

VI.—Notes on the Musical Instruments and Agricultural and other Instruments of the Nepalese*. By A. CAMPBELL, Esq. M. D. Surgeon attached to the Residency at Katmandhu.

1.—MUSICAL INSTRUMENTS.

It is almost unnecessary to allude here to the two chief classes of men forming the population of the valley of *Nepal*; but to save repetition, it may not be amiss to mention, that the instruments underneath enumerated, are common to the Newars and the Parbuttiachs, both designations being understood in the widest sense. This difference, however, exists, in the classes of each tribe using them; among Parbuttiachs none but the lowest castes furnish professional musicians, and there are no amateurs of this science among the rude highlanders, who now rule *Nepal*. The Newars, on the contrary are, as a people, extremely fond of music, and many of the higher and middle castes practise it professionally, and indulge in it as amateurs. Their labors in the field are generally accompanied, and their weary return from it at certain seasons, enlivened by the plaintive strains of the rural flute (*bansuli*), or the sharper tones of the *mohalli* (flageolet), and at marriages, births, feasts, fairs, and religious processions, a preceding band of music, is an indispensable portion of the smallest ceremony; nor is it uncommon, on a festival day (of which the Newars have nearly 100 annually) to see a joyous jolly fellow, with his flageolet, or cymbals, as the case may be, trudging along towards the scene of rejoicing, piping a national air on the former, for his own amusement and that of all passengers, or drumming with the latter, in unison to his thoughtless but cheering whistle.

As a general rule, however, professional musicians, among the Newars, as with the Parbuttiachs, are from among the lowest castes, *Kállis* and *Kúsúlliahs*, form the majority from the former, *Damais* and *Sarkis* from the latter.

The instruments used by the people are as follows: I exclude the imitations by the Gorkhas, of British ones, with which their military bands are furnished, the chief of which are the *bagpipe*, made and played on by *Sarkis*. The flute, either English, or imitation of the flageolet, and a variety of horns, trumpets, and bugles.

No. 1.—*Phúnga* (*Newari*), is a trumpet-shaped instrument made of copper, about three and a half feet long, two inches in diameter as its large extremity, and tapering gradually to the mouth-piece, where its bore is diminished to the diameter of $\frac{1}{4}$ th of an inch, it is formed of

* The figures refer to models presented by Dr. CAMPBELL and deposited in the museum.—Eg.

three pieces, the one fitting into the other, is of very rude workmanship, and costs only about two Nepalese rupees*. The length of this instrument, and its slender make, require some support, when being used; it is consequently furnished with three pieces of stick, which when fitted into one another, form a rod of four feet in length to which the *Phúnga* is attached, by a bit of ribbon, at its expanded end, the rod crossing the instrument at right angles. The player holding the opposite end of the rod in his right hand elevates the instrument at pleasure, bringing it to the perpendicular when used in a crowd, but carrying it horizontally under other circumstances. The *Phúnga* belongs exclusively to the Newars, is called by them, "the musical instrument of the gods," and is played on at every religious ceremony and at every temple, within the valley, when the setting sun gives the signal for the performance of the evening sacrifice.

No. 2.—The *Mohalli* (*Newari*), or Nepalese flageolet. Is rudely executed, and from the most ordinary materials. Its mouthpiece is nothing more than a bit of palm leaf folded, and cut into a convenient shape! the body of the instrument is made of two pieces of sál wood, bound together by slips of the bambu, and hollowed out longitudinally, apertures or stops, (8 in number) being made for the fingers to play on; its trumpet or dilated extremity, is made of copper, gradually increasing in calibre, from the diameter of an inch to that of four inches at its open termination. The complete instrument costs about two and a half Nepalese rupees. The *mohalli* belongs exclusively to the Newars, and many persons of this tribe use it, who are not professional musicians. Its tones are sharper than those of the *bansuli*, or common Indian flute, and the national tunes adapted to it, are lively and pleasing, even to a British ear. To the Newars it seems to sound magically, for it has the power of inducing the poorest and most fatigued laborers, to join in the dance, and it is the constant accompaniment to their songs of merriment at feasts and weddings.

No. 3.—The *Singha*, or *Nar Singha*, the Nepalese horn. It is made entirely of copper, is when put together in the shape of a cow's horn, and about four feet long, is composed of four pieces, and tapers gradually from its wider extremity, where its calibre is four inches in diameter, to the mouth-piece, where the bore is not more than a quarter of an inch across. The *singha* is used exclusively by the lowest castes among the Parbuttiachs, and is in considerable demand among the lower castes of the plains of India. Its blast is loud, deep, but not musical, and its professors seem unable to mould its tones into

* A Nepalese rupee worth about 12 or 12½ anas of Company's currency.

any thing like harmony. It is rudely manufactured, and costs about three and a half Nepalese rupees.

No. 4.—The *Nag-phéni*, or *Twri*, a Parbuttiash instrument exclusively. It is only different from the last in being of smaller size and having three vertical turns in its shaft, like a French-horn. Its *noise*, for music it scarce produces, is any thing but harmonious. It is made of sheet copper, tinned over, and costs one rupee eight anas.

No. 5.—The *Bansuli*, “or rural flute” of Sir W. JONNS. It is much more like the common English fife in its tones, and is identical with it in form; is used by the Newars and Parbuttiashs.

No. 6.—The *Saringi*. This is the same as the instrument of that name used in India, and represents our European violin, in so far as it is stringed and scraped upon, with a horse-hair bow, but it is at best a miserable instrument. In *Nepal* it is only played on by the lowest caste Parbuttiashs, and by beggar boys, from among whom I have not seen or heard of any Pagamnis. The dancing girls imported from *Benares* annually for the amusement of the durbar, have their accompanying fiddlers; but these being foreigners, are not alluded to here.

No. 7.—The *Sitar*, or three-stringed guitar of India, is used by a very few persons in *Nepal*, whose proficiency is most wretched. Professors of this instrument from the plains of India find some encouragement from the Goorkhas,—at least an occasional performer of tolerable skill may be heard at their court.

No. 8.—Cymbals of various size, from that of a teacup, to the dimensions of a wash-hand basin, are used by the Newars and Parbuttiashs, to the same extent as in Hindustan; all religious ceremonies requiring music, all Jattras, or processions of the gods, as well as of marrying, and feasting mortals, are accompanied by the discordant noise of these untuned instruments. They are made of mixed metals, the chief of which is denominated *Phúlia*, and is composed of zinc, copper, and tin, in various proportions, according to the tone intended for the cymbal.

No. 9.—*Múrilla* of the Parbuttiashs, *Beaugh* of the Newars, is a small clarionet, about nine inches long, with eight stops, made of a single piece of bambu, the mouth-piece being formed by blocking up one end of the canal with a bit of wood, except a small slit through which the air is breathed. The tone of this instrument is sweet, and the airs played on it pleasing and plaintive. It costs about eight anas.

No. 10.—*Dhol* (drum). The same as the Hindustani one, except in the greater length of barrel, in one of the varieties.

No. 11.—*Dholuck*, differs from the *dhol* in having one end only covered with leather, and played on, is used by the Parbuttiachs but not commonly; a nearly similar drum, is used by the Newars, and called by them *dishi*.

No. 12.—*Beh* (*Newari*), commonly called *Krishna-beh*. Is the pastoral flute of that god (कृष्णना) so celebrated in history, and so famous in his loves,—is a common reed, with a spoon-shaped shield at the mouth stop: has seven stops along its shaft.

Specimens of these instruments were deposited in the museum of the Asiatic Society of Bengal in January last. I do not feel at present competent to give any correct account of the state of the science of music among the Nepalese. In general it may be stated that the Newars are capable of forming bands, containing performers on all the instruments above enumerated, whose music is far from discordant although of the simplest construction. The orchestra attendant on a Hindu play enacted here last year was upwards of 50 strong, and in some of the melodramatic portions of the performance, the tunes were not only enlivening and harmonious, but of a highly inspiring cast. The Nepalese have no written music, so far as I have been able to ascertain. Among the numerous volumes of Sanskrit literature, collected by Mr. Hodgson in *Nepal*, he informs me there is a very large one of the scenic, and musical acts, which he infers must have flourished very considerably in union with each other, previous to the Goorkha conquest of the valley. In these works the musical science is deemed of sacred origin. The Nepalese music is most probably identical with that of the plains, the Hindu portion of which is traced to the same fountain.

2.—AGRICULTURAL AND OTHER IMPLEMENTS.

No. 1.—The sugarcane mill or press, called *túsd* by the Newars, and *koulú* by the Parbuttiachs. It is of very rude and simple construction, but efficient enough for its purpose, among a people who are as yet content to go without the aid of horses and bullocks in the labours of husbandry and mercantile transport. The sugarcane grown in the valley, is for the most part, a small slender species of this plant, which ripens in the months of December and January, when its juice is expressed and evaporated to the semi-crystallised form of *gúr*, being scarcely further treated by the Newars than to the attainment of this coarse saccharine matter. All the *chini* (soft sugar), and *miri* (candy sugar), used in *Nepal* and its neighbouring portions of *Thibet*, is imported from the plains of Hindustan.

The *túsi* stands in the open air, either at the house of the cane-grower, or more commonly in the field, where a small shed is erected for covering the evaporating boiler, and storing the jars of *gúr*. It is formed as follows:—Two rough and strong posts $2\frac{1}{2}$ feet apart, of any common wood, are sunk in the earth, to such depth as will secure their fixedness under the heavy strain of the squeezing lever; these posts, which stand about six feet above the surface, are connected by two horizontal beams, of considerable strength, the lower one being about two feet from the ground. In front of these upright and horizontal beams, and at about three feet distance, two other posts of three feet above the surface are sunk, the space between them being occupied by the shorter limb of the squeezing lever which plays on a wooden axle, passing through the shorter limb, and the smaller posts. On the top of the smaller posts, and on the lower one of the beams which connect the larger posts, is laid a thick plank of heavy wood $2\frac{1}{2}$ feet broad, and about six feet long, its surface being grooved transversely at one end, and having a channel cut along the sides, for carrying off the expressed juice, towards the opposite termination of it, which is perforated and lies immediately over an earthen vessel sunk in the ground for the collection of the fluid. Over the grooved end of the lower plank, and under the upper beam which connects the larger posts, a thick plank about two feet long is laid, which forms in fact the upper *millstone*. The sugarcane being cut into pieces of a foot long is placed between these thick plauks, the upper one being pulled down by the depression of the longer limb of the lever; the upper plank and the shorter limb of the lever connected by a strong rope or strap of leather. The lever is precisely the same as that used in *Behar* for emptying wells, without the addition of a weight at the extremity of the longer limb, and a rope for depressing it. The Newar sugarcane-squeezer is content to climb up to the elevated limb and by the weight of his body in the air and strength of his arms when he reaches the ground, to depress it.

The sugarcane juice is evaporated in common earthen vessels until it assumes the proper thickness, when with scarce any purification it is stored up for use. The dry juiceless cane is used as fuel by the poorer natives.

No. 2.—*Chikou-sá*, the oil-press of the Newars. This machine is even more rude than the former, being actually little more than two logs of wood so placed as to be capable of being separated, for a small space at one end, and again approximated, without any mechanical aid save the very poorest. The *sármí* (oil-maker) builds a house for his

press, and, like the Scottish miller, has frequently an allotted district, from which grist comes to his mill exclusively. He sometimes purchases oil seeds, and becomes a large dealer in the article, but most commonly he depends for his sustenance, on the payment by the small farmers, of a portion of the oil, from that made at his mill, which he converts into money. The machine is made and worked as follows :—Two strong wooden posts (of which about three feet are above the surface) are driven at three feet asunder into the earthen floor of the press-house and connected by a horizontal beam, under which, and over a moveable log lying on the ground, one end of the logs forming the *press* proper are placed. The logs, each about 16 feet long and 18 inches in breadth and depth, are laid parallel to one another, secured at one extremity as above mentioned, the opposite one from the operator being free and admitting of being separated to the extent of eight or ten inches for the introduction of the oil-furnishing seeds. The apparatus for forcibly bringing in contact the logs separated for the introduction of the grain consists of first, a stone pillar sunk in the ground, against which one of the logs rests; second, a strong rope encircling the stone pillar and passed underneath and over both logs through which the end of a long wooden lever is passed, by the depression of which the logs are approximated; third, a rude stair on which the oil-pressers ascend to grasp the end of the lever and from which they depress it, until the ground comes within reach of their footing; and fourth, a wooden peg passed through the lower part of the stair, for the purpose of holding down the depressed lever until the oil ceases to drop from the expressed seeds. The seeds (mustard is the chief) having previously been pounded in a large wooden mortar, and toasted on a large stone kept hot by a subincumbent fire, both being in the same house with the oil-press, are put (to the extent of eight or ten pounds) into a bambu wicker basket, which is introduced between the large horizontal logs. This being accomplished the operators, two or three in number, ascend the rustic staircase, and seizing hold of the erected extremity of the lever, hang by and pull it by turns, until their united efforts succeed in depressing it, when a portion of oil is obtained. An earthen vessel lying on the ground receives the oil as furnished. The Newars know not the superiority of cold drawn, over hot drawn oil, or at all events, do not manufacture the former. The oil seeds are generally three times pounded, and toasted, and as often put into the press; when thoroughly exsiccated, they are carried home and given (as in Europe) to cattle, as well as to poultry. The Newar women use this oil-cake, or oil grains, in

washing their hair, in the same way as the females of Hindustan employ the *aulak*.

No. 3.—The water-mill, *Pan-chuki* of the northern Doab and western hills, *kan* of the Newars,—is so well described in the 19th number of the Journal of the Asiatic Society, as used in the Doab, that I shall only notice the slight points in which the *Nepal* one differs from the other. Of the Doab one it is said, “a horizontal water-wheel with floats placed obliquely so as to receive a stream of water from a shoot or funnel, the said float boards being fixed in a vertical axle passing through the lower millstone, and held to the upper one by a short iron bar at right angles, causing it to revolve with the water-wheel;—*the axle itself having a pivot working on a piece of the hardest stone that can be procured from the shingle near at hand*:—this, with a thatched roof over it, and the expense and trouble of digging a cut, so as to take advantage of a fall of water, are the only articles required in this very simple mill.” This description is correct for the *Nepal* mill, with the exception of the contrivance for a pivot on which the axle turns, and that for a cup for the reception of the said pivot. Instead of a rounded *pebble* being sunk into the lower end of the arbor, and a larger stone being embedded in the horizontal beam, or transom, on which the pivot revolves, we have in the *Nepal* one, an *iron* pivot driven into the nave of the water-wheel, and a square piece of the same metal sunk into the transom, and its upper surface hollowed out for the pivot to revolve in. In all essential respects they are the same, and alike rude in construction. On this point I am enabled to speak from personal observation, as I have had many opportunities of examining the water-mills of the *Dehra Dhoon*, and western hills, as well as those of the valley of *Nepal*.

The water-mill does not supersede in *Nepal* the use of the common hand-mill, as the latter is to be found in almost every cultivator's house, and exactly similar to the one used in the plains of India; viz. nothing more than a couple of circular stones, about 18 inches in diameter, the superior one resting on a pivot fixed in the lower one and having a peg of wood driven into it, by means of which it is made to revolve on the other as it lies on the ground. Mr. ELPHINSTON found the water-mill with a horizontal water-wheel immediately below the millstone in general use beyond the Indus, and says that it “is used all over *Affghanistan*, *Persia* and *Turkistan*.” Throughout the hills from the *Sutlege* to the *Mitcher* or eastern limits of *Nepal*, its use is general, and has been so in all probability for a long period of time. More recently this kind of water-mill has been introduced into our

territories in the northern *Doab*, which lie along the upper *Jumna*, and so great is its simplicity, adapting it to the appliances of the most ignorant natives, "that it has been adopted generally in all the canals in the *Delhi* district, as well as in those of the *Doab**."

A similar mill is said to be used in some of the most northern of the *Scottish* islands, as well in *Provence* and *Dauphny*.

The power of the *Nepal* mill is not by any means great, nor is there much inducement for the improving of it beyond its present state. Wheat in *Nepal* holds a very low place among the farinacea in comparison with rice, in consequence of the better adaptation of the soil for the latter grain; and so small is the consumption of *atta* (meal) that the miller cannot depend on his craft, as an only means of subsistence†. As an average of the power of these mills, the produce of one after 24 hours' grinding ranges from 7 to 10 *muris* of meal, (14 to 20 maunds about,) the latter quantity being considered the maximum produce of the best.

The earnings of the miller are for the most part in kind, and the rate of payment varies according to the supply of water at the time of grinding, as well as with the quantity of grain brought by an individual. The highest rate for grinding is an $\frac{1}{3}$ th of the produce, the average one is $\frac{1}{6}$ th, and the lowest $\frac{1}{10}$ th, this being for grinding alone, as the proprietor of the grain transports it to, and from, the mill.

The payment in kind for grinding corn is, I believe, universal in the hills, it is customary in the *Delhi* territory of India, and I can vouch for its being the invariable mode throughout a large portion of the highlands of Scotland. The rate of remuneration in the latter country was in 1827 $\frac{1}{6}$ th for grinding oatmeal, $\frac{1}{10}$ th for grinding barley meal, and $\frac{1}{10}$ th for grinding malt, which had paid duty; a good deal more for the smuggled article, as an indemnification to the miller for the risk run in admitting the contraband to his premises.

No. 4.—*Kú*, (*Newari*;) *koali* of the *Purbuttiahs*. The hoe or spade with which the *Newars* turn up the soil of their fields. They do not use the plough, and compared with the Indian one (which is used by the *Parhattiahs*), this spade is a much more efficient instrument. Its cut is from 4 to 6 inches deep. The *Newars* use it with dexterity and delve a field in surprisingly short space of time, turning the earth up in ridges, or narrow beds. The *kú* resembles our

* See *Journal Asiatic Society*, No. 19.

† *Murwa*, *kodu*, Indian corn, and a little rice is ground by these mills besides wheat; the ground rice is used for making sweetmeats.

adze, more than a spade, but differs from the former in having its handle projecting from the off side of the neck of the instrument. The delver holds the handle in both hands, and stooping forward raises the spade at each cut above his head, bringing it down strongly and steadily and cutting the sod rather slantingly, can make a furrow in well moistened ground of 9 inches deep. The ground for both crops of rice and for wheat, has two or three delvings. So soon as one crop is off the ground the Newar turns up his field for another one, thus gaining all the advantage from the decaying stubble, which early ploughing can give*. This immediate turning up of the soil is a matter on which the Newars lay much stress, and consequently it is very common to see the women and children of the family cutting down wheat and rice, at one end of a field, while the males are delving it from the other. The *kú* costs about one current rupee.

No. 5.—*Kurmúghan*, (*Newari*.) The wooden crutch-like instrument used by the Newars for breaking down the clods, and preparing the soil for receiving seed. With this they reduce the earth to the finest powder; it is all they have for serving the purpose of our iron rakes and harrows, nor is it inferior to them in the hands of the very hard-working and skilful husbandmen who use it.

No. 6.—*Kúchi-múghán*, (*Newari*.) The instrument used for covering over sown wheat, and *gayha* or upland rice, is a block with an upright shaft, used like a pavier's block. The *gayha* variety of rice is suited to dryish lands, is not transplanted, but laid down in seed, most carefully and laboriously, with the fingers. When sown thus, the ground is beaten down gently with the *kúchi-múghán*.

No. 7.—*Chassú-múghán*, (*Newari*.) A thin-edged wooden shovel, used for smoothing the flooded beds in which the seed of the *malai*, and *tóli* varieties of rice is sown, for the purpose of furnishing transplants or seedlings. It is also used in the suburban fields, devoted generally by the Newars to the raising of culinary vegetables, pepper (red), ginger, &c. &c. where it is necessary to prepare the soil carefully and finely.

No. 8.—*Kúkítcha*, (*Newari*.) A small broad-pointed hoe, used by the Newars, for weeding the flooded rice.

No. 9.—*Chong-kúki*, (*Newari*.) A sharp-pointed hoe, used in weeding the *gayha* or dry land rice, *úrid* (a vetch), and other drill crops.

N. B. Nos. 8 and 9 are iron instruments, with wooden handles.

* Sir HUMPHREY DAVY, proved chemically the advantages of using vegetable manures fresh, and the practice is now general in England.—See his *Lectures on Agricultural Chemistry*.

No. 10.—*Kile*, (*Newari*.) A clumsy wooden shovel, used for spreading grain to the sun and collecting it in heaps after its removal from the straw. The Newars do not use the flail in threshing their corn; there are two modes in use; in separating the *malsi* rice from its straw, nothing is required beyond the shaking of the sheaf, and a few knocks on the ground, in consequence of the preparatory treatment undergone by this crop (or a great part of it). After being cut down it is stacked on the field and left to become heated, and to ferment for 6 or 8 days, after which the stacks are pulled to pieces, and the grain separated from the straw, winnowed by being shaken to the wind from a shallow platter made of mat and bambu and dried in the sun. The grain thus treated is called *lukwa*, and is much liked. The other mode, and the one employed at the wheat, vetch, and gayha rice harvest, is simply beating out the grain with a long stick, as it lies on the ground. All the grain in the valley is separated from the straw on the field, and carried home after being winnowed, in bags and baskets, carried banghywise or suspended from a stick, borne on the shoulders. The crops are reaped with the sickle, which instrument is similar to the European scythe sickle but smaller. The Parbuttiachs, in common with the Newars, use this instrument and rarely pull up the crops by the root, as is the practice of the Plains.

No. 11.—*Lusi-doh*, (*Newari*.) The large wooden pestle and mortar, universally used in India, for husking grain. A block of hard wood three feet long and 15 or 18 inches in diameter, shaped rudely like an hour-glass, and hollowed from one end down to the middle, is all that is required to form the mortar. The pestle is about four feet long, rounded for about a foot in the middle, and squared on three sides at both ends; it is used by one or two persons, the centre portion held in the hand, and either end employed for beating the contents of the mortar. This machine is employed principally in *Nepal* for making *chúra*, or the bruised rice, so much eaten in all rice countries of India, when the people are travelling, or from other causes unable to procure time or fuel for regular cooking. The *chúra* is made thus: the rice in husk (*dhan*) being steeped in water for a day and night is toasted for a short time on a stone or large tile heated for the purpose; when thus parboiled, and while still soft, it is thrown into the wooden mortar and bruised into thin flat flakes, in which state, having previously been separated from the husks and dried, it is sold in the shops, and eaten by the people. A native of *Nepal*, or of *Bengal* and *Behar*, will be satisfied to live on this substance alone for many days together: a small quantity of *sukur* (unpurified parti-

ally crystallised sugar) added, gives it a most grateful relish, to the rarely stimulated palates of these poor and primitive people.

No. 12.—*Kúti*, (*Newari*.) The machine for converting the *dhan* into eatable rice, by husking it, is the same as that for making *súrká* from bricks, (hence called the *Dhenki* ?)

No. 13.—*Chan-kummú*, (*Newari*.) Is the banghy used in all field work, and consists merely of two small wicker baskets, suspended from either end of a piece of wood or bambu, four feet long, which the carrier bears on his shoulders.

N. B. Exact models in wood of the above noted implements, are deposited in the museum of the Asiatic Society of Bengal.

VII.—*Note on the Facsimiles of the various Inscriptions on the ancient column at Allahabad, retaken by Captain EDWARD SMITH, Engineers. By JAMES PRINSEP, Sec. As. Soc. &c. &c.*

[Submitted at the Meeting of the 6th December.]

Captain EDWARD SMITH, of the engineers, has rendered another signal service to the Society and to all those whose study is directed to the development of Indian history. On this occasion his task has been infinitely more trying to the patience, and has demanded more ingenuity and care, than in the comparatively simple affair of *Bhilsa*: while on the other hand there was less expected from its accomplishment; seeing that Lieutenant BURT had already taken down the two principal inscriptions by hand, one of which had been published and interpreted with the advantage of all the learning and critical acumen of Captain TROYER and of Dr. MILL himself: while the other and older text had been shewn to be identical with the four tablets of the *Feros lát*, and was therefore included in the explanation of that monument recently given. Nevertheless, experience rife and frequent had taught me the value of a strict revision, even of the most trust-worthy labour of the treacherous eye; and I was equally surprised and pleased to find that Captain SMITH had devoted himself to this unpromising labour. There were many discrepancies of letters in Lieutenant BURT's copy of the No. 1. inscription, which might be satisfactorily rectified; there were also many obscurities in the *Samu-wragupta* inscription, which might be cleared up; and above all, it was an object to determine the nature of the interlineary inscription to which the attention of the curious had been directed first by Lieut. KIRROB,