CHAPTER IV

MINERALS

Assam is rich in certain minerals. References to the existence of gold and iron, and also of the working in them even in ancient period are available. During the period of our study considerable quantities of gold, iron, salt and limestone were extracted and used for various purposes. Recent geological surveys and explorations have amply demonstrated that this region contains deposits of coal and petroleum as well. Evidences are, however, lacking as to the existence of silver, copper and amber within the territory ruled by the Ahoms.

GOLD

The information recorded in the accounts of some European writers that gold was obtained from the 'mines' in Assam has not been corroborated in indigenous documents. Even the contemporary Mughul accounts of Assam which very clearly speak of Assam gold obtained from sands of rivers do not contain any reference to gold mines in Assam. Gold was,

however, found in almost all the rivers in small grains mixed with sand. Holland remarks that the most striking feature of the gold deposits of Assam valley is the universal distribution of the metal in extremely small percentages throughout the gravel of the river-beds. But the rivers flowing out of the northern mountains contained greater quantities of gold grain than those of the southern hills. Maniram Dewan in his account of gold-washing in Assam furnishes a list of about thirty-five streams and rivers from which gold was collected during the Ahom rule. The best gold, according to him, was obtained in the Sidang (a tributary of the Subanéiri), Kachoi, Kadam, Somdiri, Bhairabi, Jaglo (or Jenglo, or Jengloong), Tanji and Disoi. S.F. Hannay says that the gold found in the Jaglo and the Disoi was the purest and best. He further says that the Jaglo gold was considered as the most precious; it grains were about the third of an inch in size with a deep yellow colour. The jewels and ornaments of the royal family were manufactured from it. But the gold of the Brahmanutra was of inferior quality. Shihabuddin Talish observes, "this gold

5. Ibid.
7. Ibid., p. 626.
(gold of the Brahmaputra) is of a low standard of purity; a tolah of it fetches only eight or nine rupees. As regards colour, the gold of the Dikrung river was superior to gold found in any other river in Assam.

Gold was collected by the gold-washers who were generally known as the Sonowâls: they chiefly belonged to the âhom, Kachârî, Koch and Keot communities. The gold-washers of the Ahom community were called Bihârs (or Biharâs). The gold-washers of Upper Assam belonged mostly to the Ahom and Kachârî communities; but in Lower Assam, where they were called Sondhani, they chiefly belonged to the Koch community. Shihâbuddin Tâlish records that the Ahom king engaged ten to twelve thousand pâiks in the profession. According to the Nâobaichâ Phukanar Suranjâ (p. 35) the number of gold-washers employed by King Rudrasimha (1606-1714 A.D.) was twenty-five thousand. This, however, indicates the greater demand of gold in the period. Towards the end of the Ahom rule the number of persons engaged in the profession greatly declined. It was mainly due to the great unstable political situations in the kingdom caused by the Mâmarâs and the Burmese invasions.

11. Ibid.
Each gold-washer, working under his immediate superior, had to deposit a fixed amount of gold in the royal store annually. According to Shihabuddin Talish, it was one tolā per head.14 Maniram Dewan says that the gold collected in Upper Assam alone amounted to six to seven thousand tolās in the reign of Rājesvarasimha (1751-69 A.D.).15 As a result of the chaotic conditions both in Upper and Lower Assam together with the reduction of the number of professional pāiks, the amount came down to four thousand tolās in the reign of Saurināthasimha (1789-95 A.D.).16 The quantity further dropped to two thousand tolās at the beginning of the nineteenth century.17 This fall was due to the deteriorating political condition wedded with the invasions of the Burmese.

The method of gold-washing, called son kamū (Appendix B), was both primitive and crude, involving a few simple implements made of wood and bamboo such as dōranī (trough), sokāli (pointed bamboo piece), kāthar dohtāl (wooden spade), kuki (basket) and chungā (bamboo tube). The period for washing gold was from January to April; but in some rivers the washing could be started even in September or October.18 Gold-washing was the exclusive privilege of the state.

14. Ibid; See also Maathir-Ul-Umarā, (tr.) H. Beveridge, p.201. A tolā is equal to 180 grains troy.
16. Ibid., p. 621.
17. Ibid.
18. Ibid., p. 625.
The art of washing sand of rivers for gold was most probably known to the Ahoms long before their migration to the Brahmaputra valley. The ancient chronicles of the Ahoms record that Khun-lung, one of the great ancestors of the Ahom royal dynasty, received tributes in gold from one of his sons who was placed as a tributary chief in the kingdom of Mong-jāng. The Tai people of the ǐn-chāo kingdom collected gold from the sands of rivers and mountains in Yun-nān and also from the Mekong river which was noted for alluvial gold. The art was known fairly well in Burma whence the Ahoms migrated to the Brahmaputra valley in the thirteenth century. S.F. Hannay on one occasion watched gold-washing in the Irrawady river. Father Sangermano, an Italian Christian Missionary, who lived in Burma from 1733 to 1806, noticed in that kingdom many streams the sands of which yielded gold. On the other hand, that king Shu-kā-vār was offered nine thousand tolās of gold by the Barāḥis and Morāns, the local inhabitants of eastern Assam, on the occasion of the establishment of his first permanent capital at Charāideo. Indigenous chronicles often mention of gold cat, gold bedstead, gold umbrella, gold not as possessed by

the rulers of the Chutiyā kingdom. Those show the existence of gold in eastern Assam and of the knowledge of the people in the art of collecting gold.

SILVER

There is no evidence to show that silver ever existed in the limits of the Ahom kingdom. But working in silver was known during the period of our study. This metal besides manufacturing a number of articles, was coined into money; hence, it was considered to be of great value and importance. Some quantity of silver is said to have been supplied by the Gāros and the Khāsis, the Khāmtis and even from distant China via Burma and Tibet through regular trade channels. Shihābuddin Tālish observes that it was also supplied by the Miris and Mishimis who obtained it from Tibet across the border. According to the Naobaichā Phukanar Buranjī, five thousand Kachāris were enlisted as Rupovāśa for fetching silver-clay (rup-māti) from the mountains of the Gāros and Khāsis, and deputed another

25. N. B., p. 22.
26. E.R. Leach says that silver-working is a Shan not a Kachin (Singpho) craft (Political Systems of Highland Burma, p. 251). Also cf. D.A.A., p. 35.
27. According to M'Cosh all silver used in Assam was imported from China in a state of bullion (op. cit., p. 58). Also cf. D.A.A., p. 35.
one thousand pāike every year to Burma for the same purpose.\(^29\)
The silver-clay was refined into pure silver by an indigenous process about which very little information is available. Most probably, the rup-māti or silver-clay was silver in impure form or what was known to the Assamese as kecha-rup to be distinguished from pākā-rup or refined silver. The statement in the Naobaichā Phukanar Buranjī has not, however, been corroborated by the chronicles of the period. In any case, the quantity of silver imported from outside must have been considerable, an idea about which can, however, be formed on the basis of the amount of silver coins issued by the rulers and the number of articles made of silver. In 1663 AD, after his defeat in the hands of the Mughul army, Jayadhvajasimha paid one lākh twenty thousand toлас of silver to Mir Jumla and promised to send three lākhs of silver rupees (equivalent to three lākh toлас of silver) to the Mughul Emperor within the period of one year.\(^30\) The Tungkhungā Buranjī records that in 1794, Thomas Welsh had collected four lākh toлас of silver from the royal treasury at Rangpur (Sibsagar).\(^31\)

IRON

Iron ore was found in considerable quantities along the southern border adjoining the Naga hills, extending from

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29. N.P.B., p. 22.
30. A.B. (SKB), p. 84; Sarkar, Jagadish Narayan: Life of Mir Jumla, p. 269. In A.B. (KTP), the figure is given as 12,000 toлас.
31. T.B., p. 129.
Jaipur in the present district of Mibrugarh to Payang in the Golaghat sub-division of the district of Sibsagar.\textsuperscript{32} Barhāt, Nagahat, Jaipur, Tirunathār, Hātiyār, Kachāriyāt, Bassā and Dayāṅg were some of localities where iron was available.\textsuperscript{33} Iron ores were also found along the banks of the Sufri river.\textsuperscript{34} The iron found at Tirupathār and Hātiyār was considered the best in quality.\textsuperscript{35} At Bassā and Dayāṅg, iron was collected from a feruginous clay.\textsuperscript{36} Availability of iron in these places has also been reported by R.B. Pemberton when he says "iron is found north of Dengāon (Dergāon ?), south of Kachāriyāt under the Naga hills".\textsuperscript{37} In spite of the fact that large amount of iron was found within the kingdom, some quantity of the metal came from outside. It was brought by the Khāsis, Jayantīyās\textsuperscript{38} and the Garos.\textsuperscript{39} A small amount

\begin{enumerate}
\item[34.] D.A.A., p. 34.
\item[35.] Hannay: J.A.S.B., 1856, IV, p. 332; Sarma, Benudhar: op.cit., Appendix, p. 6.
\item[37.] R.E.F.B.I., p. 85.
\item[38.] D.A.A., p. 35.
\end{enumerate}
was also brought from the Barkhāmti country in Burma where this metal was wrought with considerable skill and to great perfection. This iron was considered to be most suitable for making daggers and swords.

For extracting iron from the ores, the Āhom Government established scores of permanent iron-works called lo-sāls under the management and control of the State. The iron-works at Tirupathār and Rātīgarh alone number forty at the beginning of the nineteenth century. Traces of iron-works at these places are to be seen even today. The government also engaged a large number of persons (pāiks) as iron-workers called lo-sāliās with their knowledge of the trade under the supervision of departmental officers. No reliable statistics is, however, available as to the number of men engaged in the trade. It is reported that the number was about five hundred at the time of Purānānda Burāgohain, the Prime Minister of the Āhom kingdom from 1782 to 1816. The prevailing practice was that each iron-worker had to deposit twenty seers of iron to the royal store every year.

41. M'Cosh : op.cit., p. 58.
COPPER

The contemporary chronicles and other indigenous sources contain no reference nor any hint, even casual, as to the existence of copper mines in Assam during the period of Ahom rule. William Robinson observes, "neither copper nor silver have as yet been found native in Assam." Assam copper mostly came from Bengal. This is evident from the fact that copper formed an important item of import from Bengal in the commercial treaty executed between the Ahom Government and the Bengal Government in 1793. According to Hamilton, copper worth Rs. 4,800 was imported to Assam from Bengal in 1809. A very small quantity was brought by the Garos, possibly from the latter country which they procured at Sylhet. In his accounts of Assam, Shihabuddin Talish writes that copper was supplied by the and Mishmis. In all probability, they obtained the metal from Tibet on the other side of the border.

46. S. Rajguru, on the basis of a reference in the Katha Guru Charit, the biography of an Assamese religious preacher, says that copper was found in Assam, about which, however, there is no other evidence.

47. D.A.A., p. 35.
51. Welsh : Report, p. 8, as inserted in Mackenzie's History.
BRASS AND BELL-METAL

Brass is an alloy of copper and zinc usually in the proportion of 2 to 1 or 4 to 3. According to George Watt, it was rarely made in India, but generally imported from Europe in the form of sheet-brass.\(^\text{53}\) Hence, whatever quantity of this metal came to Assam, it must have to come through Bengal and its supply was limited. Bell-metal is also an alloy of copper, tin and zinc. It is not known whether this metal was ever prepared within the Ahom kingdom, or was wholly procured from outside. Considering the large-scale use of utensils made of it by the people in the period under review, and even export of bell-metal vessels to outside,\(^\text{54}\) it appears that some amount of the metal was produced in the Ahom kingdom.

SALT

It was collected from brine-springs. Most of these were found along the foothills of the Naga mountains south of the districts of Dibrugarh and Sibsagar. The more productive brine-springs were situated in the neighbourhood of Barhāt, Nagāhāt, Jaimur, Nāmchāng and Mahāng.\(^\text{55}\) The brine-spring at Mahāng has often been mentioned in the chronicles. Salt was

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\(^{53}\) C.P.I., p. 402.

\(^{54}\) Francis Hamilton reports that in 1809 A.D., the export of bell-metal vessels to Bengal amounted to Rs. 1500 (A.A.(FH), p.46).

collected from this spring even before the advent of the Āhoms into Assam. The Sātsarī Assam Buranjī records that the Nagas and the Kachāris often quarrelled for the possession of this spring. The Āhoms acquired Mahang in the reign of Shu-hum-mong, who appointed a prince of the royal family in its charge under the title of Mahangiā Raja. Since it remained in the hands of the Āhoms till the end of their rule, all these suggest that the Mahang spring was very rich in deposits as well as in quality. Another rich salt-well was located at Tanghijān in the Nāmchāṅg area which yielded, according to Maniram Dewan, ten tolās of salt for every ten seers of salt water. Most of the salt-springs were located to the east of the Dikhow river, a few were found on the banks of the Nāmbar and Dhanērti rivers. Robinson says that the Āhōm government enjoyed the exclusive rights to the salt-springs located at the foothills, the Nagas to those in the interior of the hills, and those in between numbering about twenty were shared by the Nagas and the Āhōm government. In the early British period the total number of wells found in this region was eighty-five. Another well-known

56. S.A.B., op. 3-4.
58. S.A.3., p.20.
59. In 1792, the Dekā Phukan went to Mahang and other places in the Naga frontier where he made necessary administrative arrangements (A.3., p. 359).
60. Sarma, Senudhar: op.cit., Appendix, p.11.
salt-well was in Sadiyā, most probably at the foot of the Mishimi hills, in the possession of the Ahom government. A chronicle records that in Saka 1594 (1672 A.D.) the Mishimis killed several persons in the salt-spring in Sadiyā; evidently, it indicates an attempt on the part of the Mishimis to take possession of the said salt-spring.

Salt was manufactured by filling the joints of large bamboos called chunēs with the water of the wells, and then placing them over a flue to which a fire was applied; the brine in the bamboo tubes was thus evaporated and the dry salt remained. The manufacture of salt commenced in November and continued till March or April. The industry engaged several hundred pāiks called Lon-urīās, and each pāik had to deposit a fixed quantity of salt to the government. Salt produced within the kingdom being insufficient for local consumption and costly, the common people mainly used an alkline preparation (khār) obtained from ashes of banana and other aquatic plants.

EARTH-OIL

Sitā-tel believed to be earth-oil (kerosene or petroleum in crude form?) was found at several places. It

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63. See also A.A.(FH), p. 47; D.A.A., p. 33.
66. Ibid.
67. S. Rajguru identifies sitā-tel with kerosene (op.cit., p. 175). But it highly doubtful whether any method of refining the crude oil was known in Assam during the period.
was found at Sitaliāl also known as Citalnegheri, a place near modern Dergaon, the name of which appears to have been derived from Sītā-tel. S.F. Hannay noticed oil at Sārhāt, Terogong, Magawn, Namdāng and Nāmchuk Pathār. These places were known as tel-dongs, or oil springs to the local inhabitants. Nothing is known about its used or exploration during the period under review.

LIMESTONE

Limestone was found in the bed of the streams such as Kundil and Digāru, tributaries of the Brahmaputra above Sadiyā. It was brought down by the rivers from the mountains. Writing in the early part of the British rule, M'Cosh says that it was of flat roundish shape, seldom above a seer or two in weight. That limestone was procured near Sadiyā in our period is indicated by the existence of a place called Chunpurā (meaning 'burning of lime'), about seven miles to the east of Sadiyā. Limestone was also found in the bed of the Nambar river in the present Golaghat sub-division. In the course of his survey found limestone on the right bank of the Kamili river near Dharampur.

71. Ibid.
72. Ibid.
73. R.F.E.B.I., p. 85.