presents a complex picture of technological change and immigration in North Central Eurasia in the second and first millennia BC, suggesting that present-day correspondences between language and technology would be difficult to document for this region. In other challenges to purely technological interpretations of language spread, Krell delineates major deficiencies in the Kurgan hypothesis of associations between Proto-Indo-Europeans and Chalcolithic cultures, while Hines emphasizes that political and social processes played major roles in the creation of the English language.

Nichols launches a major critique of hypotheses that Indo-European languages spread via migrations of agricultural peoples. In her model, the Central Eurasian grassland, an area in or near the Indo-European homeland, has long been a language 'spread' zone: that is, a geographically determined area characterized by a single, widely dispersed language family, low linguistic diversity mostly concentrated in peripheral aspects of the zone, and replacement of one language family by another every few millennia. Within a zone, language spread is mediated by sociolinguistic and geographic factors. In Nichols's view, Indo-European languages entered Europe through the Danube plain on at least three or four different occasions as a result of regular processes of socially and geographically determined language spread within the Central Eurasian grassland and not as a result of technological advances such as agriculture, the taming of the horse, or the initiation of the Bronze Age.

Final papers in the volume use modern linguistic data to reconstruct subsistence patterns of ancestral populations. Wichmann's analysis of the origins of terms, such as 'dough', 'grind', 'maize', 'hard stone', and 'cocoa', casts doubt on existing models that suggest an Olmec origin for Meso-American languages. Rather, modern Meso-American languages reflect input from several earlier populations. Based on a similar study of linguistic terms for palms and yams, Connell suggests a later introduction of agriculture into Southeast Nigeria than had previously been assumed. Comparative studies of rice terminologies lead Pejros and Shnirelman to suggest that rice was domesticated at least twice in Southeast Asia, and they lead Vovin to conclude that the rice-using Yayoi culture of Japan originated in Southeast China from Austroasiatic languages. Finally, Mahdi succeeds in using linguistic terms to trace the spread of varied cultigens in Southeast Asia via trade and, possibly, settlement.

In sum, this volume contains path-breaking material pertaining to archaeological 'cultures' and language history throughout much of the world. It is a must for all who would attempt to correlate language and culture, and it is worth reading by anyone interested in language history and in population spreads by modern peoples.

Kathleen R. Gibson

University of Texas, Houston

Carruthers, Peter & Andrew Chamberlain (eds). *Evolution and the human mind: modularity, language and meta-cognition*. xiv, 331 pp., diagr., illus., bibliogr. Cambridge: Univ. Press, 2000. £40.00 (cloth), £14.95 (paper)

This volume is a contribution to 'evolutionary psychology', according to which the mind is an organ shaped by past evolutionary pressures. Human mental architecture is conceptualized as *modular* – that is, composed of innately channelled, domain-specific, semi-autonomous subsystems. Historically, the first claimed module was Noam Chomsky's celebrated but still controversial 'language faculty'. More recently, theorists have posited dedicated neural circuits for music, mind-reading, face-recognition, cheat-detection, technological competence, and much else.

Accepting that the mind must be modular in some sense, which of these hypothesized subsystems can confidently be stated to exist? Following a useful editors' introduction, Richard Samuels defends the notion of multiple *computational* modules which are in a sense content-free, while persuasively rejecting what he terms 'Chomskian modules' – innately specified bodies of mentally represented theory and information about the real world. Claire Hughes and Robert Plomin present a study of mind-reading performance in young twins. Among their findings are, first, that each child's unique social experience contributes to the progressive modularization of its cognitive processes. Secondly, genetic influences on mind-reading appear largely independent of genetic influences on verbal intelligence. Dominic Murphy and Stephen Stich argue persuasively for a Darwinian restructuring of clinical psychology. They suggest that many people suffering from so-called mental disorders have nothing wrong with them at all – their minds 'are functioning exactly as Mother Nature intended them to'. Such individuals may be diagnosed as 'ill' simply because they resist accommodation to the competitive stresses of modern Western industrial civilization – that is, to a lifestyle bearing little relationship to the challenges faced by our more co-operatively organized evolutionary ancestors.

Social anthropologist Pascal Boyer addresses the puzzling question of religious belief. Humans sustain and transmit mental representations of 'spiritual' entities such as ghosts. Monkeys and apes seemingly show no

interest in comparable social fictions. Why the difference? What made humans so gullible – so ready to internalize and act upon religious and other cultural fictions? Boyer raises this question only to dismiss it. Instead of seeking to explain why *Homo sapiens* should differ from other primates in sustaining religious beliefs in the first place, he assumes the existence of religion and confines himself to a subordinate question – why do certain beliefs acquire currency while others fail to catch on? His answer is a version of 'meme' or 'cultural replication' theory. To survive, a ghost-belief must be sufficiently surprising to be memorable, yet sufficiently intuitive to be cognitively processable. As Boyer himself puts it (pp. 100–1): 'Religious concepts are constrained by intuitive ontology in two different ways: (1) they include explicit *violations* of intuitive expectations, and (2) they tacitly activate a *background* of non-violated "default" expectations'. The outcome is a set of cross-cultural constraints on the range of possible religious traditions – constraints which might be of interest to social anthropologists had they not, for the most part, abandoned scientific investigations altogether.

The other anthropological contributor to this volume is Dan Sperber, who with Gloria Origgi writes on the evolution of language. They begin by attacking philosopher Ruth Millikan's claim that linguistic communication is a set of stimulus-response patterns that operate independently of human mind-reading. Sperber and Origgi endorse Paul Grice's contrary view: linguistic comprehension *is* mind-reading. It is the inferential process of interpreting signs in association with prior knowledge and contextual cues to reconstruct speakers' communicative intentions. Acceptance of Millikan's biological code model, they point out, would make it difficult to explain how language could ever have evolved. Let us suppose (following Millikan) that language began as a limited set of signals mapped to a corresponding set of responses. If a mutant speaker now developed a more sophisticated code, her non-mutant sisters would misunderstand her. By contrast, a Gricean inferential perspective permits a solution here. Imagine an ancestral situation in which listeners – taking into account shared contextual knowledge – infer complex communicative intentions from speakers' non-syntactical simple signs. Sperber and Origgi now envisage a 'mutant' who, when she hears or utters the word for, say, 'drink', envisages it as packaged with one vacant slot ('unexpressed place-holder') in which to specify *who* is drinking, and another for specifying *what* is drunk. Such optionally *inferred* syntactical structure is harmlessly missed by her non-mutant interlocutors, producing no obstacle to successful communication. Yet other socially co-operative mutants will understand one another better, enabling their genes to spread.

I would recommend this book to anyone interested in the nature and evolution of human mind and language. Unlike some recent versions of evolutionary psychology, the positions defended are consistently thoughtful and balanced rather than ideological, populist, or proselytizing. No one here is defending 'genetic determinism' or claiming that 'no revolution can change human nature'. Archaeologist Steven Mithen in particular distances himself from extreme nativism or cognitive individualism, even questioning with refreshing candour some of his own recent concessions to this school of thought. Recalling his much-publicized theory that a genetic mutation for 'cognitive fluidity' triggered the sudden evolutionary emergence of art and symbolic culture, Mithen now writes (p. 212): 'I remain, however, cautious about invoking such arguments, not simply because of their ultimate unfalsifiability, but because there are several issues and evidence that pose severe problems for them'. Mithen's new thinking will be anathema both to hard-line Chomskians and to the more fundamentalist adherents of evolutionary psychology: 'Once people communicate with language it makes little sense to conceive of the mind as being constituted within the body of a single person, as each person draws upon, exploits, and adds to, the ideas and knowledge within other people's minds' (p. 213). A simple point – even banal, perhaps, to most social anthropologists – but useful dynamite in a volume of this kind.

Chris Knight

University of East London

Ingham, Bruce. *English-Lakota dictionary*. viii, 285 pp., maps, illus., bibliogr. Richmond, Sy.: Curzon Press, 2001. £45.00 (cloth)

This is the most comprehensive English-Lakota dictionary yet available, and it is fortunate that it focuses upon the Teton dialect, since English-Dakotan dictionaries already exist for Santee, a major Dakota variety, and are still commercially available. The genesis of this work is explained in the preface on page xi as filling a need which the author, an eminent British Arabist and Reader in Linguistics at the School of Oriental and African Studies, felt as a learner of Lakota. Since Lakota is perhaps the second-most widely spoken Native American language in the US (with additional speakers in Canada), this book will deservedly be welcomed by people with an interest in Native Americans and by others, including Lakotas themselves, with more professional interests.

The material in the dictionary has in the main been generated from a study of written