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サハリンと北海道では、亜寒帯性／温帯性の移行帯における新石器時代の狩猟採集民の適応形態の変遷を捉えることができる。温帯に近い環境にある新石器／縄文時代の北海道の全体像は、①定着的食料採集民社会システムの北方拡大、②持続可能な適応にそぐわない環境からの撤退、③新環境に適応するための、技術や広域的な社会的関係性の獲得／採用あるいは強化、という三つの側面から説明できる。①は、更新世末ベーリング・アレレード温暖期にはすでに認められる。②（リスク回避行動）は、とくに道東北でしばしば認められる。③のような新環境への挑戦のなかには、サハリンと北海道との間における関係性の強化が幾度かあった。しかし、より高緯度で亜寒帯性の生態系にあるサハリンには、北海道に存在する温帯性の北辺地帯とは異なる生業や社会構造の変遷があったため、地域生態系を超えた拡大行為はあまり必要とされなかった。その結果、両島間で考古学的文化は融合しにくかった。温帯性と亜寒帯性の社会生態学的な移行帯における先史人類活動を比較する際、本地域の新石器文化動態は注目に値する。

Key Words：Early Holocene, Neolithic/Jomon Age, Sakhalin, Hokkaido, Environmental Changes, Adaptations
キーワード：完新世初頭、新石器／縄文時代、サハリン、北海道、環境変動、適応形態

1. The Position of the Neolithic Sakhalin/Japanese Archipelago

In Mainland China, Neolithic cultures developed from early on, primarily in regions along the Yangtze River and Yellow River basins, where the population mainly engaged in subsistence farming. In contrast, the population in the Siberian permafrost egion on the Arctic slope selected a nomadic lifestyle, which did not require digging the ground to construct pit-houses. Between these two contrasting regions lies the Circum-Japan Sea Area, comprising the Japanese Archipelago, Russian Far East, Northeast China, and Korean Peninsula. The region is characterized by similar climatic conditions, because of the effect of the temperate monsoon blowing from the Pacific to the west. Overall, they shared similar subsistence and settlement strategies regarding common food resources (e.g., Onuki 1992).

The eastern Eurasian zone can be divided into three sub-regions according to latitude or climatic zone. Each sub-region represents a characteristic Neolithic culture, namely agricultural Neolithic, Far East Neolithic, and Siberian Neolithic. Northeastern Hokkaido and Sakhalin are part of Far East Neolithic, but also in a transition zone to the adjacent Siberian Neolithic region in the north.

The Japanese Archipelago is located in an area with a temperate humid climate, and is

characterized by rugged mountainous terrain, creating a diverse mosaic of local ecological patches. The basis of today's landscape can be traced back to the early Holocene, when it formed gradually during the period of global warming. Warming during the early Holocene peaked in c. 8 ka cal BP, late Early Jomon, at the peak of the Jomon transgression. This was followed by the Holocene Climatic Optimum, when human activities intensified. The number of archaeological sites increased in Northeast Japan, inner bay fishing became active, and a "Jomonized" settlement structure began to form (e.g., Fukuda 2015c).

Similar to the Japanese Archipelago, sociocultural changes occurred during the early Holocene warming period in Lower Amur and Primor'e in the Russian Far East. This global warming was considered the driving force of the Neolithization of human activities in the Far East (see, Popov ed. 2008). However, climate change was not necessarily homogeneous over different regions. Specifically, there was a significant difference between the north and south: in high latitude regions, warming was delayed, as was Neolithization. Both in the Japanese Archipelago and Russian Far East, temperate environments became a prerequisite for the continuation of the Neolithic life system.

In early Holocene, the northern region of Sakhalin north of the c. 50° north latitude, the impact of warming was less significant; thus, people seemed to have practiced nomadic lifestyles — common in Upper Paleolithic — and had no pottery or pit-dwellings. On the other hand, in Hokkaido (especially the northeastern region) and southern Sakhalin located in the northern area of the Far East, the structure, which is categorized as two types of survival strategies, was integrated. One was the temperate climate sedentary style common to the Honshu, in which people adopted sedentary lifestyles and consumed and stored nuts and salmon/trout. The other was the northern nomadic/roaming behavioral style. In other words, up to c. 8 ka cal BP, human adaptations suitable to the subarctic environment and those in temperate environments were distributed competitively in the eastern region of the pan-Okhotsk.

Because Sakhalin is located at a higher latitude than Hokkaido, it was difficult to adopt the temperate climate lifestyle, which prevented the spread of Neolithic cultures in the area from regions of temperate climate. This is not limited to phenomena in early Holocene. In the Climatic Optimum, the temperate climate living system, which extended from Honshu to Hokkaido, did not easily spread to the ecosystem of Sakhalin, which offered little benefit for occupation. The fact that Jomon cultures were established without subarctic environmental adaptations is considered justified by the almost non-existence of Jomon sites in Sakhalin (e.g., Fukuda 2015b; Fukuda & Grishchenko 2016).

The following paragraphs discuss the general situation of Hokkaido, located in a semi-temperate climate, in terms of three aspects: (1) northern expansion of a sedentary food gathering social system, (2) retreat from an unfavorable environment unsuited for sustainable adaptations, and (3) obtaining/adopting or strengthening technology or large-scale social networks for adaptation to the new environment.

2. The Adaptations to Northern Environment of the Hokkaido Jomon Culture

Regarding (1), when living conditions improved as a result of climate warming, the number of settlement sites increased in eastern Hokkaido, which promoted the generation of a unique cultural dynamism. This is considered the basic mechanism of the rise and fall of the Hokkaido Jomon culture, and is noted as early as the warming period at the end of Pleistocene. An excavation at the Taisho-3 site in Obihiro city yielded complex pottery and stone tools (Kitazawa & Yamahara eds. 2006), indicating human occupation here. Unlike the activity patterns expected in the Upper Paleolithic period, people seemed to have engaged in activities in a semi-sedentary manner, where they repeatedly occupied. This pattern was also recognized in wide areas in Honshu, particularly eastern Japan during Incipient Jomon.

After the final cooling in the glacial period in 14.6 - 14 ka cal BP, the climate gradually recovered, and an era of warmth began abruptly in the Bolling-Allerod period (e.g., Anzai 2014). The origin of nail-marked pottery from Taisho-3 site can be traced back to the Incipient Jomon pottery series in Honshu. In the interior of the continent, the Osipovka culture spread in the region where the Amur and Ussuri Rivers converge (e.g., Shevkomud & Yanshina 2012). While pottery appeared, no relation with the situation in Hokkaido has been found. In Sakhalin, which is located between the two regions, no pottery

has been found contemporaneous with that discovered (e.g., Vasilevski et al. 2008). Microblade industries were evident at the sites located in Hokkaido, Sakhalin, and the Amur River Mouth Area, all of which associate with the date of the Taisho-3 site. In Sakhalin and Hokkaido, where warming was not as significant as in Honshu, excepting some areas suited for adaptations, the overall environment might have been unfavorable for groups that needed a temperate climate lifestyle. In Incipient Jomon, the sedentary food gathering population expanded from Honshu to Hokkaido or Sakhalin, where presumably groups with upper Paleolithic industries occupied areas not favored by those from temperate climate regions.

After c. 10 ka cal BP, the climate warmed and human activities intensified in early Holocene, including the expansion of the living environment in eastern Hokkaido and emergence of the Tenneru-Akatsuki type pottery tradition (Phase 1). Although the earliest and latest possible dates are not clear, at least the time period of c. 10¬9 ka cal BP is included in Phase 1 (Kunikita 2014). Settlement sites and artifacts are widely distributed in southeastern Hokkaido on the Pacific Ocean. They appear to have scattered in patches in areas suited for living. In the coastal region of Okhotsk Sea, located further north, several sites have been found in the southern part of the region. During this period, the Okhotsk region may not have been suited for the Tenneru-Akatsuki type of occupation. At the Yachiyo-A site (Obihiro city), 79 pit-houses and 28 storage pits were found (Kitazawa ed. 1990). The result of tree species identification of carbonized wood pieces, which are considered either part of a dwelling construction or firewood material, suggest that the site was surrounded by broad-leaved deciduous trees and people intensively used tree resources in the settlement. Large-scale settlements like this were widely distributed over Japan from southern Kyushu to southwestern Hokkaido in Initial Jomon. It is considered that the impact caused by climate warming in other parts of Japan finally reached southeastern Hokkaido during Phase 1. On the other hand, few fragments of Tenneru-Akatsuki type pottery were found at the Slavnaya-4 site with two house-pits and 14C dates, which is close the period of Phase 1, in southern Sakhalin (Grishchenko 2011). The existence of a different stone industry suggests that this occupation is different from the one in southeastern Hokkaido. The similarity between the pottery techniques (shell impression) did not relate with the expansion of archaeological culture during Phase 1.

In Phase 2 (c. 9¬8.5 ka cal BP), Higashi-Kushiro I type, Otanoshike type, and Numajiri type pottery, and some other traditions spread over the Pacific Coast Region of eastern Hokkaido. The distribution of sites producing Numajiri type pottery expanded further north than in Phase 1, when climate warming seemed to have advanced further. To the north, these sites have thus far been found in northern Hokkaido, and the distribution may have expanded to Sakhalin. Higashi-Kushiro I type pottery is characterized by a wavy rim decorated with small pointed protrusions (*Shohajo Koen*). Some Numajiri type pottery excavated from Ozora-cho Chuo-A site (Yonemura 1997) is uniquely shaped with a square rim. Both features are also seen in pottery produced by the Soni culture in the Middle Neolithic of Sakhalin.

Many Soni culture sites are located in Southern Sakhalin and Moneron Islet (one site). A similar archaeological phenomenon spread north in Sakahlin Island as a result of climate warming (Vasikevskij 2008). The date of the culture is no earlier than c. 7.5 ka cal BP (Vasilevski & Grishchenko 2016), which coincides with the development of Phase 4 (Higashi-Kushiro II type) in eastern Hokkaido (Fukuda 2015b). The origin of Soni culture and its pottery tradition have not been identified. Moreover, the archaeological evidence that shows the transition process between the culture of the former Early Neolithic group and the Early Middle Neolithic Soni group has not been identified. Recent discoveries at the settlements of Ado-Tymovo-2 (Yanshina et al. 2012; Fukuda et al. 2015b; Grishchenko et al. 2016, in press) and Levyi Ruchey (Grishchenko 2015) in Northen Sakhalin may provide answers in the future. This tradition of pottery in Phase 3 (c. 8.5–8 ka cal BP) might have been passed down the generations and later developed as "Soni-type" pottery (Vasilevskij 2008; Vasilevskij & Grishchenko 2016). While both the Soni type and its former pottery traditions are unique to Sakhalin Island (e.g., Vasilevski et al. 2010), it has been pointed out that the Soni type has characteristics in the rim decoration technique similar to those of Jomon pottery (e.g., Kobayashi 2006; Vasilevskij 2008). Because no such decoration has been found in other pottery groups in Sakhalin or adjacent to the Lower Amur region from approximately the same time, the

possibility of Hokkaidoan influence cannot be discounted. That is, groups living near the Soya/La Pérouse Strait in Phase 2 may have adopted the pottery-making techniques of people in eastern Hokkaido. Furthermore, the expansion of an exchange network associated with the northward expansion of the groups of eastern Hokkaido as a result of warming may have played an important role in the pottery characteristics mentioned above. Although there is a temporary gap between Phases 2 and 4, it is likely that the materials from South Sakhalin sites found in the future will give us clues as to the relationship between Hokkaido and Sakhalin. Throughout the time, Soni type pottery retained strong local characteristics. This may imply that the Jomon population did not settle and/or expand in Sakhalin or may not have needed to do so.

Aspect (2) can be considered as risk-averse behavior. Not only early Holocene, this type of behavior repeated in various periods in the Neolithic history of eastern Hokkaido. Risk-averse behavior has been noted for the events in early Late Jomon and early Final Jomon, when the number of sites that had existed before dramatically decreased (e.g., Fujimoto 1979; Fukuda 2015b). This is not caused by "biased distribution" arising from the scarcity of excavated sites. Factors contributing to the decreased number of Jomon settlements in the Japanese Archipelago include wide and large-scale disasters (e.g., volcanic eruptions, earthquakes, and tsunamis), and the emergence of inhabitable areas consequent to unfavorable climate changes such as cooling. The Japanese Archipelago stretches in a north-south direction, creating a diverse mosaic of local ecological patches; consequently, land could have become inhabitable for various reasons. When cooling occurred in the Okhotsk Sea area of eastern Hokkaido, the effects likely became more significant than in other parts of the archipelago. The areas where drift ice reaches the shore have a relatively dry climate all year, and extreme cooling of the climate forced residents to endure harsh and unfavorable conditions, especially to retain the large settlement system in (1). A sudden change in the distribution of pottery from eastern to central Hokkaido suggests that people may have migrated to habitable areas as groups.

There are also examples of successful adaptations in harsh environmental conditions. Coping with the new conditions caused by cooling, especially with changes in subsistence, strengthened the relationship between Sakhalin and Hokkaido, which played a significant role. In c. 8.4¬8 ka cal BP, there was rapid growth in the blade arrowhead industry, which required a special and sophisticated production technique, mainly in eastern Hokkaido (Phase 3). In recent years, there have been an increasing number of reports on radiocarbon dating of food residues on pottery (Kunikita 2014; Morisaki et al. 2016), and the compilation and examination of these dates suggest that new types of Numajiri type and Higashi-Kushiro I type pottery (Phase 2) were distributed slightly earlier than 8.2 ka cal BP, while the old type of Urahoro pottery was distributed slightly later than 8.2 ka. The blade arrowhead industry has been found in association with Urahoro type pottery. Phases 2 and 3 are divided by the 8.2 ka event (Bond et al. 1997), the largest-scale cooling event that occurred in the northern hemisphere during the Holocene.

A paleoclimatological study of ice cores in Greenland shows that the event lasted 150 to 160 years (e.g., Kobashi et al. 2007; Tomas et al. 2007). This cooling event, which also occurred in Hokkaido, significantly affected strategies to adapt to local ecosystems. Blade technology for the blade arrowhead industry was commonly used in the cold northern environment and existed in Sakhalin and the Eurasian continent during the parallel period of Initial Jomon (e.g., Morisaki & Sato 2015). In eastern Hokkaido, bifacial and flake tools were used in Phases 1 to 2, but were replaced by the blade industry in Phase 3 when cooling started. It has been suggested that at this point, either people or technology came to eastern Hokkaido from Sakhalin; however, this change was temporary and did not lead to changes in subsequent history. The excavations conducted in Slavnaya-5 (Grishchenko 2011; Fukuda et al. 2015a) and Yubetsu-Ichikawa (Fukuda ed. 2015), which yielded the blade arrowhead industry, demonstrated that blade technology was continuously used in eastern Hokkaido after climactic recovery in the latter half of Phase 3, until finally disappearing in Phase 4, the peak of Jomon transgression (Fukuda 2015a). About the same time as the extinction of the blade industry, the bifacial industry was revived. The production and technology of blades declined, because the tools were not suitable for warm environments. Technologies for cold adaptation disappeared gradually, corresponding to the need for the technology in the society of each area (Fukuda, in press). It is considered that a series of activities involved in lithic material procurement,

production, and use of the blade arrowhead industry permeated throughout the local society in Hokkaido; therefore, it may have been difficult for some communities to completely stop using the technology for a while, even though it was not suited to the new environment (ibid).

3. Discussion

The Hokkaido Jomon culture is a temperate climate, Japanese Archipelago type Neolithic culture, continuous to Honshu. Sakhalin, which is located at a high latitude and has a subarctic ecological system, had subsistence activities and a transformed social structure different from those of Hokkaido, which is located on the northern edge of the temperate climate zone. The culture did not seem to have expanded across the boundaries of climate zone or local ecosystems, which were closely related to the basic needs of the people's lives. It also did not achieve social development in other areas. Such processes might not have been needed. It is considered that because adaptation strategies differed greatly between Sakhalin and Hokkaido, fusion of archaeological cultures did not occur throughout the Neolithic age.

In the Epi-Jomon period (from c. 2.5 ka cal BP), while the aspect of (1) still applied, (2) was becoming less obvious. This can probably be attributed to the sustainable success of aspect (3), which was made possible by the unique cultural dynamism of Hokkaido Epi-Jomon. The authors consider that the development of the base of the Ainu Culture in Hokkaido began in the latter half of Final Jomon, when settlements started to grow. As a result of the strengthening of strategies to adapt to the cold, the lifestyle and social organization suitable for Hokkaido's particular environment emerged, which may be considered an epoch in the prehistory of Hokkaido (Fukuda 2015b).

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References

Anzai, Masahito

2014 *Kikohendou to Jomon Bunka no Henka*. Douseisha: Tokyo. (In Japanese)

Bond, G., Showers, W., Cheseby, M., Lotti, R., Almasi, P., deMenocal, P., Priore, P., Cullen, H., Hajdas, I, Bonani, G.

1997 A Pervasive Millennial-scale Cycle in North Atlantic Holocene and Glacial Climates. *Science* 278: 1257-1266.

Fukuda, Masahiro

2015a New Insights from the 2013 Archaeological Excavations at the Initial Jomon Settlement of Yubetsu-Ichikawa. In Fukuda, M. (ed.), *Archaeological Study on the Neolithization/Jomonization Process in the Northern Boundary Region of the Japanese Archipelago: Research of the Yubetsu-Ichikawa Site*.pp .157-160. University of Tokyo: Kashiwa.

2015b Kanshinsei Nihonretto Hokuhen'iki ni okeru Ontaisei-teichakumin no Kanreichi Tekio-shi: Hokkaido no Jomon Bunka to "Sakhalin Route". In Takase, K. (ed.), *"Sakhalin-Chishima Route" Saiko*. pp: 3-33. Hokkaido Archaeological Society. (In Japanese).

2015c Chapter 7: Tohoku Asia no naka no Tohoku Senshi Bunka. In Akoshima, K. (ed.), *Kita no Genshi Jidai*. pp. 204-231. Yoshikawa Kobunkan Inc. : Tokyo (In Japanese)

(In press) Sekijin-giho wo mochiita Hoppo Jomon Shudan to 8.2 ka Kanreika Event. In Anzai, M. (ed.), *Riron-kokogaku no Jissen*. Douseisha. : Tokyo (In Japanese)

Fukuda, Masahiro (ed.)

2015 *Archaeological Study on the Neolithization/ Jomonization Process in the Northern Boundary Region of the Japanese Archipelago: Research of the Yubetsu -Ichikawa Site*. University of Tokyo: Kashiwa. (In Japanese)

Fukuda, Masahiro and Grishchenko, Vyacheslav A.

2016 The Adaptation of Temperate-sedentary Food Gatherers in the Subarctic Environment. *The Eighth World Archaeological Congress, Book of abstracts*: 313. WAC-8 Kyoto Local Organizing Committee.

Fukuda, M., Grishchenko, V. A., Vasilevskii, A. A., Onuki, S., Kumaki, T., Kunikita , D., Morisaki, K., Sato, H., Mozhaev, A. V., Pashentsev, P. A., Peregudov, A. S., Yakushige, M., Natsuki, D., Koroku, A.

2015a A Report on Archaeological Excavations at the Early Neolithic Site of Slavnaya-5, Sakhalin Island, Russia. *Bulletin of the Department of Archaeology, Faculty of Letters, The University of Tokyo* 29: 121-146. (In Japanese with English abstract)

Fukuda, M., Grishchenko, V. A., Vasilevskii, A. A., Onuki, S.,

Sato, H., Kumaki, T., Kunikita, D., Peregudov, A. S., Uchida, K., Morisaki, K., Yakushige, M., Natsuki, D.,Yamashita, Y.

2015b Sakhalin Chubu Ado-Tymovo Isekigun no Kokogaku-teki Chosa (2014). In *Proceeding of the 16th Annual meeting of the RANA:* 35-42. University of Tokyo: Tokyo. (In Japanese)

Fujimoto, Tsuyoshi

1979 *Hokuhen no Iseki.* Kyoikusha: Tokyo. (in Japanese)

Grishchenko, Vyacheslav A.

2011 *Rannij Neolit ostrova Sakhalin.* Sakhalin State University: Yuzhno-Sakhalinsk. (In Russian)

2015 *Spasatelnye Archaeologicheskie Raskopki Punkta 2, Poseleniya Levyi Ruchei 2, v Nogliksкom rayone Sakhalinskoi oblasti (Nauchnyi Otchet).* Sakhalin State University: Yuzhno-Sakhalinsk. (In Russian)

Kitazawa, Minoru (ed.)

1990 *Obihiro Yachiyo-A Iseki.* Obihiro City Board of Education. : Obihiro (In Japanese).

Kitazawa, Minoru and Yamahara, Toshiro (eds.)

2006 *Obihiro Taisho Isekigun, 2.* Obihiro City Board of Education. : Obihiro (In Japanese)

Kobashi, T., Severinghaus, J. P., Brook, E. J., Barnola, J. M., Grachev, A. M.

2007 Precise Timing and Characterization of Abrupt Climate Change 8200 Years Ago from Air Trapped in Polar Ice. *Quaternary Reviews* 26: 1212-1222.

Kobayashi, Tatsuo

2006 Fugoppe Dokutsu Hekiga no Genkyodo. *Hoppo Hakubutsukan Koryu* 18: 1. (In Japanese)

Kunikita, Dai

2014 Sekijinzoku Sekkigun no Nendai. In Onuki, S. and Fukuda, M. (eds.), *Kan-Nihonkai Kitakairo ni okeru Kanshinsei Shoto no Yoso Kaimei: "Sekijinzoku Bunka" ni kansuru Aratana Chosa Kenkyu.* pp. 25–34 University of Tokyo: Tokyo (In Japanese).

Morisaki, Kazuki and Sato, Hiroyuki

2015 Hunter-gatherer Responses to Adrupt Environmental Change from the Terminal Pleistocene to the Early Holocene in the Lower Amur Region. In Sazelova, S., Novak, M., Mizerova, A. (eds.), *Forgotten Times and Spaces: New Perspectives in Paleoanthropological, Paleoetnological and Archeological Studies.* pp.418–434. Institute of Archaeology of the Czech Academy of Sciences, Masaryk University: Brno.

Morisaki, K., Kunikita, D., Sato, H.

2016 Holocene Climatic Fluctuation and Lithic Technological Change in Northeastern Hokkaido (Japan). *Journal of Archaeological Science: Reports.* DOI: 10.1016/j.jasrep.2016.04.011.

Onuki, Shizuo

1992 Kyokuto no Senshi Bunka. *Kikan Kokogaku (Archaeology Quaterly)*, 38: 17-20. (In Japanese)

Popov, Aleksander. N (ed.)

2008 *Neolithic and Neolithisation in the Japanese Sea Basin: Individual and the Historical Landscape.* Far East University: Vladivostok. (In Russian and English)

Shevkomud, Iror' Ya. and Yanshina, Oksana V.

2012 *Beginning of the Neolithic in the Amur River Basin: the Goncharka-1 site.* Kunstkamera: Saint-Petersburg. (In Russian with English abstract).

Thomas, E. R., Wolff, E. W., Mulvaney, R., Steffensen, J. P., Johnsen, S. J., Arrowsmith, C., White, J. W. C., Vaughn, B., Popp, T.

2007 The 8.2 ka Event from Greenland Ice Cores. *Quaternary Science Reviews* 26: 70-81.

Vasilevskij, Aleksandr A.

2008 Soni: Kul'tura Srednego Neolita na Ostrove Sakhalin. In Popov, A. N. (ed.), *Neolithic and Neolithisation in the Japanese Sea Basin. Individual and the Historical Landscape.* pp. 36-48. Far East University: Vladivostok. (In Russian)

Vasilevskij, Areksandr A. and Grishchenko, Vyacheslav A.

2016 Khronologiya, Peliodizatsiya i Osnovye Priznaki Kul'tury Soni (Nachalo Srednego Heolita Ostrova Sakhalin) *Vestnik Sakhalinskogo Muzeya* 23: 30-46. Sakhalin Regional Museum: Yuzhno-Sakhalinsk. (In Russian)

Vasilevski, A. A., Grischenko, V. A., Orlova, L. A.

2010 Periods, Boudaries, and Contact Zones in the Far Eastern Insular World of Neolithic. *Archaeology Ethnolog y & Anthropology of Eurasia* 38-1: 10-25.

Yonemura, Tetsuei

1997 *Memanbetsu-cho Chuo-A Iseki Hakkutsu-chosa Hokokusho.* Memanbetsu Town Board of Education: Memanbetsu (Ozora)-cho. (In Japanese)

Yanshina, O. V., Gorbunov, S. V., Kuzmin, Y. V.

2012 O Rannem Heolite Sakhalina: Stoyanka Ado-Tymovo-2. *Russia and the Pacific* 2012-2: 31-49. (In Russian)