UDC 930.2
AGRIS B50
https://doi.org/10.33619/2414-2948/72/51

A BRIEF REVIEW OF THE STUDY OF CENTRAL ASIAN AGRICULTURE

©Khatamova M., *Ph.D., National Center of Archaeology of the Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan, khatamova.2014@yandex.ru*

КРАТКИЙ ОБЗОР ИССЛЕДОВАНИЯ СЕЛЬСКОГО ХОЗЯЙСТВА ЦЕНТРАЛЬНОЙ АЗИИ

©Хатамова М. М., *канд. ист. наук, Национальный центр археологии АН Республики Узбекистан, г. Ташкент, Узбекистан, khatamova.2014@yandex.ru*

Abstract. The article examines archaeobotanical and agricultural research conducted in Central Asia. Based on this research, the author divided the study of irrigational and agricultural culture in Central Asia into three groups. These have been studied in groups such as the issue of irrigation facilities and irrigation systems, the issue of tools of labor, and the issue of farming and economics in the restoration of the agricultural past, and the essence of the issue has been clarified.

Аннотация. В статье рассматриваются археоботанические и сельскохозяйственные исследования, проводимые в Центральной Азии. На основании этих исследований автор разделил изучение ирригационной и земледельческой культуры Средней Азии на три группы. Они были изучены в таких группах, как проблема ирригационных сооружений и ирригационных систем, проблема орудий труда и проблема сельского хозяйства и экономики в восстановлении сельскохозяйственного прошлого, и суть проблемы была прояснена.

Keywords: archaeobotanical research, agriculture, plant remains, written sources, ethnographic and linguistic materials.

Ключевые слова: археоботанические исследования, сельское хозяйство, остатки растений, письменные источники, этнографические и лингвистические материалы.

Introduction

Although one of the world's first archaeobotanical surveys was conducted in southern Central Asia in 1904 on the expedition of Raphael Pampelli, today the region is one of the least studied areas in the world. There are several reasons for this. Cited by Spengler [2].

Indeed, although past farming, pastoralism, and nutrition have long been of interest to researchers, so far Central Asian scholars have relied more on written sources, ethnographic, and linguistic materials to shed light on the problem. In our opinion, the main reasons for the lack of archaeobotanical research in Central Asia today are the lack of laboratories equipped with modern equipment and techniques, the lack of the latest achievements of natural sciences in the West and the United States.

Material and research methods

In the Soviet Union, botanists and geneticists were interested in plant remains found in archaeological monuments, and even some (F.H. Bakhteev, M.M. Yakubtsiner, A.I. Mordvinkina)

Т. 7. №11. 2021
https://doi.org/10.33619/2414-2948/72

were directly involved in the identification of these remains, but archaeological work until the 1960s and 1970s. plant remains from cultural strata were not used as artefacts. By the 1960s and 1980s, several experts in the field had emerged as a result of systematic research, but their research was more closely related to Old Asia and was not subsequently expanded [3].

Nevertheless, most of the archaeobotanical excavations carried out in Central Asia during the Soviet and post-Soviet period were in Turkmenistan (Joytun, Dam-dam Chashma, Erk-kala, Govur-kala, Mele-Khayran, Oltin-tepa, Togoloq, Gonur, Anau, Munjuqli-depe, Marv, Tohirboy depe). It is followed by Kazakhstan (Juvon-Toba, Karaspan-Toba, Begash, Tuzusay, Taroz), Uzbekistan (Ancient Khorezm, Kovunchitepa, Sopolli, Jarqoton, Kholchayon, Kara-Tepa, Munchoktepa, Tashbulak) and Tajikistan (Mug-kala, Bazar-Toba. dara, Sarazm) [5–7].

Unfortunately, to date, the least archaeobotanical research has been conducted in Kyrgyzstan (Aygirjal). Much of this research has been done in collaboration with foreign archaeobotanists, and similar joint projects are still underway in the region. In the 1930s, botanists studied the remains of cherries, grapes, apples, peaches, apricots, barley, millet, beans, almonds, walnuts, and cotton found in the Mug Castle in Tajikistan. In 1940-1950, some large-scale archaeological expeditions in Uzbekistan hired specialists in natural sciences. In particular, in 1935, botanists - academician R. R. Schroeder and Professor K. A. Flyaksberger analyzed barley (Hordeum distichum), soft wheat (Triticum vulgaie), peaches, and burnt grains of jiida from the Kovunchitepa monument in the Tashkent oasis [11].

Even the Khorezm expedition led by S.P. Tolstoy analyzed the dust of plant remains from archaeological cultural strata [12].

Thus, since the middle of the last century, more and more specialists from different fields have been working together on unique archaeological monuments of Central Asia (for example, Mug Castle) or large-scale (complex) expeditions (similar to the Khorezm complex expedition) and their research has been published continuously. Other studies have only mentioned the occurrence of burnt wheat, barley, rice grains, grapes, peaches and cherries, melons, watermelons and cucumber seeds found in archaeological cultural strata. In fact, data devoted to archaeobotanical research in the Central Asian scientific literature are often not accurately numbered, provided with photographs, and the criteria for identifying plants are not described. In addition, the results of research on palaeobotanical remains obtained in archaeological excavations have often not been published in authoritative publications. In short, during the Soviet era, the use of archaeobotanical methods in the field of agricultural culture was not widespread in the science of the region, but a lot of work was done based on other sources [13].

During the years of independence, several works dedicated to the emergence of agricultural culture in the territory of Uzbekistan were published [14].

Based on his research, the author divided the study of agricultural culture in Central Asia into the following groups: 1) the issue of irrigation facilities and irrigation systems; 2) the issue of tools; 3) economic issues in the reconstruction of the past of agriculture. Using this classification, the essence of the problem is explained below.

1. The issue of irrigation facilities and irrigation systems in the restoration of the agricultural past. Much of the research has been devoted to the irrigation history, irrigation system, or general economy and economy of a region in Central Asia [15].

Archaeologists in the region have relied on irrigation equipment and agricultural tools unearthed during the excavations to conclude farming and animal husbandry in any historical and cultural area. Irrigation and irrigation systems are illustrated in the example of separate historical and cultural regions of Central Asia [16].

Т. 7. №11. 2021
https://doi.org/10.33619/2414-2948/72

In particular, the first agricultural culture in the region is considered to be in the territory of today's Turkmenistan, and a lot of work on the past of irrigation has been done in these regions. S.P. Tolstoy studied the history of irrigation in Khorezm, the historical and cultural processes in these areas — the emergence of agriculture, the first urban culture, the formation of statehood, the relationship between the settled and nomadic population [17].

In this regard, Ya. G. Gulyamov and B. V. Andrianov's research is noteworthy. G. N. Lysicina mentions that in the south of Central Asia, as early as the Neolithic or Eneolithic period (Prayer II-IV, mid-IV millennium BC) there were simple irrigation structures [19].

Irrigation systems and paleoethnobotanical finds have also been used in Turkmenistan and Khorezm to illuminate the region's agriculture. On the history of irrigation in the ancient and medieval period of the Zarafshan valley, Academician A.R. Muhammadjanov conducted special research [20].

One of the first pieces of evidence used in the debate about cultivated plants in the economic system of the Stone Age society in southern Central Asia was the identification of ancient irrigation canals. Irrigation canals have been identified at Aktas 2 in northwestern Kazakhstan. In particular, excavations at the monuments of agricultural settlements in the Otrar oasis revealed that their inhabitants were engaged in livestock farming, fishing and hunting, as well as irrigated agriculture. According to the findings of irrigation structures and rock carvings, in the I-VI centuries, the productive forces in agriculture were so low that they could only meet their needs with agricultural products.

2. The issue of tools of labor in the reconstruction of the agricultural past. Another of the first and still widely used arguments in terms of historiography is the interpretation of sickles, mowers and other similar tools. As R. Spengler rightly points out, almost all archaeological research on agriculture in the Soviet and post-Soviet periods has focused on identifying a single agricultural labor tool or grain traces in pottery [23, 24].

So far, without involving trasological data, conclusions have been drawn based on visual, morphological analysis, and often still do. However, outward appearances may not always be the only conclusions [25].

Because it is hesitant to determine the function of any weapon or tool, for example, a sickle knife can also be used to scrape an animal's skin. Or it is more problematic to cite currants to justify the presence or absence of farming, as it is natural that currants were also used to crush wild plants. Although the use of agricultural work tools itself as an argument is controversial and unreliable, it can provide excellent information for comparison with other archaeobotanical methods [26].

3. The issue of economy and economics in the reconstruction of the past of agriculture. Monographs or collective monographs also cover issues of agriculture, hunting, animal husbandry, handicrafts and trade under the name of the economy of any region or archaeological monument. In this process, in some cases, local or foreign experts - paleobotanists, paleozoologists were invited and worked with them. In much of the literature published during the Soviet period, of course, a separate section was devoted to the farm, and here organic remnants from archaeological excavations were given. In particular, the existence of subsistence farming in the Usuns, with livestock predominating, is based on thin, earthenware, burnt grain remains, and grains from tombstones in northern Kyrgyzstan. Excavations at the tombs of the Usuns on the right bank of the Ili River have uncovered round-shaped pottery and sheep bones underneath.

The first tombs date back to the III-II centuries BC, and they have been buried with 2 or more vessels with round or slightly flat bottoms. In the first century BC and the first century AD, and especially in the second and third centuries BC, the number of tombstones increased significantly.

Most of them have flat, flat bottoms, which is due to a significant change in the Usun economy [27].

Remains of cultivated grains were found along with agricultural tools in the settlements of southern Turkmenistan. They have survived to the present day, both in the form of burns and in the form of traces of grain clinging to the mud. In particular, soft wheat (*Triticum aestivum* L.), double-row barley (*Hordeum distichum*), fine wheat, peas, rye, and grapes were found at Anov, Mullali-depe, Oq-depe, and Namazgoh-depe [28].

The use of bricks with straw in the construction of houses in the Sopollitepa area of southern Uzbekistan shows that wheat and barley were grown in large quantities from cultivated grains. The large stock of straw and its extensive use mean that significant progress has been made in agriculture. In addition, the discovery of large stocks of wheat and barley in straw-woven containers and special granaries confirms this conclusion [29].

Interestingly, in northern Kyrgyzstan, archaeologists have concluded that agriculture was based on the shape and size of pottery, in southern Turkmenistan on tools and cultural grains, and in southern Uzbekistan on straw and bricks.

Conclusions

In short, today, relying more on the latest advances in the natural sciences, people who lived in the past have had the opportunity to restore their lives, nutrition, and health. Interest in archaeobotany and paleoethnobotany is also growing in Central Asia due to joint projects with foreign archaeobotanists. In the future, the involvement of specialists such as botanists and zoologists in archaeological excavations, retraining of local specialists in foreign laboratories and the establishment of laboratories equipped with modern equipment will solve the problems in this area.

Acknowledgments: We take this opportunity to thank all the people who have supported and guided us during the completion of this work.

Conflict of Interest: The authors report no conflicts of interest.

References:

1. Pumpelly, R. (Ed.). (1908). *Explorations in Turkestan: expedition of 1904: prehistoric civilizations of Anau: origins, growth, and influence of environment*. Washington, DC: Carnegie institution of Washington.

2. Spengler, R., Frachetti, M., Doumani, P., Rouse, L., Cerasetti, B., Bullion, E., & Mar'yashev, A. (2014). Early agriculture and crop transmission among Bronze Age mobile pastoralists of Central Eurasia. *Proceedings of the Royal Society B: Biological Sciences*, *281*(1783), 20133382. https://doi.org/10.1098/rspb.2013.3382

3. Sergusheva, E. A. (2003). Arkheobotanicheskie issledovaniya v laboratorii paleoekologii cheloveka. *Rossiya i ATR,* (3 (41)), 6-12. (in Russian).

4. Herrmann, G. (1997, January). Early and medieval Merv: A tale of three cities. In *Proceedings-British Academy* (Vol. 94, pp. 1-44). Oxford University Press INC.

5. Bashtannik, S. V. (2008). Archaeobotanical studies at medieval sites in the Arys river valley. *Archaeology, Ethnology and Anthropology of Eurasia*, *33*(1), 85-92. https://doi.org/10.1016/j.aeae.2008.04.009

6. Grigor'ev, G. V. (1936). Kaunchi-Tepa (raskopki 1935 g.). Tashkent. 9-10. (in Russian).

7. Danilevskii, V. V., Konopov, V. N., & Nikitin, A. A. (1940). Issledovanie rastitel'nykh ostatkov iz raskopok sogdiiskogo zamka VIII veka na gore Mug v Tadzhikistane.. In *Trudy. Tadzhikskoi bazy AN SSSR, 8*, 633.

8. Matuzeviciute, G. M., Preece, R. C., Wang, S., Colominas, L., Ohnuma, K., Kume, S., ... & Jones, M. K. (2017). Ecology and subsistence at the Mesolithic and Bronze Age site of Aigyrzhal-2, Naryn valley, Kyrgyzstan. *Quaternary International*, *437*, 35-49. https://doi.org/10.1016/j.quaint.2015.06.065

9. Brite, E. B., Khozhaniyazov, G., Marston, J. M., Negus Cleary, M., & Kidd, F. J. (2017). Kara-tepe, Karakalpakstan: Agropastoralism in a Central Eurasian Oasis in the 4th/5th century AD Transition. *Journal of Field Archaeology*, *42*(6), 514-529.

10. Yakubov, Yu. (1979). Pargar v VII-VIII vv. n. e. Dushanbe.

11. Grigor'ev, G. V. (1940). Kaunchi-tepa: (Raskopki 1935 g.). Tashkent.

12. Fedorova, R. V. (1960). O zemledel'cheskikh kul'turakh v Drevnem Khorezme po dannym pyl'tsevogo analiza. In Polevye issledovaniya Khorezmskoi ekspeditsii v 1954-1956 gg., Moscow. 203-206. (in Russian).

13. Bartol'd, V. V. (1914). K istorii orosheniya Turkestana. St. Petersburg. (in Russian).

14. Musaev, N. (2006). Ўrta Osieda dexқonchilik madaniyati va agrar munosabatlar tarikhidan. Toshkent.

15. Nepomnin, V. Ya. (1940). K istorii irrigatsii v Uzbekistane. Tashkent.

16. Andrianov, B. V. (1951). Etnicheskaya territoriya karakalpakov v Severnom Khorezme (XVIII - XIX vv.). Moscow. (in Russian).

17. Tolstov, S. P. (1948). Drevnii Khorezm. Moscow. (in Russian).

18. Gulomov, Ya. G. (1959). Khorazmning suғorilish tarikhi. Tashkent.

19. Lisitsina, G. N. (1969). The earliest irrigation in Turkmenia. *Antiquity*, *43*(172), 279-288.

20. Mukhamedzhanov, A. R. (1978). Istoriya orosheniya Bukharskogo oazisa (s drevneishikh vremen do nachala XX v.). Tashkent.

21. Akishev, K. A. (1969). Zimovki-poseleniya i zhilishcha drevnikh usunei. *Izvestiya AN KazSSR. Ser. obshchestv. Nauk,* (1), 29-47. (in Russian).

22. Akishev, K. A., Baipakov, K. M., & Erzakovich, L. B. (1972). Drevnii Otrar (topografiya, stratigrafiya, perspektivy). Alma-Ata. (in Russian).

23. Spengler, R. N., Cerasetti, B., Tengberg, M., Cattani, M., & Rouse, L. M. (2014). Agriculturalists and pastoralists: Bronze Age economy of the Murghab alluvial fan, southern Central Asia. *Vegetation history and archaeobotany*, *23*(6), 805-820. https://doi.org/10.1007/s00334-014-0448-0

24. Berdyev, O. (1968). Chakmakly-depe - novyi pamyatnik vremeni Anau IA. In *Istoriya, arkheologiya i etnografiya Srednei Azii. K 60-letiyu so dnya rozhdeniya S. P. Tolstova*, Moscow. 26-34. (in Russian).

25. Epimakhov, A. V. (2010). O sintashtinskom zemledelii (bronzovyi vek Yuzhnogo Urala). *Vestnik arkheologii, antropologii i etnografii,* (2), 36-41. (in Russian).

26. Spengler III, R. N., Miller, N. F., Neef, R., Tourtellotte, P. A., & Chang, C. (2017). Linking agriculture and exchange to social developments of the Central Asian Iron Age. *Journal of Anthropological Archaeology*, *48*, 295-308. https://doi.org/10.1016/j.jaa.2017.09.002

27. Akishev, K. A., & Kushaev, G. A. (1963). Drevnyaya kul'tura sakov i usunei doliny reki Ili. Alma-Ata. 261-262.

28. Khlopin, I. N. (1964). Geoksyurskaya gruppa poselenii epokhi eneolita. Moscow. (in Russian).

29. Askarov, A. (1977). Drevnezemledelcheskaya kul'tura epokhi bronzy yuga Uzbekistana. Tashkent. 117-118. (in Russian).

Список литературы:

1. Pumpelly R. (ed.). Explorations in Turkestan: expedition of 1904: prehistoric civilizations of Anau: origins, growth, and influence of environment. Washington, DC : Carnegie institution of Washington, 1908.

2. Spengler R., Frachetti M., Doumani P., Rouse L., Cerasetti B., Bullion E., Mar'yashev A. Early agriculture and crop transmission among Bronze Age mobile pastoralists of Central Eurasia // Proceedings of the Royal Society B: Biological Sciences. 2014. V. 281. №1783. P. 20133382. https://doi.org/10.1098/rspb.2013.3382

3. Сергушева Е. А. Археоботанические исследования в лаборатории палеоэкологии человека // Россия и АТР. 2003. №3(41). С. 6-12.

4. Herrmann G. Early and medieval Merv: A tale of three cities // Proceedings-British Academy. Oxford University press INC., 1997. V. 94. P. 1-44.

5. Bashtannik S. V. Archaeobotanical studies at medieval sites in the Arys river valley // Archaeology, Ethnology and Anthropology of Eurasia. 2008. V. 33. №1. P. 85-92. https://doi.org/10.1016/j.aeae.2008.04.009

6. Григорьев Г. В. Каунчи-Тепа (раскопки 1935 г). Ташкент. 1936. С. 9-10.

7. Данилевский В. В., Конопов В. Н., Никитин А. А. Исследование растительных остатков из раскопок согдийского замка VIII века на горе Муг в Таджикистане // Труды Таджикской базы АН СССР. 1940. Т. 8. С. 633.

8. Matuzeviciute G. M., Preece R. C., Wang S., Colominas L., Ohnuma K., Kume S., Jones M. K. Ecology and subsistence at the Mesolithic and Bronze Age site of Aigyrzhal-2, Naryn valley, Kyrgyzstan // Quaternary International. 2017. V. 437. P. 35-49. https://doi.org/10.1016/j.quaint.2015.06.065

9. Brite E. B., Khozhaniyazov G., Marston J. M., Negus Cleary M., Kidd F. J. Kara-tepe, Karakalpakstan: Agropastoralism in a Central Eurasian Oasis in the 4th/5th century AD Transition // Journal of Field Archaeology. 2017. V. 42. №6. P. 514-529.

10. Якубов Ю. Паргар в VII-VIII вв. н. э. Душанбе: Дониш, 1979. 218 с.

11. Григорьев Г. В. Каунчи-тепа: (Раскопки 1935 г.). Ташкент: Акад. наук СССР, 1940. 64 с.

12. Федорова Р. В. О земледельческих культурах в Древнем Хорезме по данным пыльцевого анализа // Полевые исследования Хорезмской экспедиции в 1954-1956 гг. М., 1960. С. 203-206.

13. Бартольд В. В. К истории орошения Туркестана. СПб.: Сел. вестн., 1914. 174 с.

14. Мусаев Н. Ўрта Осиеда деҳқончилик маданияти ва аграр муносабатлар тарихидан. Тошкент. 2006.

15. Непомнин В. Я. К истории ирригации в Узбекистане. Ташкент: Узпартиздат, 1940. 60 с.

16. Андрианов Б. В. Этническая территория каракалпаков в Северном Хорезме (XVIII - XIX вв.). М., 1951. 16 с.

17. Толстов С. П. Древний Хорезм. М., 1948.

18. Гуломов Я. Г. Хоразмнинг суғорилиш тарихи. Тошкент. Уз ССР ФА. 1959.

19. Lisitsina G. N. The earliest irrigation in Turkmenia // Antiquity. 1969. V. 43. №172. P. 279-288.

20. Мухамеджанов А. Р. История орошения Бухарского оазиса (с древнейших времен до начала XX в.). Ташкент: Фан. 1978.

21. Акишев К. А. Зимовки-поселения и жилища древних усуней // Известия АН КазССР. Сер. обществ. наук. 1969. №1. С. 29-47.

22. Акишев К. А., Байпаков К. М., Ерзакович Л. Б. Древний Отрар (топография, стратиграфия, перспективы). Алма-Ата. 1972.

23. Spengler R. N., Cerasetti B., Tengberg M., Cattani M., Rouse L. M. Agriculturalists and pastoralists: Bronze Age economy of the Murghab alluvial fan, southern Central Asia // Vegetation history and archaeobotany. 2014. V. 23. №6. P. 805-820. https://doi.org/10.1007/s00334-014-0448-0

24. Бердыев О. Чакмаклы-депе - новый памятник времени Анау IA // История, археология и этнография Средней Азии. К 60-летию со дня рождения С. П. Толстова. М. 1968. С. 26-34.

25. Епимахов А. В. О синташтинском земледелии (бронзовый век Южного Урала) // Вестник археологии, антропологии и этнографии. 2010. №2. С. 36-41.

26. Spengler III, R. N., Miller N. F., Neef R., Tourtellotte P. A., Chang C. Linking agriculture and exchange to social developments of the Central Asian Iron Age // Journal of Anthropological Archaeology. 2017. V. 48. P. 295-308. https://doi.org/10.1016/j.jaa.2017.09.002

27. Акишев К. А., Кушаев Г. А. Древняя культура саков и усуней долины реки Или. Алма-Ата. 1963. С. 261-262.

28. Хлопин И. Н. Геоксюрская группа поселений эпохи энеолита. Москва – Ленинград. 1964. С. 93.

29. Аскаров А. Древнеземледелческая культура эпохи бронзы юга Узбекистана. Ташкент.1977. С. 117-118.

Работа поступила
в редакцию 10.09.2021 г.

Принята к публикации
14.09.2021 г.

Ссылка для цитирования:

Khatamova M. A. Brief Review of the Study of Central Asian Agriculture // Бюллетень науки и практики. 2021. Т. 7. №11. С. 408-414. https://doi.org/10.33619/2414-2948/72/51

Cite as (APA):

Khatamova, M. (2021). A Brief Review of the Study of Central Asian Agriculture. *Bulletin of Science and Practice, 7*(11), 408-414. https://doi.org/10.33619/2414-2948/72/51