

A SETTLEMENT AND SMITHY OF THE BLACKSMITHS (KĀMI) IN NEPAL

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With the exception of Macdonald (1970) and Caplan (1972), as yet little attention has been paid to the untouchable castes of Nepal. This is also true of the rural blacksmiths, the Kāmi. 2) This paper does not claim to fill the gap even approximately. Rather, it limits itself to certain observations made among a group of Kāmi and is intended as an accompanying text to a collection which is now in the possession of the Museum für Völkerkunde in Vienna.*)

I. THE KAMI AND THEIR SETTLEMENT

The Kāmi group to be described here comprises altogether 97 persons and inhabits the village of Chautara (pseudonym) at an altitude of about 1.600 m. Chautara lies three-days' walk to the west of Kathmandu and is predominantly inhabited by the Tamang, speaking a western Tamang dialect. The bulk of the population of the neighbouring villages is made up of Tamang, Brahmin, Chetri, Gurung and Newar. All these castes and groups are peasants; only among the Newar do we find some shopkeepers. In addition, there are two other untouchable castes, the Sārki, cobblers and shoemakers, and the Damāi, tailors and musicians.

The first Kāmi are said to have immigrated to Chautara about eight generations ago, only shortly after the village had been founded by the Tamang. This first group came from a region south of the Kathmandu Valley and consisted of men belonging to the Kālulohār clan. The second group immigrated only three generations ago from a village about 10 km west of Chautara. The men of this group belonged to the Koirāl clan. Conspicuously, both groups came from villages whose inhabitants were Brahmins, Chetri, Thakuri and other Hindu castes. One of the informants emphasized in this connection that the Kāmi originally worked only for these castes and that they had immigrated together with these castes from Western Nepal into the central and eastern areas of the country. Be that as it may, there is no doubt that the Kāmi have only recently settled down among

*) Post 12/1972, inv. no.s 151.743-151.766.

the ethnic groups of Tibetan linguistic and cultural affinity, as for instance in the Langtang area (north of Kathmandu) or among the Sherpa.

The Kāmi settlement in Chautara lies in the western part of the village. Demarcated by a strip of fields it stands out well against the other part of the village inhabited by the Tamang. Referring to the Tamang part of the village, the Kāmi speak of biṣṭ gāū, which means 'client's village'. As to the Kāmi settlement, it consists of two sections both of which are the same distance apart from each other as the whole Kāmi complex is from the Tamang village. The first part is composed of Kālulohār houses, the second one of Koirāl houses. Both parts of the settlement are frequently referred to simply as Kālulohār-ṭol and Koirāl-ṭol ³⁾. All the Kāmi of the Koirāl-ṭol have one workshop in common possession, those of the Kālulohār-ṭol share two workshops ⁴⁾. In every sixth to seventh village in a circumference of about 10 km around Chautara, a Kāmi settlement is to be found, normally inhabited by one to five patrilinear exogamous clans (thar). In this region the following clans are represented: Koirāl, Śeṣṭhi, Sincauri, Asārpaṭṭi, Rasāili, Diāli, Sadāisaṅgār, Ghadāni, Rāmatāma, Lāmgāde, Gajimer, Rijāl, Lohāgun, Musābakale, Tiruwā, Kālulohār, Kukrekālulohār. Intermarriage is forbidden only for the Kālulohār and the Kukrekālulohār clans. Both clans regard themselves as swāṅge bhāi, that is 'quasi-brothers' ⁵⁾.

The matrimonial residence is virilocal or, in rare instances, patrilocal. A conspicuous cultural criterion of the Kāmi is the preferential marriage to the matrilateral cross-cousin. Normally, cross-cousin marriage is only to be found among the Buddhist Tamang and Gurung but not among the Brahmin, Chetri and Newar, who profess Hinduism as do the Kāmi. At present, there is no instance of such a marriage. Two women who had been married as mother's brother's daughter died a few years ago.

Divorce is possible. In Chautara ⁶⁾, of the 19 Kāmi households, six women have been divorced once, three women twice, and one woman three times before their present marriages. Among the 20 men in Chautara, ten have been divorced once and one twice. In most cases, the divorce had taken place on the husband's initiative because he believed his wife to be barren.

Infertility, however, does not necessarily mean divorce. With his first wife's consent a man may take a second wife and live in bigamy. In Chautara only one such case is known: after five years of childless marriage a wealthy Kāmi has married his wife's younger sister.

Contrary to the higher Hindu castes, the Kāmi do not avail themselves of the Brahmin's priestly services. One member of one's own caste is always responsible for conducting a religious ceremony. It is significant, however, that the conducting agent of such a ceremony is called 'bāhun', that is 'Brahmin'. In the strict sense of the word there is only one ritual specialist among the Kāmi: the shamanistic healer (jhākri or dhāmi) who frequently imitates the techniques of the Tamang shamans (bombo) and who often even recites in the Tamang language. Otherwise, at festivals, the offerings may be made by anyone knowing the relevant ritual texts, whereas the life-cycle ceremonies are to be conducted by a certain relative. Thus the wedding ceremony and the ritual purification of the woman in confinement 7) (nwāran) is conducted by the jwāi (lit. 'son-in-law') or by the bhānij (lit. 'sister's son'). Actually, not always a son-in-law or a sister's son is meant. For these services any man may be selected who is married to a woman from the local descent group of the bridegroom or the father. If necessary, one can even resort to father's sister's husband. These ritual services of the jwāi/bhānij are regarded as an expression of the obligation that binds the 'wife-taker' to the 'wife-giver'.

Among the Hindu deities worshipped by the Kāmi as protectors of their workshops there are Bhimsen, the deity of trade, and the goddess Durgā. In connection with the smithy, the most important ceremony takes place during the Dasai festival (September/October). In the evening of the aṣṭami day 8) they close the workshop for three days. In a corner of the house plastered with cow dung and red earth, the tools are sprinkled with the blood of a buffalo killed by the Tamang villagers on the same day. Two days later, the day of the full moon, the tools are carried back to the smithy. The proprietors of the workshop kill a chicken, sprinkle the bellows with the chicken's blood and briefly invoke Bhimsen.

Of all the untouchable castes the Kāmi occupy the highest position within the traditional caste hierarchy. According to the Muluki Ain (Legal Code) of B.S. 1910, the Kāmi belong to the group of the pāni nacalne castes. Here pāni nacalne 9) means that one must not accept from these castes any food cooked in water or any objects (for example vessels) which have been in contact with water. A neglect of this rule entails ritual pollution. The Code outlines the following hierarchy for the pāni nacalne castes: one of the highest castes are the Kasāi (butchers), followed (among others) by the Kusle (musicians and sweepers), the Hindu-Dhobi (washermen), Kulu (tanners), Kāmi and Sārki (cobblers, at the same level with the Kāmi), (...), Damāi (tailors and musicians), Gāine (singers), Bādi (musicians), Poṛe (skinner, sweepers and scavengers) and, in the lowest position there appear the Cyāme (scavengers). The pāni nacalne group comprises a subgroup, beginning with the Kāmi and Sārki respectively and ending with the Cyāme. The castes of that subgroup are called choi-chiṭo hālnuparne castes, that is to say, they are classified as untouchables. As the term choi-chiṭo (choinu 'to be touched', and chiṭo 'water drop') indicates, anyone having been touched by a member of these castes needs ritual purification by water 10).

Unlike India, in today's Nepal neither legislation nor social politics have been actively committed to a radical emancipation of the untouchables 11). Nevertheless, the criteria of the status of untouchability are no longer as striking today as they were still some twenty years ago. Using the criteria of the Muluki Ain Code, the Kāmi of Chautara cannot actually even be labelled as untouchables. It is true, that the physical contact with a Kāmi is not yet tolerated by every Tamang, but in such a case, no Tamang would ritually purify himself. If a Tamang wants to give something to a Kāmi, most of the Kāmi still adhere to the traditional gesture of holding up their cupped hands so that the Tamang may throw a coin or a cigarette into them from some distance. Only a few Tamang would mind a Kāmi taking the object in question directly out of their hands. The vast majority of the Tamang

do not yet let the Kāmi into their homes, but, contrary to past times, they for their part are prepared to enter a Kāmi's house. No one objects to Tamang and Kāmi children sitting side by side at school or playing together. Only few Tamang would accept drinking water from a Kāmi, but no one shrinks from taking or washing with water from the well which is also used by the Kāmi. Every Tamang refuses to accept boiled rice from a Kāmi or other food prepared in water - but only within his own village region. The most powerful Tamang leader in Chautara, for instance, has been accompanied on his journeys by a Kāmi cook for years.

The formerly customary address "hajur" ("Sir") by which the Kāmi has addressed the Tamang has been substituted by more familiar forms. Most frequently, the Kāmi use terms which, according to the client's age, allude to a fictive agnatic relationship. The use of these terms can also be a result of the ritual friendship, miteri, between a Kāmi and a Tamang. The client answers by using a reciprocal term.¹²⁾

The slightly plaintive intonation, feigning misery - a token of servility and thus an attribute of many untouchable castes - and the stereotyped allusions to his poverty appear only when the Kāmi bargains or visits his clients on holidays and begs for some alcohol. In the smithy, however, an impatient client is rebuked harshly and a Tamang asking a Kāmi for a cash credit is frequently compelled to flatter and beg for some time before getting the ten rupees he asked for.

The Tamang call the Kāmi a caste of beggars and liars and point out that the Kāmi are never satisfied with what they get, even in case of over-payment. The Kāmi openly admit that begging is a habit of theirs, fulfilling thus the rôle expectation people have of them.

The Kāmi's dissatisfaction, his inclination to exaggerate and to lie often causes trouble. But contrary to past times, only few Tamang can afford to assault a Kāmi in case of controversy. The Kāmi would appeal to the village leaders - at least when he feels unjustly treated.

In other respects, too, there are indications of changing status. Thus, among the 25 Gurkha mercenaries of Chautara, at present serving in the Indian Army,

there are two Kāmi.¹³⁾ The job of mercenary still means a unique chance for a man who is illiterate or only slightly educated to earn both money and prestige. A further indicator of changing status is the increasing ratio of Kāmi children among the school children. 15 of the total 29 Kāmi children of school age are sent to school - that is, every second child - whereas of the 137 school age Tamang children only 55 are actually enrolled. Here it has to be borne in mind that all the fathers of the Kāmi children are illiterate, whereas among the Tamang fathers about 10 are literate.

In spite of these changes, all social barriers have been preserved which define the Kāmi as a separate caste. All informants described intermarriage between Kāmi and Tamang as something almost unthinkable.¹⁴⁾ Even extra-marital relations between Tamang men and Kāmi women have been denied, although in Nepal Kāmi women are generally suspected of prostitution.

Equally rigid is the barrier downwards in the hierarchy. The Damāi tailors and musicians are regarded by the Kāmi as untouchables. The characteristics of the Tamang-Kāmi interrelations are to be found again in those between the Kāmi and the Damāi, namely the specialist-client relationship, the refusal to accept water and food cooked in water and the prohibition of intermarriage (cf. note 18). A Damāi may not enter a Kāmi's house any more than a Kāmi may enter a Tamang's house. Sārki (cobblers) and Kāmi, however, consider themselves of equal rank. They certainly do not accept water and boiled rice from each other, but they do occasionally intermarry.

The slackening in the relationship between Tamang and Kāmi ensued in the recent past can be traced back to four main factors:

- The fact that the Tamang are Buddhists. Hence, the caste ideology has presumably never been as deeply rooted among them as among the Brahmin or the Chetri. It may also be of some significance that the Tamang language has no terms for 'untouchable' or for 'caste'.
- The fact that the old village élite of the Tamang has been substituted mostly by ex-mercenaries who had come back influenced by the ideas of the Indian Independence Movement. They encourage a certain amount of democratisation on the village level.

- The fact that, according to the legislation of the post-Rana period all Nepalese are to be treated as equals. This awareness of legal equality emphasises still rudimentary claim on social equality. The claim manifests itself, among other things, in the fact that an ever increasing number of Kāmi denominate and sign themselves as "Biswakarma" instead of Kāmi.¹⁵⁾ The term has been used by newspapers and authorities, and for the time being the Kāmi himself makes use of it only vis-à-vis outsiders and with a self-conscious smile.

- The fact that the recent economic development has changed the old service structure and has emancipated the Kāmi from his dependence on the Tamang client.

As to this last point, I shall go into details in what follows.

All the Kāmi in Chautara work as smiths and each of them works for a certain number of clients. The Kāmi call the client biṣṭ - a term also used¹⁶⁾ by the Damāi and Sārki. Referring to his Kāmi, the client speaks of bāli kāmi which literally means 'harvest Kāmi'. Most of the clients are inherited from father to son but in the case of personal disagreement the biṣṭ may turn to another Kāmi. The number of clients a Kāmi may have varies considerably. In Chautara, it varies from 1 to 95. On average, one Kāmi has 17.4 clients.

The client-Kāmi relationship implies some mutual obligations. The client's prestations rendered to the Kāmi are divided as follows:

- A share (bhāg) each on the days of the full-moon of Baisākh, Jeṭh, Bhadau as well as on festivals such as Sāun Sakrāti, Dasāi and Tihār.¹⁷⁾ A bhāg consists of some dried meat, a handful of husked rice, some salt, 2-3 chillies and beer and/or spirits.

- A handlong of dried meat from the neck of a buffalo jointly killed by the Tamang villagers during the Dasāi festival. On the same occasion, the biṣṭ hands over to his Kāmi a piece of fried meat skewered onto a stick.

- 2-3 roṭi (dough fried in oil) each on the Tihār and Māgh Sakrāti festivals.

- A basketful of corn on the cob, about 6-7 kg, after the maize harvest. For every six cobs the biṣṭ puts one maize-flower on the top when the Kāmi comes to collect the basket.
- 3 to 6 pāthi, about 10 to 20 kg, of millet (kodo), according to the size of the biṣṭ's household, after the millet harvest.
- 4 mānā (about 1 kg) of unhusked rice soon after the rice harvest.
- An invitation to every ceremony taking place in the client's house (birth, wedding, death-feast).
- A helping "to taste" (chākne) whenever the Kāmi happens to come along after the biṣṭ has prepared fresh beer or spirits.
- A light meal (khājā) consisting of beer and pop corn on the day of placing an order, as well as some spirits and one mānā of grain whenever the client fetches a big hoe or an iron plough-share ordered.
- One additional pāthi (2.5 to 3.5 kg) of grain for a new big hoe (kodāli), the so-called kodāle pāthi.
- 4 mānā of grain each for the repair of a kodāli or a plough-share. 18)

Apart from the last mentioned exceptions (kodāli and plough-share), the Kāmi is obliged to repair all tools and/or to make new ones for the biṣṭ without demanding immediate and additional prestations for it. In case of a new order, however, this is true only if the iron is supplied by the client; otherwise (nowadays) the Kāmi will insist on cash payment, including the wage and the price for the raw iron. In general, the client will resort to such transactions in urgent cases only, as he wants to economize with his cash.

One of the further obligations of the Kāmi is to entrust another Kāmi with any urgent order for which he himself has no time to carry out. Later on, the substitute will get compensation in terms of manpower.



1. The smithy (cf. fig. 1).



This mutual assistance is called parma.¹⁹⁾

At first sight, these prestations reflect the traditional pattern with which we are familiar in India, too, namely the so-called jajmānī system with its hereditary, personal ties between a craftsman (or a ritual specialist) and his peasant client.

There are many indications, however, that this service structure, within its general economic framework, has undergone a considerable change. Some thirty years ago, the Kāmi was still entirely supplied by the client with food and also partly with materials. That is, apart from the prestations mentioned above, the Kāmi received melted butter, buttermilk, firewood for one year each, and certain materials for the house construction, such as timber, a special kind of grass for the roof, etc. Considering the fact that in former times the Kāmi had neither land nor livestock (except for pigs and chickens), one can assume that they were largely dependent on their Tamang clients.²⁰⁾

The change which has been taking place since then is summarized in the diagram below, showing average values per household. We see that with regard to the number of cattle held and the amount of crop produced per annum on their own fields, the Tamang exceed the Kāmi by somewhat less than 50% only.

	average/household:		ratio:	
	Tamang	Kāmi	Tamang	Kāmi
rice (own yield per annum)	8.1 muri	4.5 muri	9	5
maize (own yield per annum)	5.1 muri	2.5 muri	2	1 (approx.)
millet (own yield per annum)	3.3 muri	2.1 muri	3	2 (approx.)
buffalo (number)	2.4	1.6	3	2
plough ox (number)	1.2	0.3	4	1

(1 muri of unhusked rice = 49.8 kg: 1 muri of maize corn = 62.5 kg; 1 muri of millet = 67.3 kg).

In the Kāmi's case, the rates of the annual yield would be double if one were to add the annual pre-stations he gets from the Tamang clients. For instance, the Kāmi with the maximum number of clients in the village, namely 95, harvests on his own land 7 muri of paddy and receives annually about 35 muri of paddy from his clients. - With regard to the relatively small size of their holdings, it would not pay most of the Kāmi to keep oxen, and they prefer to borrow them from the Tamang.

Three reasons can be given for the growing self-sufficiency in food of the Kāmi:

a) As a consequence of the increasing scarcity of land, many Tamang are no longer able to provide even themselves with enough grain from their own production. 21) On the other hand, the Tamang have more cash at their disposal than they had had previously. At present, 38 Tamang men from Chautara are working in India as mercenaries or labourers. 22) The money transferred to their relatives, as well as the pension received by 7 ex-mercenaries may come to an amount of 20.000 to 23.000 Nepalese Rupies per annum. Further sources of cash income are road construction and other projects embarked on during the last decade in the region. As a result, the payments in natural products have thus been replaced by monetary transactions, even though for the time being only sporadically. Some Tamang are now prepared to pay for new tools in cash and thus avoid a journey to the next bazaar (one and a half days' walk to and fro) and buy the iron for the Kāmi.

b) The second reason is that there are too many Kāmi and too few clients, partly on account of the growing Kāmi population, partly because the Tamang can provide themselves with products from the market, such as vessels or tools. There are already a number of Kāmi in the neighbouring villages who have abandoned the smith's trade and work only as farmers. This development, however, seems to have been slowed down by the fact that nowadays many Kāmi also work from time to time as gold- and coppersmiths.

c) The third reason lies in the fact that the cash assets of the Kāmi have grown considerably so that they are able to buy land. 23) During the last four to six years, 9 Kāmi (of 19 households) and 26 Tamang (of 108 households) in Chautara have purchased land. In other words, land has been bought by every second Kāmi household and only by every fourth Tamang household. In terms of annual yield, the Kāmi have purchased land worth altogether 28 muri of grain, whereas the Tamang have bought land worth altogether 98 muri. Taking the average per purchaser, we have in the case of the Kāmi land worth $28:9 = 3.1$ muri, whereas the Tamang have bought land worth $98:26 = 3.8$ muri. The Kāmi have purchased, without exception, from the Tamang. In many instances, the land had first been mortgaged and was then transferred to the Kāmi money-lender on account of the insolvency of their Tamang debtors. -- In the particular case of Chautara, there is still another point to be considered: One of the Tamang ex-mercenaries, who enjoys nearly unrestricted authority in the village, has promoted the land purchase of the Kāmi against the resistance of the Tamang.

II. THE SMITHY

The smithies are surrounded on three sides by stone walls (cf. plate 1, fig. 1). The roof consists of unlevelled beams which support a lathwork of twigs fixed with bamboo splints; the twigs are covered with leaves. This roof only gives shelter against sunshine, but hardly against rain. In order to ensure better lighting and ventilation the roof is open on both gable fronts. In the far left corner there is the forge. Near the side with the open entrance we find the iron anvil (liyo), the stone anvil and the smithy trough made of iron or stone and driven into the ground (plate 2).

Apart from these fixed devices every Kāmi carries his tools with him. Even during short breaks he carries them home unless somebody else has borrowed them and taken the responsibility for them.

There are no shelves on which to deposit the tools. Everything is put on the ground, which is covered with a thick layer of dark-grey dust. While working, the Kāmi squats or sits on the ground, his legs pulled up close to the body. The only seating accomodation he uses is a small round mat, cagaṭi. If all co-owners work at the same time the smithy room appears quite narrow. In the smithy, the Kāmi wears only dirty and wornout clothes, partly with regard to the work, partly "because of tradition".

Generally, every Kāmi works for himself, but he lends a hand to the others at short notice. This is the case, for instance, whenever they work with the big hammer, ghan; one has to hold the workpiece and two others must hammer in order to gain time as the metal gets cold very quickly. Apart from fetching water from time to time, the client never helps.

There are no fixed working hours. If there is much to be done, the Kāmi comes to the smithy as early as five o'clock in the morning and works through until nightfall, the only interruption being a short midday break for lunch. The volume of work depends mainly upon the season. In May and June, before rice and millet are transplanted, the bulk of hoes, axes and sickles has to be dealt with. After the rice harvest in the autumn, the client gats his axes and sickles sharpened, for there then comes the season when he must cut firewood and provide the cattle with leaf-fodder. In February, at the latest, the plough-shares are to be mended before one starts ploughing the maize fields.

It is always the client who is the one to come to the Kāmi's smithy. If the order placed can be executed at short notice, the client stays in the smithy, squatting among the Kāmi and passing the time away by chatting with them. This is no problem, for the Kāmi are used to chatting and joking while working. Since the Kāmi also know the Tamang language, the conversation is carried on in Nepali or in Tamang. The Tamang clients always appear in striking contrast to the agile Kāmi with their ready wit and their liking for jokes.

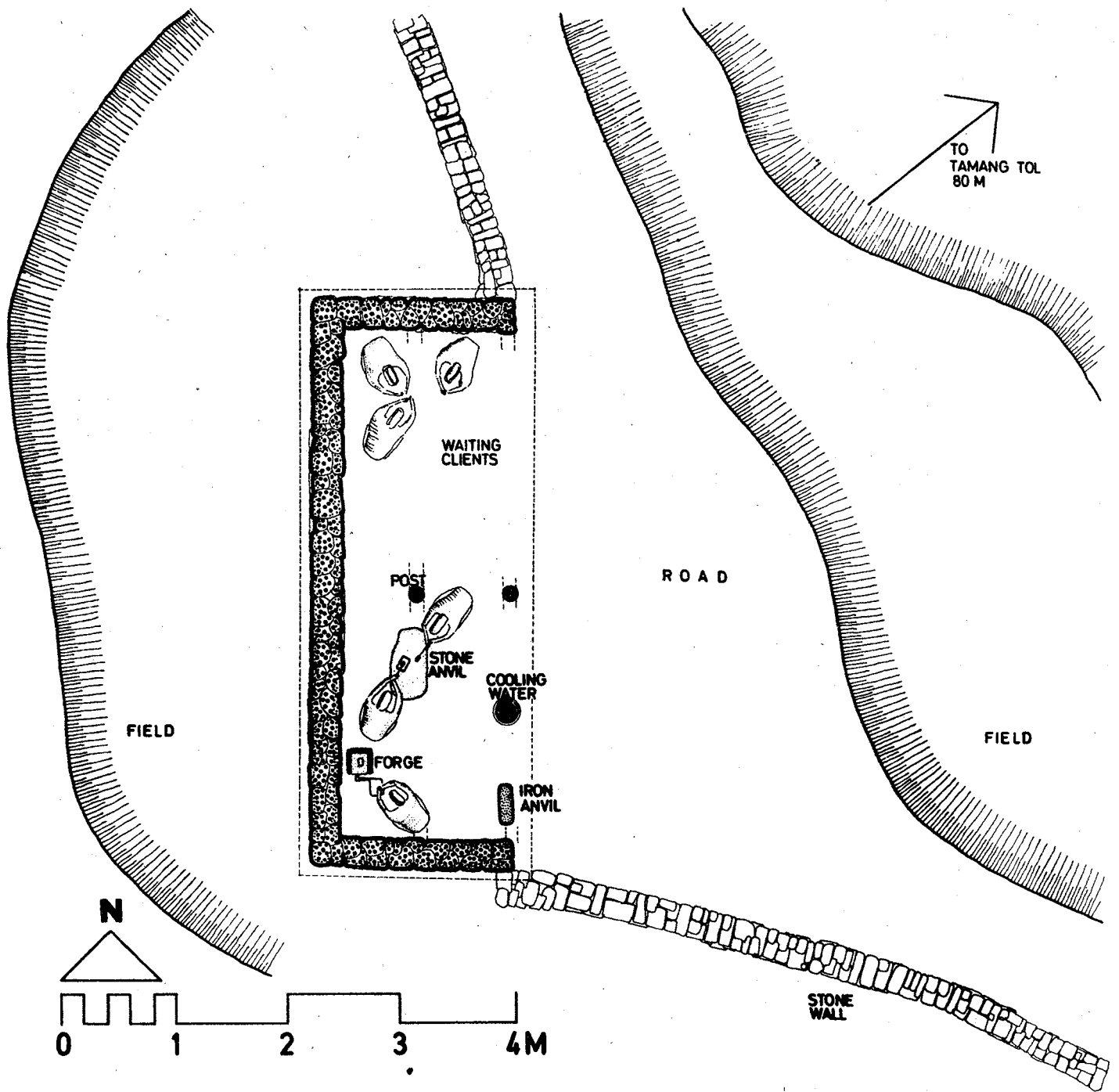


FIG. 1: THE SMITHY AND ITS SURROUNDINGS

As a rule, the waiting client is pushed into a rather passive rôle. The Tamang never seems to succeed in making the Kāmi laugh -- he, the Tamang, is the one to laugh and to tolerate the Kāmi having the last word.

Nevertheless, even in the smithy, the Kāmi show a characteristic language behaviour which distinguishes them from most of the other Nepali speakers: the plaintive intonation, the constant reassurance of their misery and their sometimes quite strange distortions of words and contexts seem to reflect their traditional rôle, namely the rôle of beggars and entertainers. The topics of conversation in the smithy are usually village and family affairs which explains why the Kāmi belong to the best informed people in the village. They say that "āran aḍḍā jasto huncha", that is, 'the smithy is like an office', i.e. a place where everybody speaks his mind and where sometimes serious matters are settled.

III. THE TECHNOLOGY

A. MATERIALS

The Kāmi finds the iron (phalām) in the nearest bazaar where the Newar tradesmen sell it in dhārni (= 2.27 kg). Four kinds of iron are known:

- a) The iron used most is called rel kamāni or jeṭho phalām, "first-born iron". According to some informants, the rel kamāni (< English rail and Hindi kāmānī) originates from the rejected steel springs of the Indian railways.
- b) māhīlo phalām, "second-born iron", is softer than rel kamāni and is bought only in case of need.
- c) sāhīlo phalām, "third-born iron" (also called sulis), is harder than rel kamāni but it is unsuitable for welding. This iron is mainly used for sickles as they need neither welding nor an especially strong cutting edge.

d) kāncho phalām, "youngest-born iron" (also called jap), is very soft and is therefore used only in case of need, for instance, for hoe sockets.

Copper (tāmā) is undoubtedly a new material in the Kāmi's metal inventory. They use the same type of copper as the Newar copper-smiths of the Kathmandu Valley.

Besides the metal, charcoal (gol, koilā) is the most important material the Kāmi works with. For the manufacture of charcoal, he prefers the wood of the kaṭuj tree (*Castanopsis*) or that of the sal tree (*Shorea robusta*). The Kāmi scatters the crushed wood into round earth-holes (about 1 m in diameter) and kindles it. Once the blaze has reduced, small pieces of wood are thrown on to the fire in such a way that the heap assumes the shape of a round hillock. The hillocks are then covered with fresh leaves and again with a layer of earth. The leaves are necessary in order to prevent the earth from intermingling with the charcoal. For the welding of the iron (jornu, tāunu) they use a pulverized mixture of red clay (rāto māṭo) and white marble-like crystalline rock (darśan dhuṅgā) 24). The mixture, called kop māṭo 25), is dissolved in water and spread on to the surfaces to be welded together. Later on, some more darśan dhuṅgā is thrown on to the already glowing charcoal. Thus the welding process is accelerated. An intensifying effect is attributed to the salt they sometimes admix with the kop māṭo. In order to solder copper the Kāmi uses a mixture consisting of borax (swāk), crushed stinging-nettle leaves, water and the powder of a yellowish metal (pāin) 26). The mixture is spread on cold and the workpiece is heated only when the soldering flux is already dry.

The Kāmi makes use of limepowder (harbi) in order to avoid the melted copper adhering to the sides of the crucible 27). The lime is made of bones which are put into the hearth for weeks and afterwards hammered to dust.

Wood for the handles and shafts is also provided by the Kāmi. For this purpose, they prefer the wood of the jhīgāne tree (*Eurya acuminata*) or that of the phalāṭ tree (*Quercus lineata*).

B. TOOLS

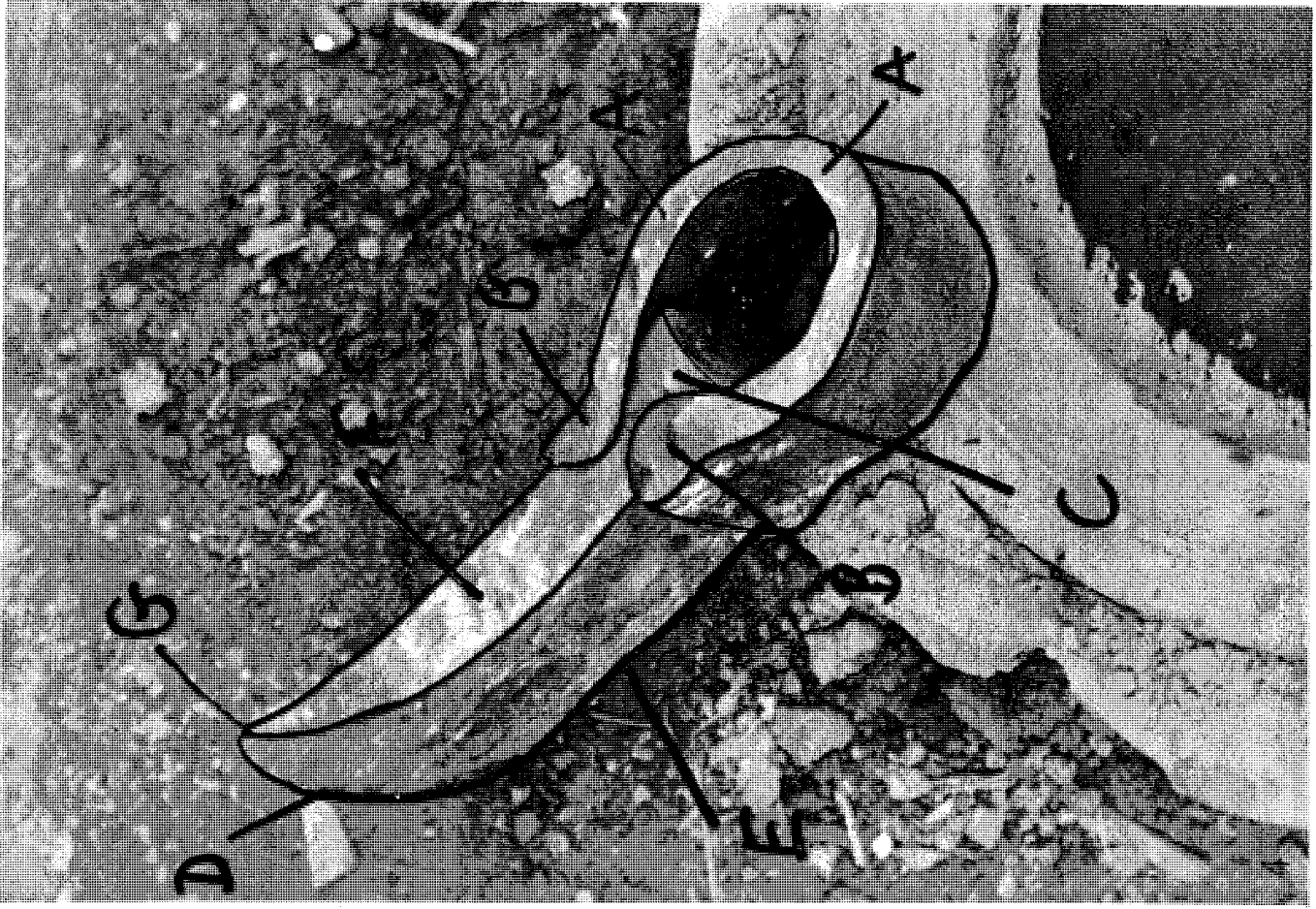
Forge, aginā: a square hole dug in the ground which is lined on three sides with upright flat stones. The workpieces are placed into the fire from the open side (fig. 2).

Skin bellows, khalāṭi: a goat-skin, either in its natural state or sewed into the shape of a sack is tied around a pipe with a rope. The Kāmi places his right hand into the upper slit in such a way that the skin is taughtened on the one side by his hand and on the other side by his elbow, thus closing the slit. Whilst blowing, the rims of the skin which are between hand and elbow are pressed together in a downward direction with the left hand. Usually, an old iron pipe (water-pipe, tent-pole), nālā is joined with the skin. The front part of the pipe leads into the forge. It is a nozzle (tūro) made of clay 28). In older types, pipe and nozzle are made in one piece. The clay is kneaded well with goat hairs or pieces of sack-cloth and worked around the handle of the hammer in order to avoid a separate moulding of the chamber. The goat hairs and the sack-cloth serve as a strengthening so that the clay does not crumble when the shaft of the hammer is pulled out. The pipe with the nozzle is not fixed and leads into the forge: one can move it and thus blow upon the workpiece from various directions according to size and form of the workpiece (fig. 2).

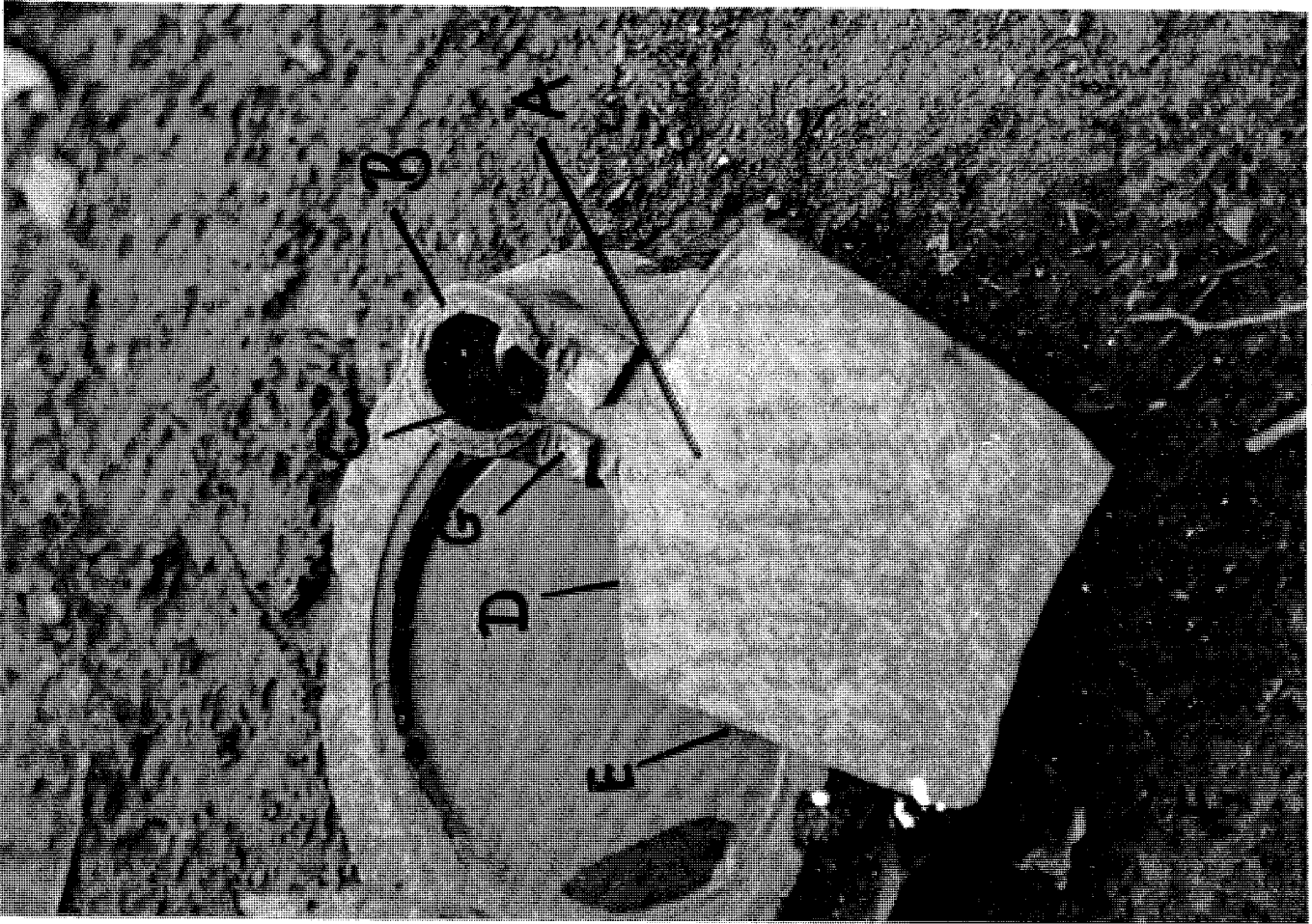
tatāirākhnu = 'to preheat', before the actual heating, that is, to put something near the forge.

tatāunu = 'to heat' for the purpose of hammering (iron).

udāunu = 'to heat' for the purpose of hammering (copper) 29).



4. The axe. A = tauko, B = kån, C = bheti,
D = dhār, F = biṭ, G = chaṛi.



5. Blade and socket of a hoe. A = muṭu, B = tauko
or pāso, C = bheti, D = kån, E = biṭ, F = dhār,
G = kån.

tāunu = 'to heat' for the purpose of welding or soldering.

tāwā = 'white heat'.

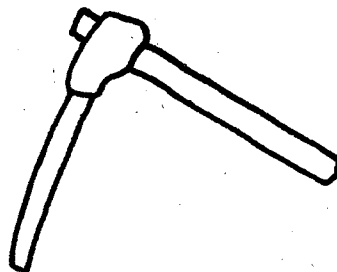
dhunnu = 'to blow the bellows'.

ghan: big, heavy hammer, especially used for beating out. Length of the shaft: 60 cm, length of the head: 15 cm.

hotro: medium-sized hammer, especially used for straightening and chasing. Length of the shaft: 31 cm, length of the head: 15 cm.

mairi: small, light hammer, especially used for chasing. Length of the shaft: 20-25 cm, length of the head: 8-12 cm. The pane often ends in a sharp edge.

hat ghan: long-headed hammer for the chasing of places in the interior of a vessel which are hard to get at. Length of the shaft: 30-33 cm, length of the head:(pane included): 27-30 cm, face: 1.5 x 1 cm (fig. 3).



dwāse: like hat ghan, but with a shorter head. For chasing, particularly used for the shaping of edges and rolls. Length of the shaft: 28-30 cm, length of the head: 10-12 cm, face: 1.5 x 1 cm.

tāl = 'striking surface' of the hammer; sānu tāl = 'pane', ṭhulo tāl = 'face'.

piṭnu = 'to hammer' (unspecified term).

solṭo piṭnu = 'to hammer something placed on edge'.

ceṭo piṭnu = 'to hammer something laid down flat'.

pasārnu = 'to beat out'.

bāgyāunu = 'to curve', 'to bend'.

kopryāunu = 'to beat something flat into a spherical shape'.

maṭhārnu 30) = 'to straighten' (a surface).

pur-pār pārnu = 'to straighten' (a surface).

dhār jhiknu = 'to shape the cutting edge
(dhār) with the hammer'.

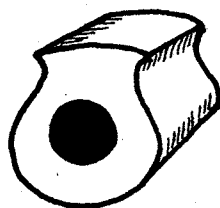
kamāuni dhuṅgo ³¹⁾: stone anvil, a flat stone driven into the ground with a surface of about 50-70 cm². It is used for the beating out with the ghan or the hotro.

liyo: iron anvil. Length: about 30 cm. Bought in the bazaar. It is used for straightening with the hotro or the mairi (plate 2).

ghan ṭheli: a ghan head (temporarily removed from the shaft) is tied on to a peg rammed into the ground. Serves as an anvil for the chasing of places in the interior of a vessel which are hard to get at. ³²⁾

samesne ghan: a ghan head (temporarily removed from the shaft) is fixed on to a stick (length: about 130 cm) and the head's face is turned upwards. The stick is weighted with stones. It is used as an anvil for the straightening and chasing of vessels. ³³⁾

muni: iron anvil with a square, slightly convex face. It can be fixed to the shaft of the samesne ghan. For straightening and chasing vessels (face: 3 x 3 cm). ³⁴⁾



khariyo: a recoil showing at one end a round flat pane (sānu tāl), at the other end a square, slightly convex face (ṭhulo tāl). Used for the chasing and straightening of parts of the vessels which are hard to get at. Besides the faces, its even underside can be used as a support. The khariyo is often placed into a Y-shaped stick (kābe kāṭh) ³⁵⁾ so that one of its ends touches the ground. Total length: 70-75 cm, diameter of the round face: 1.5 cm, square face: 3 x 2 cm (fig. 3 and plate 10).

sanāso: long-handled tongs with a pear-shaped bit. In the eye it is joined by an iron rivet. Length of the bit: 10cm, length of the handles: 30-35 cm.

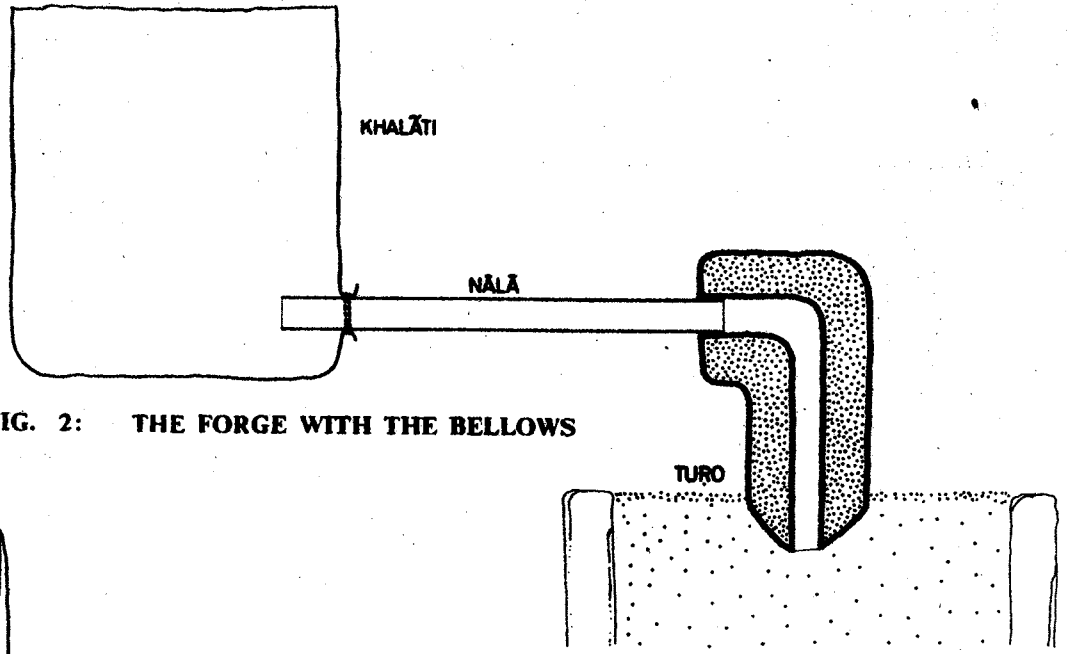


FIG. 2: THE FORGE WITH THE BELLOWS

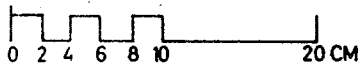
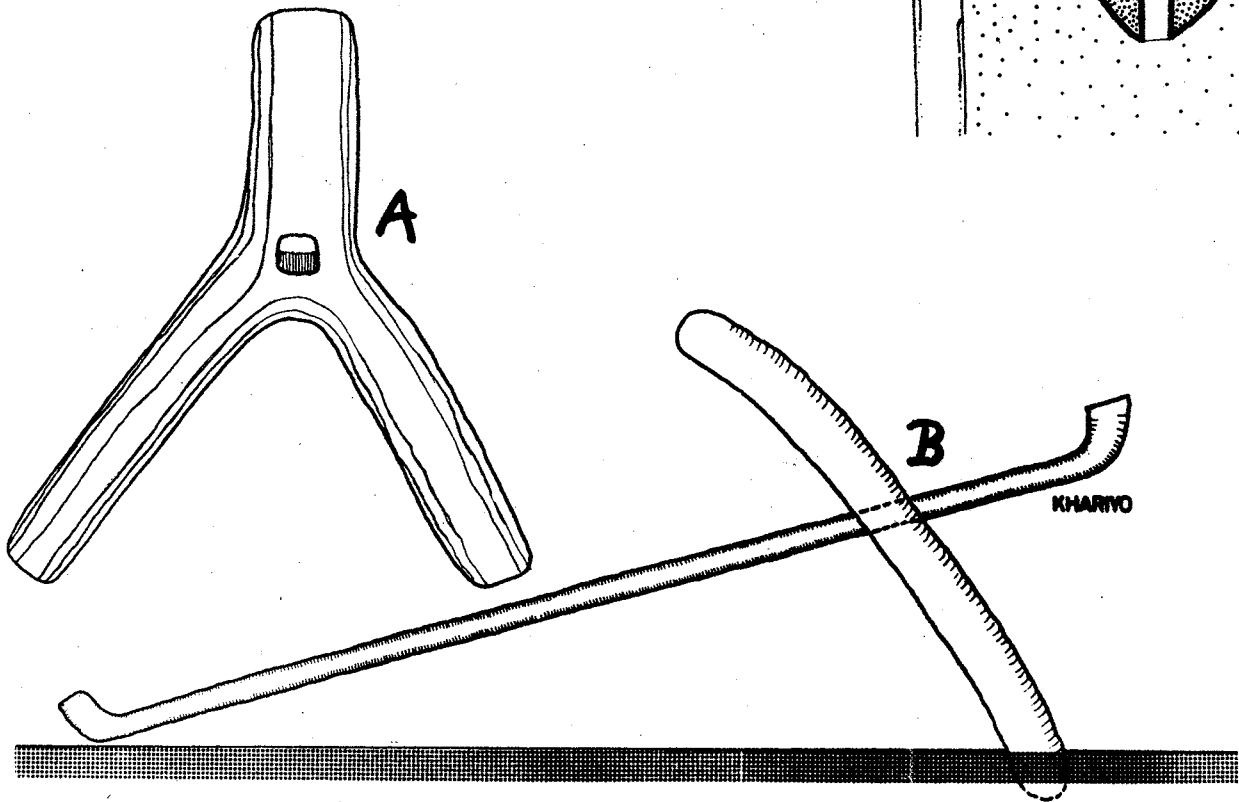


FIG: 3. THE KĀBE KĀTH (A) AND THE KHARIYO (B) IN IT

chino: chisel. To chop off iron particles thicker than about 1 mm. The chisel is gripped by the tongs and hammered into the red-hot iron. Length: 5-6 cm, length of the cutting edge: 3 cm.

kattarnu 36): plate-shears. Total length: 35-40 cm, blades: 8-10 cm.

chinnu = 'to cut', 'to disjoin' (with the chisel).

kāṭnu = 'to cut' (with the plate-shears).

ret: a double-cut square file. The blade is generally cut on both of its broadsides only. Length of the iron blade: 18-20 cm, length of the wooden shaft: 10-12 cm (plate 3).

ret lāunu = 'to file'.

bhednu: a round bar-iron for the shaping of vervels and sockets. It is introduced into the socket to be shaped and serves as a support against the strokes of the hammer from outside 37). Length: 5-10 cm.

The handling of the tools and workpieces often seems to be awkward. For instance, the Kāmi does not know the vice, and in case the tongs do not suffice he must use his feet, toes, and knees in order to grip things firmly. While filing, the Kāmi leans the workpiece against an improvised support (stone, old plough) and presses the workpiece against it by using his soles (plates 2 and 3). For smoothing the edges of a hoe the blade is simply driven into the ground and pressed between both of his soles. The work is retarded by this insufficiency. For instance, the Kāmi does not use the shovel: the charcoal is scattered into the forge by hand and is heaped up around the workpiece with the tongs. As a result of this the iron gets soft and the bit must be recurved several times a day. The vervels for the sickle shafts are placed on to the handle of the tongs in such a way that they can be worked while being continually rotated. Even the light strokes of the mairi

bend the handle of the tongs. The hammering process is partly retarded by the use of the stone anvil. The metal gets deformed again and again on the uneven stone and has to be hammered into shape on the iron anvil later on. The Kāmi uses neither yard-stick nor scales. He always starts on a rough-out which - as a precaution - is larger than required. As a result, the excess iron has to be removed when the workpiece has almost been formed into its final shape.

The joint of skin and pipe of the bellows is never tight and the leather must be pressed on to the bag by hand or by means of stones. Because of the heat the clay nozzle of the pipe cracks again and again and has to be repaired several times a week.

C. THE MANUFACTURE OF AN AXE (BANCORO)

Terminology: bēṛ = shaft, ṭauko 38) = socket, dhār = cutting edge, biṭ = narrow sides of the cheek, chaṛi = the inner point of the cutting edge (facing the shaft), kān = the 39) parts of the socket which are welded to the narrow sides of the blade, bheṭi = the part of the blade which is embedded in the socket (plate 4).

Blade and socket are manufactured separately (plate 4).

A. For the blade a flat piece of iron (rel kamāni) of about 15x10x2.5 cm is heated to white-heat and removed from the forge with the tongs. It is laid on to the stone anvil. A helper grips it with the tongs and two other Kāmi flatten it. They turn the iron piece repeatedly so that it can be hammered on both flat sides. In the first phase of the flattening they strike with the pane, more often, however, with the face of the ghan in such a way that the face strikes the surface of the workpiece at an acute angle.

Beating begins at the centre and continues outwards in concentric circles toward the rim. In the second phase, when the desired thickness has almost been obtained, these bevel strokes are no longer necessary. Now the workpiece assumes the shape of a trapezoid. It is then put on edge and held against the round rim of the iron anvil in order to shape the bulge of the narrow-side which faces the shaft. After further flattening by strokes on the flat sides the workpiece is laid down on the iron anvil and hammered with the hotro until cutting edge and its point are formed. Finally, the blade is rammed into the ground with its cutting edge downwards and the rims of the bheṭi are hammered flat and straightened with the hotro pane.

Altogether, the workpiece had been heated eight times; the first time it took ten minutes to reach white-heat, from then on only 2 - 3 minutes each time. After a maximum of five minutes hammering the workpiece had to be reheated.

B. For the socket a piece of iron (also rel kamāni) of about 10x3x2.5 cm is heated to white-heat and then beaten out and flattened on the stone anvil with two ghan. The result is a sheet with lobes at either end. They will be the setting for the blade. First, the lobes are straightened (on the iron anvil) with the hotro face and their bulges are fully shaped. Finally, the workpiece is leaned against the head of the flat lying ghan and it is curved at the centre by some strokes of the hotro pane. Now one of the onlookers notices that the reverse side of the socket is not sufficiently straightened. Thereupon the workpiece is straightened again so that the correction can be made. As yet, the workpiece has been heated a total of 14 times, each time for two to five minutes.

C. Finally, blade and pre-shaped socket are heated, the one hammered on to the other with the hotro, and, having cooled down somewhat, spread at the joints with a mixture of charcoal powder and kop māṭo. kop māṭo is also thrown on to the charcoal. After reheating, blade and socket are hammered together. On one side there is now a gap of about 1mm between blade and socket since this part "had not been sufficiently touched by the fire". Welding has to be repeated. In order to be sure some salt is admixed with the kop māṭo. The bhednu is introduced into the still red-hot eye and the socket is hammered (from outside) on all sides with the hotro. The cheeks are then again straightened on the iron anvil. The onlookers now assess the workpiece, stating that the blade has turned out to be too broad. The iron is reheated to white-heat and by means of a chisel two small strips are cut off at both blade points. The cuts being straightened sufficiently the cutting edge is re-shaped with the hotro. Now the face of the ghan - whose pane is driven into the ground - serves as an anvil. The cutting edge is then finally filed.

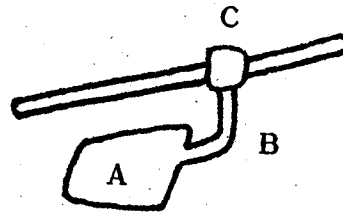
The workpiece has been heated 14 times altogether (welding included), the filing of the cutting edge took 20 minutes.

D. The quenching of the cutting edge is called pāin hālnu ⁴⁰⁾ and is the "critical phase" of the whole process. Only the lower part of the blade is heated red hot, then water is poured on to the cutting edge out of a spouted jug. The strip to be quenched has a breadth of about 1 cm. Now the workpiece is put aside for three minutes and finally immersed in water. The Kāmi checks the colouring of the cutting edge: rusty-brown, black, and blue stains show that the quenching has been successful. White stains, however, would indicate a bad quality of the iron.

The total working time was three whole hours.

α D THE MANUFACTURE OF A HOE (KODALI)

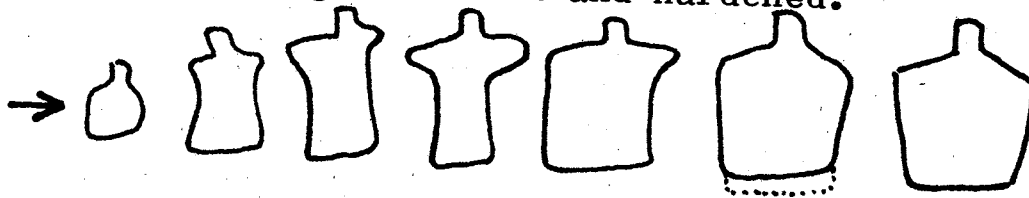
The kodāli is manufactured in three parts:
 A) blade (pāto), with tang socket (bheṭi),
 B) tang (nāl) and C) socket (ṭauko or pāso).
 (cf. plate 5, although it shows a simple hoe
 without tang, the terminology is identical
 with that of the kodāli).



A. Blade and Tang Socket:

The sequence of operations can be described as follows:

The rough-out is flattened on the stone anvil with two ghan. After having rammed the blade into the ground with its cutting edge downwards, the Kāmi shapes the tang socket with the hotro. Then the workpiece is placed on to the iron anvil and its sides (biṭ), the "heart" (muṭu) and the cutting edge are hammered into shape with the hotro. Now the blade turns out to be too long. A strip about 1 cm wide has to be chopped off with the chisel. Finally, the edge is filed and hardened.



B. Tang:

The sequence of operations is as follows:

After the beating out they shape the "saddle" (bheṭi). Then the tang is leaned against the rim of the stone anvil and bent at the centre with the hotro pane (plate 6). The end which is to be joined to the blade is hammered with the hotro face until it tapers gently on the narrow sides.

C. Socket:

The first working phases can be described as follows:



6. Manufacturing the tang of a hoe.



7. Hammering the cutting edge of a sickle with the hotro and on the face of a ghan as anvill.

The rough-out is beaten out. It is flattened until a lobe (kān = 'ear') is formed at either end. The lobes are rounded and straightened on the iron anvil.



Then the Kāmi bends either end with the hotro pane until both lobes face each other and are parallel to each other. Finally, the workpiece is bent into a ring shape (plate 5 B).

D. Welding:

First of all, the socket is placed on to the tang. Then it is firmly hammered on at both lobes (kān). After the welding the hammering is repeated but now the Kāmi passes the bhednu through the ring so that he is able to hammer without risk of deforming it. For this purpose the hotro is exclusively used.

Then tang and tang socket (at the blade) are welded. When he realizes that the tang has turned out to be distorted the workpiece is reheated and hammered again. However, the result is not immediately satisfactory. Only after repeated efforts to correct it, does he succeed in bringing both outer corners of the cutting edge of the blade into an equal distance from the socket. A grass-blade, picked up from the ground, serves as a yard-stick.

The seam between tang and tang socket is a simple one. But at the client's request tang and tang socket can be folded, especially in case of repairs.

E. THE MANUFACTURE OF A COPPER WATER JUG (GAGR)

As has already been pointed out, the Kāmi have only been working with copper for several decades. There are still only few among them who are versed in that technique. The gāgri manufacture was observed at a Kāmi's who had learnt the technique from his father-in-law. As to the father-in-law, he had 'simply watched' the Newar copper-smiths during a stay in the Kathmandu Valley. He had then tried his

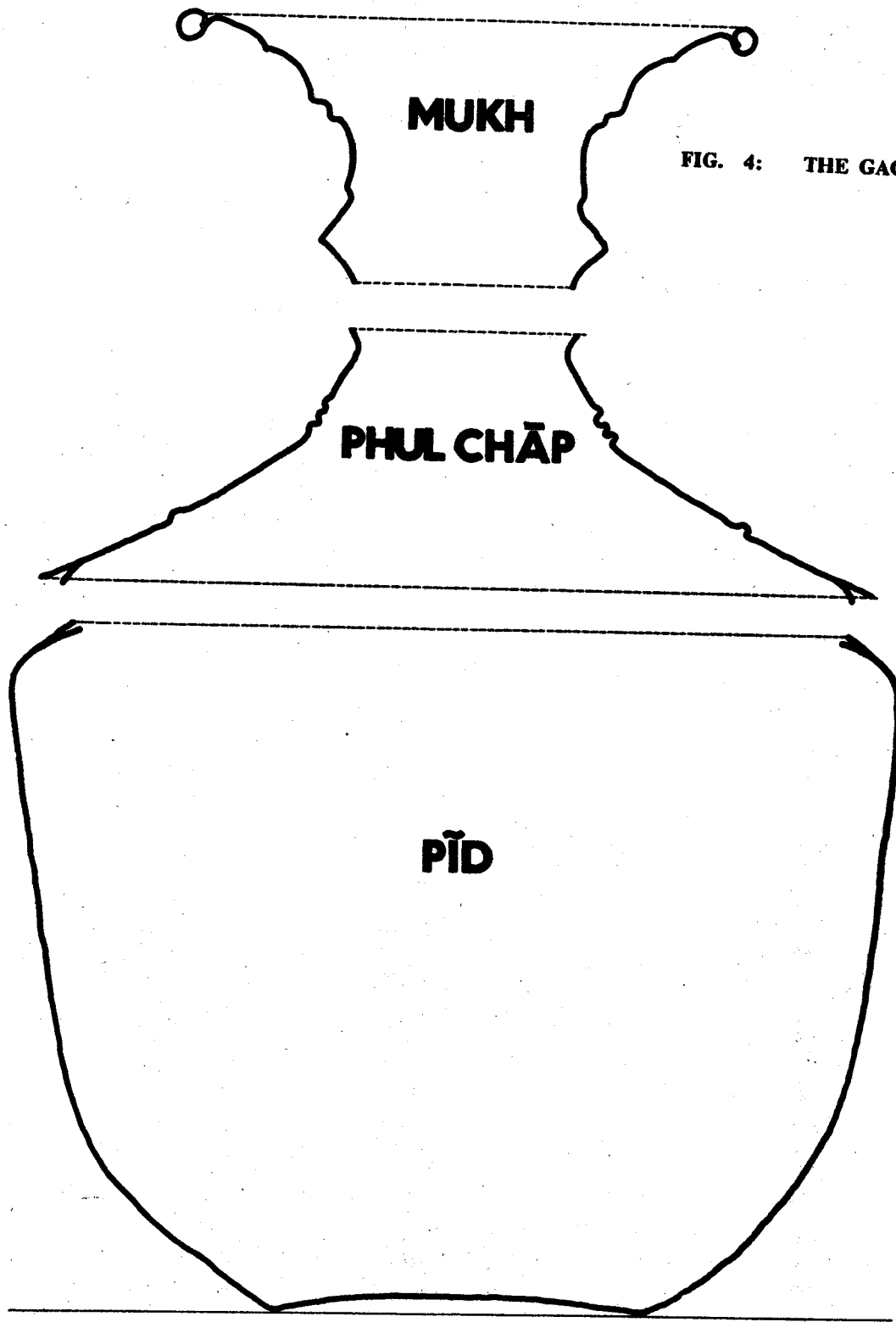


FIG. 4: THE GAGRI

0 1 2 3 4 5 10 15 20 CM

luck at making one himself and one day succeeded in making his first gāgri. Compared to the Newar products, the gāgri made by the Kāmi show a more primitive method of fabrication. On the one hand, this may be a result of the deficient technical skill of the Kāmi, on the other hand it could be linked with their aesthetically unassuming Tamang clients.

The water-jug is manufactured in three parts: bulge with the base (pīd), lower part of the neck (phul chāp)⁴¹, upper part of the neck and mouth (mukh)⁴² (fig. 4).

A. The metal is crushed to pieces of the size of walnuts, divided into three parts and melted separately for pīd, phul chāp and mukh. During melting, the clay nozzle of the bellows, the crucible (parenī) and the crucible for casting (masuro) are arrayed one below the other (like a ladder) and supported by stones. The crucible filled with the crushed metal is covered to the rim with charcoal and surrounded by upright stones on either side so that the heat cannot escape. After 19 minutes of intensive heating, during which more charcoal is repeatedly added, one hears a noise reminiscent of falling water-drops...the metal has melted. Partly with the tongs, partly by vehement blowing the charcoal is removed from the surface of the metal which has accumulated at the bottom of the crucible. The light-yellow glowing copper is poured into the crucible for casting which had previously been covered with some harbi powder (cf. above "Material"). While the metal solidifies those present must keep quiet because otherwise "it would burst". The round ingot which is shaped in the crucible, is called pāk⁴³ (plate 9).

B. phul chāp:

Phase No. 1: The pāk, still red-hot, is flattened with two ghan on the stone anvil. They beat with the face of the hammer from the centre outwards towards the rim in a spiral line. They hammer only on one side. The pāk is gripped by two tongs and turned after every stroke "so that one

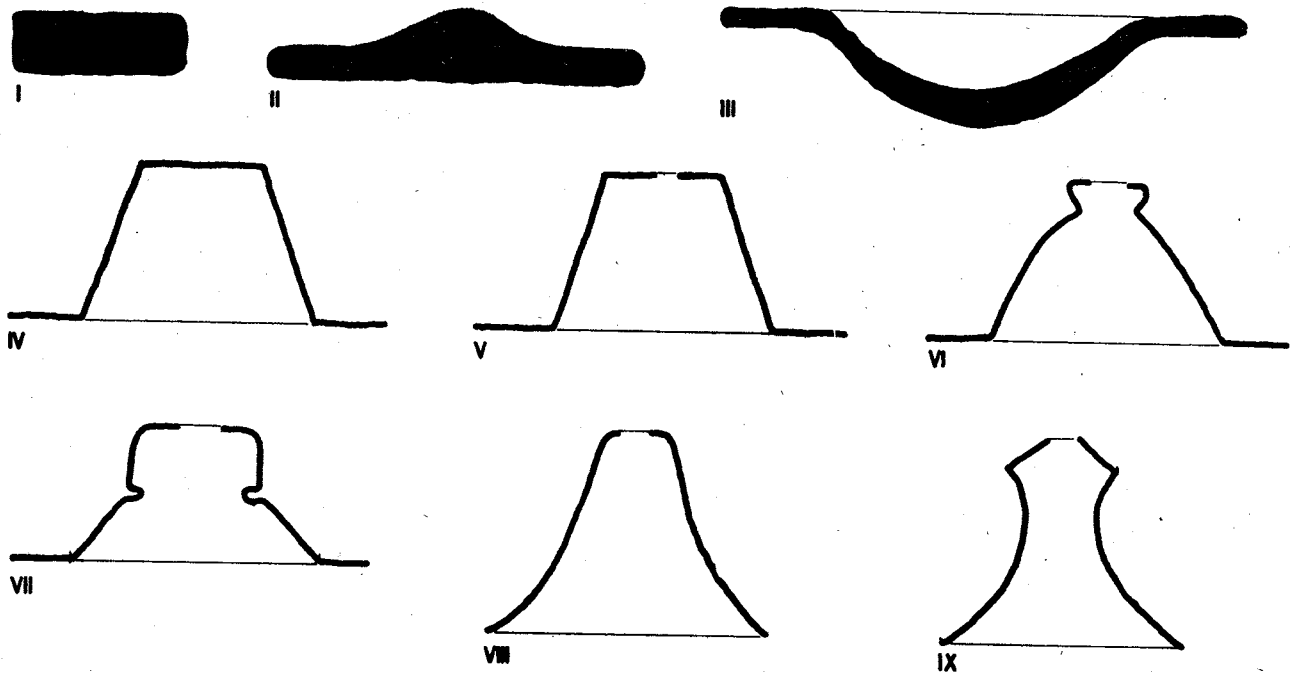


FIG. 5: CHASING THE PHUL CHĀP (I-IX)

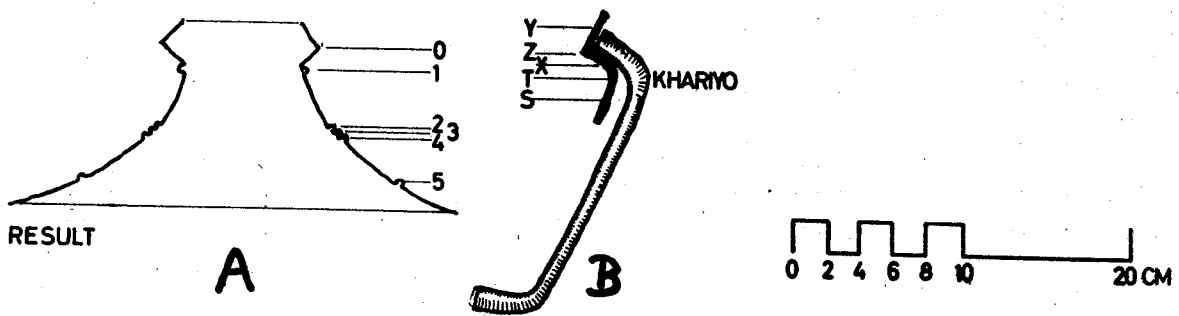


FIG. 6: A: THE RESULT OF FIG. 5
B: WORKING WITH THE KHARIYO

can beat without changing the position of one's body and is not compelled to aim exactly". This acceleration of the rhythm is important because the disk is thin and has to be reheated after a maximum of two minutes hammering. Finally, the pāk disk is placed in a vertical position and hammered round the edge with the hotro. This process is called ṭhāro khāḍnu 44). It is meant to prevent the rim from cracking.

After being heated and flattened seven times altogether (2 - 2 1/2 minutes each) the diameter of the disk has grown from 10 to 22 cm (fig. 5, I-II).

Phase No. 2: The disk is again hammered until it is converted into a spherical form: the pāk becomes khorsol 45). First of all, the metal must be chased toward the centre. This process is called by the Kāmi mājh kopryāunu, "to make the centre hump". For this purpose, the strokes begin approximately at the centre of the pāk radius and move along a concentric circle. They hammer so that the face of the ghan strikes the surface at a slightly slanting angle. The strokes end in a circle, about 3 cm from the centre. As a result, the disk soon takes on the shape of a plate (fig. 5, III). The concentric zone is first hammered with the ghan pane, then with the hotro. After the convexity has been deepened in such a way, the Kāmi thins the metal which is reduced towards the centre (gāṭ) 46) in order to widen the bottom of the "plate". Alternating with this work, he hammers the rim flat (pher chānu, "to eliminate the rim") with the face of the hotro. The bottom is straightened and finally demarcated from the side of the bulge by a sharp edge. Meanwhile the concavity has become so deep that this edge must be shaped with the hat ghan (cf. above, "Tools"). Now the workpiece assumes a "hat-shape" (fig. 5, IV). Then it is placed on to the face of the samesne ghan (cf. above, "Tools"), and the round base plate (cakki) is cut off by means of the chisel (fig. 5, V).

During this phase the workpiece has been heated a total of 13 times, each time for 1 - 1.5 minutes. On average, each hammering process took the same

time. The workpiece was always put on to the forge with the "plate's rim" down. In order to determine the degree of the heat the Kāmi threw some dust on to the metal surface every now and then: the workpiece is sufficiently heated when the fire begins to spark. This method is also applied in the following phases.

Phase No. 3: The upper half of the bulge funnel is narrowed in downwards, so that the "hat" becomes a "bell" (fig. 5, V-IX). This contraction is called samesne 47).

First of all, a concavity is hammered into the side of the bulge. This is chased downwards by strokes which are driven in a spiral line (fig. 5, VII). The traces of the strokes are coarse and are parallel to the level of the "hat-brims". The round face of the khariyo serves as a support while shaping the trough. The khariyo is laid through the Y-shaped stick (kābe kāṭh) (plate 10). For the rest, the Kāmi uses the samesne ghan as an anvil. He works sitting on its long shaft and turns the workpiece after every stroke with his left hand. The workpiece is heated and then annealed in a heap of wet rice husks (six minutes). This is done in order to soften the metal. Then the operation described above is repeated exactly - but with one exception: the lower rim is hammered with the mairi pane so that the traces of the stroke run slantwise to the rim line. Thus the cracking of the rim is to be avoided. After further heating with subsequent annealing in rice husks the operation is repeated a second time (fig. 5, VI-VII) until the "bell" is shaped (fig. 5, VIII).

This phase ends in the shaping of the big neck-roll (kakani). Now only the upper rim is heated. Again on the round face of the khariyo the upper bell-rim is bent inwards by spiral strokes of the mairi face. The bell-rim is straightened both from the outside and from the inside. The second strip is hammered in the same way (fig. 5, IX). The edge between both strips is sharpened with the mairi face. During this phase, the workpiece has been heated three times

for a duration of 5.3 and 5 minutes each. The informant remarked, "The chasing is easier when the metal is softened, but we know by experience that this can only be achieved by heating and annealing if the metal has a more or less even thickness".

Phase No. 4: On either rim a strip about 5 cm wide is cut off. Although the Kāmi took great care it had become jagged. Then the Kāmi may begin with the forming of the five small rolls (ḍorā)⁴⁸). The final result may be seen in fig. 6 A; the work itself in fig. 6 B.

As soon as the lower kakani strip (0) is straightened, the Kāmi places the workpiece on to the round face of the khariyo and shapes an edge with the mairi face, first hammering strip X and then strip Y (fig. 6 B). When the strips are wide enough the edges Z and T are traced with the dwāse and strip S is straightened. After heating (nine minutes) and subsequent annealing the edge of roll Z is hammered with the dwāse on the reverse of the round khariyo face. Strip S is again straightened from inside with the mairi face. Just like roll 1, rolls 2,3,4 (fig. 6 A), and 5 are first hammered on the lower half of the strip. All edges (1 - 5) are finally traced from inside with light strokes of the mairi pane. The parts which lie in between them are repeatedly straightened with the mairi face. As a support the Kāmi uses the samesne ghan and the round khariyo face alternately. The informant points out, "It is not only a question of straightening out. After having become too thin in some places by the formation of the edges, the metal must be re-distributed evenly".

Phase No. 5: The rim strip beneath roll 5 (fig. 6 A) is laid on to the samesne ghan and slightly bent outwards with the mairi face. Again the strokes begin at the top beneath the roll and are led in a spiral line towards the rim. After further heating with subsequent annealing in rice husks they begin with the punching. For punching they say buṭṭā hānnu 49).

The workpiece is placed on to the samesne ghan and must be gripped and turned by a helper. The punches are used in the following order:

ḍorlaṅga, cari amilo, and phul chāp. The Kāmi works using only eye judgement, but is careful enough: at first, the punch is only tapped into the metal with a slight stroke of the mairi and only after having checked the distance from the last punched pattern, does he deepen the trace by a stronger stroke. 49a)

C. Mouth and upper part of the neck (mukh)

Phase 1, 2, 3: These first three phases are identical with those described in connection with the manufacture of the phul chāp (B.): pāk → "plate" → "bell". Phase No. 3 is shown in fig. 7:

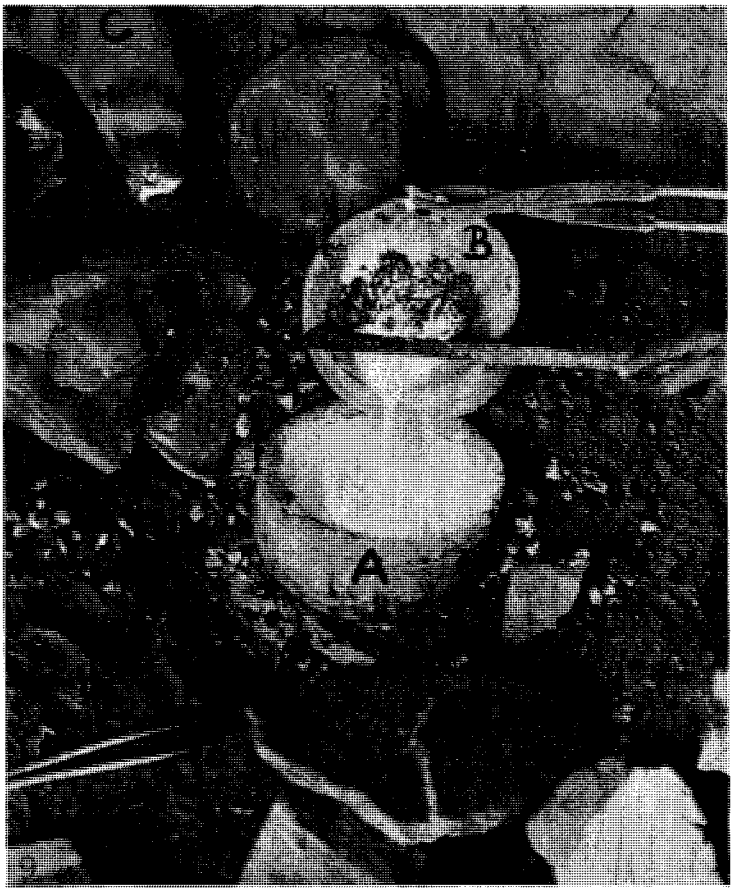
- to narrow the bell-side in (I-IV),
- to shape a "funnel" (V),
- to shape a scroll (VI-X) at the rim of the funnel,
- to remove the "lid" (X),
- to continue to shape the scroll (XI),
- to shape the rolls (XII-XIV).

Both tools and technique are the same as those used for the manufacture of the phul chāp. At the start the scroll (fig. 7, VII-XII) is formed with the tongs as the Kāmi bends the rims inwards. Then the bent strip is hammered with the face of the mairi until the rims reach the first edge of the scroll (fig. 7, XII). While shaping this edge, the "funnel" is further opened; this "opening" is called pharkāuni 50).

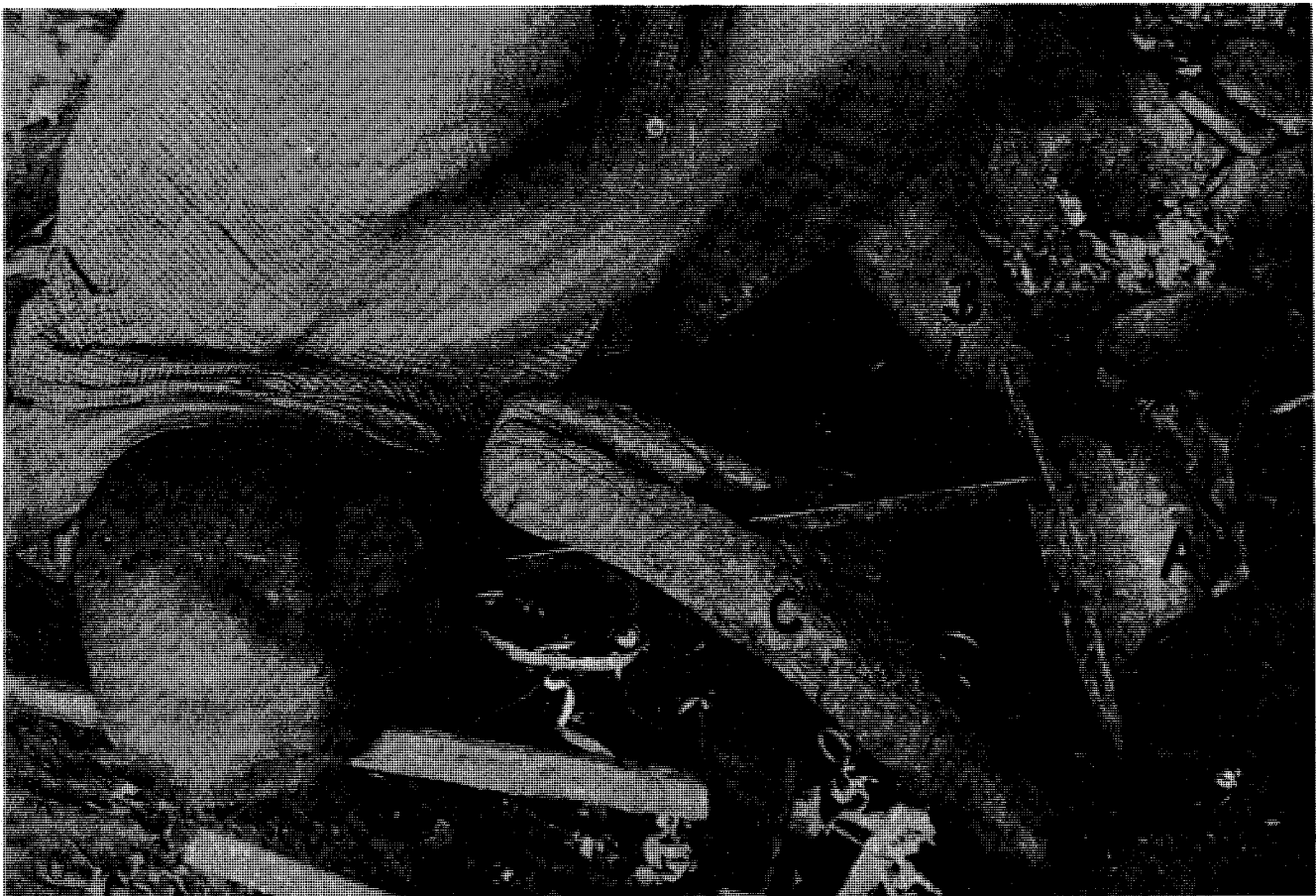
After the mukh has been fitted to the phul chāp the neck of the mukh part turns out to be too tight. It must be widened from inside by careful hammering. During this phase the workpiece has been heated and subsequently annealed a total of 14 times. A sample count showed that the mairi strokes numbered 70 per minute whilst the neck was narrowed in with the pane (fig. 7, II-IV). The strokes increased to 140 per minute whenever the metal surface was straightened with the pane. The difference may be caused by the fact that the chasing -almost exclusively done with the pane - requires more attention to aim the strokes.



8. Hardening the cutting edge of a sickle by quenching.



9. Pouring the copper into the masuro (A); B = pareni, C = türo.



10. The gagri. Chasing the phul chāp (A); B = khariyo. C = kābe kāḥ. (cf. fig. 3).

D. Soldering (rasāunu) of mukh and phul chāp

The lower rim strip of the mukh is incised about 1 cm deep with the plate-shears (kattarnu) at equal distances. Then it is introduced into the phul chāp (or the phul chāp into the mukh) and hammered on to the upper strip of the kakani (fig. 8).

The teeth resulting from the incision are called dāti 51) by the Kāmi. The solder prepared in the meantime (cf. above, "Material") is spread on to the seam with a wooden stick. The workpiece to be dried is exposed to the sunshine for five minutes. Then the rolls and the punched surface are covered with a thick layer of wet cow dung so that the heat "cannot devour them". Now the workpiece is laid on to the forge and turned from time to time. The bubbling solder is squeezed against the metal surface with the handle of the tongs in order to avoid its draining away. In the end the soldered teeth are straightened with the mairi face.

E. Bulge and Bottom (pīd)

Phase No. 1: The operation is illustrated in fig. 9. As described above, the pāk is flattened (I-III). The only difference to B. and C. consists in the fact that the pāk disk, whose diameter has grown to about 45 cm is turned around and hammered on the underside (IV). First, they form a depression in the centre with the ghan pane. Then the strokes with the ghan face are always carried out from the centre to the rim, but in such a way that the disk remains thicker in the central zone than at the rim. Finally, the disk shows a bowl-like convexity: the pāk has become khorsol (VI). The metal left round the centre is now chased towards the rim - first with the ghan pane, then with the hotro pane and finally, when the "bowl" has already become too deep - with the dwāse.

During this phase the workpiece was heated 28 times altogether, for an average duration of three minutes each.

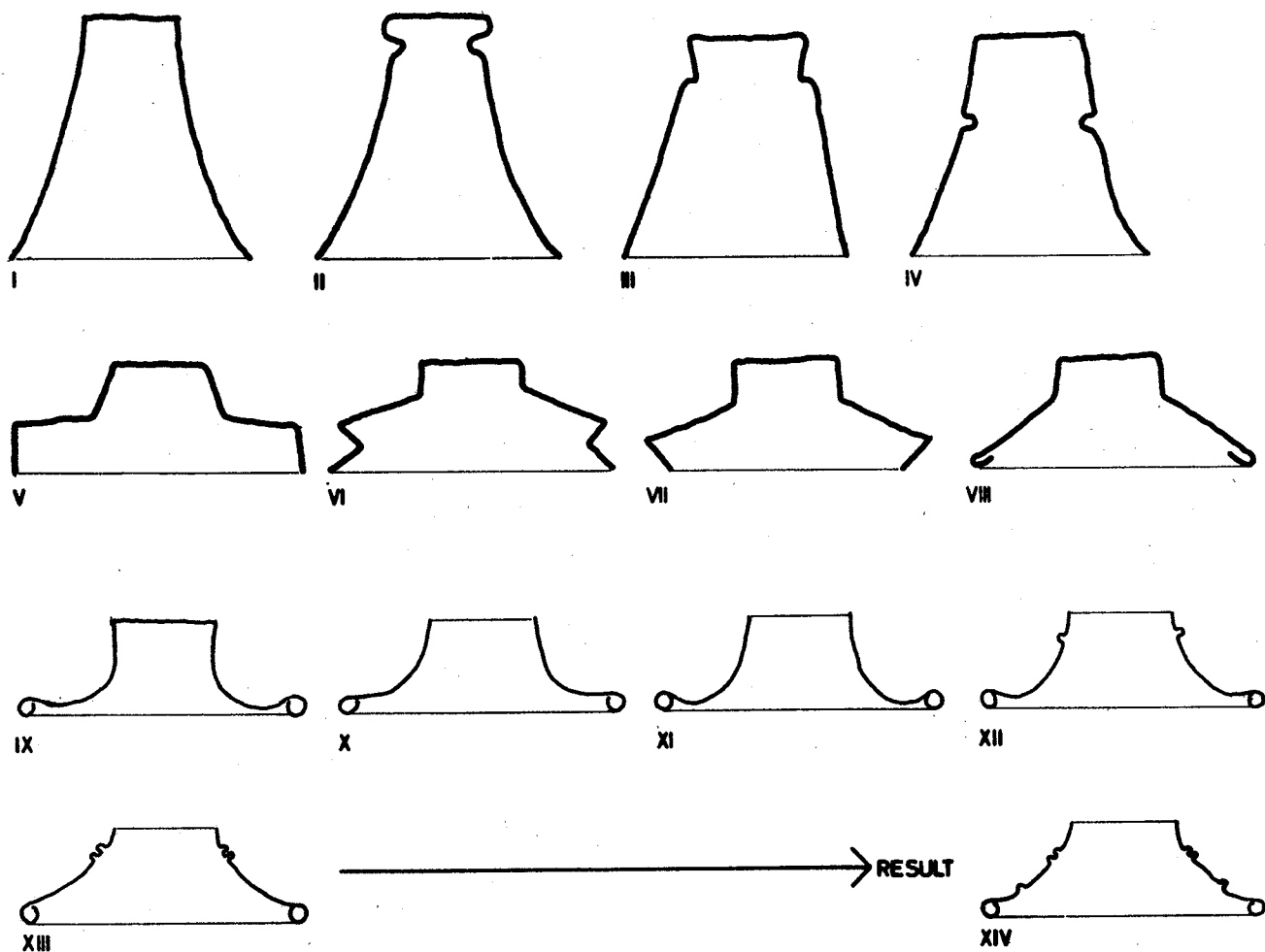


FIG. 7: THE GĀGRI. CHASING THE MUKH (I-XIV)



Fig. 8: The gāgri. Joining mukh and phul chāp.

FIG. 8: THE GĀGRI. JOINING MUKH AND PHUL CHĀP

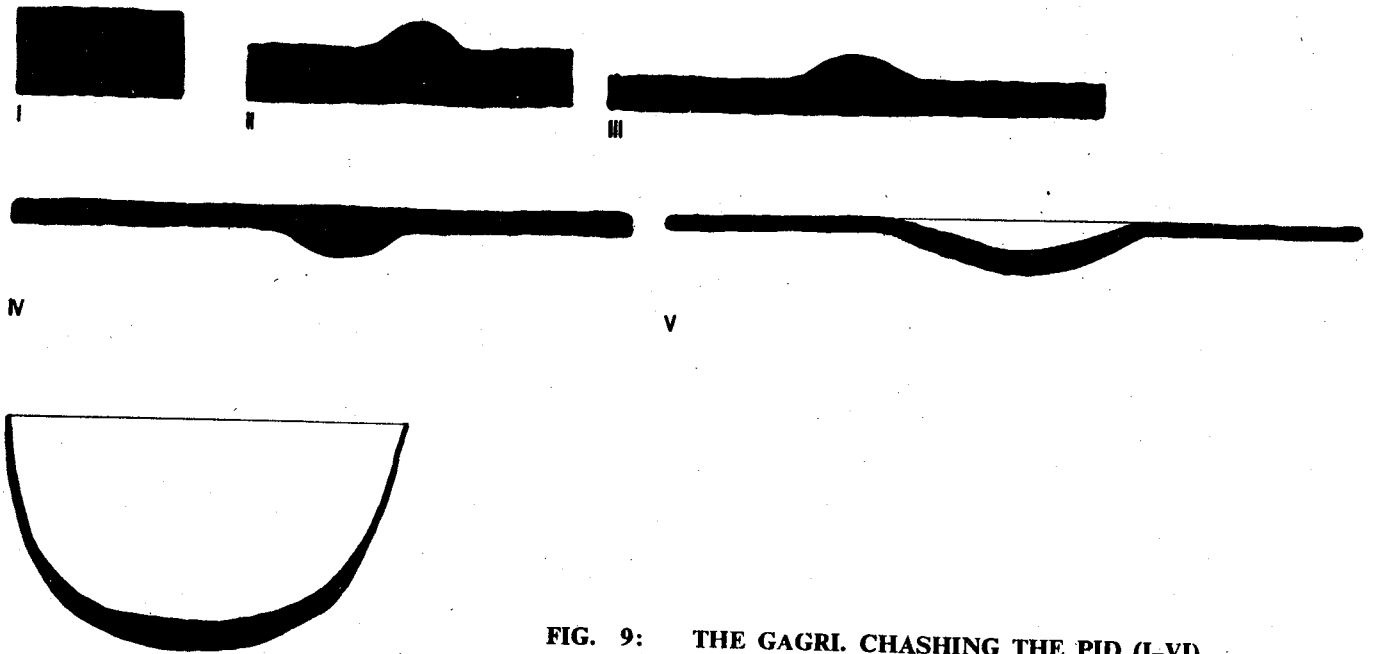


FIG. 9: THE GAGRI. CHASING THE PID (I-VI)

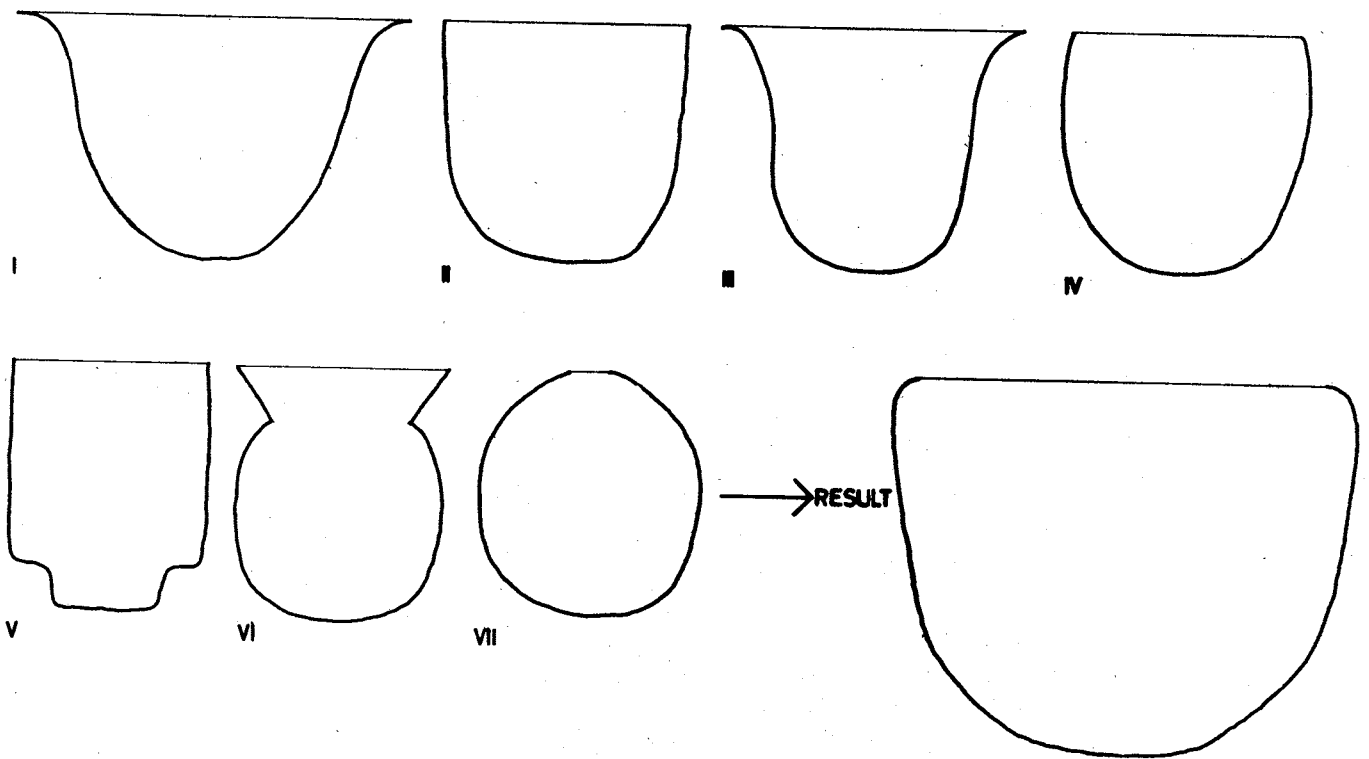
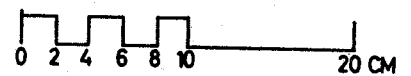


FIG. 10: CHASING THE PID (I-VIII)



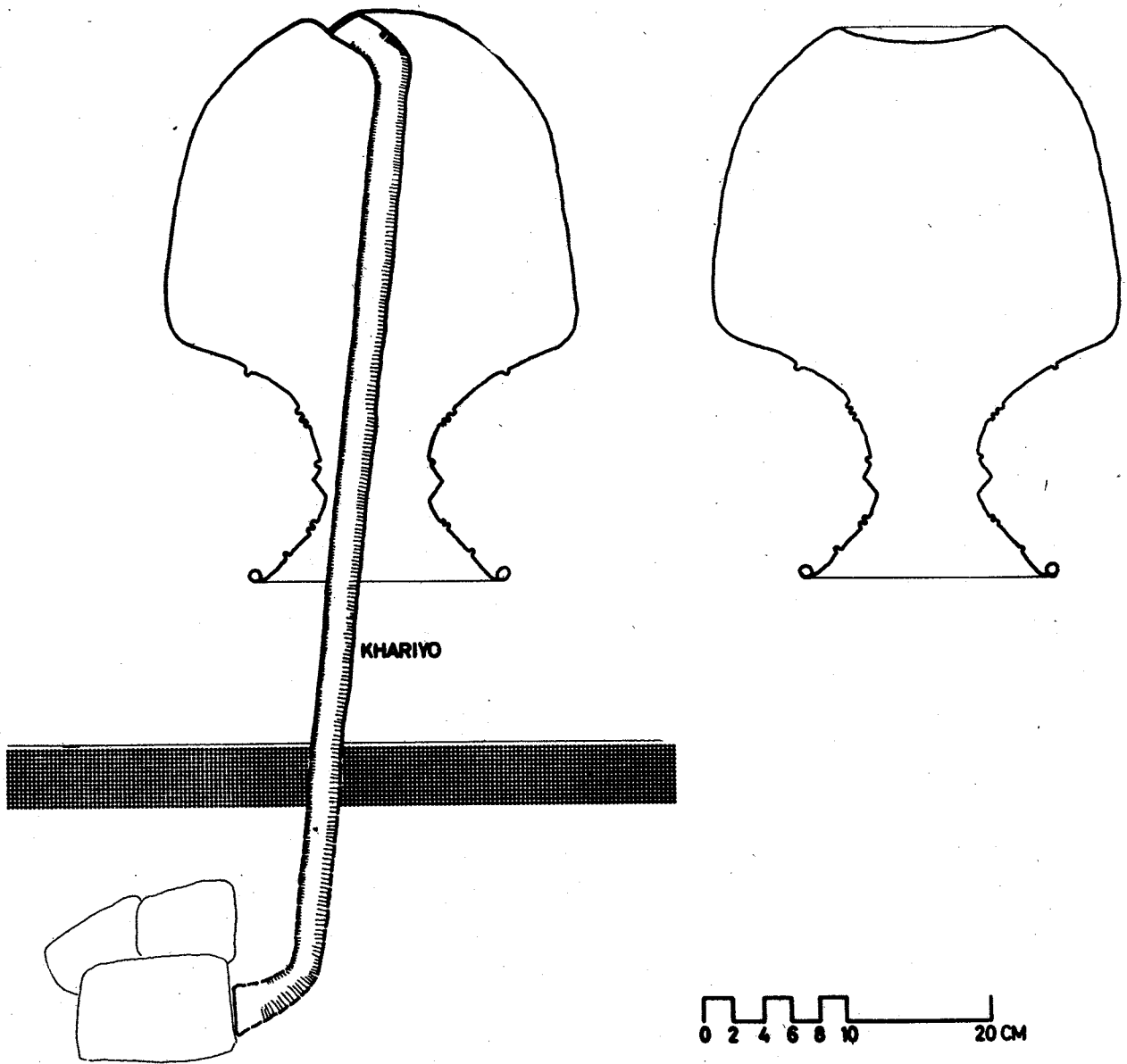


FIG. 11: WORKING WITH THE KHARIYO

Phase No. 2: The operation is illustrated in fig. 10. The base having been widened sufficiently, the Kāmi begins to pull up the bowl-side. This operation is called purṇu 52). The workpiece, as yet hammered on the stone anvil, is now placed on to the samesne ghan and hammered with the dwāse: The rims, partly jagged, partly curled up, are straightened. As a result, the "bowl" is converted into a "bell" (fig. 10, I). By another series of dwāse strokes, running parallel to the rim, the "bell" is shaped back into a "bowl" (fig. 10, II). While the Kāmi hammers the inside, the rim widens again into the shape of a "bell" (fig. 10, III). This must be corrected by strokes from outside (fig. 10, IV). Then the chasing is interrupted in order to solder up some cracks which are about 5 mm long resulting from the chasing. The rims of the cracks are slightly slid over one another with the mairi pane. Then the solder flux is spread on. The soldering process is the same as above.

At the border between bulge and base they now shape a depression with the mairi pane. It is chased upwards so that the vessel tapers slightly (fig. 10, V). As the strokes are again led up to the rim, it curves outwards. The next operation is "to close" the vessel. This is called bādhnu 53). The mairi pane forms a depression (fig. 10, VI). This depression is widened with the mairi face and chased to the rim with strokes in a concentric circle (fig. 10, VII). Thus the metal which had been curled up at the rim is reduced and smoothed.

Phase No. 3: Now the whole surface is hammered twice with the mairi face so that the sheet assumes an even thickness. This is called māsu milāunu 54). The stroke lines run concentricly. ghan theli and muni serve as anvils (cf. above, "Tools"). During this phase the workpiece has been heated only once and was subsequently annealed in rice husks.

F. Soldering phul chāp and pīd together

The rim of the phul chāp (shoulder) turns out to be too long. After a strip of about 1 cm breadth has been cut off, both parts of the vessel must be fitted to each other. They must be straightened

with the mairi until their rims touch each other evenly all round. The Kāmi spends 40 minutes on this.

Then both rims are incised at equal distances (depth and distance apart: about 1 cm). The teeth resulting from the incision (dāti) are pulled apart in such a way that, as soon as both parts of the vessel are fixed together at the rims, every second tooth covers the other one, or, that every second tooth is covered by another one. Then the Kāmi puts his left hand into the vessel, supporting the teeth with his index and middle fingers. He smoothes the seam from the outside by light strokes of the mairi. The solder flux is spread only on the outside so that the teeth are entirely covered. Apart from the soldering, the workpiece has been heated only once during this phase, but only at the rims "in order to soften the teeth".

G. Around the workpiece a big wood-fire is kindled. After twelve minutes they take the workpiece out of the fire and bury it quickly in a heap of wet rice husks. The metal is still hot when it is polished with a handful of rice husks until the copper shines light-red. This is called ujilyāunu 55).

H. The khariyo is driven into the ground with its rectangular face upwards and it is fixed with pegs. Then the vessel is placed over it and the base is hammered with the mairi face: a depression formed at the centre of the base (fig. 11) is widened centrifugally until a depression (also called pīd) is formed in the base.

Then bulge and shoulder surface are again straightened. The strokes with the mairi face are led across the solder seam and also remove the "scales" (pāpro) - a result of the chasing. The Kāmi calls this process maṭhārnu 56).

Last of all, they fill the jug with water in order to check if there are any holes or cracks.

Altogether 27 hours and 20 minutes working time has been spent on the water-jug. Two helpers were permanently present to assist the Kāmi.

F. OTHER PRODUCTS OF THE KAMI

1. kodālo: just as kodāli (hoe), except that the blade is smaller and thicker. Whilst the kodāli is used only for transplanting rice and millet, the kodālo serves as a shovel and spade for all sorts of work.
2. cāde: hoe with triangular blade.
3. kuṭi: short-handled hoe with a long thin blade, used mainly in vegetable gardens.
4. hāsiyā: sickle.
5. khurpā: sickle, somewhat smaller than hāsiyā. The lower half of the blade is straight. Sometimes the cutting edge is serrated so that it can be used for cutting even bigger twigs (leaf fodder).
6. phali: plough-share made of rel kamāni iron. The cross-section is rectangular or slightly oval. It has a thin cutting edge on the front side. It is attached to the wooden plough-sole with a U-shaped nail (karuwā).
7. khukri: the well-known Nepalese hewing knife.
8. dāru: ladle made of chased silever 57).
9. jhāgā: a cooking-vessel (mostly) without handles. Made of chased iron or copper; the blade is bent downwards and the neck is short.
10. tāpke: small, deep pan made of chased iron with a riveted handle.
11. cyālaṅg 58): pan made of chased iron, with a shallow spherical base; the upright riveted handle is furnished with a disk to protect one from burning oneself.
12. loṭo: jug without handle and spout. Made of chased silever.
13. baṭukā: wide bowl with low sides and base bent slightly downwards. Made of chased silever.
14. othāno or odhāno: iron tripod for cooking-vessels.
15. borjo 59): chased iron bowl, riveted to a three or four-legged rack. In former times people used this bowl to burn pine chips in. It was meant for lighting.

16. culesi: cutter for vegetables (which are cut by pressing them against the cutting edge). Stand and blade are made of chased iron.
17. sāṅglā or sāṅglo: iron chain with large oval links.
18. kabjā: various fittings made of chased iron. Meant for padlocks.
19. barselo: adze for the carpenter. Short shaft and broad blade.
20. various tools for the carpenter: chisel, plane iron, file, claw-wrench, awl etc.
21. jap 60): ornamental fitting for wooden vessels, made of chased brass or silever.
22. sābi: vervel, fixed above the pestle of the stamp mill as a strengthening.
23. various iron parts of the loom.

G. REPAIRS

The most frequent repairs are the following:

pāin hālnu: to sharpen cutting edges, that is the re-shaping of the cutting edge by hammering and subsequent quenching (plate 8).

gāsnu: "to join something else", or "to join together by welding".

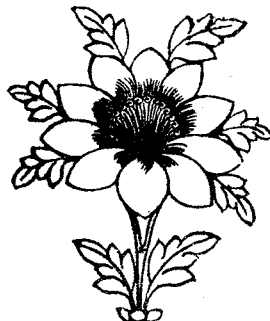
rasāunu: "to mend by means of sheet-metal patches or by soldering".

dāt kāṭnu⁽⁶¹⁾ repair of the file. The grooves are retraced with another file and the blade must undergo a case-hardening. For this purpose they use a mixture of ashes (of feathers of a hen) and the sap of pressed oxalis leaves (62)).

Required repairs and life time of some tools:

tool	repair frequency	life time
<u>kodāli</u> :	once p.a.: sharpening	2 - 3 years
<u>kodālo</u> :	15 times p.a.: sharpening	2 - 3 years
<u>cāde</u> :	15 times p.a.: sharpening	2 - 3 years
<u>kuṭi</u> :	once p.a.: sharpening	2 - 3 years
<u>bancoro</u> :	twice p.a.: sharpening	12 - 14 years
<u>khurpa</u> :	bi-weekly: sharpening	6 - 7 years
<u>hāsiyā</u> :	bi-weekly: sharpening	6 - 7 years
<u>khukri</u> :	once p.a.: sharpening	15 - 16 years

If something cannot be mended it may still be recast. For example, if a sickle's cutting edge is already jagged (kāgar bhaeko 63) in several places, the jagged part is cut off and the rest is converted into a knife. The Kāmi can make a cāde out of a used kodāli, whereas a worn out kodālo may still be used for a socket.



NOTES

1) This is a slightly edited version of the German original in Archiv für Völkerkunde, vol. 26, 1972 (Vienna, Austria). -- I wish to thank Jeṭhā Kāmi Kālulohār, Lāl Bahādur Kālulohār, Phurman Yonjen and Ser Bahādur Mamba, who were my chief informants, W.P. Bauer for the chemical analysis of the samples, Niels Gutschow for the drawing of the figures, Mrs. J. Schäfer, Bisnu Prasād Sreṣṭha and, most of all, my wife Sylvia for their invaluable help in editing this paper. -- The present observations were made in 1972 during a field research in a Tamang community, generously sponsored by the Deutsche Forschungsgemeinschaft. For the transliteration of Nepali, the system of R.L. Turner (1965) is used.

2) Turner (1965) derives the term kāmi from Sanscrit karmī, 'active'. The Nepali word for 'carpenter', karmī, derives from the same word.

3) ṭol = 'ward', 'quarter of a town'.

4) The operations described below were observed in both of the Kālulohār smithies.

5) swāṅge ? < swāṅg = 'appearance', 'imitation'.

6) All statistical data quoted here were collected in June 1971.

7) This ceremony takes place on the 9th day after a boy's birth and on the 7th after a girl's birth.

8) aṣṭami = the eighth day of the lunar 15 days' period.

9) Muluki Ain (B.S.) 1910. Cf. also Macdonald 1970.

10) Muluki Ain 1910: p. 369 § 3 and p. 678-681. The Europeans and Muslims belonged to the upper, non-untouchable group of the pāni nacalne.

11) Nepal has denied any "positive discrimination" to the Untouchables. But even prior to the Constitution of 1967, the law stipulated HMG's right "to make special provisions (wiśeṣ wyāwasthā) for women, children and persons belonging to any

- backward class of citizens" (Civil Liberties Act 1955; Nepāli Ain Saṅgraha B.S. 2021: p. 1221 § 4, 5 and 7). The Constitution of Nepal (1967: p. 5 § 10) prohibits any discrimination in the application of the laws and with respect to employment in the public service. Cf. also Caplan 1972: 58-96; Bêteille 1967: 92-98, Bhatt 1971.
- 12) As to behaviour and terminology, "ritual friends" (mit) are considered consanguines.
- 13) Formerly, the Indian Army employed the Kāmi only as unskilled labourers but not as soldiers.
- 14) Sexual intercourse with women of the pāni nacalne castes was punishable for members of the higher castes (Muluki Ain 1910: p. 670-671 § 1-2).
- 15) biśwakarmā/wiśwakarmā = 'the creator, the god Brahma, (...) Shiva, a deity who is supposed to have invented all handicrafts and arts, a carpenter, a mason, a blacksmith' (Pathak 1970: 1001).
- 16) The popular etymology derives biṣṭ from bis = 'twenty' by stating that in the past, the Kāmi had received 20 shares of prestation (bhāg) from the Tamang client (cf. below).
- 17) The names of the days of the full moon are identical with the names of the months. Actually, the days of the full moon do not necessarily fall in the homonymous month.
- 18) In this respect, too, we find some close parallels in the interrelations between the Tamang and the Kāmi on the one hand, and between the Kāmi and the Damāi on the other. Just as every Tamang family (household) has its bāli kāmi, so has every Kāmi family its bāli damāi tailor. The Damāi, too, call their clients among the Kāmi biṣṭ and receive from the latter regular prestations in natural products, namely cereals and meat, alcohol, salt and spices. The amount of these prestations depends on the size of the Kāmi family the tailor is working for, because the greater the family the more clothes have to be sewn. - In the same way, every Kāmi family

has its Sārki shoemaker. He can be remunerated either in kind (as is the Damāi) or, on individual agreement, in service (one kodāli for one pair of shoes, etc.). -- The pattern of relationship between the Kāmi and the Damāi with regard to economy, commensality, inter-marriage, etc. shows that, rather than forming a homogeneous block, the untouchable castes constitute a sort of sub-hierarchy within the greater hierarchy. This is especially true of the concept of "ritual" impurity: The relations between individual untouchable castes repeat the relations existing between two categories of castes, namely the non-untouchables and the untouchables. Just in the same way as the caste of the Damāi is untouchable for the caste of the Kāmi, all Damāi, Kāmi, Sārki, etc. are untouchable for the Brahmins, Chetri, Newar, Tamang, etc. (For the relationship between client and specialist cf. also Bista 1972: 24 ff.).

19) parma = 'mutual assistance', also the exchange of workmen or plough oxen.

20) This dependence may be at the origin of the beggar-like behaviour of the Kāmi.

21) Nearly one half of the Tamang households has to make additional purchases of grain against cash.

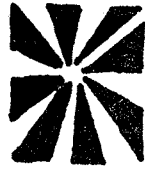
22) The first Tamang from Chautara were recruited during the first years of World War II.

23) The increase in their cash assets is partly due to the development mentioned under a). Besides this, the Kāmi takes advantage of the fact that he is less dependent on farming than the Tamang. He can leave the village from time to time for several months to hire himself out as labourer or to trade in metal or hardware.

24) The analysis of the samples has shown the following results: darśan = common quartz; rāto māṭo = mainly Si besides some Fe, Mg and Al (cf. Bauer 1973: 2).

25) kop = ?; māṭo = 'soil', 'earth'.

- 26) In one of the pāin samples, 49.86% copper and 49.17% zinc have been found. With regard to its high content of zinc, the pāin is similar to the alloy called silever, cf. footnote 57 (Bauer 1973: 1). - The cutting edge of a tool is also called pāin. Cf. below pāin hāl̄nu, as well.
- 27) The word harbi might be related with hār = 'bone'.
- 28) cf. also ṭūro in Sharma 2019: 421 and in Turner 1965: 252.
- 29) Turner gives for udāunu 'to rise' (sun, moon), 'to dawn'.
- 30) cf. Hindi maṭhārnā and Nepali muṭhārnū.
- 31) < kamāunu, 'to work', 'to earn' and ḍhuṅgo/ḍhuṅgā, 'stone'.
- 32) ṭheli < ? ṭhelnu, 'to push', 'to protrude' (Turner 1965: 254).
- 33) samesne < Nepali sameṭnu, 'to gather together', 'to pull up', 'to arrange'; Hindi sameṭnā, 'to collect', 'to gather up', 'to contract' (Turner 1965: 588; Pathak 1970: 1065).
- 34) muni, lit. 'below', 'underneath'.
- 35) kābe < kāp, 'ramification', 'bifurcation' and kāṭh, 'wood'.
- 36) Turner (1965: 70), katarni, 'scissors'.
- 37) The pronunciation varies. Sometimes the word sounded like bednu. The latter might be derived from bedhnu, 'to penetrate'.
- 38) Instead of ṭauko, lit. 'head', the Kāmi occasionally say pāso, lit. 'snare'.
- 39) kān, lit. 'ear'.
- 40) pāin, 'temper of a blade', 'strength' (Turner 1965: 371).

- 41) phul chāp < phul, 'flower' and chāp, 'stamp'.
The stamping on this part of the vessel is also called phul chāp.
- 42) mukh, lit. 'mouth', 'face'.
- 43) pāk < ? pāk, 'the cooking'.
- 44) ṭhaṛo, 'upright' and khādnu, 'to press', 'to press down'.
- 45) khorsol < Hindi khor, 'trough', 'manger' (?)
(Pathak 1970: 276).
- 46) gāt < ? gār, 'goitre' or gāṭho, 'knot'.
- 47) cf. footnote 33).
- 48) ḍorā < ? ḍoro, 'thread', 'line', 'course'
(Turner 1965: 262).
- 49) buṭṭā, 'pattern', hānnu, 'to strike'.
- 49a) ḍorlaṅga resembles the low relief of a double pearl-string; cari amilo reminds of a garland; and phul chāp consists of eight (or less) triangles in a quadrangular field (cf. drawing).
- 
- 50) pharkāuni < pharkāunu, 'to send back', 'to turn'.
- 51) dāti < dāt, 'tooth'.
- 52) purnu, lit. 'to fill up', 'to bury'.
- 53) bādhnu, lit. 'to bind', 'to tie up'.
- 54) māsu, lit. 'meat' (here: the metal), and milāunu, 'to arrange'.
- 55) ujilyāunu, lit. 'to polish'.
- 56) cf. footnote 30).
- 57) silever < English 'silver', probably because of the white shine of this alloy. A sample brought from Patan contains 50.25% copper, 48.22% zinc and 0.78% lead. Cf. also footnote 26 (Bauer 1970: 203 - 206).
- 58) cyālaṅg: a Tamang term.

- 59) borjo: a Tamang term, < ? Nepali borsi, 'a small stove' (makal) (Sharma 2019: 769 and Turner 1965: 461).
- 60) jap < ? jalap in jalap lāunu, 'to gilden', 'to tin'.
- 61) dāt, lit. 'tooth' and kāṭnu, 'to cut'.
- 62) The plant is called cari amilo.
- 63) kāgar < Hindi kāgarī, 'worthless' (Pathak 1970: 202).

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