

OSTEOLOGICAL STUDIES OF ARCHAEOLOGICAL MATERIALS FROM BOHAI SITES IN RUSSIA. A STATE OF THE ART

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ABSTRACT

The history of the Bohai studies in Russia is more than 150 years old. During those years Russian scholars have produced a number of interesting and valuable publications and combine use of written sources with study of the archeological sites. But for a long time they did not pay attention to bone remains. Only in the 1970s did Russian specialists begin to study osteological materials and this research gave a great deal of information about agriculture and other aspects of the Bohai people. In spite of this, osteological studies in the Russian Far East remain unknown in the Western academic world in many aspects, largely because almost all Russian scholars usually do not publish in English.

KEYWORDS

Archaeology, Osteology, Bohai, Far East, East Asia.

CAPITALIA VERBA

Archeologia, Osteologia, Bohai, Oriens Extremus, Asia Orientalis.

1. Introduction

The state of Bohai (in Russian: *Бохай*, in Korean: 발해, in Chinese: 渤海) existed in what is now the Russian Maritime Region (*Приморский край*), North Korea and Northeastern China from the late 7th to the early 10th centuries.¹ The study of the Bohai people in Russia began in the period 1850 when Nikita Bichurin -Archimandrite Iakinf- (*Никита Бичурин -архимандрит Иакинф-*), Viacheslav Gorskiy (*Вячеслав Горский*) and Vasilii Vasil'ev (*Василий Васильев*) translated several Manchurian, Chinese and Korean texts about the Jin Empire and Bohai population.

In spite of the fact that Russian and Soviet archaeologists found and excavated many Bohai sites (more than 100), analyzed many archaeological materials and published, in the opinion of South Korean scholars more than 300 works to 2001,² they did not pay much attention to osteological materials. The first works on osteological studies were published by Ernestina Vital'evna Alekseeva (*Эрнестина Витальевна Алексеева*), Vladislav Innokent'evich Boldin (*Владислав Иннокентьевич Болдин*) and Lyudmila Efimovna Semenichenko (*Людмила Ефимовна Семениченко*) in the 1980s. In these works Soviet scholars considered fragments of bones of animals which had been found in Konstantinovskoe, Nikolaevskoe-II, and Novogordecvskoe sites.³ Shavkunov (*Эрнст Владимирович Шавкунов*), Boldin and Semenichenko studied archaeology, but the major area of study by Alekseeva was paleozoology.

1. Goldobin, Alexei Mihaylovich (*Голдобин, Алексей Михайлович*); Goldberg, David Isaakovich (*Гольдберг, Давид Исаакович*); Petrushevskij, Iia Petrovich (*Петрушевский, Илья Петрович*), eds. *История стран зарубежной Азии в средние века* (The history of states of foreign Asia in the Middle Ages). Moscow: Nauka, 1970.

2. Han Gju-cheol (한규철/韓圭哲). „동북공정의 발해 연구 결과에 대한 평가“ (The estimation of research results of Bohai in Northeastern), *중국의 동북공정 연구 성과에 대한 분석과 평가* (Estimation and analysis of results of the Northeastern areas of China). Seoul: Koguryo yeongyhwa, 2006: 65-66.

3. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Shavkunov, Ernst Vladimirovich (*Шавкунов, Эрнст Владимирович*). „Дикие и домашние животные Шайгинского городища“ (The wild and domesticated animals of Shajginskoe site), *Материалы по древней и средневековой археологии юга Дальнего Востока СССР и смежных территорий* (Materials of the ancient and medieval archaeology of the Soviet Far East and neighboring territories), Ernst Vladimirovich Shavkunov (*Эрнст Владимирович Шавкунов*), ed. Vladivostok: Akademiia nauk Soyuzu Sovetskikh Socialisticheskikh Respublik, 1983: 70-79; Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). „Материалы об охоте и животноводстве у населения бохайского городища Николаевское II (Приморье)“ (Materials about hunting and cattle-breeding of the population of Bohai in the ancient town Nikolaevskoe-II [Russian Maritime Region]), *Методы естественных наук в археологическом изучении древних производств на Дальнем Востоке СССР* (Methods of the natural sciences in archaeological research of the ancient industries in the Far East), Ernst Vladimirovich Shavkunov (*Эрнст Владимирович Шавкунов*), ed. Vladivostok: Dal'nevostochnoe otdelenie Akademii nauk Soyuzu Sovetskikh Socialisticheskikh Respublik, 1986: 77-85; Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). „Остатки животных из средневековых слоев Новогордеевского селища и городища“ (Remains of animals from the medieval layers of Novogordecvskoe rural settlement and ancient town), *Новые материалы по средневековой археологии Дальнего Востока СССР* (New materials of the medieval archaeology of the Soviet Far East), Ernst Vladimirovich Shavkunov (*Эрнст Владимирович Шавкунов*), ed. Vladivostok: Dal'nevostochnoe otdelenie Akademii nauk Soyuzu Sovetskikh Socialisticheskikh Respublik, 1989: 80-85.



In this article I devote my research to osteological studies at 1980-1990s, because this was the period in which the Russian researchers drew their major attention to this subject.

2. Osteological studies of materials from Novogordecvskoe sites

The Novogordecvskoe ancient settlement was discovered by Fedor Fedorovich Busse (*Федор Федорович Буссе*), chairman of Society for the study of the Amur region (*Общество изучения Амурского края*) in 1887. Ernst Vladimirovich Shavkunov was the first archeologist who excavated that site. He worked in Novogordecvskoe in 1965-1966 and discovered that this site had several ancient and medieval cultural layers. During 1970-1973, Lyudmila Efimovna Semenichenko excavated medieval layers of the Novogordecvskoe site and collected many bones of animals.⁴ In the period 1986—1987, Vladislav Innokent'evich Boldin continued his study of the Novogordecvskoe site and excavated other osteological materials⁵

The ancient town of Novogordecvskoe is situated close to a village which bears the same name. This is a multilayer site which includes two Bohai layers. The rural settlement of Novogordecvskoe is situated near the Arsen'evka river. It has two layers. During excavations of these sites in the period 1972-1973 Soviet archeologists collected a number of artifacts and remains, including 5,500 animal bones or bone fragments.⁶

In Bohai sites, Soviet specialists excavated bones of fox, bear, badger, forest pig, otter, sable, marten, weasel, elk, spotty deer, Manchurian hare, White hare, beaver, squirrel, raccoon dog et cetera and bones of domesticated animals –dog, horse, pig, bull and fowl. In Bohai settlements the Soviet scholars collected 318 fragments of bird bones (bausond goose, sea eagle white-tailed, pheasant, black grouse, duck et cetera) fish (including river fish, sazan fish, Amur catfish et cetera)

4. Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). *Земледелие и животноводство у бохайцев и чжурчжэней Приморья* (The Bohai and Jurchen's agriculture and cattle-breeding). Novosibirsk: Sibirskoe otdelenie Akademii nauk Soyuzu Sovetskikh Socialisticheskikh Respublik, 1986: 86-87.

5. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 80-81; Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Итоги изучения бохайского слоя на Новогордеевском городище в 1987 году" (Results of studies of Bohai layer in Novogordecvskoe site in 1987), *Новые материалы по средневековой археологии Дальнего Востока СССР* (New materials of the medieval archaeology of the Soviet Far East), Ernst Vladimirovich Shavkunov (*Эрнст Владимирович Шавкунов*), ed. Vladivostok: Dal'nevostochnoe otdelenie Akademii nauk Soyuzu Sovetskikh Socialisticheskikh Respublik, 1989: 86-91.

6. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 80.



and shells of river mollusks. Moreover Alekseeva found bones of the Far Eastern turtle.⁷

However many bones had been broken by humans or partially destroyed by small animals. Alekseeva analyzed the collected materials and concluded that some bones could not be identified. For example, Soviet specialists found bones which belonged to dogs, bulls or bears, but could not identify what kind of animals these were. In Bohai, layers of the bones of wild animals consisted of 23,2-26 % domesticated animals and 74-76,8 % from all collected osteological materials. In Jurchen sites we can see another statistic: 86,9% were domesticated and 13,1% were wild animals.⁸

In Bohai sites among osteological materials, the majority of bones belonged to pigs, but in Jurchen sites the majority belonged to horses.⁹ In the opinion of Soviet specialists this information can explain features of agriculture of Bohai and Jurchen society in the modern Primorye region.

Soviet archeologists found interesting materials among the bones of wild animals. For example, Alekseeva identified the horn of northern deer and bones of gopher¹⁰ As is known, northern deer live in Siberia and don't live in the south or central part of the Russian Far East and the closest region to Primorye where gophers live is Mongolia. Certainly the Jurchen could have come to hunt in the Southern part of Siberia and returned with horns of northern deer, but they could not hunt gophers in Mongolia, because the gopher is too small an object for hunting expeditions and the Jurchen did not have any reason to come back to modern Primorye with bones of such small animals.

So we can conclude that in the medieval period of history of the Primorye region small animals like gophers could have migrated into Primorye from the Mongolian steppe. Usually gophers live on the steppe and recently these animals have not existed in the Russian Far East, but collected materials show that gophers can live in forest areas.

Another discovery in Novogordecievskoe site was the bones of a tiger. This tiger had short paws,¹¹ which is not usual for Amur tigers. Soviet archeologists excavated interesting bones (almost twenty), but could not identify them –we can clearly

7. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 82-83.

8. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 81.

9. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 82-84.

10. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 81, 83.

11. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 81.



conclude that these animals were related to the dog and wolf, but had many differences from them. Alekseeva thought that these animals were a kind of household dog.¹² However we must note that hunting played a big role in the life of Bohai people and they could not have had decorative animals. So this animal could be either wild or a domesticated hunting animal.

Soviet archeologists paid much attention to a number of osteological materials in the Novogordecvskoe ancient town and settlement. Alekseeva thought that the Bohai settlement and the town of Novogordecvskoe sites could not have existed at same time, because the settlement was less than twice the size of the town, but in the town the researchers found 9% of the number of all bones in Bohai sites, but in the settlement, 91%.¹³ In the settlement Soviet scholars excavated osteological remains of 40 kinds of animals, but in town- only 11 kinds.

Therefore Alekseeva believed that the Bohai settlement existed in the period when there were forests and lakes in this district in which the Bohai population could fish or hunt many animals. But the Bohai town existed in a later period, when few animals could live around the site.¹⁴ However Boldin and Shavkunov did not agree with the opinion of Alekseeva. Boldin thought that the Bohai town was an industrial center; therefore Soviet archeologists could not excavate many bones of animals. Shavkunov believed that the Bohai settlement was a Sogdian colony (people from Middle Asia). According to the opinion of this Soviet scholar, in the Novogordecvskoe settlement the Sogdian people prepared fur of animals for trade in Middle Asia.

In spite of this discussion between Soviet specialists, we can conclude that the Novogordecvskoe sites gave interesting information about the agriculture of Bohai people and the Jurchen. The bones of new kinds of animals (gopher, the animal-like dog, and unknown kind of tiger) from the Primorye region gave important information about fauna in the medieval period.

3. Osteological studies of materials from the Konstantinovskoe site

The Konstantinovskoe rural settlement is located in the southwestern part of the Primorye region near Razdol'noe river. The closest village, Konstantinovka (in the district of Oktiabr'skij), is situated two kilometers from the site.

12. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 83-84.

13. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 84.

14. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневековых слоев Новогордеевского селища и городища...": 85.



The Konstantinovskoe site has several layers, from the Neolithic period to the period of the Korean village, which existed in the 1930s. Russian archaeologists excavated part of this site (Bohai and Jurchen layers) in 1992-1993 and found close to 3,000 bones.¹⁵ Russian specialists identified 85,5% of all osteological materials as bones of mammals; the other 14,5% belonged to birds, fish et cetera. Information about bones of domesticated and wild animals differs greatly from other sites in the same period: 55,3% were bones of domesticated animals and 44,7% were bones of wild animals. Russian scholars considered bones of many kinds by wild animals like weasels (*Mustela sibirica* Pall) and some kinds of marten (*Mustela vison* Briss, *Martes flavigula* Bodd), badger (*Meles meles*), otter (*Lutra lutra*), wolf (*Canis lupus*), red wolf (*Cuon alpinus*), fox (*Vulpes vulpes*), black and brown bear (*Ursus thibetanus* G. Cuv. and *Ursus arctos*), snake (*Serpentiniidae*), goat (*Caprinae*), some kinds of deer (*Moschus moschiferus*, *Cervus nippon* Temm, *Servus elaphus*), wild pig (*Sus serofa*), roe (*Capreolus caprealus*), leopard (*Felis pardus*), some kinds of birds (Domesticated kind: *Gallus householdus*; wild kind: *Lirurus tetrrix*, *Falci pennis Hartl*, *Pnasianus colchicus*, *Anser fadalis*, *Circus melanoleucus* Penn, *Accipiter nisus*, *Otis tarda*, *Corvus macrorhynchos* Wagl), turtle (*Tryonix*), shells of three kinds of fresh-water mollusks, sea mollusks, et cetera.

The most interesting artifacts were the bones of *Pinnipedia*, which belonged to a rare animal in the Primorye region. We must note that the Konstantinovskoe site is located 200 kilometers from the sea coast and it was only at this site that Russian scholars found bones of *Pinnipedia*, but could not identify what kind of animal this was.¹⁶

Certainly Russian scholars analyzed domesticated animals in the Konstantinovskoe rural settlement, for example, the bones of kinds of dog (*Canidae*), horse (*Equus caballus*), pig (*Suidae*) and bull (*Bovidae*). Moreover for the first time at Primorye sites the archaeologists found bones of parasitic animals, like mice (*Microtus*) and rats (*Rattus*). Alekseeva compared bones of domesticated (pig, dog) and wild (fox, deer) animals and concluded that medieval animals differed greatly from modern animals in bone structure.¹⁷

Results of excavation show the changes in agriculture in this region. For example, Russian specialists, on the base of their analysis of osteological materials, stated that in the Konstantinovskoe rural settlement, in the earliest layer, dog meat played a big role, but in the late layer the situation was changed (medieval inhabitants became eaters of pig). So pig-breeding developed and Bohai people began to use

15. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Остатки животных из средневекового селища Константиновское-1" (Remains of animals from the medieval rural settlement Konstantinovskoe-1), *Медиевистские исследования на Дальнем Востоке России* (Medieval studies in the Russian Far East), Ernst Vladimirovich Shavkunov (Эрнст Владимирович Шавкунов), ed. Vladivostok: Dal'nauka, 1994: 38.

16. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Остатки животных из средневекового селища Константиновское-1...": 40-42.

17. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Остатки животных из средневекового селища Константиновское-1...": 45.



dogs mainly as hunting and sentry animals. Certainly inhabitants of this site ate dogs, but not in large numbers like one or two centuries before.

But we must note that tribes, who had existed in this area before Bohai people, had a long-time tradition of pig-breeding. In their culture we can see elements of the culture of the Mohe, who preferred pig-breeding. Therefore we cannot make conclusions about Bohai and Jurchen agriculture on the basis of materials from one archaeological site.

We can see the same situation in horse-breeding. In the earliest period, Russian scholars found horse bones, which consisted of 14,3% of all osteological materials from this layer, but in the late layer the remains of horse comprised only 3,1%. All bones belonged to adult animals. This information confirmed Chinese and Korean annals about the gastronomy of Bohai people (usually they did not use horse as food). All horses were of a small size. Therefore Alekseeva thought that these horses arrived from the Korean peninsula, because Koguryo had horses of a small size¹⁸ and similar kinds existed in late period of Korean history.¹⁹ However Khitan tribes had horses of a small size²⁰ in same period, therefore we believe that this information requires further evidence.

In our opinion, the results of osteological studies objectively reflect the role of hunting in the life of the Bohai and Jurchen people. However many Russian scholars think that this share of bones of wild animals was abnormal for a Bohai settlement. Thus Alekseeva thinks that the Konstantinovskoe site could be a hunting settlement which extracted fur for trade because, among the 50 kinds of wild animals, nine belonged to kinds which had been the object of hunting for fur (like wolf, fox, marten, badger, leopard et cetera) in Bohai and Jurchen societies.

However, the proportion of these animal bones was very small. Some examples: wolf: 0,5-0,6% (the first number from first excavation place, the second number from the second excavation place), fox: 0,6% (only the second excavation), various kinds of martens: 0,6%, badger: 1,1% (only the first excavation).²¹ So, as we can see, these animals cannot be important objects from a hunt because the proportion

18. Dzharylgasimova, Roza Shotaevna (*Джарылгасинова, Роза Шотаевна*). *Древние когурёсыцы (к этнической истории древних корейцев)* (The ancient Koguryo people [toward to ethnic history of ancient Koreans]). Moscow: Nauka, 1972: 112.

19. Alekseeva, Ernestina Vital'evna (*Алексева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневекового селища Константиновское-1...": 40: 46.

20. Ivliev, Aleksandr L'vovich (*Ивлиев, Александр Львович*). "О животноводстве у киданей" (On the Khitan cattle-breeding), *Третья Всесоюзная школа молодых востоковедов Звенигород. Октябрь 1984 г.* (Third All-Union school of the young orientalists. Zvenigorod-city. October, 1984). Moscow: Glavnaia redakcia vostochnoj literatury izdatel'stva "Nauka", 1984: I, 68-70; Ivliev, Aleksandr L'vovich (*Ивлиев, Александр Львович*). "Археологические материалы об охоте и рыболовстве у киданей" (The archaeological materials on the Khitan hunting and fishery), *Тезисы конференции аспирантов и молодых ученых* (Proceedings of the conference of graduate students and young scientists). Moscow: Glavnaia redakcia vostochnoj literatury izdatel'stva "Nauka", 1985: 48-50 (part 1).

21. Alekseeva, Ernestina Vital'evna (*Алексева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневекового селища Константиновское-1...": 41.



of other animals was larger, as the wild pig (24,1- 28,5%) and other various kinds of deer (60-75 %).²² However, we must not that these sites were in peripheries of Bohai state. Certainly, economic activity in other Bohai towns was very differing from life in Primorye sites.

4. Osteological studies of materials from Nikolaevskoe sites

The Russian Geographic Society sent an expedition headed by Peter Ivanovich Kafarov (*Петр Иванович Кафаров*) to the South-Ussurijsk region. He was the first scholar to report on the Nikolaevskoe site in 1871. Nikolaevskoe I and Nikolaevskoe II are sites which are located in the Mihajlovskoe district, near Ilistaia river (the Chinese name of this river is 'Lifu'),²³ 50 km from Ussuriysk town. Russian scholars sometimes had visited these sites, but had been excavating both sites since the 1970s. In the period 1973-1975, Soviet archaeologists excavated Nikolaevskoe II and since that time found bones of animals. As a result, archeologists have collected rich materials that illustrate the economical activity and handicrafts of the population of Bohai.²⁴

Nikolaevskoe II is a site with two layers, both belong to the Bohai period (the earlier layer belongs to the 8th and 9th centuries and the later layer the 9th and 10th century). Alekseeva collected 5,213 bones and fragments of bone, but identified 4,331 items.²⁵ But she did not consider bones of fish.

Soviet specialists analyzed bones of wild animals, because information from these osteological materials could give a picture of the role of hunting in the life of Bohai people. Alekseeva noted that the kinds of wild animals from the layers are different.

22. Alekseeva, Ernestina Vital'evna (*Алексева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). "Остатки животных из средневекового селища Константиновское-1...": 41-42.

23. Kafarov, Petr Ivanovich (*Кафаров, Петр Иванович -Архимандрит Палладий-*). "Письмо Архимандрита Палладия от 15 сентября 1870 г." (The Letter of archimandrite Palladij from September 15, 1870). *Новости Императорского Русского Географического общества* (News of the Imperial Russian Geographical Society), 7 (1871): 91-96; Okladnikov, Alexei Pavlovich (*Окладников, Алексей Павлович*); Derevianko, Anatolij Panteleevich (*Деревянко, Анатолий Пантелеевич*). *Далёкое прошлое Приморья и Приамурья* (The distant past of the Maritime and Amur regions). Vladivostok: Dal'nevostochnoe knizhnoe izdatelstvo, 1973: 410; Vasil'eva, Tatiana Afanas'evna (*Васильева, Татьяна Афанасьевна*). "История изучения бохайских памятников Приморья в отечественной литературе" (The history of the study of Bohai relics in the Russian Maritime Region in Soviet literature), *Новые материалы по средневековой археологии Дальнего Востока СССР: сборник научных трудов* (New materials of the medieval archaeology of the Soviet Far East: collection of works), Ernst Vladimirovich Shavkunov (*Эрнст Владимирович Шавкунов*); Aleksandr L'vovich (*Ивлиев, Александр Львович*), eds. Vladivostok: Dal'nevostochnoe otdelenie Akademii nauk Soyuza Sovetskikh Socialisticheskikh Respublik, 1989: 39-47.

24. The Russian transcription of the Chinese name is *Лифу*.

25. Shavkunov, Ernst Vladimirovich (*Эрнст Владимирович Шавкунов*); Kradin, Nikolai Nikolaevich (*Крадин, Николай Николаевич*), Ivliev, Aleksandr L'vovich (*Ивлиев, Александр Львович*), eds. *Государство Бохай (698-926) и племена Дальнего Востока России* (The Bohai state [698-926] and Russian Far Eastern tribes). Moscow: Nauka, 1994.



For example, in the earlier layer Soviet archeologists found the remains of the *Cuon alpinus*, *Mogera robusta*, but in the later layer the bones of these animals were not excavated, instead, the Soviet scholars found other osteological materials (some kinds of marten, tiger et cetera).

In the later layer the Russian specialists found bones of wild animals more than in the earlier layer. Soviet archeologists believe that the later Bohai population perfected hunting weapons (for example, they used iron arrowheads),²⁶ but the inhabitants of the earlier settlement used bone arrowheads in hunting.

Russian specialists identified 76,8% of all osteological materials as bones of domesticated animals and 23,2% as wild animals. But we cannot consider this information as exact data. We must note that Soviet and Russian archeologists found rich osteological materials in Bohai sites located near the Ilistia River. However these sites are situated seven to ten kilometers from each other and hunters killed all animals near settlements very quickly. So the Bohai people could have obtained fur and meat of animals in hunting expeditions. Certainly hunters did not come back to town with all the bones of killed animals because they ate wild animals on hunting expeditions.

Soviet scholars found bones of nearly 30 kinds of wild animals in Nikolaevskoe II.²⁷ The new animals among the osteological materials were goral (*Naemorhedus goral*). Bohai people usually hunted adult wild animals (87,7%) maybe they cared about preserving the stock of forest animals but they did not think on the same way about domesticated animals (46,1%). In Nikolaevskoe II spring scissors and distaff instruments have been excavated, but Soviet specialists could find bones of sheep. Therefore Alekseeva thought that Bohai people could have produced yarn from dog hair.²⁸

During the 1990s Alekseeva began to work in Siberia; therefore osteological studies in Primorye region were cancelled. Sometimes the temporal groups of Russian scholars tried to study of osteological materials from some archaeological sites, but it was not constantly.²⁹ In summer of 2010 on the basis of Institute of Humanitarian education in Primorye State Agricultural Academy was established with a research team for the study of osteological materials. This team consists of researchers from the Institute of Humanitarian Education, the Institute of Cattle-breeding and Veterinarian Sciences (both within the structure of the Primorye State Agricultural Academy) and the Department of Medieval Archaeology from the Institute of History, Archaeology and Ethnography of People of the Far East within the Far Eastern Branch of the Russian Academy of Sciences. Russian specialists

26. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Материалы об охоте и животноводстве у населения бохайского...": 77.

27. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Материалы об охоте и животноводстве у населения бохайского...": 77-78.

28. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Материалы об охоте и животноводстве у населения бохайского...": 79.

29. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Boldin, Vladislav Innokent'evich (Болдин, Владислав Иннокентьевич). "Материалы об охоте и животноводстве у населения бохайского...": 82.



conducted the study of bones from Mohe (Borisovskoe), Bohai (Nikolaevskoe II) and Jurchen (Stogovskoe, Krasnoiarovskoe) sites in the Primorye region in relation to their historical and archaeological aspects.

Scholars from this team took part in the international conference *Agrarian Education in the Pacific Rim Region: related problems and perspectives on developments in different branches of agriculture* and presented three works.³⁰ However this team, as other groups of Russian specialists, can not research a big number of osteological materials. Because they don't have good conditions and research materials for full-time study, long-time traditions for research of ancient bones of animals. The studies of osteological medieval materials in Russia based only on the work of enthusiasts and don't have financial support. Russian federal foundations, academic units, universities don't have interest to study of osteology. As result, Russian researchers in 2000s studying only some hundreds bones or its fragments, however in the 1990s, Alekseeva analyzed some thousands osteological items.

5. Conclusion

As we can see, osteological materials from Bohai sites can complete information on the history of medieval societies and give a basis for analyzing the economic system of the Middle Age states of the Far East. For example, in many Bohai sites, earlier layers abound with bones of young bulls while in later layers the bones of older bulls have been found. For this reason, one may draw the conclusion that the earliest population of Bohai usually raised bulls for beef, but that in later periods, the Bohai people mainly used bulls for agriculture as draft animals and ate these

30. Alekseeva, Ernestina Vital'evna (Алексеева, Эрнестина Витальевна); Besednov, Lev Nikolaevich (Беседнов, Лев Николаевич); Ivliev, Alexander L'vovich (Ивлиев, Александр Львович). "Хозяйство Майского городища (по остаткам животных)" (Economy of the Mayskoe sie [on remains of animals]), *Археология Северной Пацифики* (Archaeology of the North Pacific), Nikolai Nikolaevich Kradin (Николай Николаевич Крадин), Irina Sergeevna Zhushchikovskaya (Ирина Сергеевна Жущиковская), Alesandr L'vovich Ivliev (Александр Львович Ивлиев), eds. Vladivostok: Dal'nuka, 1996: 168-179; Vasil'eva, Tatiana Afanas'evna (Васильева, Татьяна Афанасьевна). "Охота и рыболовство у населения Горнохуторского городища (Приморский край)" (Hunting and fishing of the population of Gornuj Hutur site [Primorye region of Russia]). *Интеграция археологических и этнографических исследований* (Integration of Archaeological and ethnographical investigations), Mihail Andreevich Korusenko (Михаил Андреевич Корусенко), ed. Omsk: Nauka, 2006: 245-248; Panasenko, Valeriia Evgen'evna (Панасенко, Валерия Евгеньевна); Gelman, Evgeniia Ivanovna (Гельман, Евгения Ивановна). "Костные остатки животных из бохайского городища Горбатка" (Bone's remains of mammals from Bohai site Gorbatka). *Вестник Дальневосточного отделения Российской Академии наук* (Herald of the Far eastern branch of the Russian Academy of sciences), 5 (2008): 164-165; Panasenko, Valeriia Evgen'evna (Панасенко, Валерия Евгеньевна); Gelman, Evgeniia Ivanovna (Гельман, Евгения Ивановна). "Роль млекопитающих (Mammalia) в системе жизнеобеспечения бохайского населения городища Горбатка" (Role of Mammals in Subsistence System of Bohai Population of the Gorbatka site). *Вестник Новосибирского государственного университета. Серия: история, филология* (Herald of Novosibirsk State University. Part: History, Philology), 8/3 (2009): 193-203.



animals only when bulls became ill or grew too old to be used in the fields.³¹ In addition, these artifacts allow us to see how Bohai agriculture developed in this region. South Korean scholars are aware of the importance of this research too,³² but they cannot undertake research in this area. Osteological studies in Far East can be considered as an innovation and as interesting sources for research in Bohai studies, but we must note that these studies need other archaeological materials and annals.

So, osteological materials can give further information on Bohai life in the Russian Far East. In spite of some scholars insisting that the Jurchen were descendants of the Bohai state, the information from archaeological sites does not support this idea. According to analysis of the results of excavation, the Jurchen state in Far East (Dong Xia) certainly was a feudal state, but the Jurchen preferred hunting to cattle-breeding.³³ However, Bohai was an industrial country with a high-level culture. The Bohai people had been considered by the Chinese as people of civilization (certainly, from the Chinese and Japanese viewpoint) in the 10th century, but the Jurchen in the 11th century were different. The Bohai population had developed cattle-breeding and must have gradually forgotten hunting; the same situation is not evident in Jurchen sites.

It can be argued that the results of osteological studies in Primorye region show that Jurchen life was influenced by the Bohai, because the Jurchen lived on the

31. Kim, Alexander Alexeevich (*Ким, Александр Алексеевич*). “К вопросу о наследственных связях бохайцев и чжурчжэней в сельском хозяйстве (на примере животноводства)” (Toward question on hereditary relations Bohai people and Jurchen in agriculture [on example, in cattle-breeding]), *Актуальные проблемы агрообразования в Азиатско-Тихоокеанском регионе: проблемы и перспективы* (Actual problems of agro-education in the Asian-Pacific region: problems and perspectives), Galina Vladimirovna Koval'chuk (*Галина Владимировна Ковальчук*), ed. Ussuriysk: Primorskaiia Gosudarstvennaia sel'skhozozhiazstvennaia akademiia, 2011: 231-234; Lapshin, Lev Vasil'evich (*Лапшин, Лев Васильевич*); Momot, Yulia Alexandrovna (*Момот, Юлия Александровна*). “Остеологические данные по хищным животным Николаевского городища” (The osteological materials on predatory animals from Nikolaevskoe site), *Актуальные проблемы агрообразования в Азиатско-Тихоокеанском регионе: проблемы и перспективы* (Actual problems of agro-education in the Asian-Pacific region: problems and perspectives), Galina Vladimirovna Koval'chuk (*Галина Владимировна Ковальчук*), ed. Ussuriysk: Primorskaiia Gosudarstvennaia sel'skhozozhiazstvennaia akademiia, 2011: 257-259; Momot, Nadezhda Vasil'evna (*Момот, Надежда Васильевна*); Kamliia, Igor' Lavrent'vich (*Камлия, Игорь Лаврентьевич*). “Остеологические данные по травоядным животным Николаевского городища” (The osteological materials on herbivorous animals from Nikolaevskoe site), *Актуальные проблемы агрообразования в Азиатско-Тихоокеанском регионе: проблемы и перспективы* (Actual problems of agro-education in the Asian-Pacific region: problems and perspectives), Galina Vladimirovna Koval'chuk (*Галина Владимировна Ковальчук*), ed. Ussuriysk: Primorskaiia Gosudarstvennaia sel'skhozozhiazstvennaia akademiia, 2011: 272-273.

32. Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). “Материалы об охоте и животноводстве у населения бохайского...”: 78-84; Alekseeva, Ernestina Vital'evna (*Алексеева, Эрнестина Витальевна*); Boldin, Vladislav Innokent'evich (*Болдин, Владислав Иннокентьевич*). “Остатки животных из средневековых слоев Новогордеевского селища и городища...”: 81-85.

33. Kuchanov, Evgenii Ivanovich (*Кычанов, Евгений Иванович*). “Чжурчжэни в XI веке” (Jurchen in XI C.), *Материалы по истории Сибири. Древняя Сибирь* (Materials about history of Siberia. Ancient Siberia), Alexei Pavlovich Okladnikov (*Алексей Павлович Окладников*), ed. Novosibirsk: Nauka, 1966: II, 269-281.



cultural periphery of the Bohai state, but the style of Jurchen economic life was very different from the 'civilized life' of the Bohai.

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