

The Fabulous Wealth of Pre-British India

Manikant Shah
Lok Vigyan Kendra
Almora 263601
Email: shahmanikant@rediffmail.com

Before the British came, India was a rich country and the fame of its wealth attracted both travelers and invaders. *Minerals and Metals in Pre-Modern India* by A.K. Biswas (2001) does give us a dazzling glimpse of this wealth, especially of the gemstones. The riches of India were mind-boggling indeed and Biswas tries to give a fair idea of its wealth. The British claimed that they came to 'civilise' India, but the reality was that they came to plunder its fabulous wealth and resources.

The wealth of nations in the past, in the absence of the modern day convertible currency, was generally evaluated in terms of the minerals and metals a kingdom controlled. The stories of the richness of India in the past had reached far and wide and were so alluring that as soon as explorer expeditions were undertaken in the medieval times, their main aim was to discover a route to India. The fantastic stories about the wealth of India in the past are so mystifying that ancient India was often referred to as the Golden Bird. Arun Kumar Biswas who had earlier done the book on *Minerals and Metals in Ancient India*, here takes a look at the gem-minerals in the pre-modern India. Gems are precious stones occurring along with other minerals below the surface of the earth.

Biswas looks into the gems in the pre-modern India mainly under the following heads: (a) travelers' accounts of Indian gems; (b) the gem treasury of the Moguls; (c) some specific gem minerals such as pearl, coral, ruby and sapphire, etc.; (d) and the Indian diamond mines in the pre-modern era.

Travelers' Accounts of Indian Gems

At the outset we are informed that India's traditions in ancient and medieval gems are authenticated not so much by archaeological evidence as by the travelers' accounts. There are numerous and rich accounts in this regard, some of which Biswas says were collected by Valentine Ball. As far back as AD 77, we are told, Pliny in his *Historis Naturalis* had given extraordinary information regarding precious stones and metals around the world, a large proportion of them being of Indian origin. He referred to Indian *adamas* (diamond), *smaragdus*

(emerald), beryl, opal, etc. In AD 140-60 Ptolemy too referred to diamond mining on the Adamas River. Besides others, the account of Hazrat Amir Khusrau, the famed poet who accompanied Malik Naib, Alauddin Khalji's army general in AD 1310-1312 military expedition to south India, describes the colossal treasure of gold, emerald and other gems which had been collected during the earlier' periods of ancient India. Khusrau, after the capture of the fort of Warangal says,

The boxes carried by the elephants were full of valuables and gems, the excellence of which drove the onlookers mad. Every emerald (*zabarzad*) sparkled in the light of the sun. . . . The corundum/sapphire (*yaqat*) dazzled the eye in the sun. The cat's eye (*ainul hirrat*) and the cock's eye (*ainul dzk*) were so brilliant. The lustre of the rubies illuminated the darkness of the night. The emeralds had a fineness of water that could eclipse the lawn of paradise. The diamonds (*ilmas*) would have penetrated into an iron heart like an arrow of steel. The other stones were such that the sun blushed to look at them. As for the pearls, you would not find the like of them, even if you kept diving into the sea through all eternity. The gold was like the full moon of the twelfth night; it seemed that in order to ripen it, the *alchemist* sun, had lighted its fire, and the morning had blown its breath, for years. . . . The Ariz-Mumalik (gemmologist) divided the jewels into 'genus' and 'species', 'class' after 'class', and had everything written down. . . . Among them was a jewel (Koh-i-Nur ?), unparalleled in the whole world.

The sack of the golden temple of Barmatpur was similarly described by Khusrau. He wrote:

Its roofs and walls were inlaid with sparkling rubies and emeralds, and after gazing at them, red and yellow spots came before the spectator's eye. . . . The heads of the idol-worshippers came dancing from their necks. The golden bricks rolled down and brought with them the plaster of sandalwood; the yellow gold became red with blood, and the white sandal turned scarlet. The foundations of the temple, which were mines of gold, were dug up, and its jeweled walls, which were mines of precious stones, pulled down. . . . There were five hundred *mans* of precious stones.

Malik Naib reached Delhi in AD 1312 with 612 elephants, 20,000 horses, 96,000 *mans* of gold (the figure seems absurd though), many chests of jewels and pearls. The old men of Delhi declared:

"No one remembers such treasures and spoils brought ever to Delhi."

Marco Polo, the famous Venetian traveller of the thirteenth century, reported diamond trade going on through the ports of the Guntur district, the big stones going to the Indian kings and the great Khan, and 'the refuse of the finer stones to Europe'. These treasures in their turn were plundered by the various Muslim invaders from northern India. Muhammad Bin Tughlak loaded hundreds of elephants with the precious spoils of Hindu temples. Ibn Battuta, Ferishta, the Venetian Nicolo Conti and others have all described the great wealth possessed by the kings of south India in the form of precious stones.

The Gem Treasury of the Moghuls

As we know the Moghul dynasty is of greatest importance in the Indian history for the duration of

its reign and for the stability it brought. The dazzling wealth of the Moghuls was so enormous that it is alluded to as one of the richest in the world in its time. The Moghuls largely consolidated the gem treasures of their predecessors. Biswas says Erskine and King have identified Babar's diamond, weighing according to Ferishta 186 English carats, to be identical with the famous *Koh-I-Nur* now in the British vaults. Valentine Ball however refuted this identification, and suggested that Babar's diamond has to be identified with the *Daryti-i-Nur* now in the Shah's treasury in Teheran.

Akbar was the first Moghul who organised a 'treasury for precious stones' as described by Abul Fazl. Rubies, diamonds, emeralds, red and blue *yaquts* were categorised under 12 classes and pearls into 16 classes. Jehangir was a great lover of gems, particularly diamonds and jades. By the time of Shah Jahan, the treasury had a huge stock of diamond, emerald, lapis lazuli, ruby (some inscribed), sapphire and also rosary, necklace and ornaments studded with them.

Aurangzeb was the proud possessor of all the gold and jewels worth 4 million pounds (of those times!) owned by Dara Shikoh and a larger amount of treasure possessed by his father. In addition, he had seven magnificent thrones, one wholly covered with diamonds, the others with rubies, emeralds or pearls. Biswas tells us that Tavernier was allowed to examine Aurangzeb's jewels for the first time on the 2nd November 1665. Being a jeweler and gemologist himself his account is of great importance. The first piece that he was allowed to examine in his hands was the 'Great Moghul' later known as the *Koh-i-Nur* diamond, a round rose, very high at one side weighing 268 English carats. He described and drew the shapes of this 'Great Moghul' and seven other pieces. Tavernier also saw a jewel set with 12 diamonds, the central one being 'a heart-shaped rose of good water'. There was another jewel set with 17 diamonds. Aurangzeb had a large collection of pearls, the largest being a pear-shaped one, a little flattened on both sides, weighing approximately 60 carats. Tavernier also described the 158 carat oriental topaz (actually yellow sapphire) of octagonal shape which Aurangzeb wore on his cap during coronation, several cabuchons (polished but not cleaved) of ruby and balas ruby, etc. There was a ruby square shaped with two inches sides, bearing the name of Jehangir which was taken to Persia and later ended up in Ranjit Singh's collection.

The Peacock Throne

In the Peacock Throne, the four bars which supported the base of the throne were inlaid with gold and enriched with numerous diamonds, rubies and emeralds. The middle of each bar was decorated with ornamental square cross constituted of either one central ruby with four emeralds round it, or one central emerald with four rubies on four sides. The intervals between rubies and emeralds were covered with diamonds. There were similar decorations all around the throne. Tavernier counted 108 rubies, all *cabuchons*, weighing 100 to 200 carats each and 110 emeralds weighing 30-60 carats each on the great throne. In this connection Tavernier wrote:

The underside of the canopy is covered with diamonds and pearls, with a fringe of pearl all round, and above

the canopy, which is a quadrangular shaped dome, there is a peacock with elevated tail made of blue sapphires and other colored stones. The body of the peacock is made of gold inlaid with precious stones, having a large ruby in front of the breast, whence hangs a pear-shaped pearl of 50 carats or thereabouts, and of a somewhat yellow water. On both sides of the peacock there is a large bouquet of the same height as the bird, consisting of many kinds of flowers, made of gold inlaid with precious stones. . . .

The cost of the famous throne has been variously estimated, at the value of rupees at that time, as Rs. 4 crore (Bernier) to Rs. 10 crore (Tavernier). The throne was taken to Persia by Nadir Shah. Nadir Shah also took away in 1739, the entire (70-80 million pounds worth) gem treasure at Delhi, including the celebrated piece *Koh-i-Nur*. The huge collections of gems and jewellery, looted from India, adorn the museums of London and Teheran. The chests 'filled with gold, silver, diamonds, pearls and emeralds from the Moghul treasury' are now in the Teheran Museum. This has been characterized by a Curator of the Smithsonian Institution as 'perhaps the greatest jewel treasury of all times'.

Pearl and Coral

The pearl fisheries in India flourished in the ancient period. In seventeenth century, Tavernier reported about the trade going on in the Gulf of Persia as well as in the gulf separating Sri Lanka and south India. The pearl-fishing in the Manar used to take place twice a year during March-April and then August-September and the sale lasted from June to November. Tavernier, comparing the pearl fishers of Manar and the Gulf of Bahrein wrote: The people of Manar are better fishers, and remain for a longer time under water than those of Bahrein; they do not place any clips on their noses nor cotton in their ears to keep the water from entering, as is done in the Persian Gulf.

A small town named Lantegree in Maharashtra was a great centre of coral polishing in the early seventeenth century. The preference of the Indians and other Asians for coral was manifest even during the ancient period, and the reason for this preference has been subject of many dissertations. The real reason could be religious. The reddish yellow coral is known as *rudrakhsha*, the eye of the Siva and a symbol of renunciation and spirituality. It must have gained popularity during the Tantric period of Hinduism and (Mahayana) Buddhism. The 'ornament for the neck' used by the common people was a rosary of coral beads, which were counted during prayers.

The Rock Crystal

The Indian tradition of jewelry made of rock crystal such as agate, carnelian and quartz is very ancient but not well-documented. There was widespread use of chalcedonic and crystalline quartz in ancient India. Ball reported that the lapidaries at Vellum, a town in south India, had skilled workers in different varieties of rock crystal, such as the ordinary pellucid quartz, smoky quartz, cairngorm and amethyst. The ornaments made were chiefly of broach stones cut in the brilliant, rose and other patterns. Godavari district, Hyderabad state and Sambalpur district of the Central Provinces also provided brilliant rock crystals. Aurangpur of the Gurgaon district, 15 miles south of Delhi, had Aravali quartzite from which quartz crystals were extracted. Biswas conjectures that

these might have been used for making vases and ornaments. Tavernier saw Aurangzeb drink from a large cup of rock crystal placed on a golden saucer, enriched with diamond, rubies and emeralds. After the 1857 War of Independence, the Delhi Palace was looted and found to contain many drinking vessels, vases and pitchers made of rock crystal, which were later described by Valentine Ball. The best known deposits are found in the Rajpipla hills at Ratanpur, on the lower Narmada River. Deposits of carnelian were mined and processed also near the Mahi River, north of Baroda. Biswas here refers to the mining and working of the stones at Ratanpur, vividly described in 1878 by J.M. Campbell (*Bombay Gazetteer*, Vol. VI, p. 205) and reproduced by Valentine Ball. Ratanpur has been the centre of the more than 2000 years old international trade on articles made of agate and carnelian.

Corundum, Ruby and Sapphire

It is generally accepted that the use of white corundum started in India. Even the name is derived from the Sanskrit word *kuruvinda*. The British travellers of the early nineteenth century reported indigenous mining works on corundum in India. Captain Newbold, for example, found in the 1840s widespread corundum mining in the Salem district: at Caranel, Anpore, Mallapollaye and at various localities up the river Kaveri. Newbold also described the mines at Golhushully and Kulkairi in Mysore (*Journal of Royal Asiatic Society*, Vol. VII). In his papers (*Records Geological Survey of India*, Vol. V, 1872 and Vol. VI, 1873), F.R. Mallet published accounts of his visit to a mine situated on a hill between Pipra and Kadopani. Several yards (at places 30 yards) thick reddish grey bed of corundum rested between quartz schist and porphyritic gneiss with hornblende rock. Traceable up to about half a mile, the deposit appeared to Mallet to be 'practically inexhaustible'. To him considerable amount of pre-modern mining must have taken place before 1814, and it was still going on in 1871. W. Hoey made a comprehensive report in 1880 on the trade and manufacture of gemstones including rubies and sapphires. Holland described the Indian lapidary (*begri*) using different kinds of discs (*san*) for cutting precious stones.

Rubies were reported in the Salem district and the Mahanadi river between Cuttack and Sambalpur, but most materials came from upper Myanmar from places like Kyatpyen, 70 miles north-east of Mandalay. Many of the famous rubies known in Europe can be recognized to be of Indian origin on account of the way in which they are pierced through the middle. One such huge specimen acquired in 1867 now adorns the crown of the British queen.

Similarly, one Indian sapphire weighing 225 carats was brought to England in 1856. Sri Lanka provided most of the **sapphires**. The 563 carat 'Star Sapphire of India' is displayed in the American Museum of Natural History, New York. The Smithsonian Institution in Washington possesses 'Star of Bombay' corundum, 'Bismarck Sapphire' of Sri Lanka and the Roser Reeves Collection of ruby gems.

Writing sometime in the middle of the seventeenth century, Nicols mentioned about **zircon** gems being found in Cannanor and Cambay in India. The alluvium at Ellora contained large obtuse

octahedron crystals of zircon along with corundum and these (Sanskrit, *gomed*, red ones known as hyacinth) must have been utilised by jewellers of Cambay.

Garnet jewels were also popular in India. Voysey, Newbold and others reported recovery of garnets from the Mahanadi bed in Orissa, Kondapilli (lat. 16°38' N, long. 80°36' E) in the Godavari district, Gharibpeth, 8 miles south of Paloncha in Hyderabad, etc. There were extensive mines of garnet in the Kisengarh State of Rajputana near Sarwar (lat 26° 4' N, long, 75° 4'30" N) from which gems of large size and good colour were obtained, and the Raja derived large revenue. There are also reports of the mining and widespread trade of beryl in India, ever since the days of Patanjali.

Diamond Mines

Amongst the gemstones, diamond is considered to be the most precious of all. Biswas reports that Kautilya's *Arthashastra* of the late fourth century BC was probably the first text to describe the Indian diamond or *vajra* and the mode and area of its occurrence (2.11. 37-41). The mine and stream deposits were listed as their sources. It is hard to identify precise locations of place names mentioned in *Arthashastra*, *Brhat-samhita*, *Ratnapariksa*, *Agastimata*, or other texts describing gems, regarding diamond fields, but we may guess the following locations: Wairagadh (ancient Vajragrha) eighty miles south-east of Nagpur on the Bath river, a tributary of Weinganga (Vena Ganga of the *Brhat-samhita*); the Kosala region of Akaravanti around the famous Panna in Madhya Pradesh; the region around the Golkonda mines, formerly known as Matanga; the Paunda or the Chota-Nagpur area around Soumelpur; the Kalinga alluvial resources from the Mahanadi valley, the Sambalpur district, the Koel river Hirakund, etc. Diamond-washing has been traditionally done by the tribes of Savara of Sambalpur area, Kols of Chota Nagpur, Gonds of Madhya Pradesh, etc. Howard enumerated 23 mines in the kingdom of Golkonda and 15 in the kingdom of Bijapur.

C. Ritter in his *Erdkunde von Asien* (Vol. IV, part 2, p. 343,1836) collected various scattered reports on Indian diamonds. Valentine Ball provided a more exhaustive account of diamond works in pre-modern India. C. Ritter arranged Indian diamond mines known to him in five groups, from south to north:

1. The *Cuddapah Group* on the Penner river including ancient mines of Condapetta, Munimadagu, Wajra Karur, etc.
2. The *Nandial Group* between the Penner and the Krishna River including the mines of Banaganapalli, Ramulkota, etc.
3. The *Ellore or Golkunda Group* on the Krishna River. This includes famous mines of Kollur, Partial, Muleli or Malavilly.
4. The *Sambalpur Group* on the Mahanadi River. In this group Tavernier's Sumelpur or Semah/Semul on the North Koel River as well as Wairagarh of the Central Provinces' was included.
5. The *Panna Group* in Bundelkhand.

Tavernier has described the diamond-processing operations at Kollur. He also described diamond-cutting on the site by steel-wheel, aided by water, oil and diamond dust. He observed: **The Indians are unable to give the stones such a lively polish as we give them in Europe: this, I believe, is due to the fact that their wheels do not run so smoothly as ours.**

But the business around the mines was 'conducted with freedom and fidelity'. Even children of age 10 to 16 were proficient diamond-testers handling big and defective specimens and polished diamond but not cut with equal ease. The ancient diamond mines in the Bhima-Tungabhadra-Krsna-Godavari valleys in the Andhra Pradesh region have been specially studied and reported by Voysey (1833), King (1872), Munn (1929), Dutt (1953) and Rao (1969). Dutt has drawn attention to the occurrence of diamond in the Andhra Pradesh region in three forms: (1) in river gravels, (2) sedimentary rocks or detritals, and (3) in the Archaean crystallites. In his writings on the 'Diamond mines of (greater) Bengal', Valentine Ball drew attention to the three distinct localities in the Bengal-Bihar-Orissa region, which produced diamond in the pre-modern period.

Decline of Diamond Trade

Valentine Ball asserts that there was no real exhaustion of the localities where diamond mining was possible. On the contrary, the diamond beds were extended far more than the ancient miners ever knew. Ball hoped that scientific guidance would improve diamond production in India. Dutt attributed various reasons to the decline of Indian diamond industry: exhaustion of diamond-bearing rocks, water trouble in the excavations, oppressive nature of the mining and political administration, absence of systematic prospecting operations, superstitions amongst the workers and the discovery of diamond fields in other parts of the world. India lost its monopoly in diamond trade in 1728 when Brazilian mines were first exploited. In 1870 the South African mines monopolized the global market in this precious gem.

Mining and processing of gem minerals were to be done for the affluent section of the Indian society and the outside world. The reasons for the low quantum of output were a very large number of poor people who worked under appalling conditions. Technological levels were primitive and almost no attempt was made to upgrade them. Interactions between workers of different trade guilds, and between workers and intellectuals were negligible. The scholars of the *Ratnasastras* and the Muslim gemmological texts hardly show any progress in their knowledge on the subject. Even under an apathetic atmosphere, the ill-paid and ill-fed Indian workers toiled in the mines and produced exquisite art-jewellery for the whole world to marvel at.

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