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"Bahr ul-asrar" by Mahmud ibn Wali is a work that provides information about the famous metal mines and metallurgy in the 17th century

Abstract: this article examines the information collected by Mahmud Ibn Vali, the librarian of the Bukhara Khan's library in the 17th century, about his knowledge of metalworking in the encyclopedic work "Bahrul Asror". The information was prepared based on a Persian translation from a manuscript century text. Valuable information is provided about the experience and traditions of the peoples of Central Asia in making strong iron and steel, and about the deposits of metal and other minerals.

Key words: mines, Bukhara Khanate, Balkh, Badakhshan, metal, iron, steel, copper, blade, sword, dagger, unarmed craftsman, balorak, dagger sheath, sulfur, mercury.

Mahmud bin Vali was a great encyclopedic scholar from Balkh who lived in the 17th century. His father, Mir Muhammad Vali, was originally from Fergana (Kosan), and he went to Bakh during the reign of Pir Muhammed I (1546-1567) from the Shaibani family. He was a well-educated and well-educated person, and he was considered one of the leaders of his time, mainly in jurisprudence. Mahmoud Ibn Wali was born in 1596. At the age of 19, in 1614, he entered the service of the great scholar of jurisprudence and hadith Mirakshah Husayni and aged 10 years. He learns from it. He writes that the rich library of Mirakshah Husayni had a great influence on the enrichment of Mahmud ibn Wali's knowledge. In July 1625, he joined the trade caravan and went to India. Having lived there for 7 years, his Peshawar, Lahore, Delhi. He visited cities and countries such as Agra, Rojmahal, Hyderabad, Vijayanagar, Calcutta, Bihar. He returned to Balkh in August 1631. Then Nadir Muhammad Khan (1606-1642) entered the service of Balkh Khan (1642-1645) and served as a librarian in his library until the end of his life.

He is the author of a very valuable encyclopedic work called "Bahr ul-asrar fi manoqib ul ahyor" (Sea of secrets about the bravery of noble people), which consisted of 7 volumes. Volumes 1-4 of this work, written in 1634-1640, have been found. Although this work has been known to the scientific community since 1902, it is still little studied. Volume 1 of the work contained information on astrology, geography, mineralogy and astronomy.

We used the copy of Mahmud ibn Wali's "Bahr ul asrar fi manoqib ul-aher" (The Sea of Secrets about the Courage of Noble People) in UzRFASh No. 2372.[1] But as a result of our study, it was found that this work consists of 3 parts and provides information about 290 mines. It turned out that 8 of them are practical, that is, artificially created. In the metals section, some information about weaponry is valuable.

In the introduction to the work, the author writes that all metals contain sulfur and mercury. Jewelers used copper to engrave the holsters of weapons. He notes that copper deposits are abundant in Diyarbakir, Rum (now Turkey), Azerbaijan, Suez, Andalus, Nishapur and Europe, and in Kirman (Iran) and Basra. He also notes the abundance of low-quality copper in India.

[1] Mahmud ibn Wali. "Bahr ul asrar fi manoqib ul-aher" (The sea of secrets about the bravery of noble people). Manuscript No. 2372 of UzRFAShI - sheets 273 -330 p.

As we know, gunsmithing is a branch of blacksmithing. Mahmud ibn Vali notes the following about the main raw material iron: "Iron is called "ohan" in Persian and "hadid" in Arabic. Although this metal is of low value, it is very useful in practice. Its composition consists of mercury and sulfur. The 15th century encyclopedist, mineralogist Mahmud ibn Mansur in his book "Jewelry" (written in dedication to Khalil Bahadir Khan bin Abu Nasr Hassan Bahadir Khan Khalidullahi (843/1488-882/1497), the founder of the White Pigeon Dynasty) said that iron consists of two parts. One is mild iron and the other is strong steel.

There are 4 types of soft iron. The first is water-free, white in color, and is mainly used in the manufacture of weapons. The second type is good for making tih, from which the famous Rum (now Turkey) blades and heavy weapons are made, the third type is used by ironsmiths only for making ornaments, the fourth type is so soft that it is made into boards as thin as paper.

In India, iron is found in such a way that strong "steel" is made from it. Blades are made from this steel. These knives are known to the world as "Hindi knife". "Hindi" and "farangi" - (European) blades are black. "Indian swords" are also made from this type of iron. Swords made in India are highly valued and valued in the world. Even swords made of iron, considered to be of the lowest quality, are considered respectable compared to "farangi" (European) swords.[2]

"There are two types of steel. One of its mines is Shavron, some say that this place is taken from the mountain from "Shoburkan", "Shibirkan". They make a pit, grind a piece of steel to this place and bring it from the mountain. A little soft iron is melted and added to this steel. This compound mineral is called "balorak" by jewelers. They make blades, daggers, and swords from balorak.[3]

This word is often found in medieval literature. In dictionaries of classical literature, the term "balorak" is explained as "shiny blade, sword, Indian sword, sharp sword".[4] It means that he gained fame in his time.

According to Mahmud ibn Wali, "balorak making is considered an art form in India." They also add gold to this compound ore. This Balorak is popularly known as "King of Hindi". There are several types of balorak. One was "Balorak Shahi", another "Balorak Johi", and "Balorak Zuhinyoo" (Brighter, Shining Beautiful). Balorak shah was white in color, Zuhal type had a lot of shiny zari, while Johi type was white, it had more margimush (angusht) particles in it, which gave it blackness. Most of the gunsmiths preferred and purchased the "balorak shahi" and "balorak zuhinyoo" types made by Indian craftsmen. Persians made weapons from "balorak johi" in Iran. These weapons are decorated with red flowers in comparison to the Indian weapons and look like gold and many praise this weapon. Muhammad ibn Mansur reports that such a sword is valued at a thousand gold." There is also a Khorasan variety of "Bilarak Shahi", which is also widely famous. It is much better and purer than steel. There are 10 iron mines in Khorasan that can be used to make solid weapons. Many household tools are also made from this inferior grade of iron. If the owner of a steel weapon or blade injures an Indian, the bleeding will not stop for a long time, and the injury will be severe. But if this ore contains macaque and magnetic iron, it turns black in fire. It is suitable for making a lamp. Bilinos says that if one part of iron, one part of copper, and two

[2] Mahmud ibn Wali. "Bahr ul asrar fi manoqib ul-aher" (The sea of secrets about the bravery of noble people). Manuscript No. 2372 of UzRFAShI - sheets 273 -330 p.
[3] Muhammad ibn Mansur. Jewelry. // Uz.RFA ShI in. 2294/ II – sheets 170-246p.
[4] A glossary of Alisher Navoi's works. - T. 1993. B. 37p.

parts of gold are mixed, the scorpion's speed is carved, scorpion venom (blood) is added to it, and if it is cooked and heated, the wound of the sword made of this metal will not heal and the wound will not end. It is known from the medieval literature that we have studied that during the battle, skilled commanders like Amir Timur tried to place their soldiers in such a way that during the battle, the armor of the enemy's army would not be dazzled by the glare of the sun. It was even tried to use the brightness of these weapons against the enemy, so that they would not be able to take the target in the blink of an eye. In battles, weapons were used not only in terms of sharpness and shine. Thus, Mahmud ibn Wali also gave valuable information about the complex composition of metals and their fields of use in his darvi.

Mahmud ibn Wali writes about silver: "Silver deposits are so numerous that they are found in all climate countries. Some (of them) are working, the rest are abandoned." According to the information provided by the scientist, such deposits are found in Khutalon and Kandihor. While gold and silver decreased, iron mining continued at a steady rate. In this regard, the information provided about the iron deposits in Badakhshan is noteworthy. He points out that the increasing need for iron was the main reason for this. Because the production of labor tools and a number of household items and weapons increased during the politically dangerous years.

Mahmoud ibn Wali used many sources in writing this work: Aristotle (384-322 AD), Jolinus (130-200 AD), Bilisinos[5], Disquridus Abu Raykhan Beruni and Ibn Sina, Farabi, Tayfashi, Abu Yaqub He used the works of Isa al-Kindi Abdul Majid [5], Muhammad Zakariya al-Qazvini, Hamidullah Qazvini and Muhammad ibn Mansur, as well as many explanatory dictionaries ("Kutub - i farhang"). He also used the information he had collected during his many years of travels to Movaraunnahr, Khurasan, Badakhshan and India.

Conclusion

In conclusion, it should be said that the jewelers of Central Asia tried to collect scientific knowledge and experiences about minerals collected all over the world. This knowledge was used in the organization of mining works of the Bukhara Khanate, extraction of metal from ore, and foreign cooperation experiences in the development of metal-related crafts. That is why such encyclopedias were written and kept in the palace. From the writings of Mahmud Ibn Wali, it is possible to understand the centers of expensive weapons of the international arms market. In the 17th century, Indian, Iranian, Khurasan, Turkish weapons became popular, and experiences were exchanged due to international relations.

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3. A glossary of Alisher Navoi's works. - T. 1993. B. 37p.

4. Balinos - On the identity of Balinas, Sylvester de Sacy says that it is an Arabic translation of the name of Plinius. However, it is now considered indisputable. We are talking about Apollonia of Tyana (who also lived in the 1st century AD), a famous Pythagorean scholar who traveled a lot in the East. // Al-Beruni, Abu-r-Rayhan Muhammad ibn Ahmad. (Mineralogy) / translated by A.M. Belenitsky. – L. 1963 - S. 401p.

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