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THE MINERALOGICAL KNOWLEDGE OF THE ANCIENT BULGARIANS ACCORDING TO SOME MEDIEVAL SOURCES

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ABSTRACT

According to the numerous publications about the origin and distribution of the ancient Bulgarians throughout the centuries (see Dobrev, 1991, 1998; 2003; Tabakov, 1999), they have migrated from their primal native land located around the Pamir region in direction to the Caucases, and later on two major states have been founded, known as Volga's Bulgaria and Asparukh's Bulgaria. In the mineralogical treatise of the Medieval encyclopaedic scholar al-Biruni (XI century) are listed data, pointing out that the inhabitants of Balkh (Balkhara, Bolor, Bulur) and Volga's Bulgaria have extracted, ore-dressed and traded gem minerals and precious metals. The name *balas* for red spinel from Badakhshan has its origin in the ancient name of the region Balaxian (Balkh). According to data of the Armenian scholar Arakel Davrizhetzi (1669) one of the ruby varieties has been called *balkhi* (from Balkh – in analogy to the the colour of spinel). The coincidence of the names *bulhor* (Bulgarians) in the Tadjik and *bullur* (rock crystal) in the Persian and Arabic languages probably can illustrate forgotten traditions of population, which has been engaged exclusively from the most ancient times with exploitation and trade of gem minerals and of metals as copper, gold and iron both.

INTRODUCTION

According to the existing Byzantine and Syrian Medieval sources the most ancient Bulgarian land has been located at Mount Imeon, a name including the high mountain regions in Central Asia enclosing southern Tadjikistan and the northern parts of Afghanistan, Pakistan and India – Hindukush, Pamir, Karakorum and the Kashmir Hymalayas. In this region the name of the ancient kingdon Balkh (Balkhara) has been mentioned according to Indian sources, and the main city has also been known as Balkh (Dobrev, 1991; 1998; 2002). These lands, according to Armenian and Persian sources, have been inhabited by people, known as *Bulkh* or *Bulgkhar*, and in Europe during Greek and Roman times these lands are known as Bactria (Bactrian kingdom). The founded in northern India state Balkhara (Bolo) has been ruled by a king known as *balkhar*a (Dobrev, 1991; cit. after Biruni; comp. Masson and Romodin, 1964, p. 166-167). Another district in the mountains south of Samarkand with the name Burgar has been reported by the Arab scholar Ibn Haukal – now in the territory of contemporary Tadjikistan not far from the Zeravshan river with the local name Falhar (Dobrev, 1991, p. 29; 2002; c. 99-100). The cited by De Groot and Dimitar Suselov early, probably Bulgarian state Bulur (Bolor) fully corresponds to the name of the Tadjik name for Bulgarians – *Bulkhor*, and in the toponymy of the region there is a ridge, khown as Wakhan, related to the *Wakhan* people in resemblance to the Bulgarian branch *Wkhndur*, mentioned in the history of Moses Horenatzi in the V century (Dobrev, 1998, p. 229).

POPULATION AND REGIONS

The root *Bulg-* (*Bulgkh* or *Balgkh;* in the interpretation of Dovrev – a big town or kingdom, and for the Bulgarians – people from the Big town or the Big kingdom correspondingly) is specific with the characteristic Bulgarian sound ъ, which has been pronounced or changed in different languages during the centuries. According to linguistic research two small tribes with similar linguistic peculiarities have been found in the discussed region of Hindukush – *munjan and iidga (bregeio)* (Dobrev, 2002; comp. Litvinsky, 1972, p. 165-168). The contemporary inhabitation of the Tadjiks in Afghanistan displays their localization mainly in the provinces of Badakhshan, Balkh, in both Parvan and Kapisa provinces north of Kabul and in the mountain regions around the town of Herat. In most cases the Tadjiks and the so called Near-Pamir Tadjiks occupy high mountain regions related to some of the most important industrial mineral and ore deposits, some of which have been exploited since Antiquity and Medieval times. This correspondance of certain ethnic groups to definite mountain regions on the background of the whole Hindukush or its surroundings shows a tendency for linking of tribe groups with the culture of more ancient people, which are known to have acted as miners exploiting gem minerals and metals.

In the work of the Arab geographer Yakut ar-Rumi (~1179–1229) the districts Bolor and Burdjan have been mentioned between Kashmir and Badakhshan, suggested as the first mentioning of names of Bulgarian states in Arab geographic literature in Centarl Asia (Tabakov, 1999; p. 204). The statetement that the land Burdjan corresponds to Badakhshan, as well as that Bolor corresponds to the whole Hindukush, is not precise, as the second name has been cited separetely by the Arab author. The more reliable explanation is the land Burdjan to be localized west of the land Bolor, corresponding approximately to parts of the contemporary Northwest Border Province of Pakistan. The land Bulur (Bolor) has been identified in the commentary to the mineralogical work of al-Biruni with Kafiristan (Nuristan), where also a ridge with the

name Bolor-tagh is known (Biruni, 1963b, p. 438). The Bolor region has been mentioned by Marco Polo, but as a land probably in the southeastern Fore-Pamir. (Polo, 1986, p. 102; see Tabakov, 1999, p. 249). The Bolor region (Bular, Bulgar, in Chinese sources – Bolo, Po-lu-lo) is localized north of Kashmir and south of the Wakhan ridge (Dobrev, 1991, p. 56; Tabakov, 1999, p. 249; comp. Voinikov, 2001). From a geographical point of view these lands correspond to the most northerrn part of Pakistan and India (in different times and in different range designated as Boloristan, Baltistan, Dardistan, Nuristan and up to Eastern Pamir and Kashmir). Examples for cities and lands Bolo (Bolule, Bolu, Bolyui, Bulu) in this region have been listed in the works of Nikolai Bichurin (1777–1853) (Bichurin, 1950, p. 264, 270, 318-320, 324-325).

THE EVIDENCES OF AL-BIRUNI

The encyclopaedic scholar Abu Rayhan Mohamed ibn Ahmad al-Biruni (973–~1050) is one of the most outstanding Central Asia scientist with a lot of works in astronomy, geodesy, geography, history and botany, written in Arabic language. In one of his last works, devoted to gem minerals and metals '*A Collection of Knowledge on Gemstones'* al-Biruni mentiones several times the names Balkh and Bulur (Bolor) or related to them characteristics. This treatise is an unique in volume and quality of information book about the distribution, production, physical properties, utilization, prices and trade, lore and real stories of gem and decorative minerals, including their varieties, as well as the most important metals.

1.The district Balkh has been discussed in the chapter about the corundum (*yakut*): "Abu Hanifa ad-Dinavri says in his 'Book of Plants' that *ranf* is a species of mountain tree. It is known with the name *hilaf balkhi*… The leaves of *hilaf balkhi*, known in Balkh as *sirishk* by the juice, which they sqeeze from it and purify by boiling, are smaller than the leaves of the lilly" (Biruni, 1963b; p. 37). In this case the Arab name has been underlined with an adiitional name, pointing to the connection of the plant with the Balkh area. This fact indicates that its area of distribution are more likely the mountain regions of Hindukush of the contemporary province Badakhshan, and not the plaines of Balkh. These plants are analysed in the context of the statement, that one of the best colours of the *yakut* (ruby) resembles that of the wild crocus.

2. In another case, al-Biruni tells the story of the rich emir of Gasni, Yamin ad-Daul (998–1030) in Balkh, who during hunting in the mountain met a beggar from Bukhara, who annoyed him. The emir waved with his hand and did not see that a ruby flew away from his ring, found by the beggar. Later on the emir came back to seek for his gemstone and saw once again the beggar, who on the tread to be killed, gave him back the stone being gifted with 300 dinars by the emir (Biruni, 1963; p. 60). In this story once again the idea for the name Balkh as a part of the mountain Hindukush, where red gem minerals (possibly red spinel) can be traced.

3. In the chapter on garnet (*bidjazi*), some garnet deposits have been described as well as the difference between garnet and red spinel (*lal*): "This garnet which comes to Kashmir (from the north) has its origin in the Shikinan pits. From the mountain region with capital Hablik to Shikinan the distance is two days travel, and to Kadkad (Gilgit) – the place of the shah of Bulur – seven days, acounting from the boundary between the Kashmir valley and the capital Adastan (Srinagar]" (Biruni, 1963b; p. 78). According to the comment to the work of al-Biruni the name Bulur (Bolor) can be identified with the mountain region Kafiristan or contemporary Nuristan, but most likely – with regions in the most northern parts of Pakistan. Bulur (Bulul, Bolol) has been described as a kingdom ruiled by a shah. Shikanan has been viewed as a district surrounding the district of Badakhshan, and in its other end is the district of Wakhan.

4. In the chapter on gold, a story about the richness of the river Sind (Indus) has been told, which when "reaching the place against the Shamir idol in the district of Kashmir, towards the district of Bulul, receives its name Sind" (Biruni, 1963b; p. 221). In his work "India" al-Biruni describes, that leaving the mountain pass into the valley, on the left side during two days of travel are the mountains Bolor and Shamilan (Biruni, 1963a, p. 203; comp. Bulur and Shamishan – Biruni, 1963b, p. 479). In the same chapter he tells that the Indians from Kashmir knew the neighbouring country Dardar (Gilgit valley), whose inhabitants have been called *bakhtawaran* (Biruni, 1963b; c. 222; comp. *bhattawarsan* with a king Bhatta-shah and towns Gilgit, Asvira nd Shiltas – Biruni, 1963a, c. 203). In the same chapter as goldbearing has been pointed also the valley of the district Wakhan.

5. In his pharmacological work "Saidan", describing the amber (*kakhrubai ua karuba*) al-Biruni writes: "They say that amber is a dew, [which petrifies on the trees] in the mountains of Bulgar(ia). Later on, it drops (from the mountains) into the sea and it has been (cast) ashore, and there is where they gather it" (Biruni, 1974, p. 776-777; comp. Biruni, 1950; 1963b, c. 472). In the comments on the mineralogical work of al-Biruni it has been asumed that during the VIII–X c. amber appears from the Baltic region with the help of the Bulgarians from the Volga's Bulgaria in the East – at Khoresm and in the Central Asia region. Such data have been confirmed by other sources as al-Masudi and al-Makrisi. In the cited part al-Biruni accepts the district (state) Bulgaria as a mountain region.

6. The trade functions of the Volga's Bulgarians has been confirmed directly by al-Biruni in the chapter for the use of the highly estimated material *hutu*, interpreted in the comments as rhinoceras horn: "It resembles the core of the bone of a fish [walrus ivory, known in ancient Russia as "fish's tooth"], which has been brought by the Bulgarians in Khoresm from the North Sea" (Biruni, 1963b, p. 195). In other interpretations *hutu* is supposed to be fossil mamooth ivory, known from the northern regions (Dobrev, 1998, p. 61). According to the Arab traveller Abu Hamid al-Garnati al-Andalesi (1080–1170), who has visited Volga's Bulgaria "the Bulgarians sell in Khoresm at a great cost similar to ivory teeth of giant animals, which they dig out of the ground", and the trade with mamooth ivory has been mentioned also during the travel of Ibn Fadlan (Akhmerov, 2002, p. 35; the ivory has been exploited from the lands of Volga's Bulgaria and traded to Khoresm, where they used to make hard handles for knives or boxes, but it is not excluded the so called "fish's teeth" to be walrus ivory from the northern regions; Ibid., p. 76). Ancient artifacts made of paleoivory (mamooth tusks) have been found on the territory of Volga's

Bulgaria during archaeological excavations. They are known from the Paleolithic sites Krasnaya Glinka in the Tetyush region and the village Deukovo of the Menzelin region, and thousand mammooth tusk beads have been found from Sungir at Vladimir (Chervonnaya, 1987, p. 14-15). Thus it is possible that *hutu* has been bone material found in local regions, and not from the polar regions.

7. In the chapter on metals, in the story about lead, the following evidence has been listed: "They have told me, but I almost do not believe, that a person in Balkh made mercury from lead and he produced from five parts (of lead) one part (of mercury), and he supplied (the whole) region with it. That is why after him (his death) they asked about it his family, but they did not receive any information, with the exception that he bought lead, which has been molten and that he supplied with mercury a gold mine" (Biruni, 1963b, p. 242-243). The amalgamization with mercury has been one of the main methods for gold extraction, and direct evidence for such a process has been mentioned by al-Biruni in the chapter on mercury.

8. In the chapter on diamond [*almas*] al-Biruni mentions the best sort of diamonds as *bulluri* [that is crystalline or transparent), which are followed by the red diamonds (Biruni, 1963b; p. 86). Thus it is understood, that in Medieval times with the definition *bulluri* (coincidence with the name of the people and state Bulur or Bolor) are named transparent crystals (minerals) as something extremely precious. In the chapter on iron al-Biruni mentions crystal borax (*at-tincar al-bulluri*) once again with the definition of *billuri* – crystalline or transparent (Biruni, 1963b, p. 485).

THE EVIDENCE OF DAVRIZHETZI

In his "Book of Histories" the Armenian historian Arakel Davrizhetzi (1595–1669/1670) describes in a separate chapter the gem minerals used during the Medieval centuries according to data of the priest Sargis of Beria and anonimous sources. Introducing the deposits and properties of noble corundum he mentions that "the red [corundum – ruby] has seven hues: purple, pomegranate [similar in colour with the pomegranate fruit], lilac, residual [probably pale rose], with colour of wine must, with colour of vinegar and balkhi" (Davrizhetzi, 1973, p. 456). Such colour hue as *balkhi* for ruby lacks in the works of al-Kindi and al-Biruni, supposed to be the most voluminous and detailed mineralogical books in Medieval Arab literature. Probably these corundum varieties have been mentioned in some later sources as that of the Arab author at-Tifaschi (1184–1254) (*Arab Roots…*, 1997). Davrizhetzi describes in a next chapter the spinel (*lal*) from Badakhshan, with the popular story how this gem mineral apeared in the mountain after a strong earthquake.

METALLIC AND NON-METALLIC MINERALS

The most ancient Bulgarians (who have been identified as the Ideltzians according to the history 'Dzhagfar Tarikh') have been declared as the first miners in the world (Yarullina, 2002, p. 10), but such a statement has to be supported by evidences of the material culture. A lot of ancient sources confirm that they have exploited not only ores, but also industrial minerals, including gem and decorative minerals (for example rock crystal and lazurite). On the territory of contemporary Afghanistan chalcolithic objects are known since the IV mill. B.C., the copper sources not being clearly identified. Copper artefacts dominate thoughout the III-II mill. B.C., (early agrarian culture Sistan; culture Kandakhara), for which evidence has been found in slags and it has been suggested that the copper has been exported into neighbouring countries (Masson, Rommodin, 1964, p. 37 и 39). Gold mining in the Pre-Pamir region has been known since the II mill. B.C. (Baratov, 1984, p. 40). During the V c. B.C. the lands of Balkh (Bactria) have been conquered by the Ahamenide dynasty, for which is known to take possession of an annual tax of 300 golden talants (21 000 kg gold) (Dobrev, 2001; p. 91). In the same epoch, iron has been allready exploited, its sources however not been identified. The most important gold deposit, known from Medieval times is Zarkashan (al-Biruni mentions the deposts Sarginak and Sangzariz in Zaruban), and the largest copper deposit is Aynak. Gold deposits are known also from the province of Badakhshan (al-Biruni mentions the mountain Shikanan and Rasht, as well as Hutal – Wakhan). In the same region al-Biruni mentions the metal *harsini* (*khadid sini* – "Chinese iron"; from Persian *har chini*), interpreted as arsenic, but the description can suite antimony also. In contemporary Badakhshan are known deposits of copper, gold and iron, as well as a few occurrences of tin (cassiterite).

From the industrial minerals in the Balkh region of specific importance in the past have been the salt (Namakab near the town of Talukan) and sulphur (Chimtal). The salt deposits at Talukan have been described in detail by Marko Polo (Polo, 1986, p. 43). Al-Biruni in his pharmacological work mentions yellow sulphur (*kibrit*) from Balkh, which has been distinguished from the white sulphur from Persia (Biruni, 1974, p. 741), as well as salt (*milkh*) from the districts Darabdjirt and Hutal (Wakhan) (Ibid., p. 823). Halite and gypsum are known from the big deposit Hodjamumin near the town of Kulyab in southern Tadjikistan. Other nonmetallic raw materials with a definite use in the past are talk ("rock powder" – *tashupa*) and graphite from the region around Ishkashim (Baratov, 1984, p. 43).

LAZURITE

The dark blue decorative lazurite has been a sacred mineral to the people of the Mesopotamia and along the trade routes it has reached Ancient Egypt, India and China. The mineral has been used in the material culture, and has been mentioned in literary sources of Sumer and Acad, Assyria and Babylon, in the most ancient period of Egypt (IV mill. B.C.). All these evidences point to intensive trade links in the past and to the extremely importance of lazurite as a highly estimated sacred mineral (Kostov, 1993). Since the IV mill. B.C. lazurite objects are known from the territory of contemporaray Turkmenia and Iran (Sialk; there has been a suggestion, that this settlement has been taken over at the end of the same millennium because of its strategic position on the lazurite trade route) (Sarianidi, 1984, p. 87). In the area of development of the civilizations of Mesopotamia lazurite has been found from archeological excavations in sites dated to the second half of the IV mill. B.C. – in Elam during the reign of Suza I, in

Mesopotamia – in Uruk and Djemdet Nasr (Masson, Rommodin, 1964, p. 35; the authors are inaware who has exploited the mineral in the remote mountains). In a Sumerian text there is evidence for exchange of grain for lazurite, obtained by the tribes in the mountains on the east. The wide spread area of lazurite (dominated by beads) in southwestern Asia allows a suggestion for the beginning of its exploitation to have been started even in the V mill. B.C.

The main source of this mineral is Hindukush with its Sar-e Sang deposit, which has been exploited from Antiquity to contemporary times. The deposit is located at about 3700-4300 m 70 km south of the town of Fayzabad in the valley of the river Sar-e Sang, tributary of the river Kokcha (Brückl, 1937; Blaise and Cesbron, 1966; Efimov and Suderkin, 1967; Rossovsky, 1980). This large lazurite region is located in the range of the Fayzabad metamorphic massif. Al-Biruni mentions two lazurite (*lazaward*, *lazward*, *lazuward*, *alazward* in Persian and Arabic) deposits – at the Karan mountains (probably the Tirgaran ridge) after the steep valley of the river Pandjkhir (Pyandj) and at Tus-Bunak near Zaruban (southern Afghanistan). He writes correctly that in Byzantine times it has been known as *arminakun* (*Armenian stone* – turquoise), as it is similar in colour to turquoise (Biruni, 1963b, p. 182). In a lot of Medieval sources lazurite from Armenia has been mentioned uncorrectly. Probably in such cases, the local or traded from Persia turquoise has been pointed out, which is sky blue and not a dark blue mineral. Lapis lazuri (lapis lasuli) is a name from Medieval treatises, used as a synonym for the mineral lazurite or for lazurite-bearing rock. The Sar-e Sang deposits have been visited and described by an European researcher in 1838 (Wood, 1841, p. 246-245). They have been known in the past with the name of the near-by village of Firgamu (Wood, 1941, p. 261; Fersman, 1961, p. 36). It is possible that this name can be a derivative of Birgamu (with root *bilg-*, *bulg-*). The suffix *-ar* (*-or*; *-ur*) and the deposit (village) with a root *Birg-* (*Bulg-*) can constituate the ethnonym *Bilgar* (*Bulgar*). In Sogdian language lazurite has been known as *r'zβwrt*, *r'zwrt* or *r'cβrt*, from where origins the new Persian and Tadjik name of the mineral, and in Indian sources – as *lājavarta*, *rājavarta* и *rājapatta* (Litvinsky, 1972, p. 79). In the last case the translation would be "the king of the stones" – lazurite as a sacred and royal precious stone.

SPINEL (*BALAS*)

In the province of Badakhshan gem spinel *(lal*) has been exploited. The discovery of spinel in the region has been determined about VII–VIII c., al-Biruni giving the first detailed desciption of the mineral and its deposits. During the X c. this mineral has been mentioned by other Arab authors as Istrakhri (mentions also the deposits of lazurite), Ibn Haukal and Madrisi (Laemmlein, 1963, p. 347). In the same region between Shikanan and Wakhan garnet deposit have been also localized (*bidjada*, *bidjazi*). The Venician traveller Marko Polo (1254–1324) describes in his Asiatic routes and adventures during the XIII c. beside the exploit of lazurite (*lazure*) also the extraction under the king's order of *balas* (spinel) from the Balaxan (Badakhshan) region in the Shighanan mountain. It has been forbidden unauthorized gathering of precious stones even under the threat of death penalty (Polo, 1986, p. 44). Badakhshan can be found in the same and other sources written as Balascian, Balahkshan, Balakhsen, Balaxia or Baldasia. According to the Arab traveller and writer Ibn Batuta (1304–1377) the *badakhshan ruby* has received its name from the name of the corresponding mountains, and has been commonly called *al balakhsh* (comp. *al-lal al-badakhshi* by al-Biruni, but *balakhshi* by al Tifaschi; *Arab Roots*…, 1997). The name *balas* (balas-ruby, bale-ruby) for the spinel as a mineral species (undistinguished in the past from the ruby) or for its variety is attributed to the ancient name of Badakhshan, accepted to be Balkh (Ball, 1893; Hughes, 1994; cit. after Prinsep and Kalikishen, 1832; Wood, 1841, p. 293). The first official record from an European about "ruby" deposits is related to an ambasador (1403–1406) in the court of Timur, who writes about the meeting in Samarkand with the ruler of Balaxia (Badakhshan), around whose grand city in the mountains "rubies'' (spinels) have been found (Ball, 1893; Hughes, 1994; cit. after Markham, 1859). Therefore, the ancient name of spinel – *balas* (from Balaxia – Balkh) denotes an "ancient Bulgarian" gemstone (Kostov, 2003). The contemporary gem spinel deposit Kuhilal in Tadjikistan, as well as the spinel from the regions around have been described in a lot of mineralogical works (Kolesnikova, 1980; Rossovsky, 1980).

OTHER MINERALS

Other gem minerals as green tourmaline, kunzite, beryl and rock crystal are exploited from the pegmatites in the Afghan provinces of Kunar and Laghman (Geruvol et al., 1980; Rossovsky, 1980; Rossovsky and Konovalenko, 1980; Bowersox, 1985). Similar mineralization is known in the neighbouring mountain regions of Pakistan, where aquamarine, yellow-brown topaz and coloured tourmalines are found. The precious minerals have been traded for gold and silver (Biruni, 1963b, p. 64; Laemmlein, 1963, p. 395 and 436).

Before the V c. Chinese sources mention migrations from Balkh (Bolo), connected with the new kingdom in southwestern direction, and during the year "424 some masters went from the town of Balkh in China, and from them the Chinese learned a rare occupation – the making of colour glasses" (Bichurin, 1950, p. 264-265; Dobrev, 1991, p. 44; 2002, p. 106). From the chapter of enamel of al-Biruni it is clear, that during Medieval times the production of crimson-red glass with dispersed gold has been known (now-a-days known as "ruby" glass). According to the data of ad-Dimishki mainly blue glass or enamel has been manifactured, used as a substitute of lazurite (for example "Egyptian azure"; comp. Kostov, 1998, p. 38).

In the Armenian geography "Ashkaratzyuitz", in listing the regions, peoples and tribes, after the Bulgarians (Bulgh) on the west are mentioned the Khoresmians (from Khoresm), where in the district of Tur has been obtained the kholosmian (khoresmian) stone and the best carnelian (Dobrev, 1998, p. 36-37; it is not correct *serdolic* to be interpreted as sardonix, and the *khoresmian stone* as lazurite – cit. in Dobrev, 1991, p. 29; Stamatov, 2002, p. 23). The *serdolic* is a Russian name for carnelian. The *khoresmian stone* is most probably turquoise, known in the past from the mountain ridges on the west (Sultanizdagh), as well as from the central parts of Kuzulkum (Bukamtau and Tamditau), where numerous old mining pits for this gem mineral have been discovered (Menchinskaya, 1989, p. 20-24; comp. Pruger, 1971). Al-Biruni, who has been born in

the region, describes in his treatise only histories about rubies, but not as an object of exploit, but of trade.

ON THE NAME *BULLUR*

In the Persian and Arab mineralogical treatises rock crystal (quartz) is denoted with the name *bullur (ballur; billawr; bilawri)*. It is possible that the name is of an Acadian origin – *burallu*. The origin of the Greek word *βήρύλλος* (beryl) is not yet clear in mineralogy and the note of Laemmlein (1963, p. 459) seems to be accepted as logical and correct – this name has been used primary for denoting of rock crystal. It must be remarked that the morphology of quartz and beryl both includes the hexagonal prism of the crystals. Because of the poor mineralogical knowledge up till a definite period, all of the prismatic or transparerent crystals probably have been denoted as "beryl" (mainly rock crystal because of its broader distribution; for the role of quartz comp. Kostov, 1998).

In the monograph on beryl and its varieties, the following derivative names for beryl have been listed (according to the understanding in a broader sense – rock crystal or crystal): *ballur*, *billaur*, *bulur*, *berulin* – in Persian and Arabic language; *besady* – in Persian; *belur*, *belura* – in Hebrew, Pahlevi; *berula*, *berulo*, *brulo*, *burlo* – in Siryan; *berel* – in Ethiopic; *birla*, *birula* – in Chaldeic; *biurey*, *buregh* – in Armenian; *byvrili*, *byvrioni* – in Georgian; *billurin* – in Arameic; *beryllion* – in Coptic; *beruj* – in India (Sinkankas, 1981, p. 616-617). From this name through the Greek *berilos* (*βήρύλλος*) and the Latin *berylus* (*Berillus*; *Beryllus*) has been derived the contemporary "beryl" (whritten in a different manner in European treatises – for example *Berill*, *Beriillis*, *Berillo*, *Berial*, *Beril*, *Berille*, *Berillus*, *Berolus*, *Berre*, *Beryall*, *Birillus*, *Byral*, *Byralle*, *Byrillus*). The name "emerald" is with a supposed Sanskrit origin, and in ancient India the green mineral has been known as *asmagarba* or *marakata*. In the "Simeon's Sbornik" (according to the copy "Izbornik" from 1073), Epiphanius of Cyprus (~315–403) has been cited with the list of the twelve minerals on the pectoral of the Hebrew high priest, among them a pigeon blue *viroulion (βηρύλλιον)* being mentioned from the mountain Taurus (*Old Bulgarian Literature*, 1992, p. 101; comp. different writing in the Hexameron of John the Exarkh fron the XI c. – *virulii*, in the Vilnen copy of the "Simeon's Sbornik" from the XVI c. – *virulion*, Ibid., p. 394; Epiphanius of Cyprus – *virillion*). The name of the Taurus mountains in the past may have been perceived as the whole mountain region on the northeast of Mesopotamia, including Hindukush.

In the understanding of al-Biruni the rock crystal owns its value related to two natural primal essences – water and air. "From Kashmir *bullur* [rock crystal] has been exported either as pieces of rough material, either as manifactured from it vessels, cups, chess figures, pawns for nard [draughts] and beads with the size of a hazelnut. …They find it as pieces in the mountains; its in abundance in the area of Wakhan and Badakhshan, but it is not exported there from" (Biruni, 1963b, p. 172). The regions of Wakhan and Badakhshan are defined as a place, where there is supposed to be "probably, a huge quantity of rock crystal for trade as cut and raw material both" (Laemmlein, 1963, p. 347). The evidence of al-Biruni proves directly the exploit and trade with quartz varieties – mostly rock crystal.

THE TRADITION IN VOLGA'S BULGARIA

Confirmation for preserved traditions in jewellery and trade with gem minerals and noble metals can be found in a lot of the objects of material culture in the Bulgarian settlements in the Volga region. From about 900 mineral objects as dominantly have been described carnelian (48%), amber (20%) and rock crystal (10%), and rarely turquoise (5%), amethyst (5%), chalcedony (agate), lazurite and nephrite or other gemmological materials (Poluboyarinova, 1991, p. 98-99). Lazurite artefacts have been excavated at the settlements of Bolgara and Saraya, where local workshops for cutting gem minerals have been found (Ibid., p. 101). At a later stage the successors of the Volga's Bulgarians are engaged in trade of metallic and non-metallic raw materials from the Ural's mountains towards Europe.

CONCLUSION

In the mineralogical treatise of the Medieval encyclopaedic scholar al-Biruni (XI century) are listed data, pointing out that the inhabitants of Balkh (Balkhara, Bolor, Bulur) and Volga's Bulgaria have extracted, ore-dressed and traded with gem minerals and precious metals.

According to the Armenian historian Arakel Davrizhetzi (1669) one of the ruby varieties has been known as *balkhi* (from Balkh; in analogy with the colour of spinel).

The name *balas* for red spinel from Badakhshan can be drown out from the ancient name of the province (Balaxan from Balkh).

The coincidence of the names *bulhor* (Bulgarians) in the Tadjik and *bullur* (rock crystal) in the Persian and Arabic languages probably can illustrate forgotten traditions of a population, which has been engaged exclusively from most ancient times with exploitation and trade of gem minerals and of metals as copper, gold and iron both. The discussed coincidence in the name of transparent non-coloured crystals (rock crystal) and the ethnonym Bulur (Bolor) as well as the overlapping of the regions occupied with ancient Bulgarian population (mixed throughout the centuries and inherited by the migration of other tribes and people) and regions with distribution of quartz and other gem crystals allows a search for mutual influence in both directions. Thus the ancient Bulgarians can be expressed also as the people of a transparent (clear) nature, who have exploited, treated and traded gem minerals.

Beside medieval sources, the preserved traditions in working and trading gem minerals and noble metals have been demonstrated from data in medieval Volga's Bulgaria.

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