

1 INTRODUCTION: MICROBLADES AND BEYOND

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“EVERY LITTLE THING”

[The Beatles, “*Every Little Thing*”, from the album “*Beatles for Sale*” (1964)]

The topic of this volume is primarily the origin of microblade technology in the Northern Hemisphere, based on the results of recent studies conducted in the 1990s and early 2000s. These ‘little things’ called microblades made human adaptation to the temperate, subarctic, and arctic environments of Siberia, East Asia, and northernmost North America very successful. As was suggested by Butzer (1991), the emergence of microblade technology in Asia was directly connected with an increase in site frequency (“site visibility”) that is a function of population size. It was stated: “In northeast Siberia (mainly cave sites) and Japan (mainly buried, alluvial sites), a rapid increase in visibility was delayed until the appearance of micro-blades and pressure flaking after 14,000 BP... in any event, site visibility, as inferred from site number and assemblage size, increased with the establishment of the “developed micro-blade tradition” about 13,500 BP” (Butzer 1991:144). New data presented in this volume demonstrates that although this idea remains valid, there is one exception – the beginning of human population rise and “site visibility” in Siberia can now be dated to at least c. 35,000 BP, and it generally coincides with the earliest evidence of microblade manufacture (Kuzmin and Keates 2005:785).

Upper Palaeolithic complexes with microblades are widely distributed in Northern Asia, including the western and central parts of Siberia (e.g., Vasil’ev 1993, 2001); Northeastern Siberia

and the Russian Far East, such as Yakutia (Mochanov and Fedoseeva 1984, 1996), the Kolyma and Indigirka rivers (Pitul’ko 2003; Slobodin 2001, 2006), Chukotka Peninsula (Kiryak 1996, 2005, 2006; Pitulko 2003; Slobodin 2001, 2006), Primorye Province (e.g., Vasilievsky 1996; Kuznetsov 1996), the Amur River basin (Derevanko 1996, 1998), and Sakhalin Island (Vasilevski 2003). Microblade technology is well represented in late Upper Palaeolithic assemblages of China and Korea (e.g., Chen 1984; Seong 1998), and especially of Japan (Tsutsumi 2003a, 2003b; Nakazawa *et al.* 2005). In the northernmost part of North America, microblades are common in Paleoindian and subsequent complexes of Alaska, the Yukon Territory, British Columbia, and the Northwest Territories (e.g., West 1996a; Yesner and Pearson 2002). Therefore, the problems of origin and diffusion of microblade technology are truly international and of hemispheric scale.

Only a few volumes have been published which concentrate on microblade technology and its spatial-temporal patterns. In 1993, a collection of papers, “The Origin and Dispersal of Microblade Industry in Northern Eurasia”, originating from presentations at an international conference in 1992 in Sapporo (Japan), was published under the editorship of Hideaki Kimura. In 2002, a volume dealing with the microlithization of stone tools, “Thinking Small: Global Perspectives on Microlithization”, put together and edited by Robert G. Elston and Steven L. Kuhn, was released. There

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was also an attempt to observe the typological, technological, and chronological patterns of the microblade complex on the continent-wide scale of Northern Asia (Ono *et al.* 1992:30–33). Generally speaking, the earliest firmly dated finds of microblades in Asia are thought to be as old as c. 25,000 BP. All the sources mentioned above summarize knowledge about microblade technology and its origin and spread in Eurasia and North America up to the early 1990s.

However, at that time some tentative data about much earlier microblade complexes in Siberia were released. Brief information on an assemblage with wedge-shaped cores from the Anui 2 site in the Altai Mountains (Gorny Altai) of southern Siberia was given in 1990 in a conference excursion guide (Derevianko *et al.* 1990:60), but without radiometric dates. In 1998, the first data on microblades and wedge-shaped cores from the early Upper Palaeolithic complexes in the Altai Mountains, dated to c. 35,000 BP, and perhaps even older, were published in another conference excursion guide, “Arkheologiya, Geologiya i Paleogeografiya Pleistotsena i Golotsena Gornogo Altaya” [Archaeology, Geology, and the Pleistocene and Holocene Palaeogeography of the Mountainous Altai], edited by Anatoly P. Derevianko.

A more detailed description of the Altai sites with very early microblade assemblages was published later (Derevianko *et al.* 2003). Some aspects of the origin of “tortsovoe” (narrow-face) flaking in the earliest Upper Palaeolithic complexes of the Altai Mountains, which is considered to be one of the methods for the origin of microblade reduction, were mentioned previously (Derevianko 2001; see also Derevianko and Volkov 2004). Unfortunately, these data remain poorly known outside of Russia even today; for example, the most recent English summary of the early Upper Palaeolithic of Siberia (Goebel 2004) makes no mention of these.

The discovery of very ‘old’ microblade complexes in southern Siberia now challenges previous models of microblade origin somewhere in East Asia, probably in northern China, and its spread to the north and east (e.g., Chen 1984:110; Tang and Gai 1986:350–353; Fagan 1996). For example, it was noted: “The long-lived micro-

blade cultures of China and northern Asia generally appeared at least 30,000 years ago, based on a technology that produced dozens of diminutive blades from wedge-shaped, conical, and cylindrical cores. These in turn became sharp-edged barbs, arrow barbs, or scraper blades. Microblade technologies may have first evolved in northern China, where the earliest sites may occur, but they eventually spread northwards to the steppe-tundra of northeastern Asia, and even to North America. They represent a highly effective adaptation to highly mobile hunter-gatherer lifeways in open terrain.” (Fagan 1996:137).

By 40,000–35,000 BP, dramatic cultural changes had occurred in North Asia, as they had elsewhere evinced by the sudden appearance of various stone tool technologies, such as blade technology, bifacial technology, and especially microblade technology (e.g., Bar-Yosef 2002; Straus *et al.* 1996; Soffer and Praslov 1993). In northern China, after about 30,000 years ago, these new technologies mixed with the indigenously developed lithic technologies (specifically the flake tool and pebble-core tool technologies), thereby forming the unique Upper Palaeolithic culture of northern China. Blade tools are known from the Shuidonggou and Youfang sites, and bifacial tools from Qingfengling, Xiachuan, and other sites, while Xiachuan, Chaisi, and Xueguan are among the numerous representative microblade sites in China (Shen *in press*).

Migrations of modern humans from the Eurasian steppe, including Siberia, probably contributed to the complexity and variability of Upper Palaeolithic lithic industries in China. The emergence of microblade technology in northern China might be the result of interactions with northern hunter-gatherer societies that are related to the event of the peopling of the Americas. While hunter-gatherers of the Eurasian steppe, who mixed with the local resident populations acquiring new cultural elements and skills, continued northeastwards to cross Beringia and thence into North America, another wave of migrating humans must have moved from Eastern Siberia southward into northern China, where they interacted and integrated with the indigenous hunter-gatherer societies (Shen *in press*). At the end of the Pleistocene, cultural manifestations in north-

ern China, Japan, Korea, and the Russian Far East and Northeast, were part of a cultural interaction sphere that eventually reached the New World by at least 13,500–11,500 years ago.

There is no doubt that the time has now come for an updated collection of papers written by primary researchers, which reflects the up-to-date situation of the origin and spread of microblade technology in North and East Asia and North America. This is the main aim of this volume.

Besides the slow dissemination of information concerning the earliest microblades in some regions of Northern Eurasia, there are several methodological and terminological problems related to the topic of this book. If the determination of a “microblade” is more-or-less standard and generally refers to a small and narrow blade produced mostly from conical or wedge-shaped microcores (e.g., Bahn 2001; Darvill 2002), the definition of the term “microlith” is quite loose. Some scholars characterize microliths as “very small implement[s], commonly of flint, regarded as characteristic of the Mesolithic period in Europe. Typically microliths are between 10 mm and 50 mm long and shaped into either a point or a barb. They were mostly used in composite tools such as harpoons, arrows, or knives.” (Darvill 2002:259–260). As was recently noted, “[t]he definition of the term microlith is notoriously slippery. In its broadest sense, it simply refers to very small tools – not a very satisfactory definition. Middle and Lower Palaeolithic assemblages from China (Gao 2000; Miller-Antonio 1992), Syria (Rust 1950), and southeastern Europe (Papaconstantinou 1989) have been called microlithic simply because the artifacts they contain are smaller than those found in contemporaneous assemblages in other places.” (Kuhn and Elston 2002:2). In this volume, “microblades” are those artifacts usually found associated with wedge-shaped microcore(s), and this makes the establishment of the earliest microblade complexes more secure rather than the simple detection of small narrow blades (bladelets) which may be the result of accidental chipping.

The main focus of this volume is on both sides of the Northern Pacific as it is reflected on the book’s logo (see cover). The reason is that in North and East Asia and in North America simi-

lar ways of microblade production were used. As was recently highlighted, “[i]n general, microlithic technologies in East Asia are characterized mainly by the production of microblades through elaborately developed core technologies. These were apparently used as is, as they do not often bear evidence of secondary modification until the Mesolithic and later. In contrast, more developed retouch and backing are characteristic of many late Pleistocene assemblages in Europe, western Asia, and Africa.” (Kuhn and Elston 2002:2). Therefore, here we present a so-called “Asian-American microblade continuum”.

The idea of putting together the latest data on microblade complexes from Northern Asia and North America was conceived in mid-2003 when several researchers from both sides of the Pacific were ready to get together, in order to share the latest knowledge and check the existing models and theories related to microblade cultural complexes. The core of this book consists of papers presented at the Symposium “Origin and Spread of Microblade Technology in Northern Asia and North America”, which was part of the scientific programme at the 69th Annual Meeting of the Society for American Archaeology in Montreal, Canada, and took place on April 1, 2004, with Susan G. Keates and Yaroslav V. Kuzmin as moderators. We were fortunate to engage several scholars in this event (not supported by any source of extra funding), who have primary knowledge of the microblade complexes from regions that are not well known in the Anglophone scientific community due to language barriers, such as Chinese, Japanese, Korean, and Russian.

At the meeting in Montreal, the idea to put together a collection of papers based on the symposium’s presentations was announced and well received. About three years later, we have in hand the fruit of our joint efforts. This volume consists of a general Introduction (Chapter 1), ten chapters (2 through 11) devoted to specific regions, and a Discussion (Chapter 12) of chapters 2–11. The chapters are organized geographically around the Northern Pacific, clockwise from China to western Canada.

Chapter 2 is an overview of the earlier Chinese microblade complexes, given by Chun Chen. Numerous sites with well-developed microblade

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technology mainly from the eastern and northeastern parts of China are described. A brief correlation with neighbouring territories, that is, Siberia, Korea, Japan, and North America is also presented. A major part of this chapter is devoted to more fundamental issues of microblade research, such as the influence of raw material, typology, and technology.

In Chapter 3, Chen Shen discusses several stone tool assemblages from the eastern part of China, Shandong Peninsula, where the Fenghuangling complex was initially considered to represent the earliest microblade tradition. Excavations and subsequent studies of lithic tool typology and technology at four key sites determined that the cultural picture of Shandong at the end of the Pleistocene is more mosaic and diverse than was thought previously.

Hiroyuki Sato and Takashi Tsutsumi present a broad characterization of Japanese microblade complexes in Chapter 4. Japan seems to be the best-studied region in the world in terms of microblade typology and technology. Recently, two volumes edited by Tsutsumi (2003a, 2003b; in total about 695 pages) with a compendium (including about 1800 catalogued sites) of microblade research in the Japanese Islands, were published in Japanese, and this chapter includes the main data from these books. The technological classification of Japanese microblade industries is fully described, with explanations of its complicated terminology. This is of great help to scholars who study microblade manufacture in Northern Asia and North America, because updated descriptions have appeared since the late 1960s (e.g., Morlan 1967, 1970, 1976). Microblade complexes of each large geographic region in Japan are presented, and a special part of the chapter is devoted to obsidian as a raw material for microblade manufacture.

In Chapter 5, Katsuhiko Sano discusses in detail various aspects of microblade complexes discovered in the central part of Honshu, the largest island of Japan. The main focus is on raw material composition and mobility of human groups in later Upper Palaeolithic times of central Honshu, dated to c. 17,000–14,000 BP. Of particular interest are first-hand data on raw materials used and distance to its sources from microblade

manufacturing sites. Sano points to the transport of siliceous hard shale artifacts over a distance in excess of 200 km.

Chapter 6 is an overview of Korean microblade sites by Christopher J. Norton, Kidong Bae, Han-yong Lee, and John W.K. Harris. The main topics of this chapter are the history of microblade research on the Korean Peninsula, the chronology of microblade technology with a discussion of the problems related to the origin and diffusion of this technology, and the raw materials used to manufacture microblades. Photographs of selected microlithic artifacts enhance this chapter. In the authors' view, the earliest microblade sites are in northern China with an approximate time range of 50,000 years to c. 28,000 BP. In the region between China and South Korea, much more needs to be known about microlithic sites in North Korea as Norton and his co-authors point out in their perspectives on future research in the Korean Peninsula. This also includes the need to enlarge the sample of radiocarbon dated sites in Korea.

Chuntaek Seong in Chapter 7 presents a review of Korean microblade industries and sites. About 30 of the best-studied sites are characterized, including illustrations of artifacts and radiocarbon dates where they are available. The oldest microblade site in Korea is Sinbuk, with the earliest associated radiocarbon date of c. 25,500 BP. Seong takes issue with reconstructions of microblade development in Korea within the framework of diffusion, and proposes that research should be directed examining the ecological conditions in which hunter-gatherers lived, in particular the hypothesis of high mobility in response to very cold climates.

Both of these chapters on Korea are important contributions to North Asian studies of microblade assemblages, considering that before only some aspects have been published in English.

In Chapter 8, Yaroslav V. Kuzmin gives a general overview of chronology and environment of the earliest microblade complexes in Siberia, the Russian Far East, Mongolia, China, Korea, and Japan. Judging from the most solid chronological data of radiocarbon dates, microblade technology appeared first in southern Siberia (Altai Mountains) at c. 35,000 BP, and thereafter emerged in

Transbaikal (also southern Siberia), and in China, Korea, Japan, and the Russian Far East. The proliferation of microblades may be observable at c. 25,000–20,000 BP all over Northern Asia, including the remote northeastern part of Siberia, namely Yakutia.

Evidence of microblade technologies published over the last decade, primarily from Siberia and the Russian Far East, with a summary of the results of recent excavations in the 1990s and early 2000s, are discussed in Chapter 9 by Susan G. Keates. The sites from the Altai Mountains in southern Siberia are of particular interest considering their early radiocarbon dates, with a minimum age of about 35,000 BP. Microblade sites from other parts of Siberia, such as the Yenisei River basin, along with the earliest microblade complexes from the Russian Far East, the Amur River basin and Sakhalin Island are also described. A review of the earliest Chinese microblade sites suggests that more detailed analyses of assemblages and their chronology are necessary to obtain a clearer picture of the characteristics of microblade technology in this large region and how they relate to those of neighbouring regions.

Chapter 10 by Robert E. Ackerman is a detailed evaluation of the microblade-bearing complexes from northernmost North America, Alaska, and the Yukon Territory. Each major microblade assemblage, from the earliest Denali complex in the interior of Alaska to the Northwestern complex on the coast and the Late Tundra tradition in the continental part, is represented. Of particular interest are slotted bone and antler arrowheads, which were used for hunting with microblades inserted into grooves, dated to c. 10,400–8700 BP. Numerous illustrations help the reader to understand better the diverse microblade complexes of Alaska and the Yukon.

Chapter 11 by Martin Magne and Daryl Fedje covers the northwestern part of North America, mainly Alaska, the Yukon and Northwestern territories, and British Columbia. Besides a description of microblade sites and cultural complexes, the authors have modelled the spatial-temporal patterns of microblades in the northernmost part of North America based on radiocarbon-dated sites and how microblade technology spread across the region. The issue of possible ethnic connections

between microblade-bearing humans and the Athapaskan language groups is considered.

Chapter 12 is a review of the volume, by the SAA Symposium discussant, Fumiko Ikawa-Smith. In her examination of the various chapters and particular and interrelated foci, she also gives some helpful background information, and provides suggestions for and questions to be considered in future research of microblade origins.

It is obvious that much more research is needed in order to understand the origin and spread of microblades in North and East Asia. Some regions, such as Mongolia, are still almost ‘blank’ in this respect. Critical evaluation of existing evidences is also necessary, in order to separate solid data from elements of ‘wishful thinking’. We hope that in the next decade or two most of the hotly debated issues related to microblades will be solved.

A particular challenge with this volume was the style of citing sources written in non-Latin alphabets, including Russian, Chinese, Japanese, and Korean. The aim of any bibliography is to include the original publication. In order to do so, it was decided to state the romanization of original titles and their translation in square brackets, and the romanization only of original volumes and periodicals where these publications appeared. This style was recently used by a number of periodicals dealing with oriental sources (for example, *The Journal of East Asian Archaeology*; *The Journal of Field Archaeology*; and *The Journal of Anthropological Archaeology*). This allows readers to find these sources in library catalogues, such as The Library of Congress of the USA.

At each stage of book production (writing of chapters, editing, polishing of text and checking the references), the contributors were quite helpful and cooperative; for example, by providing numerous translations of original Japanese sources (H. Sato and K. Sano), helping with Korean microblade sites’ names and locations (C. Seong), and sorting out quotations from journals and monographs (R.E. Ackerman and M. Magne). We appreciate their assistance which was given throughout the almost two years of volume preparation.

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