976)) is devoted explicitly to theoretical and methodological issues, with additional discussion (e.g. Bright 1986; Clarke 1978; Ehret 1988; Renfrew 1989, 1990) scattered widely through the literature. The archaeology of the Indo-Europeans, in particular, is bedevilled by reliance on an outmoded view of archaeological cultures,

²⁸ To those who still hold that the distribution of certain traits is indicative of migrations, Chakrabarti has long ago (1968) pointed out that most of the traits (subsistence patterns in particular) of the "Painted Grey Ware people" were eastern in origin.

which readily ascribes linguistic attributes to recurring assemblages of artefacts - even Mallory's comprehensive summary (Mallory 1989), however excellent in many respects, suffers from this attitude. Given the quantity of linguistic as well as archaeological research lavished on the American Southwest, California and Mesoamerica, attempts to combine the datasets in these areas have been more numerous, although even here much discussion is confined to an empirical level.

In one of the more thoughtful essays on the subject, David Philipson (1976: 66) asserted that "it is not unreasonable to suspect that some of the major demographical developments which are indicated by archaeology will be reflected to some degree or another in present patterns of language distribution". Conversely, evidence for the borrowing of words to describe material culture could be tested against the archaeological record, on the assumption that the description followed in the trail of the actual object from one social group to another. Based on these principles Philipson equates the evolution and spread of the Bantu languages with the spread of iron into Southern Africa, since the linguistic and archaeological evidence exhibit similar patterns (especially the rapid, and relatively recent spread of Eastern Bantu languages on the one hand, and the equally rapid spread of a fairly homogeneous Late Iron Age assemblage on the other). The approach is sophisticated in that it compares independently analysed patterns, instead of merely matching discrete traits. However, even Philipson's thesis is based on two questionable assumptions: 1) that material culture and language vary within the same social subsets, which is, at best, a hypothesis awaiting confirmation; and 2) that a recurring assemblage of artefacts (as defined by Childe in *The Danube in Prehistory* (Childe 1929)) is a valid analytical unit, which must be firmly rejected (Shennan 1978). In consequence, comparisons of the patterns of change are as inconclusive as the tracing of individual loanwords or items of material culture. Nor is there any reason to assume that taxonomic distance between 'cultures' or even techno-complexes is in any way correlated with the classification of various dialects, languages or even language families (cf. Bright 1986 for a more extended critique).

This brings us to the work of Colin Renfrew (1987 etc.). Although his specific solution to the Indo-European problem has been rejected on linguistic as well as archaeological grounds, his theoretical approach is sound in at least one important aspect. To wit, he stresses the need to replace the old equation:

language = ethnos or 'people' = culture

with the formula:

language change <--> socio-economic change <--> change in material culture.

He surmises correctly that although archaeologists cannot dig up languages, the study of socio-economic changes - the likely causes of language change - is well

is well within their competence. Although most of his models continue to assume a close correlation between language changes and population movements, this may be the result of dealing with protolanguages, where the number of archaeologically testable hypotheses remains limited. Nevertheless, it would have been desirable to explore the possibilities of language change within a stable population in greater detail. One need only refer to Barth's analysis of the Pathan-Baluchi ethnic boundary (see above), or the role of bilingualism in the emergence of Indo-Aryan languages in northern India, to see the promise of this approach. In a similar vein, Flannery and Marcus (1983) have advanced some useful hypotheses regarding the correlation between population density and linguistic divergence, even if they have only begun the work of correlating cultural, demographic, and linguistic changes.

The discussion of the spread of Indo-Iranian languages to South Asia, and of their dispersal within the Subcontinent, have followed the spirit of this approach. The cultural dynamics evident in both languages and the archaeological record were analysed independently at first; this was followed by a comparison of patterns of change to establish possible correlations. No attempt was made to identify any particular linguistic or ethnic groups in the archaeological record; rather, past attempts at equating "Aryans" with either individual material culture traits, or - as has become fashionable - with certain religious and burial rites, have been critically reviewed.

As a result of the investigation, some support was found in the archaeological record for small-scale migrations from Central to South Asia in the late 3rd/early 2nd millennia B.C., but any support for Burrow's 2-wave model (Burrow 1973) was firmly ruled out. The idea of invasions by a barbaric race enjoying technological and military superiority was - I hope - fatally undermined, and the chronology of movement into South Asia has been extended by several centuries, beyond what has generally been assumed from a misreading of the Rgveda as an account of foreign invasions. Linguists were, moreover, urged to construct more realistic models of social change to account for linguistic changes, which could be further tested against the archaeological record.

The situation regarding the spread of Indo-Aryan languages within South Asia was somewhat different. There were compelling reasons - particularly, substratum influences on Old Indo Aryan - to believe that the majority of early Old Indo Aryan-speakers had a Dravidian mother tongue which they gradually abandoned. No direct proof of this existed in the archaeological record for the oft-recited reason that no reliable methods exist for identifying languages in material culture. It has, however, been possible to connect the acquisition of a new language with the adoption of a new ideology in post-Harappan times, and thus to create a plausible cultural background, which could be tested against the archaeological evidence. Since the latter remains notoriously sketchy for the 2nd millennium B.C., it would be difficult at present to claim that the initial hypothe-