International Journal Of History And Political Sciences

VOLUME Vol.05 Issue11 2025
PAGE NO. 55-59
DOI 10.37547/ijhps/Volume05Issue11-12

Information On The Water Resources Of Central Asia By Henry Lansdell

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Received: 29 September 2025; **Accepted:** 21 October 2025; **Published:** 26 November 2025

Abstract: In this article, the author examines hydrographic information about Central Asia provided in a book by the 19th century English traveler Henry Lansdell. This information was compared with similar information from other sources of the same period to identify changes in the state of the region's water bodies during various periods of the 19th century. The traveler also provides numerous references to information from other researchers and official documents from the Russian administration, allowing for a more detailed understanding of the climate and environmental conditions of the Central Asian region in the 19th century.

Keywords: Central Asia, H. Lansdell, hydrography, water sources, river, sea, lake.

Introduction: In the 19th century, particularly in the second half, European scientists' interest in the nature and history of Central Asia grew. This was primarily due to Great Britain's interest in the Central Asian region as a potential colony, which necessitated further exploration of the region. Secondly, by the end of the century, after the Russian Empire established its rule there, Russian scholars had made important discoveries about the geography of the area, which naturally sparked the scientific interest of European scholars. These factors prompted European researchers and travelers to visit Central Asia directly.

METHOD

Among the enthusiasts who visited the Central Asian region was the English traveler Henry Lansdell. In 1882, he traveled to Russian Central Asia, following which he wrote and published a two-volume work, "Russian Central Asia: including Kuldja, Bokhara, Khiva and Merv". In his work, H. Lansdell made extensive use of important statistical data on various fields of the region, as well as research and memoirs of Russian and foreign travelers and officials [7, 373]. Among others, the author mentions the travels and scientific research of N. Maev, Oshanin, N. Severtsov, A. Fedchenko, L. Kostenko, Barbot de Marney, N. Przhevalsky, A. Jenkinson, A. Burns, Stoddart, Conolly, G. Wood, F. Burnaby, R. Atkinson and others. Thus, this work by H. Lansdell serves both as a primary source and a kind of historiographic review of previous travels to the region.

Along with many geographical features and settlements encountered along his route, Lansdell also describes some natural bodies of water. Thus, his route from the Bukhara oasis to the Khiva Khanate passed along the Amu Darya. The work uses the ancient name of the Amu Darya – Oxus. H. Lansdell provides a review of historical information about the Amu Darya. In particular, information is provided that in Parsi books the Oxus was called Vehrud, from which G. Yule derives Vakhsh and the classical Oxus, but L. Kostenko traces this last word to the name of the Ak-Su River, which he considered its source. "In early Muslim history, its name was Al-Nahr (river), and Maverannahr meant "beyond the river" or Transoxiana; while the name now common in Turkestan, Amu Darya, is apparently relatively modern and of uncertain origin; also, as one native told me, in Uzbek books the river is called "Bilkandi Frindin". The ancients considered the Oxus one of the rivers of paradise, which is probably where the arbitrary name of Jeykhun, as it was called by medieval Muslim writers, came from. Whatever name it may be given, the Amu Darya (Oxus) has long been considered the most remarkable river of Central Asia" [2, 192]. The author further notes that the first Englishman to cross the lower reaches of the Amu Darya was Anthony Jenkinson, and in 1838 Lieutenant Wood managed to trace the Oxus to its source. H. Wood considered the Panj River to be the source of the

Amu Darya, while L. Kostenko, on the basis of reconnaissance carried out in the southern part of the Pamirs by members of the English mission to the Panj in 1874 and in the northern part of the Pamirs by the Russians in 1876, notes that the Ak-su River, flowing from the Little Pamirs, should be considered the main source of the Amu Darya. However, on the map of the Amu Darya basin, posted on the website of the Scientific and Research Center of the International Water Coordination Council, it is clear that the Ak-Su is not fed by the most significant tributary of the Panj, and therefore L. Kostenko's conclusion cannot be considered correct [8].

Lansdell's information regarding the Amu Darya is noteworthy in that he actually sailed downstream on the river in a boat and described its bed, banks, and settlements located along the river based on his observations. In particular, he describes the depth and width of the river at different sections, the speed of the current, its direction, the soil along the banks, vegetation, the layout of settlements, and the occupations of their inhabitants. The author also provides information on existing river crossings, their advantages and disadvantages, the design of locally made boats, and Russian shipping on the Amu Darya. Furthermore, H. Lansdell was intrigued by the discovery of a species of fish, Scaphyrhynchus, in the Amu Darya (slightly earlier in the Syr Darya), which had long been known only in the Mississippi [2, 243]. As the author notes, an in-depth study of this phenomenon could shed light on the geological history of the region.

The work also describes Lake Ala-Kul, which, according to the author, was the third largest lake in Central Asia. Thus, H. Lansdell mentions that the lake was once connected with Balkhash [1, 147]. The same information is found in the work "Journey to Western Siberia", written as a result of the trip of the German scientists O. Finsch and A. Brehm to this region in 1876. It says that "Ala-Kul, that is, "variegated lake" or, perhaps more correctly, as Humboldt notes, "Alatau-kul", that is, "lake near the variegated mountains", was formerly located, as shown by Chinese maps, in connection with Balkhash, and now forms a special group of lakes. The western, motley lake, or Sassyk-Kul, meaning "smelly lake" – so called because in summer its drying, reed-covered shores emit an unpleasant odor – is considerably smaller. Between the eastern and western Ala-Kul lies a small lake, barely two miles long, Uyali or Uala , which, depending on the season and water level, is connected to both large lakes by a greater or lesser number of channels. Undoubtedly, all three lakes formerly formed a single body of water, but it cannot be said that the process of their separation continues uninterrupted: according to local residents, a gradual rise in the water level has been observed in recent years. This fact deserves attention, since in the steppe regions the opposite phenomenon is usually observed – a decrease in the level of lakes. For example, in the Western Steppe, one lake, which previously occupied about 300 square miles, has completely dried up" [6, 119-120]. H. Lansdell also narrates that "according to Kirghiz legends, the water level rises and falls: they say that in the time of their fathers the waters of the lake extended over a much larger area than now; then the level began to fall, and a quarter of a century ago it was so low that small islands, now 250 yards from the shore, were then connected to the land. Subsequently, the water began to rise and remained in this state for several years" [1, 177]. Information about a similar cyclical lowering and rising of the water level in the Aral Sea was passed on by the Kazakhs to the researcher N. Bentselevich [3, 122]. These observations suggest that the drying up of lakes and other reservoirs in Central Asia is more natural than anthropogenic, at least until the 20th century, when the use of water resources increased greatly.

Overall, it can be said that the 19th century was an era of understanding the geological history of Central Asia. Thus, scholars such as A. Humboldt, K. Ritter, P. Semenov, I. Mushketov, and others expressed their views on the interconnectedness of the Aral-Caspian and Aral-Balkhash basins. For this reason, many travelers and scientists who described the region's water sources touched on their geological origins.

Another large body of water that H. Lansdell visited and described is Lake Issyk-Kul. According to the author, some speculate that in ancient geological times, this lake was part of the common system of the Caspian, Aral, and Balkhash basins. Furthermore, due to the discovery of structures on the lake bed, some believe the terrain subsided, and the resulting depression filled with water. However, Professor Romanov, who conducted a thorough study, found no signs of soil subsidence. Although terraces on the shores indicate that the water receded due to evaporation, its previous level was at least 200 feet higher than today, and the volume continues to decrease.

The folk legends cited by the traveler about this lake are interesting. According to them, in the north, at the site of a sunk city, there existed a well that once spewed out so much water that it inundated the entire city and its inhabitants. This legend indicates that a city existed on the shores of the lake in ancient times and the cause of its flooding. Indeed, the Kyrgyz scholar V. V. Ploskikh, who studied the history of Issyk-Kul's archaeological sites, identified the location of the city of Chigu – the headquarters of the ancient Wusun nomadic rulers –

which ended up under the waters of the lake's Tyup Bay [5, 146].

Another local legend explains the fact that the lake is fed by at least sixteen streams from the south and several from the north, but has no visible outlet. According to it, the inhabitants, wishing to get rid of the excess water, dug the Cutemalda Canal, about three miles long, at the western end of the lake to connect it with the river. However, they are said to have miscalculated the level: instead of directing the water from the lake to the river, the opposite occurred. As Lansdell testifies, "the waters of the lake are now retained, as it were, in a bowl – a vast depression formed by the forking of the mountain range. The dimensions of this depression considerably exceed the area of the lake itself, which, at an altitude of 5,300 feet, covers 3,100 square miles, that is, ten times larger than Lake Geneva" [1, 157-158].

H. Lansdell also mentions various names for the lake. In particular, the Mongols called it Temur-Nor – "iron lake" or "generous lake" – due to the abundance of black ore covering the bottom and washed ashore in the form of sand. According to the traveler, "the local inhabitants collect this ore and smelt iron from it. I was given one of the articles made in this primitive way, but, unfortunately, I lost it. A Russian bishop showed me among his antiquities a certain instrument found in the lake: it somewhat resembled the head of a large hammer, but was probably made for a small axe" [1, 158-159]. The aforementioned researcher V.M. Ploskikh came to the conclusion that the huge grain grinders raised from the bottom of the lake were for the first time identified as "ore grinders" through trace analysis , which allowed for the statement of local ore production , and the spectral analysis of bronze and gold objects, conducted in the laboratory of the Institute of Geology of the Academy of Sciences of the Kyrgyz Republic and, in parallel, by the laboratory of the Kyrgyz Geological Department, showed that bronze and gold were also of local production [5, 146]. This fact indicates a developed industrial economy of the ancient population living around the lake.

Another lake mentioned by H. Lansdell is Lake Balkhash, in what is now Kazakhstan. He claims the lake was called Balkatsi -Nor (Great Lake) by the Kalmyks, and Ak- Tengiz (White Sea) by the Turks; Ala- Tengiz (Motley Sea) by the Turks, referring to its islands; or simply Tengiz (sea). The Chinese knew it as Si-Hai (East Sea), and it is their chronicles that contain the earliest references to the lake.

The author then dwells on the physical characteristics of the lake. "Balkhash's shape resembles the body of an ant without legs, with its head turned to the east. Its length is about 400 miles, its width varies from 5 to 53 miles, its circumference is 900 miles, and its area is 12,800 square miles, that is, about 36 times larger than the area of Lake Geneva. Nevertheless, Mr. Reclus estimates the volume of water in Balkhash to be only two and a half times greater than in the Swiss lake. The greatest depth of Balkhash is 70 feet, while in the central and western parts it is only 35 feet; and in some places on the southern side the water is so shallow and the shore so gently sloping that a strong wind sometimes temporarily exposes part of its bottom" [1, 179]. Here it is obvious that, despite the vast area, due to the shallow depth, the volume of water in the lake was not that great. This characteristic was also applicable to the Aral Sea, the average depth of which, according to L. Berg, was 16.2 meters [4, 121].

H. Lansdell notes that many Kyrgyz spend the winter on the sandy shore, the surface of which serves as a small pasture for their herds. Reeds 16 feet high protect them from the north wind, while also providing a refuge for wild boar, wolves, and tigers, and in the spring, a breeding ground for numerous wild birds. Rainfall is scarce, and the summer heat is unbearable. Winds blow over the lake almost daily, but inconstantly, sometimes raising very high waves. The water at the river's mouth is almost fresh, while at the northeastern end it is brackish year-round, although potable; and at the southern end, the water is so salty that it kills animals that drink it. For this reason, the Kyrgyz call it Itichmes, "unfit for dogs". Its waters are abundant in fish; in summer and during windy weather, they stay in the shallows, but in winter they venture out into the open lake. A pier was built on the cape of the northwest coast in 1850. Although Lake Balkhash is navigable throughout, continuous navigation is only possible with deep-keeled vessels. The pier was intended as a warehouse for goods shipped to the Zailiysky region, but attempts to maintain navigation have so far been unsuccessful. Moreover, there are no areas adjacent to the lake's shores suitable for settlements, and the entire region will likely remain uninhabited [1, 180].

H. Lansdell mentions a natural phenomenon that sheds some light on the causes of the variable outlines of the lake and its surroundings. According to him, the shifting sands seemed to indicate that Balkhash had once been larger than it was at that time. He writes, "that in these steppes around Balkhash, sandstorms similar to snowdrifts, but much more dangerous, often occur, and that they sometimes rage for several days. Mr. Delmar Morgan speaks of the wind 'Ekhbi', which blows from the southeast towards Ala-Kul and is sometimes so strong as to have the force of a hurricane. It raises clouds of snow and sand and has been known to bury

lone travelers, and also, it is said, villages. Caravans bound for Kuldja dread it and either wait until it ends on the plains, or, to avoid it, go through the mountains" [1, 181].

The traveler's notes on the development of steamboat navigation on the Ili River are also noteworthy. At the time H. Lansdell was in the Ili River valley, the Russians had failed to establish steam service on the river, but upon his return, he learned that an engineer Poklevsky was optimistic about turning the Ili into a means of trade between Kuldzha and Balkhash, and even crossing that lake to the Irtysh, and further on to Siberia and Russia. To implement this project, a small steamship with a displacement of 20 tons was purchased in England and launched in Iliysk, near Verny, in 1883. The first voyage was carried out with a cargo of grain, but with considerable difficulties. These difficulties are primarily related to the riverbed; the river bottom consists of shifting sand, and small islands could form and disappear within a matter of days. However, H. Lansdell assesses Mr. Poklevsky's commercial prospects on the upper section of the river as bleak, as he believes the costs of shipping cargo, due to the low demand for goods, will exceed the potential profit.

H. Lansdell notes some common features of Turkestan's rivers. In particular, they flow northwest, but their lower reaches, as in the case of the Syr Darya, Talas, and Chu, curve eastward. Their right banks are steeper than their left because the mountain ranges bordering both banks of their upper reaches continue to curve around the right bank only after the rivers reach the plain. This is evident in the Chu, Karatal, and Syr Darya below Khujand. All the rivers of Turkestan are distinguished by their speed. Therefore, turning from mountain streams into steppe streams, they continue to flow at a high velocity. Fed by snow, they are swollen with water from spring to midsummer, most of which, however, often drains within 24 hours. Some mountain rivers, impassable from midday until morning, can be forded from dawn until midday. The course of Turkestan's rivers is unfavorable for trade, as caravan trade routes cross them rather than skirt them. Roads from Khiva, Orenburg, and Petropavlovsk are repeatedly crossed by the Amu Darya and Syr Darya, while roads leading from Bukhara are also crossed by the Syr Darya. Consequently, local residents never used these rivers as a means of communication. Only in 1847, the Russians, appearing at the mouth of the Syr Darya, transformed it into a route for advancing into Central Asia. Whether the Syr Darya and Amu Darya ever became trade routes is extremely doubtful [1, 385-386]. It should be noted that, despite the establishment of shipping companies on both rivers, the complex characteristics of the fairways and the variability of the riverbeds prevented their full exploitation.

The researcher also dwells on the gradual drying up of the Aral Sea. "An interesting point about the Aral Sea is that its waters are noticeably drying up, and its circumference is decreasing. Local people explain the disappearance of the water flowing into the lake by the fact that there is a terrible whirlpool in the middle, and that the Aral Sea's waters enter the Caspian Sea through an underground channel. The true reason, as N. Mayev points out, lies in the physical law according to which, if rivers flow into a lake, its surface continues to fill and expand until its surface becomes such that the amount of water evaporated annually becomes equal to the amount brought by the rivers" [1, 431]. A local legend about the presence of an underground pool connecting the two seas is often mentioned by 19th century authors. However, in reality, the reason for the lake bed not overflowing was the high level of evaporation. The traveler then discusses the possible drying up of the Aral Sea, which would occur if the Amu Darya were to flow into the Caspian Sea again for some reason. "In this case, the Aral Sea, annually deprived of millions (1,175,000,000,000) cubic feet of river water, would lose a twentieth part of its volume in the first year. After 10 or 12 years, as Reclus calculated , it would be no more than half of its current volume, its entire flat bottom – that is, the most extensive parts of its basin – would dry up; after 80 years, there would be water only in five depressions, of which the two main ones would be located, one in the center and the other in the western part of the present lake, and the various remnants of the Aral Sea would be reduced to the size of other seas or steppe lakes" [1, 432]. At that time, the Russian scientific community was actively exploring the possibility of diverting part of the Amu Darya's waters into the Caspian Sea to create a continuous waterway to the borders of India. H. Lansdell implied this very reason for the river's re-entry into the Caspian Sea in his speculations. However, after careful research, this proposal was rejected. Moreover, L. Berg, who studied the Aral Sea at the turn of the 20th century, noted a rise in the water level in the Aral Sea. Consequently, until the second half of the 20th century, there were no direct preconditions for the drying up of the Aral Sea.

CONCLUSION

The information about the water sources of Central Asia, provided by H. Lansdell, is distinguished by its diversity. It is evident that before the journey the author was well acquainted with previous studies of the region, and in the course of describing his own observations, he skillfully uses this data, comparing them with the current situation. In particular, H.

Lansdell repeatedly refers to the works of Russian and English researchers, especially L. Kostenko, A. Fedchenko, P. Semenov, R. Lenz, I. Mushketov, A. Burns, G. Rawlinson, G. Wood, G. Yule and others. From this point of view, the work of H. Lansdell “Russian Central Asia: including Kuldja, Bokhara, Khiva and Merv” can be considered both a memoir-like travelogue and an analytical review of previous research. The historical value of the hydrographic information presented in the work allows for comparison with data from previous and subsequent periods, as the region’s water sources were variable. Furthermore, the comparison with existing information at the time allows for a firmer understanding of the location, hydrometric characteristics, and climatic changes of major bodies of water in Central Asia.

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