

1 The Definition of Raw-Material Centers during the Late Paleolithic, Neolithic, and Paleometal Ages of Sakhalin Island, Eastern Russia

2 *A. A. Vasilevski and V. A. Grishchenko*

3 ► **Keywords:** Sakhalin island, jasper center, raw material

The raw-material (RM) basis of lithic industries during the Stone (20,000–3000 RCYBP) and Paleometal (until the 6th century A.D.) ages in Sakhalin included local and exotic components. Local RM included various hornfels, tuff, siliceous argillite, andesite, basalt, gabbro, chalcedony, quartzite, etc. Generally, by local we understand the lithic RM that was collected by people locally within a distance of 50–100 km, or on a journey of 2–4 days on foot from residential sites during their hunting or fishing trips. Most tools, as a rule, were produced on such local RM. Nevertheless, major additions to late-Paleolithic industries, and to even a greater degree early-Neolithic industry, were exotic silicates used to make blades, especially microblades.

4 A significant phenomenon of the late-Pleistocene/early-Holocene archeology of the Japanese archipelago, Sakhalin, Kuril islands, and Kamchatka was transporting obsidian from outcrops in Hokkaido and Kamchatka along the so-called “obsidian way,” as much as 1000 km one way. Numerous publications (Kimura 1992, 1998; Vasilevski 1996; Phillips and Speakman 2009; Glascock et al., 2000; Kuzmin et al. 2002] are devoted to this. We note that the farther to the north a site is situated, the less obsidian is found in it. So it seems quite natural that we unearthed a few artifacts made of Hokkaido obsidian in sites in the north of Sakhalin.

5 Jasper characterized by sealing-wax color is widely distributed throughout the East Sakhalin Mountains and in the Tym and Nabil river valleys. In the region, several groups of Stone Age sites were discovered between 2001 and 2009 (Berseneva 2007; Mozhaev 2009, 2010; Vasilevski 2006) (Figure 1). The Paleolithic and Initial Neolithic lithic RM sites are situated at altitudes ranging from 250 to 400 m, close to river deposits and to numerous surface outcrops and rocks of jasper. These outcrops are the largest known resource of RM in the island. Massive spalls, sometimes weighing more than 30 kg, detached from natural stationary cores—lonely rocks—were frequently used as blanks, as well as big pebbles from river sides. Thus the makers reduced failures in production by avoiding cracks in the structures of cores. Much of the RM from the upper parts of original layers or rocks has been spoiled by forest fires, water, and frost, so jasper toolmakers preferred already realized blanks—pebbles and boulders (Figure 1B). Most artifacts from the sites include

11 A. A. Vasilevski, Doctor of science, vice-rector of Sakhalin State University. Yzhno-Sakhalinck, Lenina str, 290, Sakhalin State University, Russia; e-mail: vasilevski@bk.ru

V. A. Grishchenko, Ph.D, Head of Educational archaeology museum of Sakhalin State University. Yzhno-Sakhalinck, Lenina str, 290, Sakhalin State University, Russia; e-mail: v.grishchenko@mail.ru

debitage, blanks, anvils and half-prepared and spoiled cores, fragments of blades, side spalls, platform-rejuvenation spalls, flakes, chips, and unsuccessful products. Used tools are rare, but their presence indicates the place was inhabited by people for some time, not just for procuring RM. Sites dating to the middle and late Neolithic and the Paleometal age (4th millennium B.C.–5th century A.D.) are dominated by tools and flakes made of jasper the color of sealing wax.

We distinguish four areas of local lithic RM distribution in the island region for the period 20,000–1500 RCYBP, as shown in Figure 1. The northern area (area 1), including most of northern and central Sakhalin, was the source of local flints and small amounts of jasper used about 20,000–7500 RCYBP. Area 2 corresponds to the Middle Sakhalin jasper area, which was the source of toolstone used throughout the period. These two areas became united after flake industries replaced microblade industries in the middle Neolithic, about 7500–7000 RCYBP. Area 3 is the area of southern Sakhalin, where although toolmakers used jasper from the north and obsidian from the south, local materials were the basis of the industry. This conclusion is based on the results of our excavations of such sites as Ogonky 5 and 8, Olympia 4–5 (late and final Paleolithic), Slavnaya 4, and Starodubskoye 3 (Neolithic), etc. At the same time, some sites characterized by microblade assemblages and dating to 12,000–8000 RCYBP, such as Slavnaya 5, Ogonky 7, Sokol 1, and Starorusskoye 3 and 5 (Figure 1), all late Paleolithic and initial Neolithic, are characterized by a prevalence of obsidian tools. The latter facts confirm the significance of obsidian exchange and possible migrations of obsidian toolmakers from Hokkaido during some periods in the final Pleistocene and early Holocene. Area 4, situated in northern and eastern Hokkaido, is characterized by industries founded on local RM, primarily obsidian. As for the Kurils, obsidians from both Kamchatka and Hokkaido were used (Phillips and Speakman 2009), as was local basalt and jasper.

Despite the significance of obsidian for microblade production, local RM remained a basic necessity even during peaks of obsidian exchange during the period 12,000–8,000 RCYBP. During some periods the jasper outcrops of middle Sakhalin were even more significant than Hokkaido obsidian resources. This has to be assessed to develop a comprehensive understanding of the Stone Age industries of Sakhalin island.

References Cited

- Berseneva, E. V. 2007 Razvedki v verkhovyah reki Vosi v Tymovskom rayone Sakhalinskoy oblasti. In *Archeologicheskie otkrytiya 2005 goda*, edited by Lopatin N.V. pp. 421–422. Institute of archaeology, Russia academy of science, Moscow, (in Russian).
- Glascok, M. D., M. S. Shackley, Y. V. Kuzmin, V. K. Popov, S. V. Gorbunov, A. A. Vasilevski, O. A. Shubina, V. I. Zaicev, and H. Sato 2000 Chapter 5: Geohimiya obsidiana iz archeologicheskikh pamyatnikov Sakhalina I ego istochniki. In *Vulkanicheskie stekla Dalnego Vostoka Rossii: geologicheskie i archeologicheskie aspekty*, edited by Y. V. Kuzmin and V. K. Popov, pp.88–106. Russian Academy of Sciences, Far Eastern Branch, Far Eastern Geological Institute, Vladivostok, (in Russian, with English abstract).

Kimura H. 1992 *Reexamination of the Yubetsu Technique and Study of Horokazawa Toma Lithic Culture*. Sapporo University, Sapporo (English and Japanese).

——— 1998 Obsidian Humans Technology. In *Paleoecologya Pleistocena i kultury kamennogo veka Severnoy Asii i sopredelnyh territoriy*, edited by A.P. Derevyanko, pp. 302–14. Institute of archaeology and ethnography Siberian branch of Russia academy of science, Novosibirsk.

Kuzmin, Y. V., M. D. Glascock, and H. Sato 2002 Sources of Archaeological Obsidian on Sakhalin Island (Russian Far East). *Journal of Archaeological Science* 29(7):741–50.

Mozhaev, A. V. 2009 Stoyanka – masterskaya Skalniy ruchej. In *Sakhalinskaya molodez i nauka*, edited by L.N. Konyhova, pp. 279–80. Sakhalin State University Press, Yzhno-Sakhalinsk (in Russian).

——— 2010 Stoyanki kamennogo veka mestorozdeni yashmy Vostochno-Sakhalinskih gor. Paper presented at the International Symposium “The initial human habitation of the continental and the insular parts of the Northeast Asia”, Yzhno-Sakhalinsk (in Russian).

Phillips, S. C., and R. J. Speakman 2009 Initial Source Evaluation of Archaeological Obsidian from the Kuril Islands of the Russian Far East Using Portable XRF. *Journal of Archaeological Science* 36(6):1256–63.

Vasilevski, A. A. 1996 Zametki o Do i proto istorii ostrova Sakhalin. *Kraevedcheski bulletin* 1:54–79 (in Russian).

——— 2006 Dobycha, pervichnaya obrabotka i dvizhenie sirya v pozdnem paleolite I rannem neolite Sakhalina i Hokkaido (20-7 tys. l.n.). In *Problemy archaeologii ethnographii i antropologii Sibiri and sopredelnyh territoriy*, edited by A.P. Derevyanko, pp. 31–35. Institute of archaeology and ethnography Siberian branch of Russia academy of science Press, Novosibirsk (in Russian).

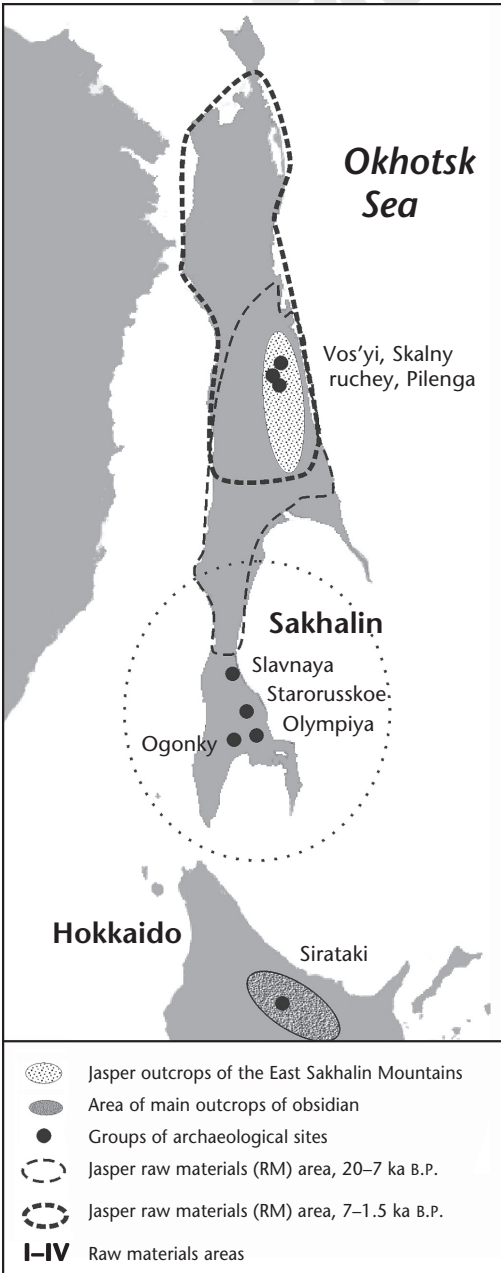


Figure 1. A, The raw-materials areas (I–IV) of Sakhalin and Eastern Hokkaido and the late-Paleolithic/early-Neolithic sites mentioned in the article; B, the jasper core from the late-Paleolithic site Vosyi 5; C, the basalt core from late-Paleolithic site Ogonky 5; D, the obsidian core from late-Paleolithic site Starorusskoe 3.