

Introduction

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1. The reconstruction of prehistory through archaeology, archaeogenetics, and linguistics

In recent years, the number of studies in archaeogenetics and related historical disciplines has grown exponentially. This development has opened up prospects – unimaginable until just a few years ago – for reconstructing the prehistory of Eurasia and the movements of peoples that led to the emergence of the nomadic, and later sedentary, cultures forming the basis of the civilizations that developed in this region. The roots of Eurasian civilizations lie deep in this temporal horizon and are reflected in the historical, cultural, and linguistic developments of the area from Antiquity to the present day.

Historical-cultural reconstruction is therefore fundamental for understanding today's world and constitutes one of the main aims of the humanities. By *culture*, we mean the sum of all socially elaborated and shared mental representations that emerge and evolve within a given group, in response to challenges arising from the interaction between humans and their surrounding environment (cf. Tullio Seppilli & Grazietta Guaitini Abbozzo, *Schema concettuale di una teoria della cultura*. Perugia: Ed. Umbra Cooperativa 1973).

The task we face today is to facilitate and foster dialogue among these fundamental disciplines – archaeogenetics, archaeology, and historical linguistics – so as to enable a coherent, integrated vision. Interdisciplinarity makes it possible to bridge the gaps that arise from the different research methods of individual sciences: genes or isotopes found in a human skeleton can tell us about the physical habits of individuals who lived, say, six thousand years ago in the steppes of present-day Ukraine – about the origin of their food, health, movements, cause of death – but they cannot tell us anything about their language, art, economy, or religion. The gaps in material culture are filled by archaeological data, and those concerning language by the results of linguistic analysis of the texts produced by their successors, using the methods of historical-comparative reconstruction. It is therefore essential that these three disciplines engage in dialogue, that their representatives meet, discuss, compare their research findings, and arrive at a synthesis. The reconstruction of the material, ideological and linguistic past allows us to recover the identity of an individual and of the human group to which he belonged.

This volume focuses on the speakers of Indo-European languages and their cultures. Indo-European languages are among the earliest known ones, with the oldest texts dating back to the second millennium BCE (e.g., Hittite and Mycenaean Greek texts on clay tablets). Due to the military spread and colonial policies of their speakers – especially since the late 1400s CE – Indo-European languages are spoken across all continents today and by a large percentage of the world's population, either as a first or second language. Historical-cultural reconstruc-

tion of the populations that spoke Indo-European in its earliest reconstructable stages, that is, Proto-Indo-European, has a long history in western science, starting in the seventeenth century and arriving at an early stage of scientific consensus in the late 1800s. At that point, it had become clear that only a combination of linguistic hints (such as the meaning of the earliest reconstructable vocabulary in Indo-European) and reconstructed material culture (mainly on the basis of archaeology) would result in a credible hypothesis. Several different theories were *en vogue* in the 20th century, most of them based on the premise that the spread of Indo-European languages from their earliest spatial distribution to their classical and medieval habitats in Europe, western and central Asia must be explained via the migration of populations speaking Indo-European languages. The timing, extent, and direction of these movements, it is true, have been gauged in very different ways. The advent of archaeogenetics in the twenty-first century has radically changed the research program, as it cannot now be envisaged without taking into account the visible traces of gene spread in the areas under study. That is not to say that the results have always been turned upside down: sometimes the archaeogenetic studies confirm views held earlier by linguists and archaeologists, sometimes they contradict them, and in many cases, they force us to reconsider earlier explanations of the data provided by language and material culture.

2. This volume

This volume brings together twenty-six contributions from the seventeenth edition of the quadrennial international conference (Fachtagung) of the Society for Indo-European Studies, held from 9 to 12 September 2024 at the University of Basel under the title *The Speakers of Indo-European and their World. 150 Years of Indo-European Studies in Basel* and organized by Alexander Robert Herren, Sergio Neri, Florian Sommer, Gerard Spaans and Michiel de Vaan. All contributions have been peer-reviewed by two colleagues before publication, and we would like to express our heartfelt gratitude to all the reviewers who have donated their time and efforts in this process. We are furthermore very grateful to the different science foundations that have supported the conference itself as well as the present, open-access publication of its proceedings. The publication has also benefited from support by the Institute for the Interdisciplinary Study of Language Evolution of Zurich University. While the articles in this volume are arranged alphabetically by author(s), we present their contents here by the topics they discuss.

2.1. Archaeogenetics and population reconstruction

The collective of linguists, archaeologists, and archaeogeneticists consisting of Katsiaryna ACKERMANN, Mario GAVRANOVIĆ, Joačim MATZINGER, Olivia CHERONET, Leonid VYAZOV, and Pavel FLEGONTOV present their article *The ALAnetics approach to Indo-European migrations: Achievements and challenges*. They explain the way in which the three historical disciplines linguistics, archaeology, and archaeogenetics can be combined in order to arrive at well-founded hypotheses on prehistoric populations, which makes this paper a good methodological introduction to the volume as a whole. More specifically, ACKERMANN et al. focus on the different migrations of Indo-European speakers into Southeastern Europe in the late Copper and Bronze Ages. Among their results is the observation of a geographical difference between a North-Northwestern and a South-Southeastern Balkans area in the Early and Middle Bronze Age, which may be interpreted as the existence of two culturally distinct areas in this period.

In *The Dead don't speak: Connecting language and ancient DNA*, Joscha GRETZINGER addresses the conceptual and methodological parallels between comparative linguistics and evo-

lutionary biology. He poses the fundamental question of the correlation between genealogical change in biology and in language, both in the historical data and in the scientific discussion. He presents the growing evidence worldwide for shared evolution between genes and languages and provides an update on the latest archaeogenetic research and its relevance for the reconstruction of population movements involving Proto-Indo-European. In brief case studies, GRETZINGER turns to several regional histories of genes and migration, regarding, in particular, the possible origins of the Celtic languages, the emergence of the Germanic branch, and the expansion of Slavic speakers between 500 and 900 CE.

2.2. Population contact and sociolinguistics

Under this heading, we group contributions dealing with issues of language contact in the past, as it can be inferred on the basis of lexical and grammatical influence from one language on another. While these issues used to be addressed mainly from a linguistic point of view, they are now increasingly being treated with the help of archaeological and archaeogenetic data, too.

In their article, *Indo-European speakers in the Near East: New evidence*, Chams BERNARD & Gabriel SOLANS combine archaeogenetic and linguistic evidence. Cued by the discovery in aDNA of peoples migrating from areas north of the Caucasus into the Middle East in the fourth and third millennia BC, they hypothesize that speakers of PIE may have influenced Proto-Semitic linguistically, prompting a new assessment of possible Indo-European loanwords in (Proto-)Semitic. They also propose three new candidates for lexemes borrowed from PIE into Proto-Semitic, especially in religious contexts.

Rasmus BJØRN, in *Indo-European cattle, horses, and donkeys*, contrasts the presence in the PIE vocabulary of words for ‘cow’ and ‘horse’ with the absence of a common word for ‘donkey’. Using archaeogenetic and especially archaeological data on the age and spread of different kinds of domesticated animals, he arrives at a new scenario for the spread and use of ‘horse’ and ‘donkey’ in West and Central Asia in particular.

Svenja BONMANN focuses in her paper on *Central Asian substrate languages and their effect on Sogdian, Bactrian and Khwarezmian noun phrase structure*. The three Middle Iranian languages mentioned in the title developed articles or determiners to mark definiteness on nouns, which, according to BONMANN, may be due to language contact with non-Indo-European languages once spoken in the area of Bactria and Margiana, perhaps up until the Old Iranian period.

In *‘The coming of the Greeks’ after almost a century*, Ivo HAJNAL returns to the question – often discussed by previous scholars – when and how the speakers of Greek migrated from Eastern Europe into Greece. Drawing on the most recent archaeogenetic insights, he sketches a new scenario for the phases lying between PIE and Proto-Greek. Drawing furthermore on the archaeology of the chariot and on the vocabulary of its parts in Greek, he argues that Proto-Greek did not arrive in Greece long before 1800 BCE.

Shifting our gaze to Northwestern Europe, Sampsa HOLOPAINEN in *Northwest Indo-European in the light of Uralic loanwords* combines the often-cited possibility of a separate, early Indo-European entity called “Northwest Indo-European” with the suggestion that the Uralic languages borrowed a number of Indo-European words. As it turns out, there is no reliable evidence for a Northwest IE layer in Uralic.

In *Beyond loanwords: Remarks on the Iranian layer*, Daniel KÖLLIGAN discusses the cultural and linguistic influence of (non-Christian) Iranian culture and Iranian vocabulary in the works of the Armenian author Agat‘angelos and in the text *Bowzandaran Patmowt‘iwnk‘*.

Matthew SCARBOROUGH zooms in on the issue of non-Indo-European loanwords in Ancient Greek, classifying them according to phonetic and morphological features, in *The formation of Ancient Greek: construction and craft terminology*.

2.3. Culture and vocabulary

In this section, we collect chapters dealing with cultural semantics and pragmatics, that is, discussions of culturally important semantic fields, such as color, fear, and livestock, and with religious terminology and the rituals of different ancient Indo-European cultures.

Color terms in Proto-Indo-European are the subject of Jan-Niklas LINNEMEIER & Natalie KOROBZOW's *Shining in the distance*. Based on the idea that the PIE color system may have encoded lustre rather than hue, they present case studies of color terms in Old Norse, Old Irish, Ancient Greek, and Vedic.

Bilyana MIHAYLOVA's article on *Fear in ancient Indo-European languages* delves into the different etymological sources for words for 'fear', which have a wide array of possible states of body and mind as their basis.

In her paper, *Early Indo-European cattle breeding societies as reflected in mythology*, Birgit OLSEN investigates how cattle-breeding, and in particular cow-breeding, are reflected in Indo-European mythology and other religious representations, especially those that involve the opposition of sky vs. earth and bull vs. cow.

Benedikt PESCHL and Theresa ROTH investigate style and structure of meta-ritual discourse in ancient IE languages in *Indogermanische Rituale und ihre Welt: Die sprachliche Etablierung von Autorität*. They present three case studies: on the ritual prescriptions found in the Iguvine Tables composed in Umbrian, on the celebration rituals and incantations in the Hittite archives, and on metaritual discourse in the Avestan text corpus.

Roland POOTH takes us to the mythology surrounding Early Vedic afterlife of chiefs and kings in *Splitting the stone sky, sitting in the womb of the dawns*. He argues that several text passages convey the image of the ruler's grave being constructed in such a way as to allow the deceased to leave his grave after death and become a "son of the sky".

2.4. Grammar and etymology

This section collects the mainly or purely linguistic discussions of specific phenomena, involving lexical etymologies (such as words for 'pulling', 'sitting', and 'water'), grammatical categories within a language or language group (such as action nouns in Vedic, impersonal verbs in Greek), and language typology (adjectival typology or enantiosemy).

Luca ALFIERI, Diego LUINETTI, Leonardo MONTESI, Marianna POZZA, and Pat SNIDVONGS in *Adjectival typology in four ancient IE languages and the Caland system* situate the adjectives found in four ancient Indo-European languages within a general typology of adjectives in order to gain insight into the formation and function of adjectives in the proto-language. Adjectives also feature in many of the examples adduced by Stefan HÖFLER in his paper on *Enantiosemy*, the phenomenon that a word can have two opposite meanings. Semantic encoding is also the main topic of Máté ITTZÉS' *Action nouns in Vedic: Seeing in the Rgveda and Atharvaveda*, which compares the various derivatives of the root *dṛś-* 'to see' that represent action nouns.

Lexical etymology is the primary topic of three papers: In *The many Sons of Water: the progeny of PIE *h₂óǵ*, Romain GARNIER and Philippe HATTAT provide a detailed survey of all the possible descendants of one of the two PIE words for 'water', i.e., *h₂óǵ-/*h₂ép-, which refers to

water as a moving, animate force. Georges-Jean PINAULT, in *Avatars and derivatives of the PIE root *des 'to dwell, sit' in Indo-Iranian and beyond*, discusses the etymological appurtenance of Sanskrit words derived from PIE *des- and their possible link with the root for 'to sit'. The lexical semantics of the PIE root *teng^h- 'to pull' are discussed by Viktoria REITER in *Schwer zum dazahn: Idg. *teng^h- 'ziehen'*.

The subsequent six articles deal with verbal inflection and the semantics of specific verb categories. Messapic is the topic of Emmanuel DUPRAZ' *Anmerkungen zur messapischen Verbal-morphologie*, which revolves around verb forms with suffixal -a-. Louise FRIIS delves into the development of the Tocharian verb system in *The thematic optative in Tocharian*. Classical Armenian is the subject of Petr KOCHAROV's contribution *The perfectivity bias of the mediopassive voice in Classical Armenian* and we return to Ancient Greek with Diego LUINETTI and *Where do impersonal constructions come from? Evidence from Ancient Greek*, which includes typological and historical-comparative considerations. Jeremy RAU reevaluates the distribution and semantics of *The Thematic Aorist in Late Nuclear Proto-Indo-European*, drawing on evidence from Old Church Slavonic, Ancient Greek, and Old Indo-Iranian languages. Finally, the verbal system of Lithuanian is the subject of Yoko YAMAZAKI, *A case study on the Lith. sùkti-type verb: a back-formation of active paradigms from the lost mediopassives*.

3. Conclusion

This volume makes an important contribution to the interdisciplinary reconstruction of Eurasian prehistory, bringing together chapters devoted to archaeology, archaeogenetics, and historical-comparative linguistics. It presents new scientific evidence from all three fields, including original sub-studies that reflect current methods and findings, and bears witness to the vitality of contemporary research as well as the ongoing efforts to integrate data from individual disciplines into a coherent and reconstructive framework on a global scale.