

though doubtless many real or suggested applications of this curious substance have been overlooked, it is said to be of use in the manufacture of smalt and ultramarine.

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## V. THE NIZAM DIAMOND—THE DIAMOND IN INDIA.

By Captain RICHARD F. BURTON.

**I**T is impossible to quit Golconda without a word concerning the precious stone which, in the seventeenth century, made its name a household word throughout Europe; and also without noticing the great diamond whose unauspicious name, Bala (little) Koh-i-nūr, I would alter to "The Nizam." It is a singular fact that professional books,—like Mr. Lewis Dieulafait's "Diamonds and Precious Stones" (London: Blackie, 1874),—which give full particulars of all the historic stones, have utterly ignored one of the most remarkable.

The history of the Nizam diamond is simple enough:—About half a century ago it was accidentally found by a Hindu Sonār (goldsmith) at Narkola, a village about 20 miles east of Shamsábád, the latter lying some 14 miles south-west of the Lion City, Haydarábád, on the road to Maktal. It had been buried in an earthen pipkin (Kotí or Abkhorah), which suggests that it may have been stolen and was being carried for sale to Mysore or Coorg. The finder placed it upon a stone, and struck it with another upon the apex of the pyramid. This violence broke it into three pieces, of which the largest represents about half. With the glass model in hand it is easy to restore the original octohedron. The discovery came to the ears of the celebrated Diwan (minister) Rajah Chandù Lál, a friend of General Fraser, who governed the country as Premier for the term of forty-two years. He very properly took it from the Sonār before it underwent further ill-treatment, and deposited it amongst his master's crown jewels.

The stone is said to be of the finest water. An outline of the model gives a maximum length of 1 inch 10·25 lines, and 1 inch 2 lines for the greatest breadth, with conformable thickness throughout. The face is slightly convex, and the cleavage plane produced by the fracture is nearly flat, with

a curious slope or groove beginning at the apex. The general appearance is an imperfect oval, with only one projection which will require the saw: it will easily cut into a splendid brilliant, larger and more valuable than the present Koh-i-núr.

I can hardly wonder at this stone being ignored in England and in India, when little is known about it a Haydarábád. No one could tell me its weight in grains or carats. The highest authority in the land vaguely said "about 2 ounces or 300 carats."\* The following statement has been made by Mr. Briggs:—"Almost all the finest jewels in India have been gradually collected at Haydarábád, and have fallen into the Nizam's possession, and are considered State property. *One uncut diamond alone of 375 carats is valued at 30 lakhs of rupees*, and has been mortgaged for half that money."

For uncut stones we square the weight ( $375 \times 375 = 140,625$ ) and multiply the product by £2, which gives a sum of £281,250. For cut stones the process is the same, only the multiplier is raised from £2 to £8. Thus, supposing a loss of 75 carats, which would reduce 375 to 300 ( $300 \times 300 = 90,000$ ); on multiplying the product by £8 we obtain a total value for the Nizam's diamond of £720,000.

I will now briefly compare the Nizam diamond—uncut 375 carats, cut 300—with the historic stones of the world. The list usually begins with the Pitt or Regent, the first cut in Europe. When the extraneous matter was removed, in unusual quantities, it was reduced to  $136\frac{3}{4}$  carats, valued from £141,058 to £160,000. The Koh-i-núr originally gauged 900 carats; it was successively reduced to 279 or 280 (Tavernier), and to  $186\frac{1}{4}$  ( $=£276,768$ ) when exhibited in Hyde Park; its latest treatment left it at  $162\frac{1}{2}$  carats. Then we have the Grand Duke's, or Austrian, of  $139\frac{1}{2}$  carats ( $=£153,682$ ); the Orloff, or Russian (rose cut), of 195 (193?) carats; and the Abaíte, poetically called the Star of the South, weighing 120 carats. The "Stone of the Great

\* Our diamond weights are as follows:—

16 parts = 1 (diamond) grain = 4.5ths grain troy.

4 diamond grains = 1 carat = 3.1.6 (3.174 grains troy).

The Indian weights are—

1 dhan = 15.32 grains troy; in round numbers  $\frac{1}{2}$  a grain.

4 dhary = 1 rati =  $1\frac{2}{3}$  grains troy.

8 rati = 1 masha = 18 grains troy.

12 mashas = 1 tola = 180 grains troy.

The "ounces" in the text probably represent "tolas," certainly not troy ounces of 24 grains.

Mogul," mentioned by Tavernier, is probably that now called Daryà-i-núr: it weighs 279 9-16 carats, and graces the treasury of the Shah. The nearest approach to "The Nizam" is the Mattan or Laudah diamond, of 376 carats. Experts agree to ignore the Maganza, whose 1680 carats are calculated to be worth £5,644,800: the stone is kept with so much mystery that it is suspected to be a white topaz.

Diamonds have been found in the Ganges Valley. They are still washed as far north as Sambalpúr and the Majnodi, an affluent of the Mahanadi; on the Upper Nerbada (Nerbudda), on the line of the Godaveri and on the course of the Krishna. The extreme points would range between Masulipatam and the Ganges Valley; the more limited area gives a depth from north to south of some 5° (= 300 direct geographical miles), beginning north from the Central Provinces and south from the Western Ghats, a breadth averaging about the same extent, and a superficies of 90,000 miles. A considerable part of this vast space is almost unexplored.

The history of the diamond in India begins with the Mahabharata (B.C. 2100). The Koh-i-núr is supposed to have belonged to King Vikramaditya (B.C. 56) and to a succession of Moslem Princes (A.D. 1306) till it fell into the hands of the Christians. At what period India invented the cutting of the stone we are as yet unable to find out; the more civilised Greeks and Romans ignored, it is suspected, the steel wheel. The Indian diamond was first made famous in Europe by the French jeweller, Jean Baptiste Tavernier (born 1605, died 1689), who made six journeys to the Peninsula as a purchaser of what he calls the Iri (hira).

Tavernier's travels are especially interesting to diamond-diggers. He began with "Raulconda," in the Carnatic, some five days' journey south of Golconda, and eight or nine marches from Vizapore (*hodie* Bijapur). In 1665 the diggings were some two hundred years old, and they still employed 60,000 hands. The traveller's description of the sandy earth, full of rocks, and "covered with coppice wood, nearly similar to the environs of Fontainbleau," is applicable to the Nizam's country about Haydarábád. The diamond veins ranged from half an inch to an inch in thickness, and the gangue was hooked out with iron rods. Some of the stones were valued at 2000, and some even at 16,000 crowns; the steel wheel was used for cutting. Tavernier then passed on to the Gánee diggings, which the Persians call Coulour (*hod.* Burkalún), also belonging to the King

of Golconda. These diggings lay upon the river separating the capital from Bijapur. The discovery began about A.D. 1565 with a peasant finding a stone gauging 25 carats. Here, we are told, appeared the Koh-i-núr (900 carats), which "Mirzimolas," or "Mirgimola," the "Captain of the Moguls," presented to the Emperor Auranzib. The 60,000 hands used to dig to the depth of 10, 12, or 14 feet, but as soon as they met with water there was no further hope of success. Tavernier's last visit was to "Soumelpore" (Sambalpur) "a town of Bengala, on the River Gowel," a northern affluent of the Mahanadi. The season for washing the diamantiferous land began in early February, when the water ran clear,—other authors make it extend from November to the rainy season,—and the 8000 hands extended their operations to 50 *kos* up stream. Gold, and the finest diamonds in India—locally called "brahmans"—were found in the river bed and at the mouth of the various feeders.

In 1688 and 1728 Captain Hamilton describes the diamond mines (probably those of Partial in the Northern Circars) as being distant a week's journey from Fort St. George, and records the fact that the Pitt diamond was there brought to light.

The diamond was practically limited to Hindostan and Borneo before A.D. 1728, when diggings were opened in the Brazils. The specific gravity of the diamond averages 3.6, and the difference of oxide in the crystallised or allotropic carbon does not exceed the third place of decimals. This, however, makes all the difference in lustre, for a small brilliant of perfect water is far more effective as an ornament than a larger stone of inferior quality. As far back as 1868 my study of the Brazilian diamond formation enabled me to prognosticate that the gem would be found in places where its existence had never been suspected. Since that time diamonds have been found in the Cudgegong River, near Rylston, New South Wales, and more recently in South Africa: these stones are inferior to those of the Brazils, yet they have reduced the value of the latter by one-third.

"The diamond mines of Golconda," according to Mr. Briggs, "derive their name from being in the kingdom of Golconda, and not from being near the fort. They are at the village of Purteali (Partiál), near Condapilly, about 150 miles from Haydarábád, on the road to Masulipatam.\*

\* Mr. Maclean kindly drew my attention to the Treaty with the Nizam (Nov. 12, 1766), which cedes to the East India Company "the five Circars or provinces of Ellour (Ellore, north of Masulipatam), Rajahmoudra Siccacole

The late Nizam retained possession of them when he ceded the Northern Circars to the English Government. They are superficial excavations not more than 10 or 12 feet deep in any part. For some years past the working of them has been discontinued, and there is no tradition of their having ever produced very valuable stones."

Mr. Briggs's report is full of errors. He must have known that the Pitt diamond—one of the finest and most perfect of its kind—was produced at Gáni Partiál, and that the Koh-i-núr came from the so-called "Golconda mines." Again, Partiál—on the north bank of the Krishna, some 50 miles from the Bay of Bengal—is only one of many diggings in the vast area which I have before indicated, some being still worked, and the others prematurely abandoned.

The student will do well to consult the "Geological Papers on Western India" (Bombay, 1857), edited by my old friend Dr. Henry J. Carter. Here he will find detailed notices of a number of mines. John Malcolmson, F.R.S., treats of the diggings at "Chinon on the Pennar" and the Cuddapah mines. Of the latter Capt. Newbold says—"The diamond is found in the gravel beds of the Cuddapah district below the Regur"—the black, tenacious, and fertile soils of Central and Southern India. The same scientific officer also describes the yield of Mullavelly (or Malavilly) north-west of Ellora, as occurring in a bed of gravel, composed chiefly of rolled pebbles of quartz, sandstone, chert, ferruginous jasper, conglomerate, sandstone and kankar, lying in a stratum of dark mould about a foot thick. Both these geologists inferred the identity of the sandstone of Central with that of Southern India from the existence of the diamond at Weiragad, a town about 80 miles south-east of the capital. Malcolmson declared that the "celebrated diamond mines of Partel (Partiál), Banaganpilly, and Panna, occurring in the great sandstone formations of Northern India, as well as the limestones and schists associated with them, exhibit the same characters from the latitude of Madras to the banks of the Ganges, and are broken up or

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(or Chicacole on the Coast), and Moortizanuggur or Gunton. The first four named were added to the French dominions by De Bussy. "These Circars," we read, "include territory extending along the coast from the mouths of the Kistna (Krishna) northward to near Ganjour, and stretching some distance inland." Article No. 11 of the same treaty runs thus:—"The Hon'ble E. I. Company, in consideration of the diamond mines, with the villages appertaining thereto, having been always dependent on H. H. the Nizam's Government, do hereby agree that the same shall remain in possession now also."

elevated by granite on trap rocks, in no respect differing in mineralogical characters or in geological relations."

The Rev. Messrs. S. Hislop and R. Hunter, who visited and described the Nagpur mines, object to this assertion, and endeavour to prove that the "diamond sandstone of the Southern Marathá country is a conglomerate reposing upon the arenaceous beds, which have *never* yielded the precious stone, nor are there any data to prove that the conglomerate derived most of its materials from that source." Dr. Heyne contributed an excellent description of the mines of Southern India, especially those of Banaganpilly, of Ovalumpilly (6 miles from Cuddapah), and of others on the Ellore district. This experienced geologist concludes that all these diamond mines can be considered as nothing else than alluvial soil." Major Franklin ("Geolog. Trans.," 2nd Series, vol. iii., Part 1), who visited the mines of Pannah in Bandelkhand, before Victor Jacquemont's day, makes the diamond sandstone between the Narbada (Nerbudda) and the Ganges belong to the "New Red," apparently an error; and others have described the diggings east of Nagpur (Central Provinces) as having been opened in a matrix of lateritic grit. Dr. Carter ("Summary of the Geology of India," pp. 686-91) connects the "diamond conglomerate" with the Oolitic series and its *débris*, and he gives a useful tabular view of the strata in the mines of Banaganpilly, described by Voysey, and Pannah or Punna by Franklin and Jacquemont. The most important conclusion is their invariable connection with sandstone.

Dr. Carter's volume quotes largely from the writings of Mr. Voysey (Journal As. Soc., Bengal; Second Report on the Government of Haydarábád), a geologist who maintained the growth of the diamond as others do of gold: he declared that he could prove, in alluvial soil, the re-crystallisation of amethysts, zeolites, and felspar. During his last journey from Nagpur to Calcutta, he visited the diamond washings of "Sumbhulpore" in the Mahanadi Valley, and he describes the gems as being "sought for in the sand and gravel of the river, the latter consisting of pebbles of clay-slate, flinty slate, jasper, jaspery iron stone of all sizes, from an inch to a foot in diameter."

We possess, fortunately, a modern description of the Diggings which I have said were visited successively by Major Franklin and by Victor Jacquemont. M. Louis Rousselet ("L'Inde des Rajahs," Paris, Hachette, 1875), in his splendid volume, gives an illustration and an account of the world-famous mines of Pannah, the Pannasca of

Ptolemy (?), a little kingdom of eastern Bandelkhand, erected in 1809. The Rajah sent a jemadar to show him the Diggings, which are about twenty minutes' walk from the town. The site is a small plateau covered with pebble-heaps, and, at the foot of a rise somewhat higher than usual, yawns the pit about 12 or 15 feet in diameter by about 180 feet deep. It is pierced in alluvial grounds, divided into horizontal strata, *débris* of gneiss and carbonates, averaging 13 metres: at the bottom is the diamond-rock, a mixture of silex and quartz, in a gangue of red earth (clay?). The naked miners descend by an inclined plane, and work knee-deep in water, which the Noria or Persian wheel turned by four bullocks is insufficient to drain; they heap the muddy mixture into small baskets, which are drawn up by ropes, whilst a few are carried by coolies. The dirt is placed upon stone slabs, and sheltered by a shed; the produce is carefully washed, and the siliceous residuum is transferred to a marble table for examination. The workmen, each with his overseer, examine the stones one by one, throwing back the refuse into a basket: it is a work of skill, as it must be done with a certain rapidity, and the rough diamond is not easily distinguished from the silex, quartz, jasper, hornstone, &c.

Tradition reports that the first diamonds of fabulous size were thus found, and the system of pits was perpetuated. When one pit is exhausted it is filled up, and another is opened. The system is bad, as 100 cubic metres must be displaced to examine one, and around each well a surface of twenty times the area is rendered useless. Moreover, much time is lost by the imperfect way of sinking the shaft, which sometimes does not strike the stone.

This diamond stratum extends more than 20 kiloms. to the north-east of Pannah; the most important diggings are those of the capital, of Myra, Etawa, Kamariya, Brijpur, and Baraghari. The mean annual produce ranges between £40,000 and £60,000—a trifling sum, considering that the stones are the most prized and sell for a high price. They are pure and full of fire; the colour varies from the purest white to black, with the intermediate shades, milky, rose, yellow, green, and brown. Some have been found weighing 20 carats, and the Myra mine yielded one of 83, which belonged to the Crown jewels of the Mogul. The real produce must be taken at double the official estimate. The Rajah has established an approximate average amount, and when this descends too low he seizes one of the supposed defaulters and beheads him or confiscates his goods. He sells

his diamonds directly to Allahabad and Benares, and of late years he has established *ateliers* for cutting, fitted with horizontal wheels of steel worked by the foot.

Evidently here we have a primitive style, which has not varied since diamond-working began. Good pumps are required to drain the wet pits. Instead of sinking a succession of shafts, tunnels should be run along the veins of diamond-bearing rocks. Magnifying glasses and European superintendence would improve the washing. Evidently the yield would double in the hands of Brazilians or South-Africans.

The precious stone is still brought for sale from the nearer valley of the Krishna to Haydarábád: it occurs, I was assured, in a whitish conglomerate of lime locally called Gar-ka-pathar, which must be broken up and washed. During my week's visit I was consulted by two Parsee merchants concerning the rudimentary tests of scratching and specific gravity. In fact, at Golconda, where the finest gems used to be worked, no one, strange to say, can now recognise a rough diamond.

In the "Highlands of the Brazil" (ii., 113) I have given a detailed list of the various stones associated with the gem, and specimens of the Cascalho or diamond gravel, the Taua, the Canga, &c., have been sent to the Royal Society of Edinburgh by Mr. Swinton. It is advisable to remark that this association has everywhere been recognised. In Borneo we are told that "the diamond is known by the presence of sundry small flints." The gem-yielding pebble-conglomerate of India, not usually a breccia, as was proved by Franklin Newbold and Aytoun (*loc. cit.*, p. 386), contains quartz and various quartzose formations; garnet, corundum, epidote and Lydian stone; chalcedony and cornelian; jasper, of red, brown, bluish, and black hues; and hornstone, a kind of felspar, whilst "green quartz indicates the presence of the best stones." Fossil chert is yielded by the limestone, and the highly ferruginous and crystalline sandstone produces micaceous iron ores, small globular stones (pisoliths?), and almost invariably fragments of iron oxide. Finally, there are generally traces of gold, and sometimes of platinum. At Haydarábád I was assured that such was the case on the Krishna River, but none of my informants had any personal knowledge of washing. Dr. Carter's "Geological Papers" convinced me that the sandstones of the diamond area will be found to resemble the "Itacolumite," quartzose mica slate or laminated granular quartz, of Brazilian "Minas Geraes."

These considerations persuade me that diamond-digging



in India generally, and especially in Golconda (the territory of Haydarábád), has been prematurely abandoned. In the seventeenth and eighteenth centuries the machinery for draining wet mines was not what it is now, and the imperfect appliances led to the general belief that all the deposits were purely superficial. Doubtless some of the deposits were in the alluvial soil of the most recent rocks, but M. Rosselet's account shows that deep digging may still be practised to advantage. Voysey also saw the "sandstone breccia" (diamond conglomerate?) of Southern India "under 50 feet of sandstone, clay slate, and slaty limestone." The Brazilian miners ("Highlands," ii., 121) have only lately learned to descend 180 feet, and they find some of their best stones at the lowest horizon. The Vaal River and other South African washings, opened in 1868, soon reached 60 feet.

I had heard of chance diamonds being picked up by the accolents of the Krishna River, and Sir Salar Jung, with his usual liberality, proposed laying a *dák* for me to Raichor; he was ready, in fact, to meet my wishes in every possible way. I presently, however, learned from good authority that only crystalline rocks like those which I had seen in the Golconda tombs are produced by this central section of the Krishna, and that "Itacolumite" must be sought elsewhere. Evidently the precious stones have been rolled down from some unknown distance, and to follow the "spoor" demanded more time than I could command.

It is useless to insist upon the benefits of reviving the ancient industry. Haydarábád is not a rich country, and her trade is well nigh *nil*. But she has coal that wants only a market, and if to the "black diamond" she can add the white diamond, her future prospects are not to be despised. The first step is, of course, that of "prospecting," of systematically reconnoitring the ground, with the aid of a few experienced hands imported from the Brazils and South Africa. If the search be successful a company or companies would be soon found to do the rest. For me it will be glory enough to have restored the time-honoured "mines of Golconda."

We left at the week's end the country of "our faithful ally," greatly pleased with the courtesy and hospitality which seem to be its natural growth. And I have a conviction that, despite the inevitable retrograde party of all native states, the *codine* of the East,—the warlike Zemin-dárs, the "dissolute vagabonds," the "Pathán bravos," and the "cut-throats and assassins" of the Press,—this realm has become since 1857 the "greatest Mohammedan power in India."

The return journey to Bombay gave time for other reflections. At present our "enormous dependency, India, the most populous and important that ever belonged to a nation, and conferring a higher *prestige* on the ruling race than has ever been conferred by any other subject people,"—as the judicial Trollope has it,—is, has been, and under present circumstances ever will be, somewhat neglected by the general public of England. No home Britisher can interest himself even moderately in such a colony. It is too distant, and it can hardly be brought nearer by local parliaments and similar institutions. Although "taxation without representation is tyranny," we are not yet prepared to grant what eventually must be granted, representative government. We are therefore driven to seek some other course.

At Haydarábád, as in India generally, we are living upon a volcano, which may or may not slumber for years. The remedies hitherto proposed for the natural disaffection of the great native powers, kept as they are in a state of quasi-tutelage, appear to be mere quackeries, likely to do harm rather than good. For instance, to make the energetic Indian Prince more powerful within his own jurisdiction would be simply to arm him against ourselves.

But why not at once admit a certain number to seats in the House of Lords? Of those who claim salutes of 21 guns there are, besides four foreigners, three Indian Princes,—the Nizam, the Gaikwár, and the Ruler of Mysore,—who all happen at present to be minors. Amongst those honoured by 19 guns we find Scindhia, Holkar, and Udepúr; whilst Jaipúr, with twelve others, has 17 guns. Of course it would be necessary to limit the number to six or seven, but the hope of eventually rising to the dignity should not be withheld from the chiefs of lower grade.

Nothing would tend more directly to conciliate the Princes of India, and to make them our firm friends, than to admit them to the highest dignity of the Empire,—to a House where they would doubtless hasten to sit, where they would learn their true interests, and where they would find themselves raised to a real instead of a false equality with the ruling race.

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