Man on Baikal: History of Interaction with the Environment

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Abstract. The purpose of this report is to acquaint the recoder with the history of interaction the man with Environment on Baikal. Environment, natural-climatic and landscape living conditions basically influenced, as known, human history. And, in particular, they influenced economic activities, culture, mode of life and character of folks. Peoples of the World had to consider with environment at each stage of their development. The ancients looked for more favorable places of living for their surviving. Especially they were attracted by big water reservoirs such as rivers and lakes, because living near them was much more easier. Often big water reservoirs served as the source for the conceptions for civilizations. At that time a man was influenced by them and tried to adopt to the environment. He formed the modern image of these reservoirs in the process of his activity. And so a human been and nature historically felt the mutual influence upon each other. And Lake Baikal is not an exception. It has fed and given to drink since the ancient time.

1. Introduction
Baikal is situated in the region of intersection wooden and steppe landscapes. There were ancient wood and steppe civilizations on its shares. The penetration of different folks and their cultures took place there [1].

People, coming to Baikal shares called one of the World’s wonders in different languages and they added «sacred», impressed by its greatness and beauty. Not occasionally etymology of its name was disputed by the different folks. So, the ancient Tiurks called it Bai Kul, that means «Rich Lake». The Ancestors of Buryats – Bai Gal – «Standing fire» (according to the Buryats lagent ther was a volcano at Baikal’s place, and after its explosion lake formed.) And in ancient Chinese Chronicles (the 2\textsuperscript{nd} century B. C.) They called it respectfully Bei Hai – «the Northern Sea».

2. Problem Statement
At the same time Lake was much more less subjected to the human’s influenced in the comparison with other big Europe and Asian reservoirs, because of its remoteness from the basic centers of
civilization. There are a lot of historical and cultural monuments of different epochs on its shares and near by. They help us to retrace the history of interaction of the Man and Environment on Baikal, its mutual influence and interaction of different cultures.

3. Research Questions

The most ancient settlements of the ancient man in Siberia, which are about 40 thousand old, were found exactly in Priibaikalje (Malta, Buret and others). As for the lake's shares there were found just separate findings of the Paleolithic Period, but the settlements have not been found till now. Apparently a man appeared on Baikal’s shares later – in the Mesolithic epoch. So, during the building of BAM (Baikal – Amur Railway) on the North of Baikal in the Kurli bay Mesolithic settlements were found. Generally the question about the time of man’s appearing on Baikal has not been studied and it needs a further investigation.

In any way, in the Neolithic Period, 6-7thousand years ago, the shores of Baikal were settled by a man. The Neolithic settlements were found all over the shore from the Shamanka cape in the southen part of the lake till Nizhneangarsk in the North. The mass coming to the shares was connected with the gradual changes of the environment. By that time the basic food: mammoths, wooly rhinoceroses and other big animals had been disappeared. The man had to look for other sources of existence, improving the technique of stone’s processing and creating absolutely new products. That was a bow and arrows, ceramics, etc.

Also the Baikal fish became an important source of feeding. The man of Neolith mastered the art of fishing. In ancient Baikal settlements pluppets, fish-hooks from bone and wood, stone fish-baits, and also fish bones and scale were found.

As for Neolithic man’s influence on Baikal and environment, we think that it was minimum because of small number of people and their weak material and technological equipment. But Baikal’s influence on ancient people was much more stronger. In fact the shore landscape determined the places of their location and their occupation.

In the «Bronze Age» epoch, from the beginning the 1st millenium B.C. the northen broad, so called the broad of the ‘Tombstone graves» culture. The great territory of the Central Asia, from Baikal till the Gobi desert and from Manchzuria till West Mongolia was occupied by people of this culture. The monuments of the «Tombstone graves» culture are situated on the both Baikal’s shores. People of this culture were cattle-breeders. Having come to the lake they taught to native tribes a cattle-breeding. In their turn, they borrowed from native people fishing, which became to play the important part in their life on lake Baikal.

«Tombstone gaves» creators had also well-developed art culture. The pethroglifs – rock drawings made with raddle - are the best illustrations.

Bronze age’s pethroglifs were found at some places on the lake shores. Under these rock drawings special credence for sacrifices were.

At the end of the 3rd century B.C. in the steppes of the Central Asia the first large union of Hun tribes was formed. It's north frontier was near Baikal.

At the end of the 1st millenium B.C. and at the beginning of the 1st millenium A.D. There was one more culture, so called «Elginskie graves» on the Western Baikal shore. The base of its economy formed cattle-breeding, fishing, and hunt. In 1998-1999 archaeologists and geologists of Irkutsk State
Technological University found two well remaining centers of ancient metallurgy of the «Elginskie graves» on the Baikal shores near Chernorud settlement.

In the middle of the 1st millennium A.D. Baikal and the territories near Baikal were settled by Tiurkish speaking Kurikan tribes. They formed the tribe union. According to ancient Chinese chronicles Kurikans, as their predecessors, were occupied in cattle breeding, fishing, hunting, and even farming, Kurikan culture was distinguished by their highly skilled processing of iron. Kurikans made weapons, chain armours, sicles, plough shares and even special shoes for moving on the ice from iron.

In the 10th – 11th centuries under the pressure of nomadic Mongolian speaking tribes one part of the Kurikans had to move north, and the other part, having stayed in the territories adjoining Baikal, mixed with newcomers from the South has been living on Baikal till now. The place of Buryat tribes living was called Barguchzin-Tokum country at the neighbouring people. Buryats settled the Baikal’s shores quite dense and ousted other peoples little by little. In the North of Baikal only small in numbers anh not formed as united whole Evenk tribes were continuing to live. The Evenks were wood hunters for fur-bearing animals. The Buryat names became established on the lake shores little by little.

As for economic activity, the Buryats in general were continuing to live as their predecessors. The main Buryats’ occupations remained the same. That were cattle breeding, fishing, hunting. At the same time, they improved them. So, during the fishing the Buryats started to use small nets, made from horse-hair. It let to fish more.

Thanks to the fact that the Buryats have kept their culture, traditions and habits till nowadays, we may judge about their interactions with environment in ancient times. And as long as Buryats inherited economic type and culture of the peoples, having inhabited the Baikal shore in earlier times, we may also consider that their predecessors had analogous interactions with environment.

In general care attitude to nature was a character feature of Buryats and more ancient people. The Buryat tribes like their predecessors depend on environment, and so they lived in harmony with it [2]. They observed ancient rites that were believed to influence the success of the hunt. Each tribe and family had their deities and ghosts. The spiritualization of nature and object, close connection with environment led them to resort to ritual acts. Any important deed, either a hunt, a fishing, a wedding, a birth or a burial could not happen without them. Sacrifices, the highest act of any rite was impossible without ritual credence – an obo, ongons and shaman himself.

Especially respectfully Buryats concerned to trees, as all their life was connected to a tree. They believed that trees possessed particular strength. Touching the tree promised health. Buryats also thought that if a man cut a tree for no reason he would shorten his and his descendants’ lives. Cedar, fir, pine, larch and birch were held sacred, near them rites were carried out.

But Baikal was certainly the main character in Buryat’s rites. The Buryats, as well as their predecessors, worshipped water element, since Water had left from Heaven, on which all life on the land depended. The Buryats guessed, that Baikal was a reflection on the land and display as its highest mercy. They believed, that the land of Bargudzin-Tokum is marked by Eternal Blue Heaven’s mercy. Making the rite of white mares’ milk sprinkling in Baikal’s waters, they asked Heaven about mercy and indulgence.

There are a lot of myths, legends and fair tails about the lake. All of them emphasize its wisdom and greatness. The mythical fish Abarga zagahan lived in its depth, which was considered to be an ancestor and the queen of all fishes. Every year in spring Buryats made sacrifices and the rite of milk sprinkling in honour of this fish. In the waters of Baikal Burhot and Swan swam, Eagle soared above them. These above-mentioned animals are mythical ancestors of Buryats.

In general, speaking about man’s interaction with environment at the moment of Russian pioneers appearing, it is necessary to note, it was distinguished with harmony. The economic influence of the man was rather insignificant. On the contrary, the ancient man felt powerful influence of environment, both physical, and spiritual. Just environment has formed the man’s occupation and his culture, spiritual world and traditions of the careful attitude to nature. Later the Baikal’s inhabitants felt this influence too.
In the middle of the 17th century on the Baikal shores the new people appeared. In 1643 the Russian Cossacks group of Kurbat Ivanov reached the lake in the island of olkhon area. From that moment Russian groups visited Baikal regularly, collecting yasak – a kind of taxes - from the local population. Soon the first settlements – Nizhneangarsk fortress(1647), Barguzin fortress(1648), and then others were built there [3].

The Russian Christian settlers have brought the traditions and skills of economic activity. The exploration of Baikal after connection of Siberia to Russia began to pass more intensively. On its shores, where it was possible, Russian have engaged agriculture. Also the settlers have improved methods of fishing. Instead of individual instruments of fishing and small hair networks the large networks began to be used (in the 17th century their length quite often exceeded 200 meters). The motivation of fishing on Baikal has also changed. If local population earlier had fished for their own needs only, Russians began to do it with the purpose of the next sale. The new methods were applied in a hunt the fur animals too, that also was caused by the pursuit of profit.

The coming of Russians on the lake’s shores has resulted in the beginning of navigation and development of the transport communications there. In the second part of the 18th century the Moscow – Siberian road was built on the western Baikal shore near the source of the Angara river. Its continuation began in 100 kilometers near Ambassadorial monastery. People forwarded through lake on horses in winter, and on courts in summer. In 1744 for the organization of Baikal navigation on the special Admiralty was formed in Irkutsk. In 100 years on lake the first steamers have appeared on the lake. In the middle of the 19th century the Krugobaikal road was constructed through the southern end of Baikal from Irkutsk and further on the eastern shore. It has allowed to establish the reliable all-the-year-round message with the eastern areas of Siberia.

The connection of Siberia to Russia promoted the beginning of scientific study of Baikal, about which it was not known almost anything by then. During the 18th century Baikal has visited some scientific expeditions, which have allowed to make and issue the first geographical card of the lake and its shores in 1775. In 1868 г. the famous scientist B.Dibovski began the Baikal complex research,

As a whole to the beginning of the 20th century the influence of the man on Baikal, certainly, has increased. Approximately for 250 years the development of lands, convenient for agriculture, and construction have resulted in cutting down of woods in some areas of coast and change of coastal landscapes. Perhaps, the greatest loss to nature was brought by unchecked pursuit of furs. In 1684 the Russian government was forced to enter the interdiction on production of a sable in Pribaikaljie. And in subsequent it periodically entered similar interdictions. However it was not possible to restore live-stock of a sable.

At the same time, it is impossible to speak about any irreversible influence of the man on Baikal in that time. The human activity scales were rather insignificant yet. For instance, agricultural lands and the inhabited localities on the lake’s shores occupied the very small area. Fish stocks have not appreciably decreased.

In its turn environment also continued to render appreciable influence on the man. As well as native population, Russian settlers were compelled to adapt to its conditions. It was showed in economic activity. On the Baikal shores the most important occupation of Russian population became not agriculture, and fishery. The environment has rendered the powerful spiritual influence on Russian. They were fascinated by Baikal’s beauty and greatness, and they have involuntarily liked respect to it. There are a lot of the written and oral sources, telling about it. The process of the mutual penetration of Russian and Buryat cultures also influenced the attitude to the lake. So, the expression “sacred Baikal” became a part of Russian folklore. From the Buryat Russian have apprehended some traditions and customs connected to the careful attitude to nature. In their turn Buryats have begun to adopt more consumer attitude to nature, and also some skills of economic activity, unknown by them, including agriculture.

At the boundary of the 19th and 20th centuries the man’s interaction with the environment on Baikal begin to change. The техногенное influence of the man on the lake grows caused by technical progress during the 20th century and connected with it [4, 5]
The beginning to this process was put by railway construction. In 1898 Transsiberian railway was built on a Baikal shore near the source of the Angara [6]. Then their construction was continued further on east. In 1899 for a ferry through lake the special ice breaker - ferry - "Baikal" has constructed [7, 8]. Their displacement was more than 4000 tons. It could take 25 cars and 300 passengers. The ice breaker got over the ice, that thickness was a meter. It was the second in the world on capacity in that time. Other few steamers were built to transport cargoes and provide the railway construction. At that time construction of the railway around of lake was being continued. On Baikal the builders came across with a very hard relief and the construction lasted for seven years. Nevertheless in they managed to construct the Krugobaikal site of the Transsiberian railway of length more over than 300 kilometers, on which there were more than 50 tunnels and galleries, and a lot of other complex technical structures in 1905 [9, 10, 11].

The railway has not changed external shape of the Baikal shores only, but also has resulted in acceleration of economic development of Pribaikalje. On coast of lake A lot of new inhabited localities, the first industrial enterprises - railway workshops, ship-building shipyard, factories on fish’s processing have appeared on the lake’s shores. The fish catching and the timber cutting volumes were increased.

Especially the industrial activity on Baikal has amplified after October revolution of 1917. A lot of industrial enterprises(basically mining and timber industries) and inhabited localities were built at the coast, including two cities – Baikalsk and Severobaikalsk. And the extreme consumer approach to a nature, which was spread in public consciousness was fixed as a basic of economic policy. Development of Baikal, as well as all country passed under the slogan "the Man should not wait favors from a nature, our task is to take them at it!". The main goal was the fulfillment of the economic plans at any cost, instead of care of safety of the environment and its resources.

The acceleration of economic development was accompanied by appreciable growth of the population on the lake’s shores, basically at because of migration from the European part of the USSR. (Today about 150 thousand of the man live on the Baikal shores and more than 1,5 millions live nearby from their) New migrants, unfamiliar with local traditions, were subjected to the consumer attitude to the nature most of all.

As a result, in economic activity the people began to use technologies, which rendered the extremely negative influence on an environment. For example, an wood float on the rivers, running into Baikal, and then it was raft towage on lake applied at the timber cutting near the coast. By the amplified(strengthened) rates, without the account of real stocks was conducted Fishing in The Baikal waters was conducted by the amplified rates, without the regard of real stocks. Many industrial enterprises and inhabited localities, including Baikal pulp and paper combine notorios all over the world, were constructed without the regard of the requirements of environmental safety. So, in particular, Severobaikalsk city, appeared on lake coast during the BAM’s construction, had no sewage systems until recently and it sewage got directly in Baikal [12].

Result of human activity in the 20th century became the large damage put to an environment on Baikal. It is both pollution, and having undermined fish stocks, etc., it was spoken and written a lot about it last decade, when the problems of Baikal were widely discussed by the Russian and international public and when many facts and scales of damage are known for steel [13].

The negative phenomena increased gradually, so at the second part of the 20th century the process of comprehension that a man has broken balance with the Baikal environment began. The main role in it belongs to science. Economic exploration of Baikal in the 20th century has had one obviously positive party - it promoted development of scientific researches. Since the end of the 19th century their volume subjects have been continuous amplified [14, 15]. Baikal and its coast have been studied by geographers, biologists, geologists, biologists and representatives of other sciences [16]. They have paid attention of society to danger of the economic development way, chosen before. The scientists have convincingly shown uniqueness of lake and necessity of its preservation and protection. In 1980-1990 they managed to attract public interest in Baikal problems both in Russia, and abroad.
4. Purpose of the Study

The article is aimed at summarizing the historical experience of Eastern Siberia’s . An attempt has been made to identify a number of factors affecting the formation of modern configuration of its enterprises and to identify trends in modern development. The article is based on the extensive involvement of sources , many of which are introduced into scientific circulation for the first time. The study should close certain gaps in covering the history of the region.

5. Research Methods

The article deals with both general scientific methods (comparison, description, generalization, deduction, induction, etc.) and methods of historical research (chronological, historical genetic, periodization). The use of statistical, historical and sociological methods is justified for the analysis of a large array of concrete facts. The typological method has allowed us to identify groups of similar phenomena and processes. The whole set of possibilities, as well as the system method, has made it possible to recreate an objective scientific picture of the issue studied.

6. Conclusions

As a result the tendency to reappraisal of the consumer attitude to the Baikal environment was appeared recently. To it, in particular, testify appearance in Pribaikalje of public environmental movements and amplification of the Russian nature protection legislation, and also the fact, that in 1996 of UNESCO has included Baikal in the list of the world heritage’s objects. The opportunity to not allow irreversible man’s influence on lake can appear today. However it is a very difficult task. The influence of the consumer attitude to nature among the population is far from being overcome [17, 18].

The important role in its decision should play a science and education, especially higher education. The task of the last one is to inform up to experts to be, on which the next development of society depends, saved knowledge of Baikal, show a history of interaction of the man with lake and to convince them of necessity of the careful, harmonious attitude to environment. Baikal area represents perfect educational range in international scale, because of, as already marked, its historical and cultural monuments of different epochs, reflecting interaction of a man with the environment were kept not bad [20, 21].

On the Baikal’s example we may see the history of interaction of the man with an environment. This history is continuously connected to a history of the peoples living on lake’s shores. The peoples coming to Baikal brought their customs and tradition, their skills of economic activity. And it was directly reflected in the attitudes of the man and environment.

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