

CHAPTER V.
INDUSTRIES.

Industries—Silk—Weaving—Pottery—Brass and bell-metal—Lac—Mat-making—Fishing.

Apart from tea and the production of silk thread ^{Industries.} and lac, there are no industries of much commercial importance in Nowgong. In almost every house there is a loom, but the cotton cloth produced is generally required for home consumption, and is very seldom sold. A few up-country men express oil from mustard seed, using for the purpose the ordinary bullock mill of Upper India; and Bengalis, Mikirs and Kamars make daos, sickles and knives from imported iron. In the following paragraphs some account is given of such industries as exist.

Three different kinds of silk are produced in the ^{Pat silk.} district. The most valuable kind is known as *pat*, and is obtained from the cocoon of two species of worms, the univoltine or *bar polu* (*bombyx textor*) and the multivoltine or *saru polu* (*bombyx crasi*). Both kinds are reared indoors on the leaves of the mulberry tree (*morus indica*), or where mulberry is not obtainable, on the *panchapa*. The eggs of the *bar polu* take ten months to hatch, the worms usually making their appearance about the

beginning of January. The life of the worm lasts from thirty to forty days, and the cocoon takes about six days to spin. The cocoons are of a bright yellow colour, but the silk, when boiled in potash water, become perfectly white. From twelve to fifteen thousand cocoons are required to yield one pound of thread, which is worth from Rs 8 to Rs. 12. The thread obtained from the *saru polu* is not so valuable as that of the *bombyx textor*, but as the worm yields four broods in the year, it finds greater favour with the cultivators. *Pat* silk is, however, only made to order and the total quantity produced is very small.

Several causes combine to make this silk rare and expensive. The Jugis are the only caste who will consent to rear the worm, and, as the insect is looked upon as impure, the industry is probably regarded with disfavour even by the Jugis. The supply of mulberry leaf is limited, and the worms are very delicate, a large number of them dying before they spin.

Muga,

The *muga* worm (*anthercea assamea*) is generally fed on the *sum* tree (*machilus odoratissima*). Five different broods are distinguished by vernacular names, but in the Nowgong district the only broods commonly reared are the *katia* in October—November, the *jarua* in December—February, and the *jethua* in the spring. The complete cycle of the insect lasts from 54 to 81 days, the bulk of which is occupied by the life of the worm. When the moths hatch out the females are at once attached to straws which are hung up inside the house, and are visited by the males who are allowed to

remain at liberty. Each female produces about 250 eggs, which are placed in a dark place, and when the worms appear, they are at once transferred to the *sum* tree. A band of straw or plantain leaves is fastened round the trunk to prevent them from descending, and during the night they take shelter under the leaves. Constant vigilance is, however, required to keep off crows, kites, owls, large bats and other pests which prey upon the worm, and hail and heavy rain not unfrequently do damage. When fully grown the worm is about 5 inches long and nearly as thick as the forefinger. In colour it is green with a brown and yellow stripe extending down each side, while red moles with bright gold bases are dotted about the surface of the body. When the worms are ready to spin they descend the tree and are then removed to the house. Most Assamese women possess one or more garments of *muga* silk, and well-to-do men wear waist cloths of this material on occasions of ceremony. *Muga* silk is chiefly manufactured for home use and very little is produced for sale. The principal centres of cultivation are at Barghat, Panigaon, Nanai, Jhagari, and Baropujia. The silk is reeled from the cocoon, 250 of which yield one ounce of thread. The price obtained is from 6 to 8 annas per ounce.

The *eri* worm (*attacus ricini*) derives its name from eri silk. the *eri* or castor oil plant (*ricinus communis*) on which it is usually fed. From five to six broods are usually reared in the year, those which spin their cocoons in November, February, and May yielding most silk. As

with the *muga* moth, the females, when they emerge, are tied to pieces of reed, and are visited by the males who are left at liberty. The eggs are hatched in the house and take from a week to 15 days to mature. As soon as the worms appear they are placed on a tray, which is suspended in a place of safety, and fed on the leaves of the castor oil plant. When fully grown they are about $3\frac{1}{2}$ inches long and of a dirty white or green colour. After the final moulting, the worms are transferred from the tray to forked twigs suspended across a piece of reed, and, when they are ready to spin, are placed on a bundle of dried plantain leaves or withered branches which is hung from the roof of the hut. The matrix of the cocoon is very gummy, and the silk, which is of a dirty white colour, has to be spun not reeled off. Before this is done the cocoons are softened by boiling them in water and a solution of alkali. Empty cocoons yield about three quarters of their weight in thread.

The *Eri* worm is regarded as impure by the higher castes and its cultivation is restricted to Lalungs, Kacharis, Nadiyals, Haris, Namasudras or Charals, and other low caste people. The places in which the thread is produced in the largest quantities are the Baropujia, Mikirbheta, Dhing, Kandali, and Kathiatali mauzas; the best markets for *eri* cloth are the ones at Jaluguti, Phulaguri, Gobha, and Barpani.

Cost of silk cloths. The most useful garment made of *eri* silk is the *bar kapor*, a large sheet sometimes as much as 20 feet in length by 5 feet wide, which is folded and used as a wrap in the cold weather. It costs from Rs. 10 to

Rs. 16. *Eri* cloth is also made into coats and petticoats. Women's clothes, both petticoats and the shawls worn over the bust, are, however, usually made of *muga* silk, the thread required for a complete dress costing from Rs. 5 to Rs. 7. The instruments used for twisting and weaving silk are the same as those employed for cotton, but for *eri* thread a stronger reed is employed.

The weaving of cotton cloths is carried on by rich Weaving. and poor alike, and one or more looms are to be seen in the courtyard of almost every house. Though cotton is grown in the hills, and though many different dyes are to be found growing in the forests, imported yarn, which is supplied in the requisite shades by the village shop-keeper, is usually employed. The loom consists of four stout posts which are driven into the ground so as to make a rectangle about 5' 10" × 2' 6", and are joined together at the top by cross beams. The implements required for the conversion of raw cotton into cloth, and the system of manufacture followed are described in the minutest detail in a "Monograph on the Cotton Fabrics of Assam," published by the Superintendent of Government Printing at Calcutta in 1897. Descriptions of mechanical processes of this nature are, however, at their best unsatisfactory, and are hardly intelligible without a series of diagrams. The total cost of the whole apparatus is from ten to fifteen rupees, and as weaving only occupies the leisure moments of the women, the use of home-made clothing helps to save the pocket of the villager. Very little cotton cloth is prepared for sale, and there can be little doubt that,

weaving as an industry is commercially a failure, the price obtained for the finished article being out of all proportion to the time expended on its production. The principal articles made are *gamchas* or napkins, often worn on the head, large sheets or shawls worn as wraps, called *chadar khandia* or *bar kapur*, and smaller shawls called *chelengs*. A kind of shawl called *paridia kapur* is very finely made and is enriched with a beautifully embroidered border. It costs sometimes as much as Rs. 200.

Pottery.

The pottery produced is of a very rough and simple character, and most of the potters combine this occupation with agriculture. The earth used is generally a glutinous clay, which is well moistened with water and freed from all extraneous substances. If it is too stiff, some clean coarse sand is worked up with it. A well kneaded lump of clay is then placed on the wheel, which is fixed horizontally and made to rotate rapidly. As the wheel revolves, the potter works the clay with his fingers and gives it the desired shape. The vessel is then sun dried, placed in a mould, and beaten into final shape with a mallet, a smooth stone being held the while against the inner surface. It is then again sun dried, the surface is polished, and it is ready for the kiln. The collection of the clay and firewood, the shaping of the utensils on the wheel, and the stacking of them in the kiln, form the men's portion of the work. The women do the polishing and the final shaping. The Hiras, however, do not use the wheel, but mould the vessel on a board, laying on the clay in strips, and the whole of this work is entrusted to the women.

The instruments employed are—the wheel (*chak*) which is about three feet in diameter and rotates on a piece of hard pointed wood fixed firmly in the ground, the mould (*athali*), a hollow basin about 16 inches long by 3½ inches deep, the mallet (*baliya piteni*), and the polisher (*chaki*).

The principal articles manufactured are cooking pots, water jars, vessels in which rice is boiled (*thali*), and larger vessels (*hari* and *jaka*) with lamps, pipes, and drums. The profits of the business are said to be small, and the local pottery is being gradually ousted by a superior quality of goods imported from Bengal, and by metal utensils which are coming extensively into use. The principal centres of the industry are at the following villages :—Charalgao and Kumargao in Khatoalgao mauza, Kumargao in Kachamari mauza, Potani, Dharamtul, and Nanai Kumar.

The brass and metal industry is not of much im-
 portance. Bell-metal utensils are cast in moulds, but
 brass vessels are made out of thin sheets of that metal
 which are beaten out and pieced together. The imple-
 ments of the trade consist of anvils of different sizes
 (*belmuri chatuli*), hammers, pincers, and chisels. The
 furnace is simply a hollow in the floor of the hut, and
 the bellows are made of goat's skin. When it is desired
 to join two sheets of brass together, nicks are cut in
 one edge, into which the other edge is fitted, and the two
 are then beaten flat. A rough paste made of borax and
pan, a substance which consists of three parts of
 sheet brass with one part of solder, is then smeared over

Brass and
bell-metal.

the join. The metal is heated, the *pan* melts, and the union is complete. The principal articles manufactured are small flattish bowls, often used as drinking cups (*lota, bati*), jars for holding water (*kalsi, gagari*), trays (*sarai*), boxes to carry betel-nut and lime (*tema, temi*), and large vessels used for boiling rice (*thali*). The chief centres of the industry are at Kuwarital, Raha, Jagial, Samaguri, Moriagao in Barbhagia mauza, Sutar-gao in Khatoalgao mauza, and at Kahargao in the Raha tahsil, but the number of these artizans is very small.

Lac.

The lac industry is almost entirely in the hands of the Hill Mikirs and Hill Lalungs, and most of the stick lac produced comes from mauza Rangkhang, and to a certain extent, from Duar Amla. The insect is reared on various members of the ficus family, and on arhar (*caj-anus indicus*), but as far as is known, the quality of the product is not affected by the tree on which it has been fed. The method of propagation is as follows. Pieces of stick lac containing living insects are placed in baskets and tied on to the twigs of the tree on which the next crop is to be grown. After a few days, the insects crawl on to the young branches and begin to feed and secrete the resin. They are left undisturbed for about six months, and the twigs encrusted with the secretion are then picked off. A good sized tree yields from 30 seers to 2 maunds of stick lac, the best results being obtained from trees of moderate growth, which do not contain too rich a supply of sap. Two crops are generally obtained in the year, the first being collected in

May and June, the second in October and November. The first crop is largely used for seed, and it is the second which supplies the bulk of the exported lac. Ants and the caterpillars of a small moth sometimes do much damage to the insect, and a heavy storm at the time when they are spreading over the tree will destroy them altogether. Almost all the lac produced is exported in the crude form of stick lac, but the hill tribes occasionally extract the dye which they require for their own use, by placing the lac in a wooden mortar, pouring boiling water over it, and pressing it with a pestle.

The Nowgong mats are of three kinds *kath*, *dhari*, ^{Mat-making} and *pati*. The *kath* mats are woven in a wooden frame and the industry is not confined to any special caste. The better kinds, which are made from the *kuhila* plant (*aeschynomene aspera*) fetch from four annas to ten rupees according to size. A cheaper variety made from *murtha* (*marantha dichotoma*), and *hogal*, (*typha angustifolia*) only cost from two annas to a rupee. The following villages are noted for the manufacture of these mats, Bardoa, Baropujia, Dighaldari, Kaliabar, Kathiatali, and Morakalang. The *dhari* mats are made from strips of bamboo by Mikirs, Lalungs, and Kacharis in the hill mauzas. The price varies from two annas to two rupees according to size. The manufacture of *pati* mats is almost entirely restricted to the Patias, a section of the Kewat caste. They are made from *patidoi* (*clinogyne dichotoma*) but are not so neatly finished off as the *sitalpati* mats of Sylhet

and Bengal, and cost from four annas to five rupees. The principle centres of the industry are Nowgong, Baropujia, Raha, and Kathiatali.

Jhapi.

The *jhapi* is the national hat of the Assamese and is made in every district of the valley, but the hats of Nowgong are noted for the elaborate character of the decoration and the excellence of the finish. The *jhapi* is made of bamboo and the leaves of the *takau* palm (*livistonia jenkinsiana*). The general principle is invariably the same. The head is inserted into a circular and conical erection about five inches high, which rises from a broad flat brim, but with regard to the breadth of this brim considerable latitude is allowed. The largest varieties of *jhapi* are about four feet in diameter, and are generally held over a lady or a priest to protect them from the sun. The hats that are actually worn, are usually about two feet in diameter. The foundation consists of strips of bamboo arranged horizontally and vertically at intervals of about two inches. On this is laid a small neat mesh-work of tiny bamboo slips, which supports the *takau* leaves which form the actual protection against sun and rain. Similar mesh-work on the top keeps the leaves in position, and the whole is decorated with strips of red and blue cloth, silver braid, and little balls of thread. These ornamental hats are known as *sorudoia jhapis*, and are generally worn by women, and more especially by Muhammadans and by members of the lower Hindu castes such as the Nadiyals and Britthal Baniyas. The ordinary *jhapi* for common use is known

as *dhoriah*, and the cheapest form of hat, worn by ploughmen to protect them from the sun and rain, as *halwah*. The best *jhapis* are made at Kandali, Uriagaon, Jagi, and Kathiatali, the price ranging from four annas for the cheapest and commonest variety to five rupees for the better kinds. Sieves and baskets are made in every part of the district out of split bamboo. Each villager generally makes enough to satisfy his own requirements, and they are not usually bought or sold.

Fish is caught for home consumption by every section ^{Fishing.} of the community, but Doms or Nadiyals and the Charals or Namasudras are the only Hindu castes who will catch it for sale. The result of their labours is generally disposed of locally, and curing is only undertaken by Kacharis, Lalungs, and Mikirs who sell a little dried fish at the Jiajuri, Tapatjuri, Rangalu, Neli, Khola, and Amchoi *hats*. The varieties which are most esteemed for the table are:—the roe (*labeo rohita*), the chital (*notopterous chitala*), the ari (*arius*), the magur (*clarias magur*), the pufta (*callichrous bimaculatus*) and the hilsa (*clupea ilisha*). The nets most commonly in use are (1) the *Ghakata* a net in the shape of a shovel which is pushed through the water. (2) the *Khewali* a piece of netting to the centre of which a rope is attached while all round the edges there are weights. The net is thrown flat on to the surface of the water, when the weights sink and drag the sides together. It is then drawn by the rope to a boat or bank, and any fish that may have been swimming

in the water over which it has been cast are entangled in the pockets round the edge. The following names are applied to this net as the mesh decreases in size, *regh*, *afalia*, *duangulia*, *angatha*, and *ghan khewali*. (3) The *langi*, a large net which is stretched right across a river, the bottom being weighted and the top buoyed. The fish are then driven towards the net and become entangled in its meshes. The *tana langi* is a smaller variety the two ends of which are brought round to form a circle as the net is not long enough to reach across the river. (4) The *parangi*, a square net the opposite corners of which are fastened to flexible bamboos. The net thus hangs like a sack from a stout post to which the bamboos are attached, and is lowered into the water and raised at intervals. (5) An *uthar* is a large *khewali* which is worked on the same principle, but as it is too heavy to be thrown by hand, it is spread on the surface of the water from a boat. A variety of this net with especially large meshes is called a *batihal*. (6) A *ghat-jal* is fastened to a bamboo staging above the water, and is raised and lowered on the lever principle. There are various kinds of wicker traps in use. The one most commonly employed is called a *polo* and resembles a gigantic wine glass with a short stem, and is used by a fisherman who walks through shallow water and keeps pressing the rim on the mud at the bottom. Any fish that are caught are removed through an opening at the top. The *juluki* is a smaller kind of *polo*. The *jakai* is a species of wicker work shovel, which is either dragged along the bottom or placed on the ground to

catch the small fry who take refuge in it when the mud is trampled up. Conical bamboo traps which are called *dingaru*, *thupa*, *sepa*, and *gui* and are worked on the principle of the lobster pot, are placed in small streams or running water near the rice fields.

The Government fisheries are put up to auction; the most important being:—(1) The Kalang, (2) the Pota Kalang *bil*, (3) the Mora Kalang *bil*, (4) the Samaguri *bil*, (5) the Rupahi, (6) the Mecha *bil*, (7) the Kuji *bil*, (8) the Udori *bil*, (9) the Khonaghoria *bil*, (10) the Sondora *bil*, (11) the Kapili, (12) the Sonai, (13) the Tetelisara, (14) the Barpeta *bil*, (15) the Bor Ranmari *bil*, and (16) the Kola Duar *bil*.

Altogether they realized upwards of Rs. 11,000 in 1903, the lessees recouping themselves by charging the professional fisherman who have recourse to their *mahal* rates, varying from one to twenty rupees per net. Villagers who only catch fish for their own consumption are treated very liberally and only pay a fee of four annas per annum. Figures for subsequent years will be found in Table XII.