THE UNIVERSITY OF HULL

FROM TRADITION TO TOURISM IN THE METALCRAFTS OF NEPAL

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ACKNOWLEDGEMENTS

My sources for studying Nepalese metalworking include fieldwork; museum collections; academic and tourist literature.

As the curator responsible for the Horniman Museum's Asian ethnography collections, with an area interest in the Himalayas and Central Asia, I have made a series of fieldtrips to Nepal: from Pokhara to Baglung, Beni, Dhorpatan and Tansen in 1981; from Dharan to Biratnagar, Dhankuta, Bhojpur and Chainpur in 1984; from Dhankuta to Terathum in 1986; from Pokhara to Jajarkot, Jumla, Gum Ghadi and Nepalganj in 1987; from Lamidara to Okhaldunga and Ramechaap in 1991; and from Dumre to Jomosom in 1994. Each of these trips also incorporated fieldwork in the Kathmandu Valley.

One of the aims of my first fieldtrip was to expand the Horniman and other museums' Nepalese collections. Preparatory reading and inspection of Nepalese collections in several of the major museums in the UK, and the experience which this first visit afforded led to a developing interest in metalworking in particular.

The series of field trips has enabled me to survey a number of areas in Nepal, and has indicated the irregular production and

distribution of metalworking in Nepal, especially between urban and rural contexts, as well as similarities and differences between production for the ' traditional' and the tourist markets.
Collecting has been combined with interviews with metalworkers and others, and documentation by fieldnotes, photography and video.

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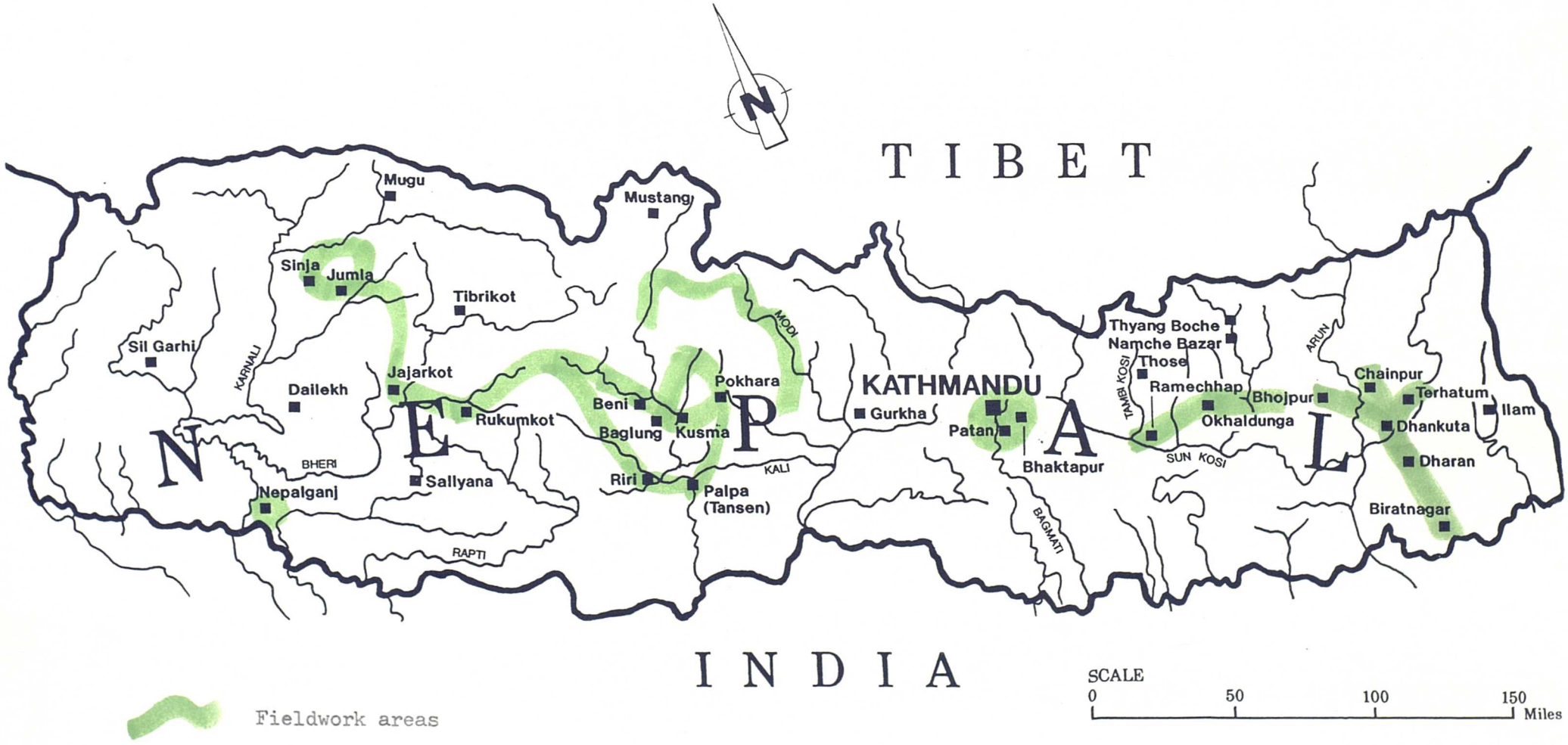
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NEPAL


TIBET
INDIA
N
Mugu
Mustang
Sinja
Jumla
Tibrikot
Sil Garhi
KARNALI
Dailekh
Jajarkot
Rukumkot
Beni
Baglung
Kusma
Pokhara
MODI
KATHMANDU
Gurkha
Patan
Bhaktapur
Thyang Boche
Namche Bazar
Those
TAMBI KOSI
Ramechhap
Okhaldunga
Bhojpur
ARUN
Chainpur
Terhatum
Ilam
Dhankuta
Dharan
Biratnagar
SUN KOSI
BAGMATI
BHERI
Nepalganj
Sallyana
Riri
Palpa
(Tansen)
KALI
RAPTI
SCALE
0
50
100
150
Miles
Fieldwork areas

Chapter One

INTRODUCTION

Societies and cultures are often distinctively expressed, or are culturally identifiable by the use of a particular material shaped into particular forms, for example the widespread use of bamboo in China typifies certain aspects of Chinese culture. This means that we can readily provenance such items of material culture and say: ' this is an Indonesian textile; this is South African beadwork, this metalwork is from Tibet or Mongolia or Nepal', and so on. The usage of a particular material may ramify throughout a socio-cultural system, and, since societies change, this material or medium may also reflect the influences which have effected changes, and itself be instrumental in change.

One of the facts immediately obvious to the visitor to Nepal today is the development of tourism in the Kathmandu valley. Shops, street stalls and pitches selling tourist goods, cluster around a variety of large scale monuments such as temples and palaces. Though the contrast between old and new cultural elements is marked, a common feature is the considerable use of metals for artefacts. Historically metals provided figures, apparatus and architectural decoration for temples and shrines; currently they provide a range of tourist goods or souvenirs. This preponderance

of metal usage is repeated in Nepalese domestic utensils, both in the rapidly changing towns and in the more ' traditional' rural environment.

The impressive range of Nepalese metalwares observable today is equally as evident in reports from throughout Nepal's history. The emphasis on metalwares is also reflected both in tourist literature and in museum collections of Nepalese material. The relationship between technology and the social order, especially with regard to the use of a particular type of material, is obviously close, and raises two main questions. First, what role has material culture, in this case metalworking technology, had historically in the processes of social and cultural change in Nepal ? In pre-industrial conditions, technology is known to have had a significant role in the adaptation of a social system to its environment. Art historical studies also indicate the importance of Nepalese metalcraftsmen in transmitting technology and styles to other countries. In recent centuries, industrialisation has often been seen as a major factor in social change. Where industrialisation is lacking or ' in an infantile state' (Palikhe 1986: i) as in Nepal, craft production is often one of the few options for development despite pessimistic views about its role in this process. Yet global variations of the prices of commodities such as tin and copper have local effects on societies which rely on such materials for their social and cultural wellbeing in a wider sense than simply in economic terms.

Secondly, how may I interpret the state of Nepalese metal technology in its contemporary context ? A more diffuse process than industrialisation, which is nevertheless historically definable, is the ' westernisation' or ' modernisation' of non-western societies.

This relatively recent phenomenon is related to European expansion and colonialism during the last few centuries. One of the most recent and still growing aspects of modernisation is the development of mass tourism during the last few decades. Tourism has produced an apparently new form of complex social system: the ' host' society. In some cases the scale of tourism and the economic dependance of these societies on income from tourism, means that tourists are now an essential part of their social system.

Nepal provides a notable example of a ' host' society. Closed to Europeans until 1951, Nepal has since accomodated a massive influx of tourists whose numbers continue to rise, and provide the second largest earnings of foreign currency after foreign aid. Metalwares play a significant role in the tourist industry in Nepal, yet tourist products, turistica, are often generally despised as ' airport art' or ' curios'. How ' typical' or ' authentic' are Nepalese metalwares as representations of that culture ?

Has tourism in Nepal resulted in the ' reduction' of Nepalese art and material culture to accomodate the profit motive and market demands ? Is Nepal a victim of mass tourism or is it producing its own ' touristic culture' as is happening in other parts of Asia, for example in Bali ?

The two major questions are interelated. Nepal has always been subject to some degree of acculturation as an ' interface' society between South and Central Asia. Metalworking in Nepal thus requires to be placed in its overall context of historical and contemporary development, as well as being discussed substantively as a craft activity. Despite the hazards in using the term I shall designate the period before 1950 as the

' traditional' context, and after then as the ' contemporary context. This is not to deny the processes of socio-cultural change before 1950, so much as to acknowledge the changes in parts of Nepalese society since then.

A review of the literature indicates that Nepalese metalworking and its products are commonly referred to from the seventh century onwards (Pal 1978, 39). Accounts of metalworking increase in volume from the late 18th century onwards, for example in works by Kirkpatrick (1793), Hamilton (1819), Hooker (1854) and by a number of Resident British officials in Kathmandu including Hodgson (1829-31, 1833-43), and Oldfield (1880). During the latter half of the 19th century Nepalese metalwares were displayed at great foreign exhibitions such as the Colonial & Indian in London in 1886, for which the then Resident Surgeon in Kathmandu, G.H.D. Gimlette, wrote the catalogue entry. He followed this with an outline of Nepalese crafts in 1890/1. During the first half of the 20th century reports on metalworking as such continued to be contained among more general and art historical descriptions of Nepal, with a focus on the Kathmandu Valley, for example in Levi (1905-8), Brown (1912 and 1938), Landon (1928); also see Khandalavala (1950); and Kramrisch (1964).

Nepal was only opened to systematic foreign research after 1951. Since then the primary study of metalworking has been in art historical terms with an emphasis on stylistic problems in relation to religious figures and apparatus, and architecture. Two of the leading scholars in this approach have been Pratapaditya Pal and Mary Slusser. Pal, amongst a wide range of publications and papers from 1948 onwards, has produced a series of well illustrated catalogues raisonne on Nepalese and Tibetan art in private and public collections (1969, 1975, 1978, 1983, 1985, 1986,

1991). In these Pal traces the origins, development and relationship of Nepalese art with Indian and Tibetan art in terms primarily of religious figurative art, paintings, drawings and apparatus. Slusser, another magisterial scholar in this field, has also published a range of articles and books from 1970 onwards, dealing with religious figurative art, shrine and temple architecture both on the ground in the Kathmandu Valley and in museum collections. Her definitive work is the two-volume, ' Nepal Mandala' (1982).

Though of more restricted scope, note should be made of His Majesty's Government of Nepal (HMGN) publications (1966, 1979), Waldschmidt (1969), Munsterberg (1970), Singh (1975) and Aran (1978), which deal with metalwares, mostly religious figurative art, amongst other artistic forms. Macdonald & Stahl (1979), whilst dealing with architecture and painting in the Kathmandu Valley rather than metalworking, relate these arts to their socio-cultural context among the Newars.

The production of non-ferrous religious figures has received substantial input in a series of papers including those by Alsop & Charlton (1973), Labriffe (1973), Oddy & Zwalf (1981), Alsop (1986), Hofer (1986) and Michaels (1988). These papers also relate production of these figures to their socio-cultural context in the city of Patan. Material culture studies of metalworking are fewer than art historical studies and primarily include Mukherjee (1978) and Gajurel & Vaidya (1984). Mukherjee deals with the technology of metal utensils as well as religious figures and apparatus in the Kathmandu Valley. Gajurel & Vaidya discuss the range of Nepalese metalwares from research in the Kathmandu Valley and Palpa/Tansen in west-central Nepal. Birmingham (1975) deals primarily

with Newar pottery manufacture in Bhaktapur but makes a useful comparison with metal utensils. Miller (1985) makes a similarly valuable comparison of pottery and metal containers in northern India. Lobsiger-Dellenbach (1954 and 1955) provides a summary of the entire range of Newar art and ethnography. Journals such as ' Arts of Asia' (1970 - present), and some tourist literature, for example Schneider (1987), deal with the production of religious art and jewellery with informative illustrations.

Whilst most social anthropology monographs do not deal with material culture and craft production (Gurung 1989: 240n8), several works amongst the growing corpus of anthropological literature on Nepal relate metal and other household possessions to social organisation amongst some of the peoples of Nepal including Nepali (1965), Furer-Haimendorf (1975), Macfarlane (1976), MacDougal (1979), Seddon (1979), Blaikie et al (1983); Dahal (1985); Fisher (1987); and Gellner (1992).

Examination of this body of work indicates that studies of metalworking in Nepal have been concentrated on non-ferrous religious material, particularly figure casting, and, with the exception of Gajurel & Vaidya (1984), on production in Patan in the Kathmandu Valley. There is little description of sheet working, precious metal-working and iron working. Discussion of the status and role of metalcraftsmen is usually centred on Newar non-ferrous workers, whilst ironworkers tend not to be discussed at all. I see such an approach as some kind of ' creaming-off'. An emphasis solely on non-ferrous religious art ignores the fact that Nepal is primarily an agricultural country which needs iron tools to survive, let alone develop, and has peoples with martial skills who have needed weapons to survive and to earn subsistence as mercenaries.

Macdonald & Stahl (1979: 1) note the compartmentalisation of the study of Nepal by different disciplines by stating, ' it is at present difficult to see Nepal as a developing whole or as a structural unity. No anthropologist to date has sought to embrace the entire country in his research ...'

Taking this view as inspiration or challenge, I therefore decided to extend this corpus of literature by studying all types of metalworking: ferrous, non-ferrous and precious, in both the Kathmandu Valley and in the provincial areas of Nepal in an attempt to synthesise and relate material culture with historical, social and cultural studies. Although my interest is primarily in material culture, I am obliged to consider the status and role of metalworkers in order to locate metalworking in its social and cultural context. One of the most striking observations during my fieldwork was the marked contrast in behaviour and living conditions between urban, non-ferrous working Newars and rural, ferrous-working Kamis.

Material culture studies

It remains for me to state my academic assumptions with regard to material culture studies. I take 'material culture' to be the material interpretation or physical evidence of people's concepts, ideas, norms, and behavioural rules which are learned as a result of upbringing in society. Material culture is a feature of most aspects of social life, and is essential to human societies in their adaptation to and exploitation of their environments. The sociological aspects of material culture are evident in its indication of levels of consumption and social stratification: radios, sewing machines, Rolls Royces and Lear jets are not

simply artifacts but ' sociofacts' which carry cultural meanings. Items of material culture are often taken as the most immediate means of cultural characterisation by the media, museums and the public.

The ' centrality' of material culture means that I may take it as a constant factor against which social and cultural processes may be described and analysed as variables. In this way the various approaches to the study of peoples: archaeology, history, anthropology and sociology may be integrated. At the same time it must be recognised that most material culture systems are imperfect or partial systems, not necessarily integrated in themselves, which may be more open to change than the other aspects of a society. Material culture usually does not constitute a discrete, fixed or persistent unit, rather, it forms an open system which is subject to processes such as innovation, diffusion, adoption, adaptation, diverse manipulation, and rejection according to social requirements.
These factors may render material culture a sensitive index of social change, for in most cases there is no ' isolated' society with a discrete tool kit of material culture which can be treated as an autonomous system of meaning. Most, if not all societies are linked in process (Wolf 1982: 17), and material culture is often part of a much broader system than any single social system. In some societies, such as Nepal - an ' interface' or transmitting type of society - this condition is a marked feature (Fisher 1978: 1). Material culture must therefore be analysed both diachronically and synchronically, in relation to other processes in order to assess its social location and functions, and, where information about the relevant ' systems' of society is available, this must be used to contextualise the material culture of a society for anthropological

understanding.

The difficulties in studying complex societies are well known. I must therefore define my units and contexts of study.

As a location or context one could choose a village; an urban quarter; or Nepal as a nation state. The shortcomings of a village study are considerable. Not all villages practice metalworking, nor use the range of techniques employed in the corpus of Nepalese metalwork. Metalworking villages or even towns themselves are not typical of Nepalese life in general. As noted above, most studies of metalworking in Nepal focus on Patan. Historically, metalworking in Nepal was located primarily in the Kathmandu Valley until the 18th century, when it became more widespread in Nepal as a whole. Since one of my aims is to extend the discussion of metalworking beyond the Valley to a country-wide basis another study of Patan alone is not the solution.

I am thus left with the nation state of Nepal as my context of study. This has some justification in that Nepal has existed as a nation-state since 1768/9, and has had discrete borders since the early 19th century (longer than many European nations), also, the closure of Nepal to Europeans resulted in the relative isolation of the majority of the population from British colonial power in India. Further the context of nation state is the most relevant level, I think, since the promotion of craft and cottage industries is of concern in current national economic development. The difficulties in adopting a nation-state as the context of analysis are considerable, not least due to the difficulty of handling the quantity and disparity of data.

The choice of a suitable unit of descriptive analysis should go

towards coping with the difficulties of context. The options here are to study a type artifact, the entire range of Nepalese metal artifacts or metal as a commodity or material. The kukri would appear to be a suitable type artifact, yet although this is the national weapon of Nepal, and the item most frequently found in museum collections, it is not restricted to Nepal. This approach has the obvious disadvantage of not considering the entire range of Nepalese metalwares. The study of the entire range of metal artefacts is limited by the nature of the evidence available in terms of surviving artifacts and their documentation. Domestic utensils have a shorter historical profile than religious figures for example, which skews the evidence. Also a focus on products alone tends to exclude the materials involved and to divorce products from their contexts. For operational reasons I choose to study metalworking as a commodity or a complex of technology, products and craftsmen. I take ' commodity' to be defined as, ' a useful thing, (an) article of trade ... a product' (COD). Metal is thus comparable with cloth, tea or meat, a material item - whose production and use is intimately connected with social organisation, and is part of a ' moral economy' of rules and values (Kopytoff 1986, 64). An approach from the aspect of commodity allows me to include raw materials: ores, as well as bullion and currency, and to incorporate the first two options noted above both historically and sociologically. I am assuming that an activity and a commodity, like institutions or patterns of association, have their own ' lives' or differing time spans within a social system.

Metalworking in Nepal is indicative of social continuity and change, from the traditional to the modern situation. As a social activity

it cannot be encompassed at the village or small community level. My argument is that material culture studies can relate isolated case studies, whether these consist of descriptions of production processes or of the social structure of metalworking groups to their wider context. By restoring the dimension of material culture to a social group one is able to define the unit of study in a complex society and provide a central linking element for the study of that society (Ucko 1969). Further, a focus on material culture provides material for limited comparisons to be drawn between metalworking in Nepal and neighbouring countries.

This thesis consists of four parts.

1. A consideration of the role of metals and craftsmen in the historical development of Nepalese society (Chapters 2 - 4). In these chapters I want to ask how the activity and usage of metalworking has changed or remained the same over time, the role which metals had in the political and economic development of Nepal, and how historical factors affect present activity and valuations.

2. The social role of metalworkers in Nepalese society (Chapters 5 - 6).

3. Contemporary metalworking production is discussed in Chapters 7 - 9; distribution in Chapter 10; and consumption in Chapter 11. I am concerned in these chapters with the patterns of activity, usage and the function of metalwares. How do these patterns relate to society and culture in Nepal ? Does this activity have similarities and differences with practice in neighbouring countries ? A tension within these chapters is that whilst I have tried to discuss distribution and consumption within the non-tourist context, the case histories of production methods, especially of religious metalwares, relate both to non-tourist and tourist

contexts. This overlap is justifiable, I think, since figurative production has remained constant in methods and iconography in both non-tourist and tourist contexts.

4. The role of metalworking in the context of modern mass tourism is discussed in Chapter 12.

In conclusion I consider the continuities and changes in metalworking as it relates to Nepalese society and culture. This has practical or pragmatic aspects in addition to academic interests. Craft production is often one of the few options for development in so-called Third World countries (Palikhe 1986; Berreman 1978). A study of metalworking in Nepal should contribute to an understanding of the possibilities of development there. My argument is that metalworking, an aspect of material culture, is not only expressive of, but has always been a dynamic factor in, the social system of Nepal. The technology of metalworking is correlated with the status of Nepal as a host society.

Chapter Two

HISTORY OF METALWORKING IN NEPAL - I

Technology and the use of particular materials often have a longer time span and a more extensive distribution than the social formations of the peoples using them. A material may also have a particularly significant role in some social systems. I discuss Nepalese history with a focus on the development of metalworking as a complex of craftsmen/technology/products as it relates to society. This development requires placing in the context of metalworking in South Asia.

Metalworking in India dates from about 3,000 B.C., during the Indus civilisation based on the Indus Valley and the Punjab. The two main centres of this culture were at Harappa and Mohenjo Daro, where metal artifacts were produced by specialised groups. Copper, bronze and lead were worked using brick kilns and various casting techniques including open casting, perhaps lost wax casting, and piece moulding to produce figures of human beings and animals; toys and household utensils (Allchin 1968: 282-3, Pl 16B; Hodges 1970: 62-5, 214-17; Michaels 1988: 11). In the Harappa region in the Punjab two major centres were Lothal, where gold working was practised from about 2,500 B.C. onwards,

and Ahad/Ahar in present day Udaipur, where a large-scale copper-smelting industry developed from about 1800 B.C., and a technique of hammered work with lapped joints was used to make copper and bronze vessels (Allchin 1968: fig 73, p. 282).

About 2,000 - 1500 B.C. Aryan or Indo-European speaking peoples, probably from central Asia, appeared in northern India as the urbanised Indus valley civilisation disintegrated. This was the start of the so-called ' Vedic Age', when the Vedas, the holy books which formed the basis of the Hindu tradition began to be composed and interpreted by religious experts called Brahmins. Bronze was never used on the same scale in India as it was in other parts of Eurasia. One therefore tends to exclude referring to Indian prehistoric development by this term and to see the Copper or Chalcolithic Age passing straight into the Iron Age (Allchin 1968: 153, 165, 193, 204, 208, 281-3, Pl 16B, 21b; Durrans & Knox 1982: 39; Hodges 1970: 62-5; Klass 1980: 58-60; Michaels 1988: 11).

Iron working originated from about 2,000 B.C. onwards in the area south of the Caspian Sea towards Syria. Restricted at first, iron production and usage spread rapidly throughout Eurasia after the breakdown of the Hittite empire about 1200 B.C. The origin and development of iron working in India is debated. Formerly it was commonly thought that iron working probably spread from the north and west, reaching the Gangetic plain between 1,050 and 450 B.C. (Allchin 1968: 210-211). Indian archaeologists more recently argue that iron working was an indigenous development in India during the second millenium B.C. (Gaur, Singh, Tripathi verb comm 1986).

The increased use of iron tools and ploughshares was associated with land clearances and a wider distribution of the population during the first millenium B.C., along with a second wave of urbanisation and changes in culture and society from about the seventh century B.C. Hinduism developed as the dominant religion from a combination of elements deriving from the Indus civilisation, Aryan and tribal cultures (Blurton 1992: 17-19). About 500 B.C. religions such as Buddhism and Jainism arose as a reaction to the exclusivity of Brahmanical Hinduism. The major epics of Hinduism: the ' Mahabharata' and the ' Ramayana' were composed, probably on the basis of previous oral traditions, during the later part of this period (Stutley 1977: 169-70, 246-7). Indian society became re-organised on the basis of caste, or occupational groupings, with an elaboration of the Sudra or lowest servile caste and a decline in the social status of ironworkers. Indian civilisation, always one of the most influential factors in the development of Nepal from the earliest times to the present, thus had a social structure and culture in which metal workers and their technology and products had an established role by the time that Nepal appears in the historical record in the 4th century AD.

Prehistoric Nepal

There is no evidence of Palaeolithic or Mesolithic cultures in Nepal. Neolithic and undated Animal Style remains indicating central Asian influences have been found on the Nepalese-Tibetan border (Tucci 1973: Pl 40). Linguistic evidence suggests that human settlement in Nepal occurred in several waves. About 2,000 B.C., Tibeto-Burman

speaking peoples from the Szechwan-Yunnan plateau migrated through northern Burma and Assam into Bhutan and along the southern slopes of the Himalayas. These may have been ancestral to peoples now known as Rais, Limbus and Newars. About 200 B.C. a second wave of Tibeto-Burmans migrated along the northern slopes of the Himalayas with some splinter groups passing southwards into Nepal and perhaps forming tribal groups known in present times as the Gurung, Tamang and Thakali, although this is debated (Allen 1978: 12; Doherty 1978: 435; Gurung 1989: 239).

Some evidence of relationships between India and Nepal during the latter half of the first millenium B.C. may be derived from archaeological, folk and literary sources. I discuss the sources in reverse order to present a chronological account. An Indian manuscript of the 15th century AD, the *Gopala Vamsavali*, lists eight cowherd, *Gopala* kings followed by the buffalo-tamer dynasty of *Mahishapala* or *Ahirs*, all of whom have Sanskrit names, who were then followed by the non-Sanskritic dynasty of *Kirats* or *Kirantis*. The *Kirats*, perhaps the Rais and Limbus, are referred to in the *Mahabharata*, which was composed about 200 BC-200 A.D. and perhaps refers to a period in the eighth century B.C. (Gellner 1992: 9; Pradhan 1991: 10).

. Newar culture may have started to develop from the sixth century B.C. (Bista 1987: 17; Hagen 1980: 121), when it is possible that Buddhist influence was also present in Nepal. About 563-483 B.C., Gautama Sakyamuni, the Buddha, was born at Lumbini (formerly Kapilavastu) on the Indo-Nepalese border. He was a member of the Sakya tribe or clan which was widespread along the northern edge of the Ganges basin.

Later Nepalese folk stories relate that Gautama Buddha and his disciple Ananda visited the Valley, where they lived in Patan. There he raised goldsmiths from the blacksmith caste, giving them his own clan name, Sakya, a common name for Newar craftsmen in non-ferrous and precious metals today. The Buddhist Emperor Asoka is also said to have visited the city of Patan in the Kathmandu Valley about 250 B.C., and to have built the five stupas there. One is still standing, but has not been dated. Another story is that Asoka's daughter married a Nepalese nobleman and thus brought Buddhism to the Kathmandu Valley. Indo-Nepalese trade and religious contact probably developed from this time onwards (Anderson 1987: 31; Bista 1987: 17; Hagen 1980: 121; Oldfield 1981 v2: 71, 74; Sen 1977: 15; Slusser 1982: 7). Terracottas excavated in the Terai and dated from about the third century B.C. show strong Indian influences.

Nepal - historical development

The start of the historical record in Nepal is indicated by an inscription on a stone pillar dedicated to Samudra Gupta (335-376 A.D.) at Allahabad in northern India, dated either to 340 or 386 A.D. (Pal 1985: 17) or 464 A.D. (Slusser 1982: 7). This inscription refers to Nepal as a frontier kingdom whose ruler is tributary to the Gupta king (Rahul 1985: 1). Since the Guptas were probably influential in the establishment of the Licchavis, the earliest historical dynasty in Nepal, and Gupta style was a formative influence on Nepalese religious art, it is necessary to discuss briefly Gupta society, culture and metalwares.

The Gupta empire based on the Ganges Valley had its capital at Pataliputra or Patna from 320 - 550 A.D. The political peak of the

dynasty was c. 350-475, but in cultural terms this society was influential until about 6/700. Gupta society was hierarchical, urbanised and wealthy from a combination of agriculture, commerce, tribute and loot. The emperors were Vaishnavites, yet (Mahayana) Buddhism enjoyed a ' golden age' in this empire. The upper classes led a luxurious lifestyle and crafts had extensive patronage.

Although sculpture in stone and terracotta had developed earlier, the Gupta period was the earliest for notable metal sculpture in South Asia. Gupta style derived from several areas of northern India, including Madura, Sarnath, Sanchi and South Rajasthan. The main image, which became definitive in the fifth to sixth centuries, was a figure which combined the attributes of a holy man or yogi and a young, powerful ' universal monarch' (Pal 1978: 43). With changes only in detail, this figure served for the icons of Buddhism, Jainism and Hinduism. Images were made to prescribed canons of beauty and meaning, which were laid down in sculptors' manuals, *silpa-sastras* (Coomaraswamy 1965: 45). In Indian metal sculpture, the ' ideal of the harmonious embodiment of nature in human form ... was adopted deliberately in an attempt to fuse the material form with the spiritual and cosmic world ... In Indian figure art every character (is) ... carefully symbolised ... different signs and symbols ... explain each character (and) denote abstract and infinite qualities ... The figures are effigies rather than portraits' (Kar 1952: 12-13, 15). Religious values thus governed artistic expression. Attitudes and gestures were conventionalised and stereotyped, for example Buddhist figures usually have transparent robes, large haloes with flames, and wigs.

The development of Tantrism, a fusion of older folk beliefs which included the worship of the goddess in the Sakta cult, became assimilated into both Hinduism and Mahayana Buddhism during the later part of the Gupta period and resulted in iconographic changes which were also incorporated into Gupta style (Pal 1978: 29ff).

Images for all religions were manufactured by guilds of low caste craftsmen. Various materials were used: for example there are reports of a golden Buddha inlaid with silver and precious stones c. 360 AD, and of a life-sized, golden Buddha in the seventh century. Copper and bronze figures were produced by the lost wax method, often in a large scale: the Sultanganj Buddha (now in Birmingham Museum) is 7½ ft high, weighs about 1 ton and was cast in sections. A cast copper Buddha about 80 feet high is reported from c. 600 at Nalanda in Bihar.

Throughout history Indian sculptures have been integrally connected with the architecture of monasteries, temples, gateways and palaces. Metal figures, both Buddhist and Hindu, are placed at focal points of shrines and temples, carried in processions and serve as aids to meditation and contact with divinity.

India was famous for its steel from the period of Alexander's invasion but there are few ferrous remains from the Gupta period. The most notable example is the wrought iron pillar of Samudra or Chandra Gupta, which is variously dated to A.D. 320, 380 or 400. Also known as the Pillar of Menarauli, this pillar is 23 feet high, and weighs six tons. There is also a fragment of a sword from Sankaram, but most evidence derives from sculptured sources (Rawson 1968: 8). During the later Gupta period there were significant developments in

Buddhism in India. From about 405 to 645, Nalanda, in Patna District in Bihar, developed from a modest establishment into the chief centre of Mahayana Buddhism. Noted for the production of bronze images by monastic craftsmen, Nalanda had widespread influence in India and its bordering regions, including Nepal, Kashmir, Tibet, South-East Asia, and was visited by Chinese pilgrims including Fa-hien, c. 400, and Hsuan Tsang, c. 645. The political history of Nepal, and the role of metal technology in this process, may be discussed within the framework given in Table 1.

Table 1

Ruling Dynasties of Nepal

Licchavi	300 - 879 A.D.
Transitional	879 - 1200
Early Malla	1200 - 1382
Late Malla	1382 - 1769
Shah I	1769 - 1846
Rana	1846 - 1951
Shah II	1951 - present

Two primary arenas of development should be specified: the Kathmandu Valley, the ' central place' of Nepal, and ' Nepal' itself until 1768/9, with a ' periphery' or hinterland of a fluctuant variety of tribal regions and kingdoms under Indian and Tibetan influences at different times; and the nation-state of Nepal from 1769 onwards, which, after various adjustments in the late 18th and 19th centuries, assumed present boundaries. Although the Kathmandu Valley remained as the central place, metalworking diffused along with this expansion of political boundaries.

Licchavi period c. 300 - 879 A.D.

It is not known when or how the Licchavis established themselves as the ruling dynasty in the Kathmandu Valley, but it was probably about 300 A.D. (Pal 1985: 18; Slusser 1982: 23). The Licchavis, an ancient family from around Benares and Patna in the central Ganges valley, were related by marriage to the Guptas, and may have helped them to the throne in India. There was continuous commerce and pilgrimage between Nepal and India during the Licchavi period. The Gupta dynasty fell to the Huns in the late fifth century but the empire was re-established in the late sixth century. Despite these changes in India, Nepal remained under Gupta influence, as is demonstrated by the oldest stone images and surviving monuments, including Hindu shrines and temples, Buddhist monasteries and viharas, founded in Patan from the fifth century onwards, and the earliest script (Pal, 1978: 343; Snellgrove 1987: 363).

The Licchavi Dynasty was Hindu and claimed descent from Manu the Lawgiver. The worship of Vishnu, Siva and Durga all became popular during this period. The Changu Narayan shrine, the ' oldest continuously worshipped Vaisnava sanctuary in the Himalayas' (Pal 1985: 26), with the earliest inscriptions in Nepal, was established before 464. Pashupatinath, the major Saivite shrine in Nepal, was probably built before the date of its earliest inscriptions of 533, perhaps before 300 (Schwartzberg 1978: 22).

Although the Licchavis were Vaisnava, and used Sanskrit as the court language, they allowed Buddhism to persist among the Newars who

formed the population of the Kathmandu Valley (Slusser 1982: 38). It is generally agreed that ' the Newars were the creators of the ' almost entirely ... Sanskrit ... Buddhist tradition in Nepal' (Pal 1978: 343; Chattopdhyay 1980; Macdonald & Stahl 1979; Snellgrove & Richardson 1968: 146-7). About the fourth century A.D. or even before, the city of Patan/Lalitpur/Lalitapattana,(or Ye-la, New; Ye-rang, Tib) was probably founded as the first city in the Kathmandu Valley. About 400, Swayambunath, the primary Buddhist site in the Valley, was founded by Vrsadeva, a Buddhist. It was followed, about 500, by the construction of Bodhnath, the largest Buddhist stupa in Nepal, by Raja Mahadeva (Slusser 1982: 23). The range of the Licchavis' domain is not known and was probably variable. It may have extended from the Sun Khosi River in the east to the Kali Gandaki River in the west (Rahul 1985: 1-2; Slusser 1982: 7; Snellgrove 1987: 363).

From the mid-seventh century onwards, and probably before, the Valley was a centre of craft production. A contemporary account derives from the Chinese envoy-pilgrim, Hsuan-tsang, who may have visited the court at Pattana in 636 (Pal 1978: 39). Hsuan-tsang reports, ' All their utensils are made of copper ... they have coins of copper which bear on one side a figure of a man and on the reverse a horse and a bull ... Their king, Nalingtipo (Narandradeva) ... has in the ears rings of gold and pendants of jade, and a breloc belt ornamented with the figure of the Buddha ... In the middle of the palace there is a tower of seven storeys roofed with copper tiles ... At each of the four corners ... there projects a waterpipe of copper. At the base there are golden dragons which spout forth water. From the summit ... water

is poured through runnels (and streams) like a fountain from the mouth of the golden Makara.' (Slusser 1975/6: 84; 1982: 37-9; Snellgrove 1987: 370, 374). Nepalese ' red' copper coinage, *karsapna*, and *purana*, which was also recognised and used at this time in India, facilitated trade between the two countries (Sen 1977: 16-17; Waldschmidt 1969: 11, 37, 41; Walsh 1990: 8-10). As in northern India, copper was a valued material and of primary significance in the metallurgy of Nepal, the rest of the Himalayas and Tibet. No surviving jewellery nor ritual objects such as those reported have been identified from the Licchavi period but they are depicted on stone carvings and bronze sculpture of this period (Slusser 1982: 39-40; Pal 1978: PL 71,73).

Whilst Nepalese art apparently had little appreciable influence on Tibetan art during the early Licchavi period, which may indicate only minor contacts to the north, during the seventh century there is evidence of increasing contact between Nepal and Tibet. At this time Tibetan military power was at its height. King Songtsengampo established relationships with the Guptas. The Tibetan king claimed some kind of suzerainty over and tribute from Nepal, which the Tibetans may even have occupied, and may also have enjoyed a brief rule of parts of northern India as far as the Bay of Bengal. The establishment of the Tibetan empire enforced peace and fostered trans-Himalayan trade (Slusser 1982: 6, 32, 36).

As well as a strong Tibetan kingdom, the growth of mercantilism in central and southern Asia boosted trans-Himalayan trade and the prosperity of Nepal under the rule of Amsuvarman (605-621). From the seventh century onwards, Nepal, that is the Kathmandu Valley, thus

became the centre of transit trade between India, especially from Bihar, and Tibet. High value, low weight luxury goods of fine craftsmanship in metal, wood and ivory were carried long distances from Nepal into India and Tibet, which paid for its imports in gold (Rana and Malla 1973: 219-220; Snellgrove 19887: 362-3). Trading was international in scope. Tibetans brought in wool, salt, borax and yak tails. Kashmiris brought in goods as well as manufacturing on the spot. Indian merchants brought spices, salt, embroidery and silk cloth to Nepal, which sent herbs, hides and metalwares, amongst other things, in return. T' ang records note the presence of numerous Nepalese merchants in China, whilst Chinese traders visited the Valley (Sen 1977: 16-18).

The spread of metalworking techniques and styles across the Himalayas is linked with developments in Buddhism at this time. The cult of Taras or saviour goddesses developed in eastern India in the seventh century and became an essential part in the development of Vajrayana Buddhism (Thunderbolt Vehicle). This form gave female counterparts to the existing male gods of Buddhism. These goddesses were associated with fertility and magical practices, and were identified in some cases with royalty. Their cult became and remains prevalent in both Nepal and Tibet. In both countries Vajrayana gave a major impetus to the further development of Buddhism.

About 640, Bhrikuti, the daughter of Amsuvarman, is traditionally thought to have taken Buddhism to Tibet when she married the Tibetan king Songtsengampo. Tibetan and Nepalese Buddhists regard Bhrikuti or Belsu (Tib) as an incarnation of the goddess Harit Tara or Green Tara, the consort of Chenresig/Avalokitesvara, the spiritual ruler of Tibet

who incarnates as the Dalai Lama. The princess Bhrikuti is said to have taken various metal figures from Nepal to Tibet as gifts: the Jobo Mikyodorje figure of Akshobhyavajra, possibly the work of Visvakarman; the statue of Dolma in the Thulnang; and the Chokorma figure of Maitreya. An eleven-headed Avalokitesvara may also be from Nepal. The first Buddhist temples were built in Tibet during Songtsangampo's reign, possibly under Bhrikuti's patronage, including the temples of Thulnang and of Katse at Maldo (Snellgrove 1987: 373; Tucci 1973: 77-8). Tibetan influence was strong on the T' ang dynasty in China at this time. Songtsengampo also took a Chinese princess as wife, who is also credited with bringing Buddhism to Tibet. The Chinese princess, Wen Cheng, is regarded as an incarnation of Sweta or White Tara.

At different times the kings of the Kathmandu Valley were Hindu or Buddhist, and both religions co-existed with local cults. A seventh century inscription lists seven Saivite shrines, four Vaishnavite (?) and six Buddhist temples in the Valley. Most rulers practised religious tolerance with the exception of King Cankaradeva who directed an anti-Buddhist movement from Sanku, on the edge of the Valley north-east of Kathmandu, and burnt thousands of manuscripts in the eighth century.

Patan, always a Newar city and the primary metalworking centre of Nepal, was particularly influential in the transmission of metalworking styles and techniques between India, Tibet and China from this time onwards. Patan also now became a major centre of Buddhist learning, with scholars coming to teach there from the great Indian universities such as Nalanda, and Tibet (Aran 1978: 65; Snellgrove 1987: 361, 371).

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Increasing prosperity in the Kathmandu Valley is indicated by the foundation in 865 of Tripura, the City of Gold, the forerunner of Bhaktapur/ Bhadgaon/ or Dharma Pattana, the City of Brahmanic Law, as a royal city by Anandamalla. Other sites reported in the Valley at this period include Kastamandapa and Gokarna (Schwartzberg 1978: 31).

The earliest Nepalese bronzes from the Licchavi period consist of eight pieces, dated from about 590 to the eighth century. Apart from a gilt copper repousse sheath for a figure of Vishnu astride Garuda from Changu Narayan, dated to 607 (Slusser 1975/6: 84), the others are of Buddhist figures, including Sakyamuni Buddha, Bodhisattvas and the Goddess. The earliest is a standing figure of Buddha Sakyamuni, probably made in Patan, with a dated dedication of 590/1 by a Sakya nun. Stylistic influences from Sarnath and Mathura in Gupta India are evident in a Nepalese idiom. Physiques range from stocky to elegant. The figures, in gilt copper or bronze range in height from 4½" to 19 3/4" high. Multiple armed and headed figures, showing eastern Indian tantric influences, appear in Nepal during Amshuvarman's reign (606 - 619-23).

Transitional Period: 879 - 1200

The Nepal Era, still currently used in the Newari calendar, started on October 20th 879, and is ascribed in origin to a peasant named Sakhwal, as the day when he found that a pile of sand was turned into gold - metal again appears to be of some significance. The date may mark Nepal's independence from Tibetan dominion. The period, from 879 to 1200, is increasingly described as ' Transitional', and is

characterised by the fragmentation of political power in the Kathmandu Valley. Until the Early Malla Period, the crown passed between two royal families rather than from father to son. The centre of power shifted eastwards to Bhaktapur (Bhaktagrama) and Banepa by the 12th century. Bhaktapur then remained the capital city of the Valley until about 1500 (Pal 1985; Regmi 1969: 342;Schwartzberg 1978: 32; Slusser 1982). The struggle for power between the kings and nobles persisted from the Licchavi Period until 1951. From about 1100 until 1311, the Indian kingdom of Mithila, often called in by rival Nepalese nobles, made numerous raids on the Kathmandu Valley (Slusser 1982: 44-47). Outside the Valley other changes were occurring. At some time during the 11th and 12th centuries, tribal groups from the western Himalayas and possibly central Asia, invaded Guge and Purang in western Tibet and western Nepal. These peoples, Khas or Khasas, established a capital at Sinja/Sija north-west of Jumla about 1100, uniting this entire area. The ruling dynasty, termed ' Mallas', were not related to the Malla dynasty which ruled in the Kathmandu Valley. Other kingdoms ruled by local chieftains were established at Jumla and in Dullu further south in the Karnali River basin. The Mallas of western Nepal were Hindus but also used chortens and inscribed the Buddhist prayer ' Om mani padme hum' on clay tablets. Courtly Hinduism and popular Buddhism flourished, as in the Kathmandu Valley, and the rulers periodically sought the advice and mediation of Buddhist lamas from the neighbouring region of Dolpo in north-western Nepal. As in the Kathmandu Valley, trade and pilgrimage helped in the exchange of cultural traits and artistic traditions between the Hindu and Buddhist

populations.

India was increasingly subject to Muslim invasions from the early 11th century, as the Ghaznavid Turks became established in the Punjab and raided into the Gangetic plain. These invasions led to structural developments in Nepal, on a wider scale than in the Kathmandu Valley alone. An influx of Hindu refugees from a variety of social classes and religious affiliations entered Nepal during the 11-12th centuries. Rajputs from north-western India invaded western Nepal and established petty kingdoms. They brought with them a new technological complex relating both to economic production and warfare; plough agriculture, terracing and wet rice cultivation; and the use of swords, shields and other iron weapons. Mostly upper caste Hindus: Kshatriyas/Chetris and Brahmins, these refugees also brought in some occupational castes, particularly blacksmiths, to cater for their metalware requirements, but not mercantile castes nor peasantry. This development transformed the largely pastoral economy of the hill peoples of western and west central Nepal, and contrasts also with the kingdoms of the Kathmandu Valley, which were based on Newari horticulture with the hoe and the absence of plough agriculture (a situation which has prevailed in the Valley until modern times).

Nepal continued to serve as a transmitter of Buddhism between India and Tibet. In 1041, Atisa or Dipankara Srijnana, a noted Buddhist teacher from Nalanda, taught Tantric Mahayana Buddhism in Nepal before travelling on to Tibet (Pal 1985: 18; Rahul 1985: 3). Buddhism reached its peak in Bihar and Bengal under the Palas (750-1160) before it was quickly ended in India by the Muslims. The

repression of Buddhism and the destruction of monasteries, especially Nalanda, resulted in Buddhist monks also becoming refugees and settling in the Kathmandu Valley.

The Transitional period in Nepal is characterised by an efflorescence of religious activity and a mixture of Hindu, Buddhist and Tantric styles in religious art. The Valley kings continued to worship both Vishnu and Siva, with the former cult dominant before the ninth to tenth centuries. After this Sivaism gained popularity, and from the 11th to the 15th centuries, many images of Umasahita-Mahesvara were made in the Valley (Pal 1985: 84). The Newars probably worshipped both as Hindus and Buddhists at this time as they do today (Slusser 1982: 49). Alongside the traditional form of Mahayana, Vajrayana Buddhism became more established in the Valley and cult development within Buddhism occurred, for example that of Avalokitesvara, which originated in India, but became established as a ' peculiarly local' cult in Nepal at this time (Pal 1975: 12). Sakta (Goddess) religion, tantrism, became increasingly popular, influencing both Hinduism and Buddhism in Nepal.

These religious developments were expressed in metalwares, which reached a peak of development which was sustained until the 14th century (Alsop 1989; Pal 1985: 18; Slusser 1985: fig 46). Many of the refugee Buddhist monks who settled in the Kathmandu Valley were craftsmen, including metalworkers, who further enriched it as a centre of metalware production, and in turn influenced Tibet. The fusion of beliefs at this time renders precise stylistic provenancing between Hindu and Buddhist figures difficult. The influence or not of Indian art, notably Pala (and

Sena) style, on Nepal during the Transitional period is also debatable.

The Muslim conquest of northern India ended both its metalworking tradition and Buddhist influence from there on Nepal and Tibet. Nepal now became the starting point for cultural exchange with Tibet and East Asia, and was important in the revival of Buddhism in Tibet during this period. Tibetan pilgrimage to Nepal increased along with the Newar production of icons for this traffic (Pal 1985: 19; Snellgrove 1987: 505).

Newar control of Indo-Tibetan trade continued much as usual during the Transitional Period, leading to the economic prosperity and cultural development of the Valley, and Nepal continued to export copper from deposits in the Valley and the hills to India.

Early Malla Period 1200 - 1482

The Malla dynasty of the Kathmandu Valley is usually thought to have been started by King Arimalla (1200-1216), although Mallas had been using Bhaktapur as their capital city from the mid-12th century onwards (Slusser 1982: 54). Mallas are first mentioned in Nepal in the Changu Narayan inscription of 464, and in the Mahabharata. Arimalla and his descendants claimed descent from these ancient Mallas of Pawa/Pava and Kusinara/Kusinagara (Gorakhpur), the contemporaries of Sakyamuni, the Buddha.

The early Malla period continued as a time of political unrest and fragmented power in the Kathmandu Valley. Some of the Malla kings came from Banepa to the east of the Valley as rivals to the Valley kings. As well as internecine struggle, the Valley was repeatedly invaded. Between

1287 and 1334, the Khasiya kings of western Nepal and Guge invaded the Valley six times, looting and destroying settlements but worshipping at Buddhist and Hindu shrines. After reaching a peak of power about the middle of the 14th century, the Khasiya empire collapsed when the Tibetans re-took Guge and Purang.

There were also more invasions from India. The Mallas of the Kathmandu Valley had close ties with Mithila or Tirhut in northern India, often taking wives from that region as well as fighting its rulers. In 1311 the king of Tirhut invaded the Valley looting in and around Patan. In 1324/6 the king of Tirhut, Raja Harisimha Deva, now deposed by the Muslims, perhaps arrived as a refugee in the Kathmandu Valley. In some accounts he is thought to have seized power, and, helped by his companions, Brahmins from Kanya Kugja or Kanouj in India, to have introduced the cult of the Goddess Taleju as the tutelary deity of the Malla kings. The Valley was also invaded by the Muslims in 1337, and in 1346/7, when Hindu and Buddhist shrines, including Pashupatinath and Swayambunath, were desecrated; and again in 1349/50, but the Muslims never established control in the Valley (Schwartzberg 1978).

In 1372 Jayasthiti Malla, who may have been from Mithila, took control in Patan and then assumed the kingship of the Valley from 1382 to 1395, moving his capital to Bhaktapur. Jayasthiti stabilised the kingdom of Nepal. He proclaimed himself an incarnation of Vishnu, the first Nepalese king to do so, adopted the title of *Narayana*, fostered the development of the cult of Taleju, and is credited with the re-organisation of society and religion in the Kathmandu Valley in consultation with five Brahmin priests. He may have codfied existing social patterns of hierarchy

and caste as law. The Newars accepted caste organisation, and in its essentials this code is still followed today, with the addition of some new ideas from India (Bengal) in the intervening period.

Brahmins from Mithila now settled in the Valley and South Indian Brahmins were installed as the custodians of Pashupatinath. Under such influence the Valley became 'Sanskritised' or 'Hinduised'; Shivaism grew stronger, and the Krishna (Vishnu) cult from Bengal became more popular in the Valley (Pal 1985: 26).

The dynasty founded by Jayasthiti Malla ruled Nepal for four hundred years. His descendants extended their domain and continued to implement his social re-organisation of the Valley. Jayayaksa Malla (1428-1482) ruled the largest kingdom which the Mallas of Nepal ever attained, extending his domain north to Tibet by seven days' march, south to Morang and westwards to Gorkha. He instituted Newari as the court language which superseded the use of Sanskrit (a feature of the earlier Malla period) in official documents such as land titles (Rahul 1985: 4; Schwartzberg 1978: 39; Slusser 1982: 66-8).

The refugees from India led to a further difusion of Tantra in Nepal, and a mixing of styles of Hindu and Buddhist gods. Taleju or Mahadevi, the Great Goddess and consort of the principal aspect of Siva, became the supreme deity from this period onwards. Vajrayana Buddhism, Tantric yoga and the cults of Avalokitesvara and the stupa grew in importance as Mahayana Buddhism declined, although Swayambunath remained the supreme shrine for Newar and Tibetan Buddhists (Slusser 1982: 48- 9). Art flourished under the patronage of the Mallas. The refugee artist-monks from India abandoned celibacy, married and worked as gold and

silversmiths. Newar art was particularly influential in Tibet and China during the 13th and 14th centuries. Phags-pa, one of the Sakyapa abbots invited a Newari sculptor, Arniko/Aniko and a team of artisans first to Tibet, to erect a golden stupa and to manufacture cult objects, and then to China where Aniko constructed a pagoda, supervised the casting of statues, became general director of all the workers in bronze, and controller of the imperial manufactures for Kublai Khan in Beijing.

Nepalese metallurgy reached a peak in the 14-15th centuries. Tantric influences, the proliferation of cults, and a growing market in Tibet, led to increasing demands for images, religious apparatus and architectural work on temples and palaces. These demands were met by increased production by craftworking families working in home workshops, and using traditional, largely unchanged methods. Techniques included cast bronze, inlaid gold and silver work and gilt metal repousse work. After the Muslim sack of the Valley in 1346/7 figurative iconography changed with more emphasis on the fierce aspects of gods. During the reign of Jayastithi and Raja Malla, when Brahmanical influence was strongest, a distinct, Tantric-Nepalese style became formed (Brown 1938: 4; Pal 1985: 37-38; Singh 1968: 211; Slusser 1982: 75).

Late Mallas (of the Three Kingdoms) 1482 - 1768

After his death, the sons of Jayayaksa Malla divided the Valley kingdom into three for their own dynastic purposes (Slusser 1982: 61). This perpetuated disorder and continous petty warfare amongst the kings and nobles of the Valley and its periphery until the Gurkha conquest in the 18th century. The Valley towns were fortified, and the Mallas

recruited mercenaries as they needed them. At the same time, their rivalry led to, and was expressed by, considerable artistic production (Lienhard 1984: 108-9; Rahul 1985: 4; Slusser 1982: 61-3). The borders between the Valley kingdoms constantly fluctuated, and their extent outside the Valley is not known precisely. Bhaktapur may have ruled northwards to the Tibetan border. Kathmandu, gaining in political importance after 1500, may have ruled north-westwards into the hills. Patan, may have ruled southwards to the Terai, but had especially close ties with Tibet. Newar traders moved east and westwards from the Kathmandu Valley from the 14th century onwards (Regmi 1966: 539). In western Nepal two groups of loosely federated petty kingdoms formed after the collapse of the Khasiya Malla empire in the 15th century: the Baisi Rajya, or 22 kingdoms of the Karnali basin, which recognised the superiority of the Maharaja of Kumaon; and the Chaubisi Rajya, or 24 kingdoms of the Gandaki region. The house of Gorkha, one amongst the latter group, was founded by Dravya Shah (1551-1570) in 1559 (Slusser 1982: 9).

These two groups, mostly ruled by refugee Rajput princes, were often in conflict with each other. Both groups recognised the suzerainty of the Mughal emperor in Delhi but were increasingly independent after Mughal power waned. A further 12 kingdoms in Kumaon and 18 in Garwhal shared a lingua franca, *khaskura*, with the kingdoms in western Nepal. Khas and Magars from the Palpa region were allowed to settle in the Kathmandu Valley by King Ratna Malla (1484-1520) of Kathmandu. In eastern Nepal the Hill Kirats, or Rai and Limbu peoples, were part of the Terai-based Indian kingdoms of Chaudandi and Vijayapur, then, from about 1650 - 1800,

the Limbus formed part of the Namgyal kingdom of Sikkim (Rahul 1985: 4-5; Robinson 1989: 159).

Although Islam was never adopted in Nepal, some influence is evident. Muslims from Kashmir first settled in the Valley about 1500, perhaps by royal invitation from Ratna Malla. After the Mughals established their empire in India they exercised some kind of suzerainty or influence in Nepal. After Mahendra Malla's attendance at Akbar's (1556-1605) court, the Mallas of the Valley adopted Mughal and Rajput dress and personal weaponry, along with titles and honorifics, manners and artistic conventions in painting. Muslim mercenaries were employed and some Persian and Arabic words were incorporated into Newari. Nepalese swordsmiths, who had a high reputation in India at this time, were attracted to the Mughal courts along with the best armourers from Iran and India (Chandra 1969: 369).

The Mallas of the Three Kingdoms ruled an urban society which became increasingly wealthy on the basis of the agricultural and mineral resources of the Kathmandu Valley combined with their control of Indo-Tibetan trade routes, especially those via the Kuti and Kerong passes. Metalwares were a major commodity in this trade (Blaikie 1983: 26).

Monetisation became an increasing factor in local economic and political development. In the early 16th century copper coins were minted from local ores, then in 1560 Mahendra Malla in Nepal and the ruler of Cooch Behar established their own mints for silver coinage for the trans-Himalayan trade. The Nepali coins, called ' tankas', were Nepalese in design, but their name and standard weight of 10 gms indicate Muslim influence. They were accepted as currency in Tibet. These coins may

have been struck with the approval of the Moghuls since Akbar was monetising the North Indian economy at this time and importing metals as required. Later coinage had copies of Arabic inscriptions derived from Muslim-Bengali coins (Macdonald & Stahl 1979: 26; Naqvi 1968: 237-8; Pal 1985: 37-8; Rhodes 1980: 262)

In 1590 the first formal treaty between Nepal and Tibet gave extra-territorial rights to Nepalese traders and artisans/craftsmen living in Lhasa. These traders then directed bulk trade through Nepal at the expense of Cooch Behar, which declined in power. This treaty boosted Newar crafts including metalworking: image casting, jewellery-making, and woodworking. The Newar community in Tibet were mostly Buddhists of the Ba-Re/Sakya class, gold and silversmiths, who intermarried with Tibetans and gained the monopoly on striking coinage for Tibet, to the profit of the Valley kings (Snellgrove & Richardson 1968: 201-2).

About 1600 Shiva Simha who ruled both Kathmandu and Patan was the most powerful of the Valley kings, due to his control of Indo-Tibetan trade. European traders, arriving in India in increasing numbers in the late 16th century, noted the regular commerce between India and Tibet via Nepal and Bhutan at this time. The Nepalese upper classes were especially involved in trans-Himalayan trade, and Nepalese dealers also had depots in Patna and Benares (Edwardes 1972: 87-8; Naqvi 1968: 18; Sen 1977: 16-17).

In the early 17th century the civil war between rival monastic orders in Tibet was exploited by the Nepalese. In 1625-30 Ram Shah (1609-1636) of Gorkha, or Gurkha, a hill kingdom some forty miles west of Kathmandu, in league with Cooch Behar, seized the Kerong Pass from the Tibetans, blocking

Malla traffic. As trade through Kathmandu, and Indian silver supplies declined, the silver content of Newar coinage was reduced. Ram Shah also invited Valley Newars to settle in Gorkha to promote trade on his behalf (Regmi 1978: 20).

Rather than fighting Ram Shah, Pratap Malla (1641-1674) seized the Kuti pass from the Tibetans and then negotiated a peace treaty with the Dalai Lama who was based at Shigatse (Uprety 1980: 20-1). After thus regaining some control of the trade routes and securing silver supplies from India, Pratap Malla withdrew his de-valued, earlier coins and replaced them with ' Mohars' or ' Mahendramalli' coins. In 1650 the Newars of Kathmandu invaded Tibet and forced the Tibetans to make a treaty agreeing to their monopoly of trans-Himalayan trade and to strike coin for Tibet. Tibet was to provide silver and gold bullion for this purpose. The Nepalese mohar (bal-tang,Tib.) was accepted as an official currency in Lhasa, and the Nepalese profited some 30-50% from the silver alloy used. Nepalese may now have also acted as guards on the Tibetan mines. Trade between Nepal and Tibet increased, and many Newars, both merchants and artisans of the Uray caste, became resident in Tibet. There were particularly close relations between Patan and Tibet at this time. Newar artists worked for the 5th Dalai Lama in Tibet, where they were paid in kind rather than cash, since they were producing sacred objects (Singh 1968: 216; Slusser 1982: 71).

Financed by these means, the 17th century is often referred to as the ' Golden Age of the Mallas'. The rivalry of the three Malla kingdoms in the Valley resulted in a flourishing of culture there. The kings patronised architects, poets, musicians and sculptors; artists acquired a

new prestige and rose in social status (Singh 1968: 215). In the Valley towns there was a spate of temple and palace building, after Mahendra Malla's Taleju temple in Kathmandu was completed in 1594. Most surviving monumental architecture in the Valley derives from this period. The kings of Bhaktapur, were particular patrons. In the early 17th century, the Golden Door of the Taleju temple, part of the palace complex in Bhaktapur, forms the earliest example of this activity, and was emulated in Patan where King Siddhinara Simha (1618/1620-1658/1661) also built a Taleju temple, and the Krishna mandir in Durbar Square.

Although the Malla kings worshipped Siva, Vishnu and Taleju they allowed the worship of Buddhist gods also. Tantric practices and beliefs in ghosts and witches were common to the entire population. Occasionally the kings also made the *tuladana* sacrifice, when the ruler was weighed against his weight in gold and jewels before it was donated (Slusser 1982: 73-4).

Whilst the Newars of the Valley, and in the communities resident in Tibet were producing metal figures and religious apparatus for the Tibetans, and thus exerting a major influence on Tibetan art, Tibetan influence on Newar art also became stronger in the 17th century. Classical Indian models were discarded in favour of Lamaistic and Tantric modes. Tibetan and Chinese motifs: the dragon, clouds and the cloud vehicle, now began to be used in Nepalese metalwares, woodcarvings and paintings. Tibet began to be self-sufficient in the manufacture of cult objects and Tibetans repaired and ministered Buddhist shrines in the Valley, rebuilding Bodhnath along the lines of Gyantse. Notable Tibetan lamas visited these pilgrimage sites, enjoyed royal sponsorship from the

Malla kings and probably made political alliances with them. It is not known if most Newars were Buddhists at this time (Gellner 1992: 55, 57, 351n23, 352n25; Lewis and Jamspal 1988; Slusser 1982: 71-2). There was some decline in the quality of image casting during the 17th century, but the quantity of production continued into the succeeding Shah period (Slusser 1982: 75). In 1703 Bhupatindra Malla (1696-1722) completed the five-storeyed Nyatapola temple in Bhaktapur and installed the Tantric goddess Sidi Lakshmi to appease the anger of Akas Bhairav (a manifestation of Siva).

Social changes also occurred in the Kathmandu Valley at this time. By the mid-17th century increasing numbers of Brahmans, Chetris, Magars and Khasas gained lands in the Valley by royal patronage, bringing in Mughal culture at a popular level and fostering the trend towards Hinduism. Nepali began to dominate Newari as the *lingua franca* (Slusser 1982: 69).

A similar pattern of conditions prevailed in the 18th century as in the preceding two. The Malla kingdoms of the Valley continued in a recurrent state of internecine warfare, largely about the control of trade and bullion supplies from Tibet, and repeatedly called in outsiders to help them in their quarrels: primarily the Gorkhas, but also Tanahu and Lamjung, two of the 24 Kingdoms. The British in India were also called in once (Regmi 1971: 23-5, 36; Seddon 1979: 178; Sen 1977: 18; Slusser 1982: 65).

Indo-Tibetan trade revenues were also important to the princes in the hills. Here the numerous petty states, in a predominantly rural country, were each largely self-sufficient in agricultural produce. Metal mines were plentiful in some areas, notably at Baglung as well as at

Parbat and Gulmi, but economic opportunities were more limited than in the Valley. Each court taxed the movement of goods within its domain and took its share of mined ores (Regmi 1978: 18-19, 36-7; Stiller 1976).

During the 18th century, the rulers of Gorkha intermarried with the other nobility of central Nepal, unified the petty kingdoms and formed local hill tribes, Magars and Gurungs, into an army. These tribes were converting to Hinduism, giving prestige to Brahmins and holding the cow in reverence. From the time of Ram Shah (1609-1636, the Gorkha rulers were addressed as Maharajadhiraj and the people of Gorkha were known as Gorkhali. In 1736 the Gurkhas, taking advantage of warfare among the Mallas, invaded the Valley but failed to seize control (Rahul 1985: 10-11).

Prithvi Narayan Shah came to the throne of Gorkha in 1742. He had already spent some time in Bhaktapur, assessing the unstable political situation in the Kathmandu Valley, and now acquired guns and gunsmiths from Varanasi, and Muslim rifle instructors, who trained his army. He then conquered Nawakot in 1744 (Blaikie 1983: 27; Rahul 1985: 90-1; Shaha 1970: 61). Prithvi Narayan thus controlled one of the major trade routes over the Kerong pass between the Valley and Tibet. In 1755-7 he forced Kathmandu and Tibet to agree that his coins should be circulated alongside Malla coinage. By 1762 Prithvi's blockade on Indo-Tibetan trade led to a shortage of raw materials and increasing military pressure on the Kathmandu Valley kingdoms (Regmi 1978: 7; Slusser 1982: 74; Uprety 1980: 22-3, 49n25, 50nn27-8). At the same time Kashmiri Muslim and Hindu Gosain merchants from their bases in Patan and Varanasi, in collusion with the EIC, started to divert Indo-Tibetan trade through Bhutan (Snellgrove and Richardson 1968: 145, 156, 235-6, 260; Uprety 1980: 23-7).

In 1767, the King of Bhaktapur, at war with the other Valley kings, called on the King of Gorkha for help. The British, at the request of the king of Patan, sent a force to relieve Kirtipur from seige by Prithvi Narayan. Although this expedition failed to reach the Valley and served to distract the Gurkhas for a year, the request from Bhaktapur gave the Gurkhas the foothold in the Valley which they had been waiting for. In 1768/9 the Gurkhas conquered the entire Kathmandu Valley and established the Shah Dynasty, which still rules today, and laid the foundation for the modern nation state of Nepal.

Chapter Three

HISTORY OF METALWORKING IN NEPAL II - THE NATION STATE

Shah Period: 1768 - 1846

Following the Gurkha conquest of Nepal there was increased production in metalworking but a decline in crafts as the new government diverted its ' surplus' from artistic to military purposes. Agriculture as always continued to form the basis of subsistence, and the king retained the crucial right to dispose of land on an annual basis, but the exploitation of resources, especially minerals and trade provided resources which were also subject to the manipulation of Nepal's rulers. Munitions and metal domestic wares increased in number whilst religious artifacts were reduced and figures declined in quality. Metal craftsmen and their patrons became more dispersed throughout Nepal. The conquest involved a change ' from the simple economies of the mini-states ... to a much more complex economy' (Stiller 1976: 290).

A critical factor which appears to have driven the Shah government was the problem which it inherited from the Mallas, to control currency and bullion supplies between Nepal and Tibet. This was related to the

wider issue of trans-Himalayan trade and its control. The Gurkha response was militarisation and territorial expansion. The exploitation of metals and metalwares was a significant element in financing and rewarding this response. Gurkha expansion led them into conflict with the British in India, with further repercussions on Nepal's metal industry. I therefore outline these external relations before discussing the production and distribution of metalworking in Nepal during this period.

A constraining factor, which Prithvi Narayan Shah recognised from the outset, was the need to retain some kind of balance between the stronger political forces to the north and south of Nepal, ' This kingdom is like a yam ... between two stones' (Rahul 1985: 85). The policy which Prithvi Narayan and his successors followed was to try to close the southern border with British India, whilst increasing influence in Tibet, and expanding Nepalese territory east and west along the Himalayan chain.

After the conquest, the Gurkhas assumed privileged status, regardless of previous rank, forming a ' militocracy' (Rahul 1985: 13), which ruled Nepal as a tributary state. Prithvi Narayan declared Nepal ' a genuine Hindu kingdom for the four castes ... and for the thirty-six communities.' (Rahul 1985: 87). Patan and Kirtipur, which were damaged in the fighting remained neglected settlements, and the Newars of the Kathmandu Valley were treated as a conquered or ' broken' tribe. Newar language, culture and art were suppressed until the 20th century. Nepali, the Gurkha lingua franca, became the state language, and its associated Hindu culture expanded, ' at the expense of traditional Buddhist allegiances' (Robinson 1989: 46; Lobsiger-Dellenbach 1955: 5; Pal 1985: 87). Newar lands in the Valley were taken by central government for the construction of new

temples, and poorer lands were given in exchange (Regmi 1978: 40; Seddon 1979: 49). Even so there was not total opposition between Gurkhas and Newars. Whilst Buddhist Patan suffered, Hindu Bhaktapur and Kathmandu, which the Gurkhas made their new capital, were less affected. Some Newars welcomed the conquest as a relief from the trade blockade which the Gurkhas had been imposing on the Valley from 1762 onwards. Prithvi Narayan Shah also served Newar interests by expelling Indian merchants, and centralising administration, which enabled Newar merchants to take up contracts to exploit mineral deposits, mint coins, collect revenues, inside and outside the Valley, and to renew trade with Tibet (Blaikie 1983: 29-30; Regmi 1978: 11-13).

Nepal-Tibet relations

Two overlapping but not identical levels of involvement in trans-Himalayan trade may be distinguished: that of the Shah government, and that of the Newars.

The Malla kings had progressively debased Nepalese and Tibetan coinage. After the Gurkhas conquest of the Valley, Prithvi Narayan de-monetised the old Malla coins and started minting his own which meant a considerable loss to Newar traders and to the Tibetans who bought Malla coins at face value. The Tibetans demanded compensation for their losses and refused to accept the new coins he minted as the King of Nepal. Neither side would compromise, and, as the problem remained unresolved, trans-Himalayan trade started to move along other routes: through Kashmir, Ladakh, Garwhal and Cooch Behar rather than through Nepal (Uprety 1980: 27; Walsh 1990: 17, 23). A series of wars about this issue followed,

starting in 1768, which impaired economic exchange. Prithvi Narayan expanded eastwards to try close or control the Tamar trade route. In 1773 warfare between the two countries led to the diversion of Nepali mined ores for use as munitions rather than as trade goods (Regmi 1978: 58). The government had all Tibetan gold and silver brought to the Kathmandu mint and allowed no bullion to pass through Nepal to India (Walsh 1990: 24).

After Prithvi Narayan's death in 1775, Nepal and Tibet made a treaty to settle their grievances about trade and currency. Neither side honoured this and the Nepalese invaded Sikkim, a Tibetan dependency, to seize the Indo-Tibetan trade route which passed through there (Uprety 1980: 27-33). Nepalese expansion continued. Between 1782-1785, the Gurkhas conquered the western hills to the Kali Gandaki, another major trade route to Tibet. Poor relations with Tibet persisted and again resulted in warfare. In 1788/9 Dza Marpa, the refugee brother of the Panchen Lama, incited the Gurkhas to invade Tibet. The Gurkhas occupied some of the frontier districts, and the Tibetans agreed to route their trade through Nepal again. Large amounts of gold and silver were obtained as reparation by the Nepalese, as well as in the form of loot, which was used to pay Nepalese troops (Regmi 1978: 159; Uprety 1980: 37-8).

In 1791 the Tibetans refused tribute to Nepal. The Gurkhas, incited by the Black Hat Karma-pas and other monastic orders hostile to the ruling order of Yellow Hats, the Gelugpas, again invaded Tibet. They captured and sacked Shigatse, looting gold, silver, jewels and artifacts from Tashilunpho, and destroying considerable amounts of religious art. This action led to an irreparable rift in Nepal-Tibet relations (Uprety 1980:

40-4; Tucci 1967: 46-7). The Tibetans allied with the Chinese to drive out the Gurkhas and a Chinese force invaded Nepal to within 20 miles of Kathmandu. The Gurkhas sued for peace and paid tribute to China every five years after this until 1908. The frontier between Tibet and Nepal was demarcated, and all traffic on the Tibetan side came under the control of the Chinese governors, *ambans*, who became resident in Tibet. The Chinese government established its own mint in Lhasa, which prevented further Nepalese attempts to control this function, and led to a decline in Nepalese revenue from this source (Regmi 1978: 158,160).

Despite the deterioration of political relations after 1769, trade relations between Nepal and Tibet persisted in various ways, even through the wars of 1788-93, as the Newars of Patan maintained social and cultural relations with the Tibetans by means of inter-marriage, some trade and craftwork. The Newars regarded the Panchen Lama, rather than the Dalai Lama, as the true overlord of Tibet. The Nepalese government taxed the Newars on this trade, for example taking fees for stamping or hallmarking metal utensils exported to Tibet. The court or Darbar used such levies on trade to buy food and clothing for its increasingly large armies, as well as to buy luxury goods. As well as manufactured goods from the Valley, copper and iron from the hill areas were traded to Tibet, and colonies of Newar craftsmen, manufacturing metalwares especially, as well as ivory goods, wooden vessels and cloth, and trading in jewels and ornaments were established in Lhasa about 1800 (Regmi 1978: 67, 148; 1984: 124-5; Sen 1977: 26; Uprety 1980: 170).

The Nepalese monopoly on Indo-Tibetan trade was soon subverted by Indian merchants, as Prithvi Narayan's successors returned to patronising

non-Nepali Hindu merchants, largely Marwars, and their ' business houses' in the manner of the Malla kings (Rahul 1985: 12; Sen 1977, 24-5). Newar traders became confined to re-exporting commodities which were brought to Kathmandu by Indian traders, and to retail trade only with Tibet. Elsewhere in Nepal metals were traded to and from Tibet in the early 19th century, for example trade through Chainpur included copper and iron to Tibet and silver and gold from Tibet (Hamilton 1819: 156-7). At Bandipur in west central Nepal, Newars from Bhaktapur, fostered trade through Manang to Tibet from 1830 onwards (Blaikie 1983: 124-5). Other peoples along the northern border of Nepal such as the Sherpas and Thakalis continued to trade in primary produce such as salt for grain with Tibet. A form of trade which was probably of more importance than trade in craft products from the Valley to Tibet (Regmi 1984: 124-5).

Nepal - India relations

Whilst attempting to expand his influence in Tibet, Prithvi Narayan tried to control his southern border with India in a series of isolationist measures which also endangered the economic system. In 1770 he expelled Jesuit missionaries from Patan, where they had been living since their expulsion from Tibet in 1745. Foreign merchants including Hindus and Kashmiri Muslims were also expelled as suspected agents of British and other commercial interests (Rahul 1985: 12; Sen 1977: 134). Under Gurkha rule Nepal was virtually closed to foreigners from the south.

Despite this policy, the external powers would not go away. The British East India Company (EIC), interested in developing Himalayan trade routes as an alternative to the sea route for trade with China, started to

explore routes through Nepal to Tibet. The EIC's aims were to gain access to Central Asian markets, thought to be potentially enormous, for British cloth and other manufactured goods, and to search for gold, for which Tibet had a reputation as a major source, to pay for Chinese tea. The conflict between Nepal and Tibet also drew British India and China into confrontation. In 1792/3 Colonel Kirkpatrick went to Nepal to consolidate Britain's commercial treaty with the Gurkhas and to mediate between Nepal and Tibet.

At the end of the 19th century, checked to the north, Nepal became increasingly involved in political and economic relations with British India as the Nepalese expanded their territory westwards. In 1795 Jumla fell as the Gurkhas conquered to the Mahakali River. Between 1808-1812 the Gurkhas expanded further into Garwhal and Kumaon, they fought the Sikhs in the Punjab until the latter turned them back, and occupied parts of the Terai in the east. For a brief time, the boundaries of Nepal were about one-third larger than present boundaries.

This expansion was supported partly by purchasing, smuggling and seizing guns from India, and by the establishment of a munitions factory in Kathmandu in 1793, with production supervised by a French technician. Gunpowder factories in Patan in 1799, and in Dhankuta and Chainpur in eastern Nepal. More smaller-scale munitions factories were established in Piuthan, Doti, Morang, Majhkikrat, and Kumaon in the early 19th century. Firearms supplemented the other weaponry which consisted of swords, shields, and bows and arrows (Regmi 1978: 90, 106, 156; 1979: 38; Stiller 1976: 39n38).

Nepal's export trade with India, much larger in scale than trade with

Tibet, was an important aspect of the Nepalese economy by the early nineteenth century. This consisted of primary materials: timber, grains, cotton, spices, fruit, horns, hides, wax, iron and copper, which were traded both ways across this border because of differences in qualities. Manufactured goods included paper, copper and iron domestic utensils, ploughshares, spades, bell metal currency, *pice*, and kukris (Regmi 1984: 112, 114, 124-5, 157; Sen 1977: 95, 102ff). At this time the balance of trade between Nepal and India was in Nepal's favour. The EIC paid for its trade deficit with Nepal in silver but resented Nepalese aggression as they pushed their revenue collectors and soldiers southwards, and annexed land in the Sutlej. (Alder 1985: 109; Hamilton 1819; Regmi 1979: 25).

Conflict occurred at Butwal, the centre of a fertile district in the central Terai and one of the oldest market towns in Nepal, with the business houses of Indian traders who sold gold ore, brass, iron, copper and wax under the patronage of Nepal's rulers (Rahul 1985: 12; Regmi 1984: 110, 118). Butwal was claimed by both the Nepalese and the British. In 1814, the EIC asserted its claims to Butwal by installing police posts there. The Gurkhas soon after killed 18 EIC policemen, which precipitated war between the EIC and Nepal. Fighting occurred near Patna, to gain control of the Terai, and several battles were fought around Dehra Dun. The Gurkhas asked the Chinese ambans in Tibet for money and guns to fight the EIC but were refused.

Several columns of British troops invaded Nepal. After initial failures the British prevailed, and the war ended in 1816. The Gurkhas ceded areas in the west, east and south to Britain, about a third of its territory (Robinson 1989: 156), and agreed to provide facilities to improve

communications between India and Central Asia. A British Resident was installed in Kathmandu. Nepalese trade with India continued to develop after the 1814-16 war, taking advantage of the disorder in Indian economy and society at this time. Although Kirkpatrick in 1793 had reported that Nepal supplied Oudh with copper but was being undercut by European supplies of copper, better informed contemporary observers describe the continued large scale export of copper: as metal, utensils and coinage, from Nepal to the entire plains of northern India between the hills and the Ganges in the early 19th century. Iron and iron goods were similarly exported from Nepal to India (Regmi 1978: 168-72; Regmi 1984: 113-15, 151ff; Sen 1977: 25-6; Spear 1977: 116ff).

The Nepalese advantage was soon ended. The EIC defeated the Marathas in 1818 and established hegemony over much of India. Manufactured goods and metals from Britain started to flow into India and Nepal, setting a general pattern to trade through Nepal for the rest of the 19th century.

High Nepalese tariffs on Indian goods and obstruction to Indian merchants in the Valley led to an economic crisis in Nepal in the 1830s. The Nepalese government forbade the export of local stocks of Indian coin. This was melted down, debased by alloying it, and then re-minted to produce Nepalese currency. Trade relations with India were disrupted as a result, nor was there any local confidence in this action. Nepalese traders themselves refused to accept payment in Nepalese currency, preferring payment in goods or Indian rupees (Sen 1977: 34, 95, 100). Trade through Nepal fell to a low ebb as Nepal went into deficit against India. In 1830/1 the balance is estimated to have been: Nepalese exports

c. R1 million, imports from India c. R1.6 million (Regmi 1978: 170).

Despite this, Hodgson, the British Resident in Kathmandu from 1832 to 1843, thought that the potential for development of trans-Himalayan trade through Nepal to Central Asia was enormous and advocated increasing trade between Nepal and British India, ' Without trade outlets their natural occupation is war.' (Sen 1977: 27). He also noted that the Nepalese at this time were still buying Tibetan gold for dealing and provided fine copper for currency. Hodgson argued against the idea of Britain annexing Nepal, and the expense of stationing troops there, in favour of indirect control and Gurkha recruitment to the British forces, as alternatives to their fighting the British (Regmi 1978: 170; Sen 1977: 95). With the increasing import of British goods and the diminution of Nepalese mineral resources about this period, Nepalese dependency on India increased (Robinson 1989: 113).

Nepal - the internal economy

Prithvi Narayan adopted the Newar system of coinage based on a silver mohar standard, with the addition of copper coinage, and gold coinage for special occasions (Walsh 1990: 45, 47). Both central government and local landlords increasingly demanded cash from the population as new taxation was imposed, but were hampered in this effort to obtain more revenue and supplies of metal by the shortage of coinage in the country as a whole. This was particularly so in the rural areas where the nature of the currency used was a further obstacle. Copper slugs, about 25mm. x 15mm. x 12mm. in size, were used as low denomination currency. They lacked a mint mark or an official stamp, and, since copper was a commodity, were often melted down to make objects, thus removing

them from circulation as currency.

In 1772 new taxes were levied on gold, silver and metal household utensils from freehold, *birta*, lands. *Birta* lands are those granted by the state to an individual or religious institution on an inheritable and tax-free basis (Regmi 1984: 227). The holders of tenancy, *jagir*, lands given to government employees in lieu of payments, were obliged to exact payments on mineral products from the tenant peasantry, and to supply central government with arms, ammunition and troops (Regmi 1978: 60-1,63; 1984: 228). Taxes in kind were also occasionally laid on iron, copper, other metals, and cloth on tenants of *pakho* land, that is poorer ground, where rain-fed crops such as maize and millet were grown in the hills (Regmi 1980: 67-8, 84, 156-8). Weights and measures were standardised, and a fee was levied for stamping or hall-marking metal utensils which were exported to India, as with Tibetan trade.

The Nepalese government made efforts to direct trade to particular markets and outlets, *golas*, on the Indian border where sales taxes were levied. For example, after the conquest a tax of 1% of the value was levied on metal goods and others in the eastern Terai. This was abandoned due to the difficulties in collection, only to be revived in 1805. Metals included in this tax were copper, iron and jewellery. In the early nineteenth century, plentiful local supplies of raw materials and the development of skills resulted in a surplus of metalwares for local needs. These wares were thus produced for trading outside the village context, both for regional and for international trade but internal development was hampered by the lack of markets and ecological factors which inhibited co-ordination on a national scale (Regmi 1984: 66).

By 1818, internal trade in the hill regions had so developed that a variety of transit duties were imposed on different commodities but internal economic development remained uneven, and inter-regional trade was always of less importance than international trade during this period (Regmi 1978: 67; Regmi 1984: 118-19, 125, 151ff).

Mining

In the latter half of the 18th century, trade with Tibet and mining provided the bulk of Nepal's revenues. Nepal was largely self-sufficient in copper, exporting it as ingots and manufactured goods to India and Tibet. Neither Nepal nor Tibet imported copper from the EIC until the nineteenth century, when the undercutting of the South Asian market by the British, and perhaps the exhaustion of local Nepalese supplies of copper, resulted in a rapid decline in the Nepalese non-ferrous industry.

After the conquest, Prithvi Narayan recognised the necessity to increase local metal supplies, so, when deposits were found on village lands the people were re-housed elsewhere, with concenssions on the land taxes which the government levied as compensation, to allow mining to take place without hindrance.

Metal deposits were and are widespread in Nepal. The primary obstacle to economical exploitation is that of the terrain. Small deposits of copper are present thoroughout the hills, west and east, but are especially concentrated in the Parbat-Baglung-Gulmi area between the Bheri and Marsyandi Rivers. Iron deposits are especially found in the east, but are also present in the west. Nepal also produced some gold, cinnabar and lead which is present in many places, especially at Lisi in

the east, but became largely dependent on India for lead imports in the early 19th century (Regmi 1984: 54-7).

Mines were traditionally exploited by private individuals from a caste group termed *Agris/Agari*, who paid the government a specified amount of processed metal. Extraction techniques were primitive. In the early nineteenth century mining consisted of openwork grubbing from undrained trenches which flooded in the monsoon. Later a system of lighted galleries angled from the surface was developed but fatality rates remained high. Even so these methods served to produce enough metals to meet heavy domestic demands and exports at this time (Blaikie 1983: 29-30; Regmi 1984: 67-8, 114-15, 124-5).

The Shah government at first instituted a system of contractors to obtain metal supplies in an attempt to overcome the difficulties imposed by the terrain and the dispersed nature of the mines, and special taxes were levied in miners' team leaders. Corruption on the part of contractors and local administrators, who oppressed mineworkers, resulted in a decline in production. The government then brought all mines under direct government management by means of centrally appointed officials. In 1803 the government tried to buy copper on a monopoly basis from all the mines in Nepal, and banned its export and private trade. The state also held compulsory monopolies in procuring and trading other commodities which were used in munitions production, including iron, lead, saltpetre, charcoal and wax. This system persisted well into the nineteenth century with mixed results. In some areas there was a reversion to the contract system, for example about 1806-1810 some Newars held important mining contracts, but lost them soon after (Blaikie 1983: 29-30; Regmi 1978: 180,

161-4; 1980: 163-4; 1984: 104n1, 177; Stiller 1976: 299n16).

Nepal's mines continued to be productive sources of metal despite mis-management, and some European reports to the contrary. In his Account of 1793, Kirkpatrick (1811, 212) reported, ' The copper mines of Nepal formerly yielded an annual revenue of from three to four lakhs of rupees, but owing to the underselling of European copper recently even though it is not of superior quality to the Nepalese ... the copper profit does not now exceed ... at most a lakh of rupees (Some copper mines are now exhausted). Tin, zinc and lead are among the principal commodities exported from the EIC's domains to Nepal for Nepalese or Tibetan consumption ... Gold is obtained from Tibet ... the customs duties between Nepal and Tibet are heavy and arbitrary'.

Kirkpatrick (1811, 209-210) is ambivalent about the skills of Nepalese craftsmen, ' The Nepalese are probably backward in the arts of mineralogy and metallurgy ... The Newars ... are almost the sole artisans (and) appear to be acquainted with an exercise most of the handicrafts of their Behar neighbours. They work very well in iron, copper, brass and c. They export to the southward some of their brazen utensils, and their cutlery (as swords, daggers and c.) is by no means contemptible. The iron of Nepal is not, perhaps, surpassed by that of any other country ... They have latterly manufactured some firearms but not successfully. They gild exceedingly well ... and make bells of considerable size.'

Kirkpatrick's view of the exhaustion of Nepalese copper mines is called into question by Hamilton (1819: 556-75) who records 25 to 40 copper mines and sites present in Nepal, and that copper supplies were plentiful.

Hamilton also noted that Nepal supplied copper and iron etc. to Purnea, and imported Bengali iron and vessels of brass, copper and bell metal (Sen 1977: 26). Other Europeans such as Hodgson, Oldfield and Smith also reported that Nepal was producing quantities of high quality and copper later in the 19th century (Regmi 1984, 67-9), which served to meet domestic demands, including the large-scale production of munitions, and provided for export in both crude metals and manufactured artefacts (Regmi 1979, 38-45).

Nevertheless there was a decline in Nepal's mining industry in the early 19th century. One of the major factors causing this was increasing militarisation: the standing army of 10,000 in 1816 was increased to about 30,000 by 1839 (Husain 1970: 44). This cost, along with the large scale export of metals, and increasing local consumption of copper for coinage, all had a draining effect on Nepal's mineral resources. This was compounded by a persistent lack of development in techniques of metal extraction, production and collection from remoter areas. Mining became reduced in significance in the Nepalese economy (Regmi 1978: 68, 161-4, 180; Stiller 1976, 296), although even in the mid-19th century Nepal was still self-sufficient in munitions due to its own supplies of iron and copper, and Patan and hill towns such as Pokhara, Tansen, Dhankuta, Bhojpur and Chainpur were renowned for their metalwares (Regmi 1984: 213-4). The collection of metals from remoter areas remained difficult. The porterage of mails, metals and munitions was done by forced labour, *hulak*, in lieu of a labour tax to central government. Many *hulak* porters were drawn from the blacksmith caste group (Regmi 1978, 104-5, 164). The government also tried other methods to obtain revenue from metal supplies

during this period. Sales taxes were imposed on manufacture and commerce in local iron and copper products, jewellery, borax, wax, saltpetre and lead (Regmi 1984: 177).

Fuel supplies also came under state control. Charcoal in the Nepalese context was essential to metalworking, and was thus of vital importance to the state. The forests of the middle hills supplied wood for making charcoal locally, since it was too expensive to transport timber (Regmi 1984, 54-6). In the 18th century, charcoal and ironwares were supplied by Kamis to the government on an ad hoc basis according to the jihara system of casual unpaid labour for the state, then, as the demand for steady supplies increased with the expansion of munitions production in the Valley, the government required people of specified villages, notably Kamis, to supply charcoal and ironwares, either at concessional prices or by compulsory, unpaid, regular labour, *rakam*. Kamis also provided charcoal and ironwares to the Royal households as well as to the civil and military government's munitions factories in Kathmandu and Pyuthan (Regmi 1984: 87, 106, 164, 168-70).

Social re-organisation: the craftsmen

Where communities which were not traditionally divided by caste occupations were brought under Gurkha rule, they were subdivided along caste lines with peoples being assigned to places in this structure, although blacksmiths, Kamis, retained a monopoly in their occupation. Gurkha expansion encouraged the movement of occupational castes such as blacksmiths, *Kamis*, to settle in areas where they had formerly been few or absent. In the east, the Limbus welcomed such immigration, and Kamis

established relationships with particular households among the Rai (McDougal 1979, 68-9). In rural areas Kamis produced both ferrous and non-ferrous artifacts. After the conquest they faced Newar competition in the production of ferrous wares (Regmi 1978: 53; Seddon 1979: 86).

Political centralisation and militarisation had social effects, in terms both of the co-operative nature of labour and the mobility of craftsmen. ' The strategic needs of the State, for copper, iron and charcoal, outweighed its needs for cash revenue ...' (Regmi 1984, 213). Mining and munitions production in various parts of the hills, like other forms of labour, became subject, about 1800, to government demands for compulsory, unpaid labour, *jhara*. The adult male population was required to meet these demands according to its caste and occupational status, for example Newars and others of suitable caste status were required to work as miners by government directive (Blaikie 1983: 29; Regmi 1978: 104). Miners, woodcutters and porters were needed for the manufacture of gunpowder, and gunsmiths for the manufacture of flintlocks.

The copper and brass industries demanded the co-operative activity of various elements of society, including artisans, porters and farmers. Labourers and artisans employed as smiths, charcoal makers and in temple building provided their own tools and food and also worked under the *jhara* scheme (Regmi 1978: 106-110).

Whilst central demands for labour and resources led to some stagnation in craft production (Zivetz 1992: 54), there was also a process of diffusion of crafts as local governors took Newar craftsmen from the Valley towns to help develop their own regions. Taksar near Bhojpur in eastern Nepal was settled by Sakya Newars from Patan as part of this

process about 1817 (Dunsmore pers comm). A system of mini-courts in the hills was thus re-established under the aegis of a central government, and culture spread from the centre to parts of the periphery.

Governmental interference and heavy taxation, as well as the wider peace which it imposed about 1800 drove increasing numbers of small scale manufacturers, craftsmen and traders out of the Valley during the 19th century. Newars moved out of the Kathmandu Valley and founded settlements and towns such as Pokhara and Tansen in the west, and at Okhaldunga, Taksar, Dhankuta and Chainpur in the east. Newars thus took over the production of domestic wares from Kamis, and substituted cash for payments in kind, in the rural Hill regions (Seddon 1979: 86-7). The Newar diaspora, which has continued into the 20th century, was part of a wider, massive migration of Nepalese peoples into Sikkim, Bhutan and north-east India from the late 18th-early 19th century onwards.

Craft products

Regional differences in the forms of common artifacts developed, for example western brasswares from Sallyan and Piuthan were made by Sunwars and Kamis and differ from those made by Patan craftsmen and their descendants. Kukris show a similar variation in styles between western and eastern Nepal. Despite the heavy demands of the army for weapons, especially kukris, and munitions, Nepalese production also met domestic demands for agricultural implements and household utensils. Non-ferrous wares were produced at renowned centres including Pokhara, Dhankuta and continued to be produced in the Valley towns (Hamilton 1819, 232).

Following the conquest of the Kathmandu Valley and the unification of

Nepal under the Shah dynasty, there was some employment of Newar craftsmen (probably Hindus from Bhaktapur) on temple building, and Prithvi Narayan Shah made some efforts to encourage the Nepalese to produce their own craft articles. More generally, the loss of patronage of Newar figure makers after the conquest resulted in their turning to production for the Tibetan market. Distinctions between Newar and Tibetan styles were thus reduced if not lost (Pal, 1985: 38; Snellgrove 1978: 343).

At the same time, the Newar diaspora and their employment by regional governors resulted in a wider spread of craft skills throughout Nepal. This situation still holds today. Also the demand for metalwares rose despite the lack of local supplies of metal and the growing necessity to import metals later in the century.

Rana period 1846 - 1950

Nepalese politics in the 19th century and up to 1951 was characterised by the rule of Prime Ministers who dominated the monarchy. From 1806 - 1839 Bhim Sen Thapa ruled in this manner, then, from 1846 the Rana family. Factionalism was a persistent feature, along with intrigues against the British in India in the early 19th century (Husain 1970, 40-2). Crafts generally declined, including metalworking, although this generalisation must be qualified. Again I briefly discuss Nepal's political process and its international relations in order to contextualise metalworking during this period.

In 1846 Jung Bahadur Rana usurped power from the King of Nepal, and

for the next century the Ranas became a powerful aristocratic family which ruled Nepal, with their leader taking the titles of Maharaja and Prime Minister. The kings were rendered into puppets and the country treated as the Ranas' private estate. ' Senior military and administrative posts were reserved by prescriptive family right ... (for) the top Ranas (who) were fabulously wealthy and lived like medieval princes'(Maude 1966, 68), ruling as an ' autocratic oligarchy' (Rahul 1985, 32). Jung Bahadur ruled from 1846 until 1877, and centralised decision-making and power on himself. In 1854 the Muluki Ain re-codified customary law based on Hindu and Buddhist concepts to facilitate this centralisation (Rahul 1985, 30; Robinson 1989, 379-80).

The Ranas continued the policy of restricting European influences generally in Nepal, especially from British India, whilst maintaining cordial relations with Britain. To assess Britain's power Jung Bahadur visited England in 1854. He was welcomed by Queen Victoria and returned greatly impressed. In 1857 Jung Bahadur sent troops to help the British restore order during the Mutiny. Warm relations between Britain and Nepal persisted after this, although Nepal's isolationist policy towards Europeans persisted (Uprety 1980, 202ff). Although the Ranas' control of access to Nepal was successful on the ground, the overall econmic dominance of British India grew, and during the later 19th century, the British moved from regarding Nepal as an independent country to regarding it as part of the Indian Commonwealth.

During the Rana period, Nepalese-Tibetan relations continued much as before, that is the two countries struggled for control of trans-Himalayan trade, with Tibet, under Manchu dominance, pursuing a similar isolationist

policy towards European interests.

In 1855 the Nepalese again invaded Tibet over the longstanding issue of the Tibetan mistreatment of Nepalese traders in Lhasa, and the control of the Kuti and Kerong passes. The peace treaty which followed favoured Nepal. Newars and other Nepalese resident in Lhasa were exempted from Tibetan taxes, and were to be tried by their own magistrates. At this time there were Newari communities in Lhasa, Tse-tang, Shigatse, Gyantse, Lhatse and in Kong-po province and Kham (Bell, 1928, 118-120). Tibet was also to pay an annual tribute of 10,000 rupees in return for Nepalese military aid ' if the troops of any other Raja invade that country'. Both sides acknowledged Chinese suzerainty (Rahul 1985, 30-1), but military aid was never in fact given to Tibet by Nepal.

Relations between Nepal and Tibet deteriorated between 1880 and 1900. In 1883 a mob of monks from the main monasteries around Lhasa attacked and looted the shops of eighty-three or four Nepali merchants and their families who were resident in Lhasa. This spurred the production of armaments in Nepal and the purchase of rifles from India in preparation for another invasion of Tibet. After the issue was settled by an Agreement, the Tibetan government paid an indemnity to the Nepali traders in Lhasa in recompense (Uprety 1980, 99-100). Nepalese-Tibetan relations continued to fluctuate well into the twentieth century.

Although British hopes of gaining major gold resources in Tibet appear to have ended in the 1870s (Uprety 1980, 163-9), nevertheless British interest in access to central Asian markets, led to persistent attempts to improve trade both with Nepal and Tibet. During the last quarter of the nineteenth century, the British built railways along the

southern border of Nepal. This helped develop Indo-Nepalese trade, and some Indo-Tibetan trade through Manang in west central Nepal (Blaikie 1983, 124-5) but mostly siphoned off Nepalese-Tibetan trade by bypassing Nepal in favour of the trade route from Darjeeling and Kalimpong through Sikkim and the Chumbi Valley to Gyantse and Lhasa. This route was controlled by Indian merchants. Indo-Tibetan trade passed through various parts of the Himalayas, largely through Nepal and Ladakh, with some through Bhutan and Assam.

In 1890, Britain made a Treaty with China, recognising Chinese suzerainty of Tibet. This treaty further undermined the Nepalese monopoly on trade with Tibet and led to a decline in the number of Nepalese resident in Lhasa. The 1890 treaty did not succeed in increasing the volume of Indo-Tibetan trade, and the British remained divided on its value. Central government in Britain wanted to expand trade into Tibet and central Asia generally in the late 19th century but this aim was opposed by many local British officials in India, who regarded Tibet as an unimportant market for British and Indian products (Grenard 1897, 297 ff; Sen 1977, 124, 126ff).

Sino-Tibetan closure of the new Darjeeling-Lhasa route through Sikkim stimulated a response from the British. In 1904 the Younghusband Expedition to Tibet finally forced open the Indo-Tibetan route through Sikkim. Chandra Shamser Rana of Nepal gave assistance to the British in this affair. A British Resident was appointed to Tibet. Following this there was a steady growth of Indo-Tibetan trade via Sikkim during the period 1900-1921.

Relations between Nepal and Britain continued to develop, without the

British gaining significant access into Nepal. In part this included drawing on Nepalese manpower. As well as recruiting Gurkha soldiers, the British also recruited labour. Between 1870 - 1900, some 700 - 750,000 Nepalis and hill Indians became farmers and labourers for the tea plantations in Sikkim, Assam and Bhutan (Wolf 1982, 369). Nepalese out migration was perhaps also fostered by rural mismanagement and by natural causes: from 1863 to 1865, there was famine in the Valley and several hill regions. Out-migration from Nepal continued. By 1920 Nepalis outnumbered the local Lepchas and Sikkimese in Sikkim (Bell 1928, 6), where Newar craftsmen produced metalwares for Tibetan and Indian markets. Nepalis also spread into lowland Bhutan and Assam. In part this helped relieve the increasing population pressure in Nepal which occurred from 1900 - 1930. This rise in population led to local social changes and critical pressure on land. Local shortages of cash to buy essential items and pay taxes, led to a considerable disparity between upper castes and untouchables. Members of lower castes and tribal groups such as the Rai and Limbu migrated out to India to find employment (Caplan 1972).

Metalworking in the Rana period

Under the Ranas, who appear to have been seduced by things European, Nepalese handicrafts generally declined (Gimlette 1886, 1890-1), with figurative metal art in 'rote production' (Alsop 1989, fig 92) during the 18-19th centuries. Tantric representations of Buddhas and Bodhisattvas were usually commissioned as commemorative figures for family altars. Some fine metalwork was produced during the Rana period, and was exhibited in London at major exhibitions, for example in 1851 bells were displayed

and admired, perhaps in the Great Exhibition (Smith 1852, 149); and in 1886 wares were displayed in the Colonial and Indian Exhibition (Gimlette 1886, 1899).

Conspicuous consumption was a feature of Nepali rulers (Blaikie 1983, 30). This was largely fulfilled by importing European-made goods rather than patronising local craftsmen. During the second half of the 19th century, the demand for cheap, imported manufactured goods, first by the upper, and later, by the lower classes in Nepal led to the decline of rural handicrafts which persisted until recent times. Metalworking was the exception. Although Tansen declined, Pokhara continued to be renowned for its annual fair and its copper wares. Metalwares enjoyed a growing local demand, especially in goldworking for jewellery (Blaikie 1983, 124; Macfarlane 1976, 26; Seddon 1979, 180-3; Shreshtha 1981, 117-18).

By 1900 Nepali copper production was barely enough to meet home consumption as the mines became exhausted or uneconomical. Both the copper and iron industries failed about this time due to the lack of technological development in Nepal, and competition from foreign sources (Karki 1983, 275). Nepal increasingly imported sheet copper from British India, and most exports now became agricultural and forest commodities in exchange for manufactured goods from India, which gave monopoly control to the British (Lo Bue 1981, 39; Rana & Malla 1973, 219-220). The Nepalese government still claimed monopolies in metalworking and its associated products, for example in 1893, the village of Thecko near Patan/Lalitpur supplied 250 tons of charcoal per year to the government (Regmi 1984, 166).

In 1923 a trade treaty between India and Nepal gave monopoly control to the British, which led to a major increase in trade with virtually unrestricted access of manufactured goods into Nepal. These included sheet copper, and alloys, iron, guns, copper and brass ornaments, guns and mass produced utensils. This led to a further decline in Nepalese handicraft and cottage industries (Gajurel & Vaidya 1984, 16-17; Lohani 1973, 204-5; Seddon 1979, 25-6; Uprety 1980, 197). By the 1930s brass and copper workers in Pokhara and Tansen were suffering from rising prices for imported raw materials and competition from Indian and other foreign manufactured goods. Instead of the traditional use of copper and brass for domestic utensils other metals came to be used such as stainless steel for the affluent, and aluminium for the poor. The increasing use of these mass produced wares from India led to the collapse of the economy of some metalworking towns (Blaikie 1983, 126; Seddon 1979, 87, 183, gives lists from Landon, 1928,161; Tilman 1952, 19).

Although handicrafts probably declined between the wars, decline was not uniform. Despite commercial disputes, Nepalese exports to Tibet continued to rise at this time (Bell 1928, 32), and continued until the closure of the Nepal-Tibet border following the Chinese invasion of Tibet in 1950. The Nepalese government also made attempts at organising the metal industry in the first half of this century. In 1929 the Khani Goswara (mines Office) was established and explored for minerals with the help of British expertise (Blaikie 1983, 37), but the ironworkings in Those, and the copperworkings near Baglung were closed by government decision.

Where skills were lost their loss was apparently rapid, for example

during the 19th century there were mines and a mint at Baglung in west-central Nepal and the local people, Gurungs, had the reputation of being ' diligent miners'. Yet Macfarlane (1976, 35) reported that there were no traces of mining in the area of his fieldwork among the Gurung. It is possible that they were confused with a neighbouring people, the Chantel or Poon/Pun Magar of Dhaulagiri Zone who were noted copper miners until the government closed the mines near Baglung in 1930/1 (Michl 1974, 222). A further example is perhaps provided by Okhaldunga in eastern Nepal. This was a renowned copper mining centre where Newars from Bhaktapur settled and mined under government licence during the Rana period. In the same locality there was a solder, *sisa*, mine, an iron mine and possibly a gold mine. Local people, Rais, Gurungs, Sherpas and Kamis were not employed in these mines and were often ignorant of their location and even existence. The earthquake of 1934 largely ended mining at Okhaldunga and the last mines closed about 1970. A few people are still allowed to extract metal on payment of a government tax, for example some Newar non-ferrous workers in Bhojpur (1984) extracted copper supplies. In extenuation one should note that, apart from the exhaustion of metal deposits, economical mining in Nepal is inhibited by the recurrent, practical problems of internal communication. Modern roads are regularly damaged each year in the monsoon. In the 20th century the government has tried to organise the metal industry, albeit with mixed results. In 1941 the Bureau of Mines was established. Such development has been continued in the recent period.

In 1947, Nepal had no relations with any other government except Britain, and was effectively a deliberately isolated, British protectorate

despite the 1923 Treaty of Independence (Maxwell, 1972, 53). In 1951 the social structure was still feudal in character. Although the country was self-sufficient, most of the population had only a low standard of living. There was no economic development and the Rana treasury was empty (Johnson 1983, 36-7; Varma 1972, 101).

Chapter Four

THE POLITICAL ECONOMY OF NEPAL 1951 - 1991

Nepal is one of the five poorest countries in the world, and the poorest in Asia before Laos, with a zero growth rate. The caste system, and thus the hereditary basis of crafts, has been legally abolished. My question in this chapter is, what is the status of metalcrafts in the modern context of Nepalese society ?

The Nepalese economy is based on agriculture, a small industrial sector and earning foreign exchange by means of remittances, foreign aid, the sale of hydro-electric power, international trade and tourism. Metalworkers are employed in the manufacture of agricultural implements, in trade and industry, and in the tourist trade. In this chapter, after an outline of the main political events, I discuss the role of metalworkers and their products in some of these sectors of the economy of Nepal from 1951 to the present. A subsequent chapter discusses tourism separately.

Political overview

In 1951 the Ranas were deposed, although many remain influential, and the monarchy restored, with the help of the Congress Party of newly-independent India. A popular government led by the Nepali Congress Party

was formed but failed to unite the country, so the king assumed dictatorial powers in 1952. A General Election in 1959 was characterised by factionalism and public disorder, attributed to left-wing elements in the Indian Congress Party exerting undue influence in Nepal. Indian troops moved in to retore order and in 1960 King Mahendra again dismissed the government and took over direct rule.

In 1962 the Panchayat system of government was introduced: the King, as head of state was assisted by a Prime Minister and a National Panchayat of 125 members drawn from various organisations and parts of the country. This system was equally subject to factionalism and over-ruling by the king.

The Local Administration Act of 1966 divided the country into 14 Zones and 75 Districts. Zonal Commissioners were appointed by the King to keep check on the loyalty of officials and others. Political 'undesirables' were filtered out of any office (Dunsmore pers comm 1992). Five areas were designated as Development Regions, with Directors and some professional staff but these had no executive authority and there was no elected assembly. The Constitution of 1967 declared Nepal a ' monarchical Hindu State'. The King remained the supreme judicial and legislative authority and customary laws were recognised to avoid problems with minority groups (Robinson 1989: 380).

Monarchic rule and the Panchayat system persisted until, after a series of demonstrations in 1990 sparked by events in eastern Europe and elsewhere, the king agreed that a General Election should be held in 1991. As a result, two main political groups: the Congress Party and a variety of Communist opposition parties, now hold power with the king as

constitutional monarch. A degree of political tension remains present.

I have not studied the role of metalworkers in the political system but offer the following notes. The Nepal Rastriya Dalit Jana Vikash Parishad (Dalit) association aims to improve the working and living conditions of the lower classes in Nepal. In an analysis of the membership of the association in west-central Nepal, Seddon (1978: 212-13) indicates that of a total of 101 members, goldsmiths numbered 15, and blacksmiths one. Some unionisation has occurred, and my own fieldwork indicates that political office may have some connection with successful business activities among metalworkers. For example the Secretary of the Metalworkers Union in Patan (1981) has had opportunity to exhibit his wares abroad, and the Secretary of the Metalworkers Union in Chainpur (1984) now has a retail outlet for metalwares in up-market Kathmandu.

In external affairs Nepal became engaged in a process of trying to balance Indian and Chinese influence. After the restoration, Nepal applied for economic aid under the Colombo Plan, and as part of this deal was obliged to open its borders to the outside world. India and Nepal made a Treaty of Peace and Friendship which allowed their nationals to participate in each others' industrial and economic development (Article 6) with the same privileges of residence and participation in trade and commerce (Article 7) (Rahul 1985: 94-5). From 1952 onwards India gave military and economic aid to Nepal, and completed the first road between Kathmandu and India in 1956. China, by this time occupying Tibet, also recognised Nepal's strategic position and provided economic aid from 1956 onwards. The effects of Chinese aid were compromised by the closure of the Nepal-Tibet border following the Lhasa uprising in 1959 and the subsequent

flight of the Dalai Lama and some 80,000-100,000 Tibetan refugees. The Dalai Lama and his government still remain in exile in Dharamsala in northern India, whilst the refugees are dispersed in settlements in Nepal, India and elsewhere in western Europe and the United States.

In 1961 Nepal agreed a disputed border with China, and reduced the Tibetan guerillas fighting from Nepalese territory, although the Khampas of Mustang were not finally disarmed until 1974. The Sino-Indian war of 1962, and the Chinese built road from Lhasa over the Kodari Pass to Kathmandu, completed in 1967, caused Indian anxiety for its own security and Nepal has tended to be drawn more within India's orbit (Kuhn 1962: 217; Maxwell 1972: 391).

Ecological overview

Metalworkers are drawn from less than five percent of the total population of 19.6m (1991 Census). Ninety percent of the population are village dwellers engaged in agriculture, ten percent are town dwellers. Urban dwellers are increasing in number as agriculture fails to support the rising population. Other than agricultural produce, jute and natural products, Nepal has little to export. Although Nepal's hydro-electric schemes produced 18% of consumption in 1984, one should note that most energy consumed in Nepal is ' living' in nature, that is it is furnished by human and animal power (Robinson 1989: 285).

Even where data is available, figures and interpretations about the ecology of Nepal vary widely (Thompson 1986). Only a portion of the total area of Nepal is suitable for cultivation (figures vary between 10 - 30%) since the mountainous terrain leads to a shortage of viable

agricultural land, apart from in the Terai. Altitude and aspect affect the suitability of land for cropping. Generally speaking, crops are grown up to the altitude at which clouds hang during the monsoon which limits available sunlight, to an upper limit of about 4,200m. Summer grazing is carried out above the timberline up to 5,000m. Successful hill farming depends on having appropriate ratios of arable, grazing and forest land to maintain soil fertility. In Nepal, this requirement is compromised by a number of factors.

The variability of the monsoon from year to year renders agricultural production without irrigation uncertain, as in the rest of the Indian sub-continent. Annual rains lead to landslides, flooding and loss of life, and render communications difficult. Nepal has one of the lowest ratios of road mileage to surface area of any country in the world. In 1951 there was only one road, from Kathmandu to India. Today there are 1500km of metalled road, 360 km of gravelled road and 1500 km of fair weather tracks. Communication difficulties still lead to regional food shortages, despite relatively high national production levels.

The population density of Nepal is estimated to be one of the highest in the world and is rising: 1225 persons dependent on each square mile of arable land (Davis 1975) or 1,950 per square mile (National Land Use Planning Project 1981), again estimates are variable (Deutschle 1986, 273; Fisher 1987, 53, 62; Gurung 1989, 15; Shreshtha 1990). Population growth between 1971-1991 was 2.7% per annum (1991 Population Census; Poffenberger 1980: 1). This growth, with its subsequent pressure on limited land supplies is one of Nepal's main problems, and has led to some redistribution. In 1981 population distribution comprised: 8.7% in the

Mountains; 47.7% in the Hills; 43.6% in the Terai. The current population in the Terai is higher. It is estimated that the population will rise to 24 - 25 million by 2,000 A.D. (Dunsmore 1988, 133; Gurung 1989, 299).

Most land suitable for arable cropping in the mountains and the hill areas is already under cultivation. Forest clearance and terracing up to hilltop level in some parts of the Hills has led to soil erosion and a subsequent loss of agricultural land. De-forestation has occurred in particular areas for some time due both to local domestic needs for fuel and to external commercial interests, for example Indian commercial loggers deforested the area around Jumla in the Karnali Valley in western Nepal in the early 1950s (Bishop 1978), whilst firewood had to brought into the Kathmandu Valley from up to 80 miles away in 1961. De-forestation of parts of the Terai, one of Nepal's last major forest resources, has occurred since the construction of the East-West highway (Panjiar 1991; Rising Nepal, May 1, 3, 7, 9 1991). Urbanisation, tourism and enclosure by the government also affect this resource. There are opposing views on the degree and results of de-forestation (summarised in Thompson 1986). One view is pessimistic, perhaps 50% of forest cover was lost in 1960-70 (Gurung 1989: 223). Kerosene for cooking is now regularly imported into the Kathmandu Valley from India, and farmers and craftsmen in several parts of Nepal: Gurung and Sherpa areas, Karnali and Arun valleys, report shortages of firewood.

A more optimistic viewpoint appears to be supported by the results of the Land Resources Mapping Project undertaken by Canada. This report, based on the most comprehensive national study of land use, does

not support the thesis of massive de-forestation since the 1950s except in the Terai (Dunsmore pers comm 1993). There has been considerable thinning of forest but a large amount of tree planting on private land. In some areas such as the Kosi Hills terraces are abandoned to recuperate under natural regeneration. My own observation is that there is still considerable forest cover between Jumla and the Terai. Generalisations about Nepal, as usual, are difficult to make. One may observe that, apart from its effect on the general population, de-forestation has a direct effect on the metalworkers of Nepal by rendering fuel supplies for charcoal in increasingly short supply. The raw materials for metalworkers are also increasingly expensive, with Nepal's mineral resources either lacking or underdeveloped, craftsmen now rely primarily on imported metals and local scrap.

Rural economy

Nepal has a dual economy based on a rural-urban divide (Shreshtha 1990: 37-9). Primarily the economy is based on agriculture. Over 90% of the population are small-scale subsistence farmers in rural settlements, who produce crops for their own subsistence or for local markets, including rice and a number of other crops, fruit, vegetables, animal and natural products. Large scale plantation and commercial farming for an international market are inhibited by distance and a poor transport system. Agriculture, with forestry and fisheries provides about 56 - 60% of the GDP (Dunsmore 1988: 133; Hagen 1980: 177-208; Gurung 1989: 195; Cole 1972: 147; Robinson 1989: 263).

Cultivation is predominantly by plough where possible, hoe and shovel. Formerly, hoes rather than ploughs were used in the intensive cultivation of the Kathmandu Valley, now rotovators and small tractors are also in use there. In the Kathmandu Valley, the blacksmith castes: *Kami*, and the Newar *Kow*, supply and repair agricultural implements, whilst iron household utensils are increasingly replaced by imported utensils (Nepali 1965: 50). In the rural areas agricultural implements are largely made and repaired by Kamis. Opinion is divided on the physical means to improve production. Macfarlane (1976) argues that the agricultural technology of the hill peoples is appropriate, whilst Blaikie (1983: 49-51) argues that the development of agricultural technology should be promoted. The ' vast rural sector' is characterised by low production, under employment, poverty and inequality, as is common throughout much of Asia (Kirby 1967, 227; Robinson 1989, 393). Agricultural methods are ' primitive' and the ' land ... is, for all practical purposes ... fixed ... small farmers and tenant cultivators cannot adopt any improved methods of production due to the low margin, if at all, of production over consumption.' (Shreshtha 1990: 64, 68, 75; Schwartzberg 1978). Gross production of food grains per head fell from 300 kg in 1971 to 250 kg in 1986 (Dunsmore ibid).

The increasing accumulation of idle labour on the fixed land resource of Nepal is a continuing problem. There is an estimated surplus labour force, rural and urban, of 4.5 million per annum (Shreshtha 1990: i-iii). Whilst industrialisation and modernisation are over-emphasised, no measures are taken to change the structure of the rural

economy and economic growth is unlikely whilst Nepal maintains such a huge labour surplus without employing it elsewhere in the economy. Dunsmore (1987; 1988: 133-4; 1992 pers comm) argues against aspects of this view: agricultural production can be increased by means of irrigation, either the rehabilitation of existing or abandoned schemes or by new schemes, and by soil and water conservation, improved animal nutrition and health and the use of improved cultivars. Although progress would be slow initially, these measures would eventually give results. Dunsmore observes that the government has made structural changes to develop agriculture and other sectors of the economy, and that there is potential to increase agriculture in the Terai and, less easily, in the hill and mountain areas.

Land tenure and social inequality

Land holding is the major means to status and power in Nepal. Land tenure and inequality, a marked feature in Nepal's stratified society, form major social contraints on the economy. During the Rana regime, Nepal was treated as a number of larger and smaller estates held by the nobility, land was granted to government employees in lieu of salaries and corvee was levied.

Planned economic development for the benefit of the entire population only started in Nepal in 1951. Re-distribution, notably land reform, was seen as a key factor in development, to reduce social inequalities and provide incentives for the people to develop the economy.

Since 1951 the Nepalese government has tried a number of internal

reforms. Large estates were abolished and rents were fixed at 50% of the crop with a 10% maximum interest rate (1958); all individual, *birta*,holdings were converted into state, *raikar*, lands (1959), and the size of landholdings was fixed (1964 and 1968). These measures have been largely unsuccessful. In 1961, the bottom 47.6% of households owned 10% of the land, whilst the top 8% owned 40% of the land. About 50% of households farmed less than half a hectare, and 15% of the cropped area was held under tenancy agreements. In the Terai, which had seen clearances and the development of cultivation by 1972, 88% of households held less than 15% of cultivated land, whilst the top 3.4% of households owned 47% .

The Land Reform commission controls agricultural rents and interest rates, and prevents evictions, except in cases of unpaid rents or when land is left idle (Patterson 1969: 60). Government loans are available to help farmers but are often refused due to the daunting interest rates, about 18%, and awkward repayment dates. Loans usually go to elites who often do not repay them. The Nepalese government has had a continuous policy of encouraging Nepali speaking Hindus, Brahmins and Newar Shreshthas to settle and cultivate lands formerly held by tribal peoples. Such peoples, especially where they also function as moneylenders and foreclose on locals, gain legal title to land. This policy has tended to erode the economic base of peoples such as the Newars, Magars, Rais and Limbus (Caplan 1970; Maloney 1974: 474-5).

The disparity in landholdings remained in 1982. Larger landowners cultivate the best land, while most small peasants depend on remittances,

small businesses and off-farm employment as porters and seasonal migration to provide additional income. Tenant insecurity and absenteela ndlordism is endemic in the system (Dunsmore pers comm 1993; Johnson 1983: 91; Robinson 1989: 273-4).

Social inequality is evident in income and consumption patterns. In 1966 the per capita income was US$99. In 1975-1977 35.3% of the total income went to the top 5% of the population, and 4.6% to the bottom 10% (Robinson 1989: 392; Johnson (1983: 202) states that 50% of the national income goes to 13% of the population). In the 1980s the top 20% of the population consumed 59% of the GNP. In 1988 the average per capita income was US$160. In Kathmandu in 1991 when the NR was undergoing devaluation, average monthly earnings were about NR1,000-1,500 per household with the costs for food and rent about NR250 per week. The average daily intake is 1900 calories, that is 80% of what is advisable. (Enc. Britt. 1976: VII, 258; Johnson 1983: 178; McGowen 1988; Wilson 1972: 153, 156).

Varma (1972: 112, 119, 124-5) argues that high consumption of local and foreign goods by Nepalis, which is due to the adverse example set them by expatriates and tourists, inhibits investment. This would appear to be special pleading since the resources of Nepal were also consumed, conspicuously, by its elite during the Rana regime (Blaikie 1983: 30), and, as indicated above, only a minority of Nepalis enjoy high consumption. There are also institutional and attitudinal constraints on development. Senior management often fails to make use of the new skills acquired by trained, especially younger, personnel (Dunsmore pers comm 1992).

Patron-client relations, and the caste hierarchy gave certain groups disproportionate control over power and resources, foreign aid also tends to be diverted from its original destinations, and limited education and a lack of skilled labour generally hinder economic development (Panjiar 1991: 23). ' Low income developing countries face problems of low production and inequitable distribution. In Nepal there are indications of a widening gap between the small, urban elites and the vast rural masses - the development strategy is inadequate.' (Shreshtha 1990: 17-18).

Economic development

The Five-Year planning process inaugurated in 1956 continues to the present. State intervention in the economy, according to rational policy, planning and co-ordination, or development from the top-down, thus stands in contrast to the tributary principle which operated before 1951. The minimal infrastructure: social, political and economic, has meant that, ' in almost every field development has (had) to start from scratch' (Johnson 1983: 48).

There has been a total expenditure of NRs. 84,247 million on development during the period 1956-1990. Foreign aid financed over 50% of this amount, and forms the largest source of income for Nepal, but has failed to fuel development in many aspects of the economy. Starting from 1951, when India, China, USA and USSR were the main donors, the number of donors has increased, with 17 bilateral, 21 multilateral and over 50 international non-Governmental Organisations donating to Nepal in

1990. Up to 1988, NR3,007 million in direct investment had been donated for 82 projects (Agrawal, G.R., in Rising Nepal, May 1, 1991, 4). Foreign aid increased from 2.6% in 1966 to 9.3% of GDP in 1990, and has played a major role in financing Nepal's trade gap.

Despite this injection of funds, Nepal has a growing resource gap. In 1981 this was Rs. 1,673 million, in 1990 it was Rs. 9,629 million, a six-fold increase in ten years. Foreign aid financed 60% of this gap in 1987 and is expected to finance 83% in 1991. Nepal increasingly plays a debt-servicing role and now owes about US$1.3 billion, some 43% of the national income. The utilisation of foreign aid has several problems including the ' tradition of receiving kickbacks, choice of projects, expensive technology and weak co-ordination ... commissions and organised graft ... tended to create a form of racket' (Rising Nepal, Leader, 3.5.91). In South Asia, only Bhutan is more dependent on foreign aid than Nepal.

A certain degree of pessimism about the future of the Nepalese economy is apparent (Dutt & Geib 1987: 216-17; Johnson 1983: 24, 222-3; Poffenberger 1980: 103-5). Blaikie (1983: 3-24, 49-51) argues that from the 19th century onwards an archaic tributary state which supports a small aristocracy based in Kathmandu, has failed to change its structure to cope with the evident crisis in Nepal's ecology and economy. Gurung (1989: 291) states, '...the aftermath of ... development has been one of increasing poverty (due to)...poor performance in the agricultural and industrial sectors'. One should note that the government has made attempts to improve the economy through rural development schemes but has been hampered by the huge rise in population which makes increasing

demands upon the ecosystem.

The Nepalese economy, which has a zero growth rate, may thus be viewed as a ' dependency culture, or as ' an emerging economy' comparable with Ethiopia, Bolivia and New Guinea (Varma 1972: 112). The economic development of Nepal is largely dependent on India. One of the few things which Nepal could sell to India to repay debts is hydro-electric power. Several barrages have been built but are proving difficult to maintain, and India does not want to depend on Nepal for power.

Nepalese responses to a lack of economic development have included labour migration in various forms. This has been a longstanding feature of the Nepalese economy. In the later 19th and early 20th centuries, Nepalis provided a large part of the labour for the development of the tea industry in north-east India, worked as coal miners in Bengal and Bihar, formed most of the peasantry of Sikkim and lowland Bhutan, and Newar metalworkers produced artifacts for the tourist trade around Darjeeling.

In 1941, there were 82,000 Nepalis resident abroad, in 1981, 403,000. Since World War II, there has been marked internal, north-south, lifetime migration from the Mountain and Hill regions to the Terai and India. A counter-flow of migration has occurred with the settlement of some 400,000 Indians in the Terai and increasingly common intermarriage across the Nepal-India border. Since the Terai, despite the diminution of malaria and forest clearance, could not support this shift of population there has been a further drift to the towns (Bell 1928: 207; Dani 1991: 151-2; Gurung 1989: 101, 219; Kuhn 1962; Shreshtha 1990: 27-8, 82).

Military service in foreign armies has been a feature of Nepalese society since the early 19th century, when ' Gurkhas' from the hill tribes and Chetri caste were recruited to regiments in the British Indian Army. In recent times such regiments have also formed part of the forces of the Indian Army since independence, the British Army and others in Brunei and Oman; and in the Singapore police. Military pay and pensions are major and essential sources of income today, especially for the hill tribes, although Gurkha regiments are now facing massive cuts in view of the general economic recession and changing political circumstances (1991). Ferrous metalworkers continue to supply such regiments, as well as the Royal Nepal Army and police force with their primary sidearm - the kukri. One consequence of cuts in Gurkha recruitment is the closure of the Dharan military cantonment and its kukri-making workshop. Precious metalworkers, that is goldsmiths also serve military personnel by manufacturing jewellery around the sites of the main camps.

Urbanisation

Some sections of the population have also migrated to the towns to seek employment. The urban economy is newly emerging, well developed with a physical infrastructure, administration and banking, monetised with a free mobility of resources. Ten percent of Nepal's population are urbanites, and the annual rate of urbanisation is 8.4% (Robinson 1989: 373-4). Nepal now has the highest urban growth rate in SAARC (Panjiar 1991: 20-3).

Urban centres in south Asia generally were formed around fortresses and commercial centres. In Nepal, historically, this has meant the urban

centres of the Kathmandu Valley. Large urban centres in the Terai such as Biratnagar, Birganj and Nepalganj are a more recent development, whilst the development of the Kathmandu Valley is itself atypical of the country as a whole (Gurung 1989: 32). In Nepal the city economies are under industrialised. An affluent elite indulge in conspicuous consumption, especially of goods and services with a high foreign exchange content, whilst under-employment produces informal, unorganised sections of population at the bottom of the economy.

Despite the constraints noted above and the general level of poverty, there is evidence of large amounts of available, increased wealth in the Kathmandu Valley between 1987 and 1991 alone. Tribhuvan International Airport has been re-built in local brick on an expansive scale with brighter facilities and fittings. There are now direct flights between London, Frankfurt, Bangkok etc. and Kathmandu. New buildings, houses and hotels especially, are evident everywhere between the airport and Kathmandu, on the Ring Road, and in Kathmandu itself. At Bodhnath and Swayambunath there are several new monasteries. This end of the Valley appears almost entirely built over. There are fewer new buildings elsewhere in the Valley, although they are not absent. Local farmers, Newar Jyapus, are now said to be wealthy from selling land and supplying food to Kathmandu. Small tractors are now in use in and around Kathmandu, along with the rotovators which came into use a few years ago. More traffic, television and a better telephone service are also evidence of increased prosperity in Kathmandu at least. Such relative prosperity is

generated by participation in international trade and in the tourist market.

International trade

' There are four main sources of the foreign exchange which Nepal needs: remittances, foreign aid, trade and tourism. The first two are not dependable therefore the second two should be boosted' (Kayastha 1985: 8).

International trade is an important aspect of the Nepalese economy. Trade to the north and south, trans-Himalayan trade has always tended to be easier than inter-regional trade until recently Hagen 1980, 209ff). Inter-regional trade within Nepal has always been hampered by the mountainous terrain and lack of roads, and formed ' a place of minor importance in the economy of the Kingdom' (Regmi 1984: 125). In recent times, the development of road systems from Kathmandu to India and Lhasa, and along the length of the Terai, have changed this situation to some extent, although much of Nepal's internal trade still depends on porterage. Metals and metalwares have always been included among the other commodities traded: grain, salt, wool, furs, livestock, cotton, musk, tea and tobacco.

Trade with Tibet

Trans-Himalayan trade to the north has been hampered during the recent period by political changes in Tibet. Formerly the Newars were particularly involved in trans-Himalayan trade with regard to metalwares, whilst the Thakalis and other peoples of the northern border area traded in commodities such as salt and grain. This trade has been extensively discussed (Furer-Haimendorf 1975, 1976, 1978) and

I note only that metals and metalwares including gold from Tibet and Nepalese utensils were also involved in the complex salt for grain trade of the Kali Gandaki valley route.

Similarly, silver from Tibet and iron from Nepal are among goods traded on the route through Manang, to the east of the upper Kali Gandaki valley despite Chinese restrictions on trade with Tibet. In summer Manangi men live their traditional life style, then in winter they travel to India, Sri Lanka, Singapore, Bangkok and Tokyo trading Tibetan artifacts, turquoise and silver for gold, silk, and gems, which are exchanged on their return to Nepal for grain, tea, tobacco and cattle (Rowell 1980: 79-80, 89). Sheep, goats, horses and mules, as well as some yak crosses, are used as pack animals in trans-Himalayan trade.

The Chinese occupation of Tibet, especially after the Lhasa uprising of 1959, ended the traditional trade with Nepal, and left only minor trade on a controlled basis at border checkpoints. A Sino-Nepal border agreement was drawn up in 1961, but the Sino-Indian war of 1962 effectively ended remaining trade between Nepal and Tibet. Since the local economy, of northern Nepal especially, depended on cross-border trade and the movement of livestock this closure has resulted in hardship in one of the poorest regions of the country. The Indian embargo on Chinese goods further stultified the Nepalese economy.

It was apparent by the early 1980s that the northern border was not completely closed, with large caravans of pack animals: sheep. goats, yaks, horses, and herds of livestock moving to market in Nepal and to summer pasturage in Tibet (Somerville-Large 1987: 204). Petty

trade was increasing as the Chinese loosened control, and themselves commissioned Nepalese metalwares. In 1986/7 tourism from Nepal to Tibet developed with the opening of the border by the Chinese, but was then restricted again following rioting in Tibet in 1988. Despite this, Nepal now (1991) has increasing trade with Tibet. Newar-made, religious figures and apparatus, and rugs made by Tibetan refugees are taken to Tibet for sale to tourists there as ' Tibetan' artifacts. Nepalese traders put fake jewellery on Tibetan girls who sell it as ' family heirlooms' to tourists in Tibet whilst genuine Tibetan jewellery is taken to Kathmandu for sale (Normanton 1989: 43). Although profits from trade in handicrafts tend to be small this is often combined with other business, and profits are sufficient for traders to make such trips repeatedly. Traders glean what they can in Tibet and Tibetan religious artefacts, and gold, are often smuggled from Tibet into Nepal.

Trade with India

The border between India and Nepal is 1,000 km long and has been traditionally open, even under the isolationist regime of the Ranas and before, for example Indian silver was illegally used to pay for Nepalese produce in the early 19th century. The Treaty of 1950 between India and Nepal established the free movement of nationals in each other's country, and by 1963/4 98% of Nepal's trade was with India, a condition which still holds today (1991) since India controls Nepal's access to the sea (Blaikie 1983: 34; Rahul 1985: 46).

Formerly, metalworkers, *Tamotas*, from Almora in India used to peddle their wares directly into western Nepal along a ' Tamota trail' (Mukherjee 1978, 149). Copper cooking pots, copper pitchers decorated

with brass and silver, ritual copper vessels and copper plates for inscriptions were sold and exchanged for bell metal, bells, wool, ghee, musk and bee-hives, at a large fair held at Jaldibi. In the 1970s these wares are sold at Tanakpur bazaar on the Indo-Nepalese border, where Muslim traders bought them for re-sale in Nepal. It is also possible that formerly Indian-made metalwares from Jaipur entered the Nepalese market for re-sale on the Tibetan market.

The India-Nepal treaties of 1950, 1960 and 1971 about trade and the transit of goods to and from Nepal ' seriously undermined ... possibilities ... for local mass production (of) high value/low bulk commodities (such as ... handicrafts for the tourist)... and Nepal's ability to improve its balance of trade position through the export of manufactured goods is strictly limited by the superiority of Indian industrial capacity, reinforced by the Nepalese government's inability to protect domestic industries.' (Blaikie 1983: 80-2, 163, 191-2; Rahul 1985: 70-2).

Nepal has low imports of tools and metal building parts, although it takes scrap iron to manufacture tools, but high imports of other commodities including cheap artificial jewellery and utensils, which are often also smuggled. Smuggling across this border is a major problem which is frequently reported in Nepalese newspapers. Imports of factory-made utensils in aluminium and stainless steel from India continue to increase despite agreements between India and Nepal to control smuggling, and bans on imports by the Nepalese government. Indian traders make buying trips through the hills to collect old brass and copper utensils including scrap and antique pieces in exchange for

factory-made wares. Governmental bans have been more effective in west central than in eastern Nepal, where Indian access to Dharan and Dhankuta is easier via Biratnagar. In east central Nepal in 1991, Indian traders were exchanging one new stainless steel cooking pot for ten old copper and brass utensils. The latter were then stockpiled in Okhaldunga before being transported out by porters for re-cycling into sheet, either in the Terai or in India. In the Karnali valley, where Indian influence is strong, villagers state (1987), ' Indian goods are the cheapest and the best'. Newar merchants also engage in such gleaning.

In the Kathmandu Valley tin and iron scrap may be removed for re-cycling by Indian traders without restriction, but the removal of copper and brass scrap is restricted, hence smuggling occurs. Evidence of the flouting of government bans on imports of Indian metalwares is blatantly apparent in the increasing quantities of factory-made wares from Muradabad on sale in Basantapur, the tourist market in the main square of Kathmandu. The massive scale of smuggling renders the border ' a political rather than an economic boundary' (Blaikie 1983: 77).

At times India closes the border with Nepal and blocks the free flow of goods, as in 1969, when stainless steel utensils and synthetic textiles from Nepal were banned, and in 1984 and 1989 when India accused Nepal of importing quantities of luxury goods in order to then smuggle them on to the Indian black market. India closed thirteen of fifteen routes into Nepal, which then charged India with imposing an economic blockade and claimed that smuggling is done by Indian traders (Guardian 18.5.89). On both the Indian and the Tibetan borders most Nepalese traders are Newars

whose main competition comes from Indian Marwaris who have greater capital and business skills. Indian nationals or Indians who take Nepalese citizenship whilst keeping land and families in India control a large part of commerce in the Terai, and many Newar merchants in Kathmandu and Pokhara serve as local agents for Indians at the expense of developing local production (Blaikie 1983: 139; Hagen 1980: 123; Nepali 1965: 423). The dominance of India to the south, and the minor scale of trade, even if increasing, to the north inevitably skews the balance of development of Nepal and provides a further factor for dependency in the Nepalese economy.

Trade with other countries

Trade with other countries on a modern basis dates only from the 1960s and is still developing. Main markets include western Europe, USA, Japan and Australia (according to Adhikary 1984: 106, although Australia was not among the top ten in 1982/3 and 1985/6). A number of Chinese from Hong Kong and Singapore, and Japanese businessmen now do business in Kathmandu, and many Nepalis also have business dealings with Bangladesh (Kayastha 1985: 7).

Trade statistics are difficult to assess. Johnson (1983: 196-7) notes, ' The tantalizing inadequacy of the data' for the 1961-1980 period, but in general exports of food and raw materials, timber especially, are high, with high imports of manufactured goods. Tourism added about 33% to the value of exports in 1977-8 and remittances from Nepalese living abroad 11%. Since 1960, Nepalese imports have risen at twice the speed of exports, even though production has been increased and

agricultural exports expanded, and the gross foreign earnings from tourism in 1985/6 was US $ 43m. The Nepalese balance of trade is chronically in deficit, and ' foreign aid plugs the gap with increasing amounts'.

The above assessments relate to the macro-economy of Nepal. At the micro-economic level there are variations, with metalwares being one of th e few exports, if on a relatively minor scale.

Crafts, Cottage Industries and Industrialisation

According to Belshaw (1956, 146), ' Very commonly the approach to the fuller utilization of rural labour is through the encouragement of handicrafts. Personal observations ... confirm in my mind the *prima facie* doubt as to whether these can be successful on any scale ...' Nepalese officials have different views, '...the greatest contribution to rapid industrialisation (in Nepal) has been made by cottage industries' (Upadhyaya in Palikhe 1986: ii), and, '...the development of cottage industries must be resorted to for the improvement of the balance of payments position and for the substitution of imports.' (Palikhe 1986: iv).

The production of metalwares, one among a wide range of Nepalese crafts, is done on various bases. Most Nepalese metalworkers may be defined as ' cottage craftsmen', who generally buy or are provided by their customers with all the materials required to produce their wares in the domestic context using individual, family or (kin-related) apprentice labour (Goody 1982: 15). A smaller number of craftsmen work in small workshops; and in larger factories employing between less than one hundred to over 2,000 employees. Industrialisation in Nepal has occurred on only a small scale. Metalcraft production caters for the domestic economy, for

utensils and tools; meets cultural demands by producing religious artifacts for Nepalese society, and artifacts for the tourist market and for export.

In 1954 His Majesty's Government of Nepal (HMGN) and the Ford Foundation made an agreement whereby the latter would provide funds and technical assistance to develop cottage, village and small industries. This was re-inforced in 1956 in the first Five Year Plan and has been a recurring element in subsequent Plans, and foreign aid has continued to be given for such development. Cottage Industries, ' profitable, sustainable, small scale, rural industries' (Dunsmore 1992 pers comm), are seen as a means to give employment and improve living standards, to encourage entrepreneurs to establish industries, to reduce imports and earn foreign exchange and to encourage tourism (Palikhe 1986: 5-7; Shreshtha 1981: 118-121).

Cottage industry production occurs in the major cities and towns of Nepal, as well as in the rural areas. Again, it is useful to distinguish between ferrous, non-ferrous and precious wares since there are variations between these categories of production.

Contact with external, stronger markets has had its effect on ferrous production and *bista* (Nep. *jajmani*, Hind.) relationships. The production rates of those craftsmen who still work as blacksmiths has tended to be more constant than non-ferrous workers, but most working blacksmiths now receive a combination of annual *bista* payments combined with piecework rates in cash and kind. Most of this occupational caste group now work as day labourers: porters or construction workers, for wages (Blaikie 1983: 49-50, 188-9, 268). Recently (1987, 1991) Kamis are increasingly employed in manufacturing non-ferrous wares for the domestic and tourist markets,

adapting to changing demands such as making tools for the booming carpet industry, and taking up work formerly done by Newar blacksmiths (Nepali 1965: 50; Toffin 1978: 478).

Competition from Indian and, to a lesser extent Nepalese, factory-made wares has resulted in a decline in non-ferrous production in recent years. For example in west central Nepal from 1956-74 there was a drastic reduction in the production of copper and brass household utensils, with only about 30 households of traditional producers remaining in operation due to competition from Indian factory-made metalwares (Blaikie 1983: 55-6, 86-7). Metalworkers in Taksar and Chainpur also suffered a lack of raw materials from India from about 1950 to the early 1980s. In Taksar the number of metalworkers dropped from about 250 in the 1950s to about 120 in 1982/3, and there were even fewer in nearby Chainpur (Dunsmore 1983, 56). The non-ferrous metal market in Patan was supplied almost exclusively by Indian traders by 1968 (Hofer 1980: 49), but now obtains supplies from several countries other than India, including Japan, Singapore, Britain, Germany, Russia and China. This international linkage renders Nepalese metalcraftsmen vulnerable to price changes on world markets. The use of brass and bronze, and the demand for tin have declined generally due to technological advances in recent years. Prices rise and fall over short times spans (Financial Times 2.10.89), but overall during the 1980s the prices of copper and brass have risen. The dependence of Nepalese metalworkers on imported metals is thus a factor in the change from their traditional wares in brass and copper to the use of factory-made aluminium and stainless steel utensils.

Industrialisation

' In Nepal ... the problems of economic development and industrialisation ... hardly received any serious attention over a century from 1846 to 1951 .... some of the palliative measures undertaken after 1935 could not arrest the deterioration of original crafts and industries in the country.' (Shreshtha 1990: 74).

Before 1950 all crafts were based on cottage industry apart from the Biratnagar Jute Mill, established in 1936 and mills processing agricultural products: rice, sugar and oil. Cotton and plywood mills previously founded had all closed down (Robinson 1989: 302), and mining and iron production at Those had almost ceased (Hagen 1980: 183-6). The Department of Cottage Industries was established in 1939 but focussed largely on developing textile production. In 1950, ' the industrial production of Nepal ... was the same as in 1850 or even 1800' (Kumar 1967: 134).

In the 1950s the Himal Miners' Syndicate, was founded to work the copper and zinc deposits in Baglung, Tiplung, Deoghat and Shailing, and to produce sheet metal. This company closed after two years due to mis-management (Gajurel & Vaidya 1984: 17). In 1954, Nepal, the United States, Switzerland and the United Nations agreed to develop Nepal's mineral resources. This was followed by geological surveys. Discoveries of mineral deposits continue to be made. In 1969 geologists attached to the UN Development Programme announced the presence of 114m tons of magnesite and 60,000 tons of talc in deposits some 60 miles north-east of Kathmandu. In 1974 a mineral exploration development board was formed as part of the Industrial Services Centre. There is evidence of copper, lead, zinc,

bismuth, tungsten, iron, gold and tin (Varma 1972: 91n1). In the early 1980s the Nepal Metal Company Ltd., proposed to mine for zinc and lead at 13,500 feet in the Rasuwa District of Ganesh Himal. The grades are 10.98% zinc, and 1.53% lead. This scheme came into operation in 1987.

The main problems in exploiting the often rich metal deposits in Nepal are those of the economics of extraction and transport. The government now owns all mineral wealth and the Bureau of Mines and Geology deals with exploration and development (Singh 1985).

The initial development of industry in Nepal was by the private sector on a cottage or small to medium scale basis. The private sector remains poorly developed, and organised industrialisation started only in the 1960s (Singh 1991: 118). In 1960 the Ministry of Industry and Commerce was formed. This was followed by the establishment of Industrial Estates at Balaju (1961), Hetauda (1963), Patan (1964), Pokhara (1974), Dharan (1975, with Indian assistance), Butwal (1976), and Nepalganj (1976, with Indian assistance). In 1974 the Industrial Enterprises Act was passed, and an Industrial Services Centre established to promote industrial development in Nepal, along with a mineral exploration development board.

Despite high investment levels in industry, largely funded by foreign aid, manufacturing industries are notable for having given a declining amount towards national production. In 1962 manufacturing accounted for 12.1% of the total value of the Gross Domestic Product, in 1969 for 9.9%, although the total value of the GDP had doubled in this period (Encyclopaedia Brittanica 1976: Micropaedia VII, 258). In 1968 metalworking contributed 7.5% of industrial production, then mining,

manufacturing and cottage industries declined in their contribution to the GDP from 4.3% in 1974/5 to 3.8% in 1979 (Gurung 1989: 9, 164-5). In 1981/2 industry as a whole provided less than 10% of the GDP, and half of this was produced by cottage industries in the informal sector rather than from organised industry (Dutt & Geib 1987: 214). In 1985/6 industrial development provided 4.45% of GDP at current market prices: 3.29% from modern industries, and 1.16% from cottage industries (Central Bureau of Statistics 1988).

The decline in production is illustrated by several examples. The Hulas Metal Crafts Pvt Ltd., of Biratnagar, produces stainless steel kitchenware. Established in 1961 with a production capacity of 3,000 metric tons, it produced 163 MT and sold 144 MT in the fiscal year 1981/2, when its investment was NR12,809,000 with 125 employees (Karki 1983). DK Metal Industry, Dharan, had the following production rate: 19,657kgs (1975/6), 16,198kgs (1976/7), 9,998kgs (1977/8), 4,557kgs (1978/9) and 2,908kgs (1979/80) (Aryal, Regmi & Rimal 1982: 59).

National industrial production is indicated by Tables 2 - 5, based on Blaikie (1983: 57); and the Central Bureau of Statistics (1982, 1990).

Table 2.

National Industrial production of stainless steel utensils (metric tons):

1965/6	1966/7	1967/8	1968/9	1969/70	1970/1	1971/2	1972/4
232	381	738	2,419	933	56	133	NK

1974/5	1975/6	1976/7	1977/8	1978/9	* 1985/6	1986/7	1987/8
156	175	157	173	294	425	421	389

1988/9est
232

* On 4th September 1984, the newspaper ' Rising Nepal' announced that Nepal was now "self-sufficient in the production of stainless steel utensils".

The data for iron goods production appears conflicting in that total production appears to have risen, whilst the production of agricultural tools has declined.

Table 3.

Iron goods production (metric tons)

1967/8	1968/9	1969/70	1970/1	1971/5	1975/6	1976/7	1978/9
1,379	2,500	2,900	3,000	NK	4,922	5,177	4,471

Agricultural tools production (metric tons):

1974/5	1975/6	1976/7	1977/8	1978/9
300	92	287	313	179

Agricultural tools index of output (Base: 1974/5 = 100):

1985/6	1986/7	1987/8	1988/9(est)
130.33	121	99	88

Table 4.

Estimated values of ferrous wares from Cottage Industry production for 1972/3 (National Planning Commission, 1982. Statistical Pocket Book, Kathmandu, 95):

Spade, hoe and mattock	1,929	R' s ' 000
Sickles	750	
Axes and adzes	544	
Shares	436	
Kukris	529	
Misc iron tools	358	
Cooking pots	231	
Frying pans	189	

Imports are not easy to decipher from the Nepal Overseas Trade Statistics, Kathmandu 1984, but Table 5 gives some indication of scale:

Table 5.

Ferrous imports 1982/3

Iron rod and sheets:	R 1,967,564
Steel rod and sheets:	R 39,877,655
Mild steel bar:	R 42,904,139
Aluminium rod and sheets:	R 6,826,091

Many other ferrous items, for example angle iron, bolts etc. are not included in these figures, nor is the volume of metal goods from India, Nepal's main trading partner.

Mining and manufacturing industries have an ' insignificant' or marginal role in the total economy of Nepal and provide employment for only some 2% of the population (Blaikie 1983: 47; Ministry of Education 1962; Shreshtha 1981: 75; Varma 1972: 92, 110). Industrialisation as a whole has not taken off as envisaged, nor in accordance with the massive amounts of foreign aid which have been injected into the economy of Nepal.

As in international trade, so in industrialisation the dependency upon Indian capital, and therefore Indian control of the Nepalese economy, has increased. Indian capital has, ' long established dominance ... in the industrial sphere in Nepal' (BLaikie 1983: 79-82; Dunsmore pers comm 1993). The causes of industrial failure, according to Gurung (1989: 11-12, 18ff, 299) lie in the decline of the Industrial Estates and the ' deflection of resources in dubious trade'.

Industrial Estates, ' the planned clustering of enterprises', were sited in areas where industrial potential already existed, the towns of the Kathmandu Valley and the Terai, rather than in other regions where the infrastructure for smaller industry was lacking. Locational analysis suggests that this development was lop-sided, with 80% of development in the Kathmandu - Birganj - Biratnagar triangle of eastern Nepal. Although development was and is desirable in the river valleys of the Kosi, Bagmati, Gandaki and Karnali this has not yet occurred on the same scale in the latter two cases and Nepalganj is insignificant in terms of industry. Gurung (1989: 9, 164-5) concludes that existing industrial development in Nepal has been established to serve production and processing for export to India rather than in accordance with the labour and power factors of Nepal, and that the general decline is the result of the spread of retail

trade. Development was, perhaps, concentrated in the sensitive areas of the Kathmandu Valley and Biratnagar for political reasons (Dunsmore 1992 pers comm; Dutt & Geib 1987: 217). The Indian problem is also noted by Zivetz (1992: 59) who observes that, industrialisation, ' which was supposed to provide alternative sources of income for farmers and revenue for the government, has served instead to tighten Indian control over the Nepali economy ... (and) has been used to shroud a complex network of illegal trade behind a facade of constructive development.'

According to Seddon (1978, 186ff), Nepal's dependency on India resulted in the collapse of small businesses which have been subject to the contradictory tendencies of proliferation and expansion as they retail cheap imported goods. At the same time, such business is precarious. It provides partial rather than complete subsistence and requires additional income from elsewhere. The collapse of small businesses then leads to craftsmen becoming labourers, hawkers and pedlars, or being unemployed, especially in the urban context. The decline of indigenous production further increases dependency on the Indian economy.

A less pessimistic view is taken by other economists, who stress the important, if more modest role of Cottage Industries. Given that, ' the basis of industry in Nepal is likely to retain a strong rural and agricultural orientation ... despite the growing sophistication of economic planning' (Robinson 1989: 302), '... the importance of traditional village industries in rural communities should not be underestimated ... in South Asia ... in view of its modest or localised industrialisation (Cole 1972: 337); and Gurung (1989: 288): (The) ...' promotion of cottage and small scale industries are important alternative avenues to marginal

agriculture.' Whilst industrialisation is ' still in an infantile state' in Nepal (Palikhe 1986: ii), cottage industries have made the greatest contribution to this process (Dunsmore 1993 pers comm).

Metalworking as a whole is apparently a minor aspect of the Nepalese economy, yet ferrous working undertaken by a minority of one occupational caste remains essential to the agricultural process, hence the subsistence of the majority of the population of Nepal. Non-ferrous working has some prospects for development (Shreshtha 1981: 14-5). In general the Industrial Estates are stagnating, unionisation is developing and some assembly line workers are taking collective action to demand higher wages (Gurung 1989: 154), but the process is not uniform since metalworking in Patan forms an exception.

Although there has been an overall decline in the production of traditional, hand-made wares, this has been neither uniform nor universal within Nepal. The evidence of increasing production in Pokhara, Tansen (1981, 1987), Dharan, Chainpur (1984, 1986), Nepalganj and Patan (1981, 1984, 1987, 1991) leads me to think that this trend is differential, and has been reversed, in part at least, in recent years. Chainpur has revived its manufacture from 1984 and found new outlets in Kathmandu (1987, 1991), and in 1987 in both Tansen and Pokhara there were some 25 households supplying some 30 retail shops with non-ferrous wares. This revival is despite rising prices, for example copper cost NR80-5 per kg in 1984, and NR115 per kg in 1987 in Pokhara. In Patan (1991) there is an active and extensive production of utensils and apparatus for local markets, both secular and religious, and for tourist and export markets.

Civic pride has had some role in reviving craftwork. The Hanuman

Dhoka Conservation Project, which was the first major restoration project of the Department of Archaeology and UNESCO/UNDP provided a major commission for a number of Tamrakar metalworkers of Patan to make literally hundreds of bells by the lost wax method (Sanday 1989: 62). In 1984 there were plans by the Roads Department to erect cast metal figures of Kings Mahendra and Birendra at a cost of R110,000 and R125,000. These figures had been made by a named artist, Amar Chitrakar (Rising Nepal 4.9.84). In 1991 a large metal Democracy monument was proposed, whilst the Post Office now has a large copper figure of a Yeti. Government and private demand for metalwares increased between 1984 and 1991.

The forced ' secularisation' of Tibet, that is the widespread destruction of monasteries and temples under Chinese communist rule initially virtually eliminated the market for non-ferrous religious artifacts there. In recent years Nepalese craftsmen have increasingly manufactured secular and religious artifacts for export to Tibet and for Buddhist communities in Nepal.

This is not to deny the very real constraints on the production of handmade, non-ferrous wares, with increasing competition from Nepalese and Indian factory-made goods, the increasing difficulty in obtaining suitable fuel supplies from the Nepalese forest and the persistent undervaluation of craftsmens' work, even though the caste system in Nepal was legally abolished in 1963 (Adhikary 1984: 104). Some metalworkers are now trying to price their wares by the craftsmanship involved, helped, in the case of religious figures, by the tourist market. Precious metalworkers are also faced with competition. Whilst traditional goldsmiths continue

to produce for the domestic market, there is now a high level of imports of cheap, artificial jewellery, as well as other tourist items from India, Hong Kong, Singapore and south east Asia and an increase in the number of goldsmiths working in Kathmandu.

Current market demands have resulted in craftsmen from the traditional metalworking groups, and a few others, from the regions of Nepal now finding outlets for their work, if only on a small scale, with longstanding resident craftsmen in the Kathmandu Valley.

Chapter Five

STATUS AND ROLE OF METAL CRAFTSMEN IN NEPAL I

It is important to recognise the historical dimension in any discussion of the sociology of Nepal and the status and role of metalworkers. A tension between historical and sociological views will be apparent in the discussion of caste organisation, and the geographical area of ' Nepal', which has varied over time.

Metalworking has had a significant functional role in the various ' arenas' of Nepalese social life: in the Kathmandu Valley, and elsewhere, both when the country was fragmented in tribal groupings and petty kingdoms, and in unified Nepal. Metalwares have been used both intrumentally and expressively in most aspects of social and cultural life.

The history of metalworking in Nepal has indicated certain broad continuities and changes. Non-ferrous metalworking, with features of continuity in technology and the range of products is associated with a social group: the Newars, who have been continually present in the Kathmandu Valley throughout the historical period, and provided an ' artistic...artisan culture' (Malla 1979: 231, 233). Ferrous working is correlated with socio-cultural change: the introduction of plough agriculture and iron weapons in the Early Malla period by refugee Rajputs

and occupational castes, *Kamis*, from India, and the decisive introduction of firearms in the 18th century by Prithvi Narayan Shah, a descendant of such refugees (Kumar 1967: 9). The latter was particularly associated with the militarisation and political unification of Nepalese society and the decline of artistic culture from the ' Golden Age' of the Mallas, and the crystallisation of the caste system as a ' crucial social factor' in Nepalese society.

In India, two types of economic relationship occur in the caste system: prescribed hereditary ties and less prescribed contractual relationships (Epstein 1967: 232). The former is indicative of a stagnant rather than a developing economy and is perpetuated by isolation in a predominantly rural context. Blacksmiths are often in hereditary relations with peasants, exchanging services for grain, whilst craftsmen such as goldsmiths, whose services are not required regularly, are more subject to contractual relationships. In either case, metal craftsmen in India are usually among the lowest castes.

Nepal, between 1768 and 1950, is an example of a selectively isolated peasant society with a stagnant economy, with caste as an important element in its social organisation. There is an observable, marked contrast between the confidence and dignity of Newari metalworkers and the distaste apparent in many Nepalis when dealing with blacksmiths, with its concomitant effect on the behaviour and self-esteem of the latter. My questions about the status and function of metalworkers in Nepalese society follow on from a discussion of the general nature of that society.

Land and peoples of Nepal

Nepal is a complex society: multiethnic, multilingual, multicultural;

stratified with a marked centre-periphery division, and a form of caste system. Three factors have influenced the social system in its origins, development and current organisation: cultural demography, geography and language.

Nepal has repeatedly served as a refuge area. The waves of human settlement from prehistoric times to the present has resulted in a mosaic of peoples distributed in a variety of ecological niches. Broad correlations may be drawn between ethnic groupings and cultural variations, and the three main geographical divisions of Nepal, the Middle Hills, southern plain or Terai, and the northern highlands

The Middle Hills, *pahad*, land up to 9,000 feet, are the ' cradle' of Nepalese culture. The peoples include tribal or ethnic groups, Newar, Gurung, Magar, Tamang, Thakali, Sunwar, Rai and Limbu; each with its own varied syncretisms of animist, Hindu and Buddhist beliefs and practices. These are some of the societies which form the Himalayan ' interface' between Hinduism and Buddhism. Intermixed with these are Hindu caste groups, Brahmins, Chetris (Ksatriyas) and occupational castes including metalworkers, Kamis. Formerly the Middle Hills housed most of the population of Nepal, now it contains some 50% of the total following internal migration to the Terai. The reduction of malaria, forest clearance and a growing demand for grain crops have all led to increasing settlement in the Terai by tribal peoples and Hindu caste groups from the Middle Hills, as well as immigrants from India across the open border with Nepal. The cultures of the Terai are very similar to those of adjoining regions of northern India.

In the high altitude valleys of the Himalayas, land over 9,000 feet,

Bhot, there are variety of peoples often disparagingly termed ' Bhotias' or 'Tibetans', including Sherpas, Khampas, Thakalis, most of whom have a mixture of animist and Buddhist beliefs and practices, and, in north western Nepal some high caste Hindus, Thakuris. From the Late Malla period onwards Muslims from northern India and Kashmir have settled in Nepal and, following the Chinese occupation of Tibet and the uprising of 1959, there is also a population of Tibetan refugees.

Social Demography

Table 6. is indicative rather than strictly accurate given the rising population. The total population of Nepal is now 19.6 millions (1991 Census). In 1985, when it was about 16.5 millions, society was divided as follows (Central Bureau of Statistics 1987: 18):

Table 6.

Social demography of Nepal (1985)

Brahmins and Chetris:	**over 10 million in total**
Occupational castes:	**N/K; ? 250,000 Kamis**
Tribals:	**about 5.5 million in total:**
Newars:	**3 million**
Tamangs:	**500,000**
Bhotias:	**500,000**
Magars:	**300,000**
Gurungs:	**250,000**
Rais:	**250,000**
Limbus:	**150,000**
Thakalis:	**5-10,000**
Sunwars:	**N/K**
Muslims:	**300,000**
Tibetans:	**18-20,000**

Bista (1987) provides the most comprehensive account of the peoples of Nepal, but discusses them as relatively isolated units: caste or tribal groups, rather than a social system. The latter has yet to be done (Dahal 1979). I have merely sketched the social structure of Nepal in order to concentrate on metalworking groups.

The heterogenous nature of Nepalese society is reflected linguistically. Of the 26 (Bista 1987: 198) or 36 languages and dialects (Anderson 1988: 26) spoken in Nepal, some 24 are Tibeto-Burman, which are largely the tribal languages (Uprety 1980: 6). Nepali, the dialect of Gorkha and a Sanskritic language spoken by the Hindu caste groups, serves as the lingua franca. Even so it is not always clearly understood, for example in the Karnali Basin, a ' Hindu' area.

Social organisation

The topography of Nepal, with its major ecological divisions of plain, hills and mountains, and the numerous valleys within these broad divisions, has tended to foster the separatism characteristic of many mountain peoples. Major political groupings developed historically in the main river basins: the Kathmandu Valley, the Kosi and the Karnali Basin. Elsewhere a pattern of petty states, or uncentralised tribal groupings were the main social formations. Historically the social system was fragmented until political unification following the Gurkha conquest in the 18th century.

Nepal is a complex society with a social structure arranged according to several principles of social organisation which results in several sub-structures including tribal organisation, perhaps the earliest form (Allen

1978: 17ff); a stratified authority structure of rulers and subjects; and an ideological structure based on a variety of beliefs including caste principles. There are historical arguments for seeing the development of these three principles sequentially, and sociological reasons for separating them. The overwhelming demographic fact of the predominance of Hindu caste groups, and the political fact that Nepal is the only surviving Hindu kingdom, tend to cast the role of metalcraftsmen into the Hindu model. Whilst this model applies in the case of the ironworking caste of Kamis, it has a different fit for the Newars.

Tribal organisation

Tribal groups speaking a variety of Tibeto-Burman languages, some of whom may be the autochthonous peoples of Nepal, comprise about 30% of the total population (Allen 1978: 8). Tribal groups, taking the RAI definition (1951) may be described as, ' the largest body of people describing themselves by a common name, with a common language and an awareness of distinctive identity'. In Nepal, such groups frequently but not always live in particular areas. Each tribe is sub-divided into clans, *thar*, exogamous groups often with dual categories, in contrast with the linear categories of Hinduism, although clans are ranked in some tribal groups such as the Gurungs, Rai and Sherpas (Allen 1978: 14, 17; Gurung pers comm 1991). Clans are sub-divided into kindreds, *gotra*. The Newars have differences in groupings and terminology. Tribal groups formerly tended to be endogamous, but this preference is now breaking down, especially in the main cities (Bista 1987: 65).

Table 7.

Tribal structure (Bista 1987):

Newars - 26 castes
Rai - 18 clans, *thar*
Limbu - 13 clans
Tamang - 25 clans
Magar - 18 clans
Gurung - none listed
(12 clans, N. Gurung pers comm)
Sunwar - 14 clans
Thakal - 4 clans
Tharu - 17 clans

Tribal groups have varying systems of land rights. In some cases, as among the Limbu until recently, landholding was communal (Caplan 1970). The tribal groups of Nepal are ranked in a social hierarchy: Gurung and Magar (top); Newar (second); Kiranti, Khambu, Limbu, Yakhas; Sunwar, Tamang (Murmi); Sherpa; Tharu, Thami, Thakali, Hayu etc.(bottom) (Enc. Britt. 1976: Macropaedia 17, 127; Oldfield 1880: 1, 172-3). Newars and Kirats, Rais and Limbus of eastern Nepal are distinguished from the Khas of western Nepal, who are referred to as highlanders, *parbatiya/parbattiah* (Oldfield 1974: 1, 44-5). Magars and Gurungs are distributed mainly in west central Nepal, Tamangs in a wide stretch across central Nepal, Sherpas and other Bhotia groups along the northern border, and Tharu mainly in the Terai. The Newar heartland is the Kathmandu Valley, but they have become more dispersed since the Gurkha conquest.

Most tribes have myths of origin. That of the Newars, probably the autocthonous population of the Kathmandu Valley describes civilisation developing around an existing religious site after the Valley had been drained. Geological evidence indicates that the Valley formerly was a

lake.

The legendary origin of human society in Nepal, as opposed solely to the deeds of gods, is set in the time of the Indian epics, the *Ramayana* and *Mahabharata*, and may relate to a context in the eighth century B.C. (Schwartzberg 1978: 162). In this heroic age, the Kirats/Kiratas/Kirantis, ' mountain dwellers' who may have been preceded by 'cowherd' or *Gopala* kings, are named as participants in the epic living somewhere to the north of Mithila, and may have been ancestral to present-day Rai and Limbu peoples (Pradhan 1991: 10). Buddhist records give accounts of the entry of Buddhism and its association with metalworking, and the presence of traders in the Valley from about the fifth century B.C. onwards (Slusser 1982: 5). Culturally various indigenous beliefs are combined with influences from Hindu and Buddhist India, and Buddhist Tibet, of these Indian influence is dominant.

Stratification

The clearest and earliest evidence of stratification in Nepal occurs in the Kathmandu Valley where state formation and urbanisation developed in some correlation with trade and religious activity from the earliest historical period. The location, nature and control of the Kathmandu Valley have been critical factors in the social development of Nepal since then. The growth of civilisation in the Valley is associated with its role as a way station or entrepot which facilitated seasonal trade between the Indian plains and the Tibetan plateau. Access to the Valley was formerly inhibited by natural factors: during summer, malaria closed the Terai, during winter, snow closed the mountain passes to Tibet, obliging traders to reside in the Valley. Although there are 24 passes between

present-day Nepal and Tibet, with relatively easy access through Mustang at the top of the Kali Gandaki gorge, their average height is 17,000 feet, and the Kathmandu Valley presents the easiest route between India and Tibet. The rulers of the Kathmandu Valley usually controlled the southern approaches to two passes into Tibet: the Kuti-Kodari pass north-east of the Valley,and the Kerong/Kirong to the north-west, both at 6,000 feet. The Tibetans usually retained control of both passes themselves, with the Nepalis occasionally seizing them. (Slusser 1982: 60; Uprety 1980: 2, 3, 95). Access from India to Nepal is through the Terai, then over passes of five to seven thousand feet. This difficult entry has tended to help the Nepalese to maintain relative independence from states or empires established in India, although there have been repeated invasions and incursions and its isolation is relative.

In the first and second centuries A.D., a non-Sanskritic dynasty of Kirats/Kirantis, apparently ruled in Kathmandu. Their presumably tribal origins and social organisation are not known (Regmi 1979: 4). Sen (1966) terms these peoples 'Kiratas' or early Indo-Mongoloid settlers of Nepal. Hamilton (1819, 1986, 6) describes the peoples east of the Kathmandu Valley to Bhutan as 'Kirats', and the people west of the Valley to Kashmir as 'Khasiyas'.

During the fourth or fifth century A.D., political control was imposed on the Valley by the Licchavis, a dynasty probably from northern India (Furer-Haimendorff 1990: 6; Pradhan 1991: 10). Urbanisation, the concept perhaps diffused from India, and state formation followed this establishment. The Valley became a centre of wealth and cultural exchange which enabled several kingdoms to develop, with subsistence based

on intensive hoe cultivation practised by the predominantly Newar population, and the control of trans-Himalayan trade. Cultural factors also played a role in development. Sites such as Swayambunath, Bodhnath, Changunarayan and Pashupatinath are ritual centres which have drawn Hindu and Buddhist pilgrims from the earliest times. After the Gurkha conquest, the Shah dynasty took over Kathmandu as their capital and Valley society continues to set the lead for the rest of the country (Bowles 1977: 163; Macdonald & Stahl 1979: 66, 69; Slusser 1982: 6, 14, 38; Uprety 1980: 4).

On present evidence stratification elsewhere in Nepal appears to date from later periods than the Kathmandu Valley, that is from the late Transitional and Early Malla periods, and was on a former basis of chieftain or clan organisation. In the far west the Khasa Malla empire was based around Jumla and part of western Tibet; other petty kingdoms included Mustang on the Tibetan border, the multiple kingdoms of the Baisi and Chaubisi of western and west central Nepal and the chiefdoms and kingdoms of the east (Rahul 1985: 4-5). In some cases the development of stratified societies was closely associated with the settlement of Indian immigrant groups which were internally organised on the principle of caste, in others the same power structure, ruler and nobles over the rest of society, is present in Buddhist societies such as Mustang. Stratification was not total in Nepal, until the 18th century this form of organisation was absent among tribal groups such as the Gurung, Rai and Sherpas, an egalitarian society. Stratification on a nation-wide basis only occurred with the conquest of the Valley and subsequently the rest of Nepal by the Nepali-born Shah dynasty of Gorkha and has persisted for the last two centuries. Peoples from around Gorkha, including men from tribal groups:

Gurungs, Magars etc., as well as twice-born castes of Chetris (Kshatriyas) and occupational castes of Kamis etc., are properly referred to as ' Gurkhas'. In much of the literature, this term is mistakenly applied to the Nepalese peoples as a whole.

Stratified groups in Nepal, structured according to political and economic factors, consist of: a ruler, kings or princes; an elite nobility, including ministers to the crown, larger landowners and priests of favoured temples; tribal priests and shamans; traders and craftsmen, who service the elite, the local needs of lesser patrons and customers, pilgrims, the export and (latterly) tourist markets; peasantry; and slaves (no longer an existent category, but with some relevance to metalworking, see below). This social form is common in many parts of Asia beyond the bounds of those cultures organised on a caste basis[5] (Hitchcock 1978: 115). Although the state(s) of Nepal have been variably tributary to states in India and China over the course of time, they have retained political and thus social independence (Aberle 1950).

Caste organisation

The organisation of society on caste principles, a notable feature in south Asia, has particular relevance to the status and role of craftsmen. Caste organisation in Nepal must be discussed whilst bearing some general features about caste in India in mind, primarily that caste organisation is neither uniform nor unchanging.

Hinduism has been present in Nepal throughout the historical period, yet caste organisation in Nepal presents a less clear picture than

stratification due to a lack of evidence as to its time(s) of introduction and development. The social structure of Nepal illustrates variation and change, as in India, and the processes of Sanskritization and Hinduization need to be distinguished.

At the start of the Licchavi period the Newars of the Kathmandu Valley appear to have held a heterogenous mixture of Buddhist, ancestral and animist beliefs with a social organisation of clans, lineages and monastic institutions. Following the establishment of dynastic rule, that is stratification, the population was ruled by kings who were themselves Hindu, Saivite or Vaisnavite, or Buddhist. Although Buddhism was tolerated among the people, castes began to form, probably gradually from the fifth to sixth centuries A.D., with concomitant influence on the social organisation of occupational groups (Furer-Haimendorf 1956; Regmi 1966; 1969, 156, 271; Slusser 1982). A similar process, on present evidence several centuries later, occurred in the hills where tribal peoples were increasingly infiltrated and dominated by refugee Hindus from the 10th to 11th centuries onwards. Brahmins and Chetris with adherents from occupational castes, especially blacksmiths, established petty kingdoms and introduced caste organisation with a ban on cow slaughter, prescribed exchange relations, *jajmani/bista*, and perhaps marriage restrictions between caste groups. The social innovations entailed a new division of labour and were correlated with ' a significant development in technology' (Blaikie 1983: 25), that is the adoption of metal weapons, particularly swords, shields, and plough agriculture (Regmi 1966: 646; Zivetz 1992: 53).

There has been a strong coercive element in the establishment of caste organisation in Nepal, that is, rather more ' Hinduization' than ' Sanskritization'. The Kirats and Khasiyas were termed ' abominable and impure infidels' (Hamilton 1819: 8) by Hindus, who also regarded the Khas as perverted Kshatriyas. The Khas are said to have invited Indian Brahmins into western Nepal to purify their society before Rajput refugees entered in the 12th century. In the 14th century Jayasthiti Malla (1382-1428) and his successors made efforts, with Brahmin advisors, to re-define caste organisation which had lapsed among the Newars (Regmi 1966: 641, 720).

Nepali language and its associated (Hindu) culture expanded with the Gurkha expansion from the mid-18th century onwards ' at the expense of traditional Buddhist allegiances' (Robinson 1989: 46). As a result of the incorporation of indigenous tribesmen by Prithvi Narayan Shah in his conquest of Nepal, '... Hinduism and the Hindu social order came to have official sanction over the Gurung, Magar, Newar and others...whose religion was Buddhism or indigenous tribal cults' (Maloney 1974: 402, 407-8). When Prithvi Narayan Shah had conquered the Kathmandu Valley he issued a statement insisting on the fulfilment of caste organisation and obligations by the ' four castes ... and the thirty-six communities' (Rahul 1985: 87); the sort of statement which indicates that these were not being observed. The Shah dynasty was even more represssive than preceding rulers' (Oldfield 1880: 2, 81-2). In the mid-19th century, tribal groups were integrated into Nepalese society when the government re-classified the concept of ' peoples associated with a land', *desh*, into that of hierarchically-ranked caste groups, *jats*.

Under the Ranas, the Muluki Ain of 1854 still classified the Yakha Rai and Limbu as enslavable alcohol drinkers.

The adoption of caste organisation and Hinduism has been neither universal nor uniform among the tribal peoples, for example caste organisation has been only partial among the Gurungs and Magars. Other peoples such as the Tamang, Sherpa, Rai and Limbu have remained tribal in social organisation and retain Buddhist or animistic-ancestral beliefs, or syncretise Hindu and Buddhist beliefs as do the Newars, and call their own priests. The Hindu ban on cow slaughter has been differentially adopted by local populations, and meat eating shows considerable variation: Nepali speakers avoid beef, Hinduized Magars avoid beef and buffalo, Gurungs avoid mutton and pork, whilst other groups including Tibetans eat beef and buffalo, and the Limbus eat any meat. Alcohol consumption is common among many of the tribal peoples (Bista 1987: 3-4; Chanrai 1983: 18-23; Maloney 1974: 224-5; Sharma 1971: 1974).

Caste groups now outnumber the autocthonous populations. They represent the top and bottom of Indian caste organisation. Commercial and mercantile castes, *vaisyas*, did not seek refuge in any number in Nepal. This rank has been filled largely by the Newars, as merchants and craftsmen. The number of jats in Nepal appears to be much less than the thousands present in India: perhaps 40 caste groups and 150 clans as an approximation (Bista 1987: 199, who uses *jat* to refer both to castes and ethnic groups).

In considering the spread of Hinduism and caste organisation from India to Nepal, some account of formal political differences must be taken. Politically Nepal is separate from India and has been so since

its unification in the 18th century. Nepal has existed as an independent nation-state longer than many European countries such as Germany and Italy, and much longer than Pakistan or India itself. After the collapse of the Mughal empire a mosaic of princely states, which were never completely incorporated into the areas colonised by the British, then became a secular, independent democracy in 1947. One cannot argue as Gellner (1991: 367-8) does that the political boundaries of these countries are culturally insignificant, and thus see Nepal as a simple extension of India. The political differences between Nepal, a unified Hindu kingdom, and India, echo significant social and cultural differences. Rather than complete Hinduization in Nepal, individual elements of Indian culture were adopted by indigenous tribal populations, whilst Mahayana Buddhism effected, ' a complete transformation of the local culture pattern ... in many areas ... (the) amalgamation of Buddhist and Hindu ideologies and practices' occurred only in the three Valley towns (Fisher 1978: x-xi).

Given the ethnic and cultural diversity of Nepal, one may agree that Hindu symbols play a major role in unifying the country and giving it cultural identity, even so one cannot claim a uniform operation of caste organisation in Nepal. The structural ambiguity present in the caste system in India is also present in Nepal. Whilst the Brahmin is the highest caste ideologically speaking, with the Kshatriya second in the hierarchy, in practice Kshatriyas or Chetris provide the rulers of Nepal, with Brahmans acting in a subordinate and advisory role. Although caste forms a major element in this hierarchical organisation, it is not the only element. As indicated, society is also divided along the lines of

languages, tribal or ethnic groupings and religions. Nepal thus comprises a plural society with multiple structures, and a caste system having differences from the Indian system. A system, which, as in India, is now officially abolished (Bista 1987: 198; Dahal 1979: 214-216; Doherty 1978: 442; Hitchcock 1978: 116).

Discussion of the caste structure of Nepal must thus take account of this actual state of affairs, in large part from the demographic composition of the population, rather than from the basis of the *varna* system of Hinduism. In contrast with the pyriform profile of caste in India, the profile in Nepal is of an inverted triangle, with numerically few occupational castes supporting a majority population of Brahmins and Chetris.

Table 8.

Caste organisation in Nepal

Brahmins

Chetris

Tribal peoples with a combination of religious adherence:
i. Hindus, organised along caste lines.
ii. Matwali Chetris, unorthodox Hinduism: meat eating and alcohol drinking; ancestral cults and shamanism.
iii. Newars, Mahayana Buddhists: with married priests, Vajrachariyas; Hindu castes, and heterodox laity combining Tantric Buddhist and Hindu beliefs.
iv. Bhotias, mostly Tibetan Buddhists: Lamas and laity.

Occupational castes - blacksmiths, *Kamis*; goldsmiths, *Sunwars/Sonars*; woodworkers, *Lohar*; leatherworkers, *Sarki*; tailors and drummers, *Damai*; and potters, *Kumal*.

The religious demography of Nepal (see Table 9) gives a numerical illustration of this inverted triangle.

Table 9.

Religion and population (CBS 1982: 18; 1990: 21)

	1971	1981
Hindus	10,330,000	13,445,787 (89.5%)
Buddhists	867,000	799,081 (5.3%)
Muslims	351,000	399,197 (2.7%)
Others	-	365,445 (2.6%0
Jain	-	9,438
Christians	-	3,891

These figures indicate rising Hindu and Muslim populations, a falling Buddhist population, and the addition of formerly unrecorded categories. They remain questionable, and are indicative rather than precise. For example, Nepal has several communities of Muslims; an old-established community of Kashmiris, perhaps from the Mughal period, with its own mosque in Kathmandu, and village communities in the hills west of Kathmandu perhaps from the late 15th to early 16th centuries. In the 17th - 18th centuries more Muslims were brought in from India to serve as firearms instructors for the Chaubisi rajas, and after 1857 another wave settled in the Terai especially (Bista 1987, 150). Husain (1970: 24) states that the Muslim population of Nepal is now about 800,000. Jains have never before been recorded in Nepal, and were thought to have no presence there; Christians in 1991 were thought to number more than 30,000 (Dunsmore pers comm 1993).

The caste groups of Nepal speak Nepali, the lingua franca. Demographically and therefore ideologically, Brahmins and Chetris, although previously few in number (Regmi 1966: 687), now dominate Nepalese society, simply by comprising about 60% of the population. The high proportion of these castes in Nepal compared with India reflects the refuge nature of the Middle Hills, and the movement of peoples after unification. More than half the Brahmins and Chetris of Nepal live in the western Hills where they form about 80% of the population. In eastern Nepal Brahmins are post-conquest entrants to the Koshi Hills where they form only 27% of the population (Dunsmore 1993 pers comm). In the Terai, Brahmins and Rajputs (Chetris) approximate in number to the Indian percentage, that is about 3.5% of the total population (Bista 1987: 1-2, 113; Bowles 1977: 161).

Brahmins/Bahun/Baun in Nepal are divided into three ranked sub-castes: Upadhya, Kumai, and Jaisi, which is formed from the children of Upadhya and Kumai men and Brahmin widows; and 60 clans (Bista 1987: 5-6). Suttee was only abolished for the orthodox in this century. Some intercaste marriage occurs, for example Upadhya Brahmans often marry Thakuri and Chetri girls, but Brahmins do not usually marry into tribal groups, and never marry occupational castes such as blacksmiths.

Some Brahmins maintain themselves by priestly duties except for Jaisi who cannot. Where priests serve a temple, they are usually supported from the *jagir* lands attached to that temple. Only a minority of Brahmins follow a religious livelihood since the system, as in India, cannot support an ever-expanding number of priests. Some Brahmins, along with some Chetris form the nobility of Nepal, serving as clients to

the kings. If possible, Brahmins invest heavily in education for their male children. They form a dominant element in government administration and teaching. Traditionally trade is forbiden to Brahmins (Basham 1977: 141), and Brahmin women are preferably involved only in domestic rather than commercial work (Bennett 1983: 27; Blaikie 1983: 95-9, 283), but some Brahmins, largely women, engage in petty trade for example running teashops along the trails. Most Brahmins are farmers, and many are impoverished smallholders. Classically, Brahmins abstain from ploughing, for which they employ lower caste men, as they do for craft work. In the 19th century some Brahmins worked as labourers around mines, and recently some have engaged in leather-working and sweeping: occupations traditionally associated with low caste status (Basham 1977: 141; Blaikie 1983: 49; Dunsmore 1993, pers comm).

Chetris (Kshatriyas) in Nepal are divided into named clans, nine Thakuri and 22 Chetri, and lineages acknowledging common descent, often with a geographical association. They are distributed across the Terai and in the middle hills. Most live in western Nepal, usually only up to about 7,500 feet, although there are Thakuri and other Chetri communities living up to 10,000 feet around Jumla and in Mugu and Humla.

Chetri affinities are racially, culturally and linguistically with northern India. More numerous than Brahmans, the Chetris are of two main types: high ranking, which includes the Thakuris, the highest Chetri caste, amongst its groupings; and lower ranking offspring of Brahmins and local Khas peoples who were present in Nepal before the Hindu immigration but converted to Hinduism under the impact of the refugees.

Like the Brahmins, high ranking Chetris are ' twice born' castes,

dvija, who dominate the governmental and military structures of Nepal, but do not serve as mercenaries in the ' Gurkha' regiments of other states (Blaikie 1983; Dunsmore 1993 pers comm; Furer-Haimendorf 1967; Oldfield 1974: 1, 169-171). Lower ranking ' Matwali Chetris': those who eat meat and drink alcohol, both of which are forbidden in the diet of higher ranking Chetris, are especially found in western Nepal in Karnali Zone, the most ' Hindu' part of the Middle Hills, and in Dolpo. Matwali Chetris are not ' twice born' Hindus but combine shamanist beliefs with their ancestral cult, Masta. They do not call Brahmin priests, although they do celebrate some Hindu festivals, and there is some doubt about their being Hindus at all (Bista 1987: 4, 11; Sharma 1971: 45). Chetri men take tribal women as secondary wives and retain their children as clan members, but condemn marriage between Chetri girls and men of lower status. Exceptionally, and in contrast with the tribal groups, Brahmins and Chetri men may marry out of their caste groups but there is little if any intermarriage between Chetris and refugee Tibetans and never with members of occupational castes (Bista 1987: 2ff, 65; Enc. Britt: Macropaedia 3, 986; Furer-Haimendorf 1969: 178-9; 1990: 49; Kawakita 1957: 74).

The main tribal groups are primarily occupied in agriculture, animal husbandry, some trade and wage labour, and some as soldiers; a few hunter-gatherer peoples also persist. The uncertain ranking of the tribal groups is perhaps due to their incomplete incorporation into the caste system in Nepal. Hinduised Gurungs and Magars, particularly those employed as soldiers in ' Gurkha' regiments, are perhaps ranked between Chetris and the rest of the tribal groups who are incorporated as

' Vaisyas', farmers and artisans, and ' Sudras'. Different sections of the Newars (see below) are incorporated into the caste system as ' Brahmins', ' Vaisyas' and ' Sudras'. The uncertainty reflects the imposition of a hierarchical system on pre-existing, largely egalitarian structures. The Newars and Limbus have their own scripts, and the Newars also have an extensive literature which was suppressd, along with their language, under the early Shah and Rana regimes.

Occupational castes, like Brahmins and Chetris, are Nepali-speaking, and comprise about 5% of the total population in contrast with India where untouchable castes form some 15% of the population (Thorner 1950: 627). Artisan castes such as blacksmiths and woodworkers, Kamis and Lohar (loha, ' metal'), cobblers and tailors are classed as ' untouchable' by the higher Hindu castes, and form the bottom layer of Nepalese society.

There are two types of generalised social relationships between landowners and occupational castes in Nepal (Krause 1988). High caste Hindus, and wealthy tribal landowners when patrons, have prior claim upon the labour of their dependant untouchable artisans, for example agricultural and other labour and for iron working. Artisans may be paid in grain or part grain and cash, and are given presents of grain and beer at festivals, on an annual retention basis for their services, alternatively artisans may be paid in grain and/or cash on a piecework basis. Traditionally, artisans, ' little people', gain wider connections and protection by becoming clients to Brahmin and Chetri patrons.

Craftsmen in Nepal have always been subject to the patronage of their rulers, particularly in the Kathmandu Valley and the petty courts of

the hills. In more rural areas, craftsmen have served and currently serve both as individual helot craftsmen and as members of single-caste villages which may specialise in a craft, such as weaving or metalworking, although not all members of such a village practise the caste occupation. Most members of occupational castes depend on a combination of agriculture and wage labour for subsistence.

Muslims and Europeans are regarded as outcastes, *mleccha*, as are Tibetans, although the latter are anomalous in having regularised social relations with some groups such as the Newars and Sherpas.

Slavery has some association with craftwork in Nepal, although it was never a major part of the pool of labour, for example in mining, most slaves were domestic and were kept to add to the status and prestige of their masters. Slavery in Nepal may have started in the middle ages with the immigration of Hindu refugees from India. It was well established by 1768 when slaves, *kamara*, were addressed as ' child', *keta*. Masters had the same rights over them as over animals, and there was a flourishing export trade in slaves from Nepal to India and Tibet until about 1800. Although enslavement occurred on a large scale under Gurkha rule, largely for defaults in debt repayments and adultery, nevertheless the labour supply which slaves would have supplied was met by the system of compulsory unpaid labour for the government. Slavery was thus redundant (Regmi 1978: 117-123, 186-7).

In 1853, the first comprehensive legal code proclaimed in Nepal classed slaves along with grain, gold, silver and utensils. Blaikie (1983: 30) suggests that slavery declined in Nepal in the 19th century due to a rise in population. However the population was fairly stable

in the 19th century, and if anything was reduced by the scale of migration from Nepal to India and the Himalayan states.

Slavery was abolished in Nepal in 1924/5. At this time there were about 51,000 slaves, perhaps 1% of the total population, held by 16,000 owners. Freed slaves were encouraged to reclaim local wastelands, but many of their descendants are still landless and impoverished. In Humla, many young ex-slaves, especially men, sought wage labour in the towns of the Terai and India (Caplan 1980: 17, 171-3, 179, 185; Dunsmore 1993 pers comm; Karki 1983; Krause 1988: 29; Levine 1980: 216; Thorner 1950). Liberated slaves and their descendants are termed Gharti and Hayu. The first of these terms is also applied to a sub-division of ironworkers, Kami, and presumably some of these Gharti are also ironworkers (see below). Communities of Gharti, about five thousand, and Hayu, about one thousand, live in the Sunwar/Sunar area of eastern Nepal (Frank 1974: 94-5).

Metalworking groups in Nepal

Metalworkers in Nepal derive primarily from three main social groups: Newars, Kamis and Sunwars or Sonars. The Newars are a tribal or ethnic group of about three million people, with metalworkers being drawn from some of their ranks. Newar metal craftsmen work mostly in non-ferrous and precious metals, a few also work as miners and blacksmiths (see below). Kamis, a caste group of mixed origins, number perhaps a quarter of a million, with the traditional occupations of ironworkers or blacksmiths, and woodcutters. The Sunwars/Sunars or Sonars number a few

thousands and work in iron and in precious metals. In India, Sonars are a caste group with the occupation of goldsmiths. Artisans in Nepal have traditionally been anonymous, even in the case of artists manufacturing items of religious art, and most works are unsigned. Hindu blacksmiths are regarded as ' untouchables', Newari blacksmiths are more integrated as ' clean' castes, whilst Sunwars appear more anomalous since they work both precious metals, as do the highest Newari castes, and iron, as does one of the lowest Hindu castes.

Blacksmiths in Nepal conform to the status enjoyed by such occupational groups in the caste system in India. Ferrous metalworkers in Nepal are primarily referred to as *Kamis*. 'Kami'... means a 'blacksmith of untouchable status' (Furer-Haimendorff 1975: 308). Blacksmiths are drawn from several social groups and have various names: in Patan, Jawalakhel and Bhaktapur caste ironworkers are called ' *Lohar*', those who work in iron or ' metal', as in northern India, whilst Newar blacksmiths are termed *Kau*. The two names, Kami and Lohar, are the same in meaning, and their use varies only according to the locality of residence (Dwivedi, 1982: 90; Shrestha 1981: 197). In early 19th century Nepal, low status castes and peoples who worked as miners and smelters, including Kamis, Gharti, Gurungs, Magars, and some castes of Newars were known collectively as *Agri/Agari/Agrye* (Regmi 1984: 85, 92, 104nn1-2). Today there are several subdivisions of Kamis: Sinchokre, Langmote, Lama, Banth, Ghimire, Paret, Gadel, Badahi, Mistri (Bista 1987: 6; Dwivedi 1982: 90-1). Two other groups, *Sunars* and *Gharti/Ghatri*, require some explanation.

The Sunars are a group of metalworkers, with some reputation as blacksmiths and goldsmiths, who are often termed ' Sunwars' and confused

with the tribal group of this name who live in east-central Nepal, for example by Morris (1933: 432-3); and Shrestha (1981: 186). Hagen (1980: 110, 114, 123) states: ' they (the Sunwars) have made a name for themselves as excellent (black)smiths and goldsmiths, and they have even associated to form a special smiths' caste, calling themselves Kamis'. Blaikie (1983: 191-2) appears to conflate Sunars with the goldsmithing castes of Newars. Frank (1974: 94-5), and Bista (1987: 69) note this confusion of *Sunwars* with *Sunars/Sonar*, a Hindi term for goldsmith, since there are people who work as blacksmiths and in precious metals living in the same area as the Sunwars of the upper Sun Khosi river in eastern Nepal. Sunars are untouchables, and outside the Sunwar area of central Nepal are filed amongst Kamis in the census returns.

Gharti, some 5,000 descendants of liberated slaves, are also resident in Ramechhap on the upper Sun Khosi in the Sunwar tribal area, and, as a sub-division of the Kamis, probably provide some of the metalworking Sunars in this region (Bista 1987: 6; Frank 1974: 94-5).

Kamis

The Kamis of Nepal thus have differing origins, deriving from both indigenous communities within Nepal and from Indian refugee communities. Some Kamis are true ' Gurkhas', descendants of those peoples living locally at Gorkha who accompanied Prithvi Narayan Shah as part of his entourage when he conquered the Valley in the late 18th century. As the Gurkhas conquered Nepal they divided casteless communities along caste lines and assigned people to their places in the social structure. This ' Hinduisation' further distributed Kamis throughout Nepal. In eastern

Nepal, where caste specialists were absent or infrequent before the Gurkha conquest, Kami expansion was welcomed among the Rais and Limbus. The Kamis in the hills are Nepali-speaking Hindus, and, with a few other occcupational castes, were the primary carriers of Hinduism into the Hills and highland areas of Nepal, although there has also been some high caste Hindu settlement in north-west Nepal (Bista 1987: 6, 11; Blaikie 1983: 25; Caplan 1970; Dwivedi 1982: 90; Fisher 1987: 45, 93, 180-2; Furer-Haimendorff 1975: 154; Hamilton 1819: 22; Levine 1980: 221; Oldfield 1880: 1, 44; Rawson 1968: 52).

Today, Kamis are differentially distributed in Nepal. In the Middle Hills, occupational castes are a minority among the majority formed from high caste Hindus: Brahmins and Chetris, and tribal populations. In the Terai occupational castes are greater in number and their ratio to the land-holding higher castes approximates that of north Indian numbers (Bista 1987: 2, 113).

In a few rural areas in the hills, for example in the Tamang area west of Trisuli Bazar, there are entire separate wards of Untouchables, mostly Kamis (Hofer 1978: 179). More commonly Kamis and Sonars form the entire populations of satellite villages which serve other villages and towns in that area. Single households of smiths or sometimes several are resident in some towns, whilst in ' Belaspur', a District capital in western Nepal, half of the untouchables in that area were resident in the town, and most of the ' clean' castes lived as landholders in the countryside (Caplan 1974). Until the abolition of caste in 1963 Kamis were excluded from residence in the towns of Nepal, except perhaps in the Kathmandu Valley (Dwivedi 1982: 90).

The caste occupation of Kamis is ironworking, the manufacture and repair of traditional agricultural implements, cooking pans and weapons. A major demand on them is to sharpen tools and kukris before harvests and festivals. Kamis historically (Hamilton 1819: 20) and in contemporary society also work in non-ferrous metals, manufacturing and making tinkering repairs on domestic utensils and kitchen implements. Kamis usually work in non-ferrous wares when Newari craftsmen, who generally give a better finish, are absent. Pokhara, in 1987, formed an exception with Kamis producing utensils in workshops alongside Newar craftsmen, although the former were not resident in that Newari town. Kamis, Sunars and Gara also manufacture jewellery, ornaments and may make religious figures in precious metals. Kamis are dependent on metal supplies to produce these artifacts. Patrons often provide their own metal, for example old utensils, iron ingots portered in from the Terai, or where available, locally mined iron.

Kamis are paid variably for their products and services in agricultural produce, meals, beer, clothing and money, either annually, for example after harvests and at festivals, or on a piecework basis. Goldsmithing is usually paid as piecework but may also be paid in agricultural produce in some areas (Jest 1975: 201-3). The amounts vary according to the means, generosity and availability of resources among their patrons (Hitchcock 1980: 4, 76-7, 82). Blacksmiths who stable and tend cattle for the Gurung of west central Nepal receive a share of their products, otherwise they subsist on maize and a few goats and chickens (Macfarlane 1976: 169-70). In Tichurong, the annual payment to a Kami consists of 20 to 30 manas (pints) of grain per year, and Kamis are also

given food and clothing at festivals. Some of the Kami families have ' regular, long-established patron-client relationships' with families in the area, that is, the 'relationships connect families rather than individuals, and ... are ... inherited.' Kami landholding in the area is small, some own none at all. Their ' income (is) primarily in the form of annual grain payments from hereditary patrons for blacksmith services'. Fisher (1987: 45, 180-2) observes that this relationship is that of *jajmani*, or *bista*, although the terms for ' patron-client' do not exist in the local languages and that what is notable about this situation is that the Kamis are actively trying to expand their *jajmani* relationships, unlike the case in most of India, where the increasingly cash economy is dissolving such relationships. In Thak Khola in the upper Kali Gandaki valley, where Kamis were numerous before the closure of the Tibetan border, only a single case of a *bista* relationship was recorded between a Tarali and a Kami family. Other Kamis served only as occasional labour and craftsmen (Furer Haimendorf 1975: 154-5, 220).

Despite the abolition of caste in 1963, the untouchable status of Kamis continues among Hindu groups. Kamis are regarded as polluting and suffer discrimination even when wealthy. Kamis do not enter patrons' houses and sit apart when eating. Kami girls marry at about 16 years of age, but are never taken as wives by higher caste goups. Kamis also practice divorce and re-marry widows. Kamis do not wear the sacred thread of the twice-born castes such as Brahmins and Chetris, and are restricted in their religious activities, for example the lowest castes in the Terai cannot carry the image of Durga during Dasein. Many rituals are carried out by Kamis acting as substitute Brahmins due to the

reluctance of the latter to attend Kami activities, "The occupational and artisan caste people cannot employ a Brahmin priest for their funeral ceremonies, but instead use the sister's son or daughter's husband to act the part. The dead are cremated (Bista 1987: 13, 115 - 117).

Kamis are regarded as not very orthodox Hindus. Although they observe Diwali, they also worship their own family gods, and are associated with witchcraft beliefs and practices, for example by the Chantel Magars. The Chantel themselves, along with the Pun Magars, who worked as miners and blacksmiths until recently are also regarded as untouchable by other Magar groups, who will not accept any cooked food from them; that is, occupation overrides tribal relationships (Hagen 1980: 121; Hofer 1979; Maloney 1974: 406).

A similar evaluation of the status of Kamis is held, with some variations, among both egalitarian and stratified Buddhist peoples of northern Nepal, who accept Hindu classifications of Kamis as ' untouchables'. Kami blacksmiths settled in Namche Bazaar to provide the local Sherpa community with both ferrous and precious wares(the Sherpas continue to obtain all hollow wares: iron cooking pots and pans, and non-ferrous water storage vessels from lower regions, including the Kathmandu Valley). As in Thak Khola, these Nepali-speaking Kamis have no institutionalised social relations with and remain outside Sherpa society. Further west in Mugu and Humla Kamis may enter and eat in houses following Tibetan customs (Bista 1987: 6; Blaikie 1983: 190-2; Caplan 1972; Caplan 1974; Chattopadhyay 1980: 4; Fisher 1987: 182; Furer-Haimendorf 1975: 82-3; Hitchcock 1980: 76-7, 82; Maloney 1974: 406). In Dolpo blacksmiths, *garas* are among the lowest rank of society, with a similar

social status to that pertaining in Tibet, as they are in Mustang, a ' state' which is Tibetan in culture, with a Bhotia population and a Rajah, himself a Bhotia, who is subject to the King of Nepal (Peissel 1978).

Table 10 is not precise but serves to indicate relative numbers. It derives from: Caplan 1972: 42, 45-6; Central Bureau of Statistics 1990; Fisher 1987: 20, 45, 180-2; Frank 1974: 94-5; Furer-Haimendorf 1975: 231, 241; Kihara 1957: 56, 95-7, 233; Macfarlane 1976: 14; Teague 1984, 1987.

Changes in caste occupation

Caste occupation in Nepal has been subject to change. After the Gurkha conquest, Kamis, along with other occupational castes had a monopoly on their occupation, but were subject to compulsory, unpaid, regular labour, *rakam*, and casual porterage, *jhara*, to produce and supply ironwares and charcoal for the state, the Royal households, and local civil and military governments. Kamis were also involved in state-controlled mining during the 19th century, but whilst mining itself was confined to particular castes and communities, poor Brahmins and Chetris worked as labourers and porters outside the mines (Regmi 1984: 54-6, 84-5, 164, 168-70).

During the 19th century Kamis spread into the Middle Hills and northern regions of Nepal where their craft skills were welcomed (Fisher 1987: 45, 180-2). From the late 19th century onwards, a rising population put pressure on land and has led to social changes. Shortages of currency to buy essential goods and to pay taxes led to increasing disparity between upper classes and untouchables.

Table 10.

Recent distribution of ironworkers, *Kamis*, among the population (HH = household)

West Nepal	Population	Kamis
Karan in Mugu (1966)	2 Bhotia clans	Some Garas
Daragaon in Humla	100 Thakuri HH	16 Kami HH
Tichurong (1972)	13 villages	36 Kami HH: 1 entire village, the rest dispersed.
' Belaspur'	137,000	18.8%of total
Jumla (1987)	68,797	12 Kami HH (6 work in various metals)
Beri-Karnali (1987)		
13 villages surveyed:	740 Thakuri & Chetri HH	120 Kami HH (including 2 villages, one entirely Kami the other entirely Sunwar. Only 50 Kami HH worked as smiths)
West central Nepal		
Lho	25 HH	2 Kami HH
Philem	30 HH	7 Kami HH
Ka	?	1 Kami HH
Sangda	?	No Kamis
Tukche	?	1 Kami HH
Thak Panchayat (1968/9)	?	12 Kami HH (9.2% of the total population, but only 6 HH practised their caste occupation of ironworking)
Tansen (1981)	13,125	1 Kami HH
Baglung (1981)	?	1 Kami
Beni (1981)	?	1 Kami HH
Pokhara (1987)	46,642	30 Newar HH 1 Kami HH
Central Nepal		
18 Districts:	3 million	76, 736 Kamis 7,036 Sunars (one-third resident in Chitwan)
East Nepal		
Bhojpur (1984)	192,689	1 Kami HH
Adikari		Entire village
Chuliban near Dhankuta (1974)	324 households	11 Kami HH (3.6% of total population. Whilst the total population was 2,053: 1033 male, 1020 female; the number of Kamis was 73: 35 male, 38 female (Dahal 1985: 12).

Among the Gurung in west central Nepal, blacksmiths had less land in 1970 than in 1933, some having no rice land at all, and there was growing social inequality, with many Kamis hiring themselves out as landless labourers to wealthier Gurungs. Poor families live at starvation level, usually eating no meat and spending what money they do have on rituals and taxes. Around Sallyann, most payments to Kamis are in grains which form about a quarter of their annual income (Macfarlane 1976: 14, 60, 119, 139, 152-4, 169-70, 180). Kamis, along with poorer Nepalis have responded to these conditions by what has become large-scale labour migration to India.

Today, most Kamis work as agricultural labourers and porters for higher caste and tribal peoples either on a permanent or occasional basis. Relatively few Kamis specialise in ironworking, but engage in other crafts including woodcutting (their other caste occupation), carpentry and basketry, and may sell their products in the market (Fisher 1987: 45, 180-2; Teague 1987). Some scholars see this as indicative of socio-economic changes. Seddon (1979: 82) argues that there was a close correlation between caste name and occupation in Nepal from the 11th until the 18th centuries. After this, capitalism and market forces promoted by the British in India, and with the connivance of the Nepalese upper classes, resulted in the erosion of the traditional social structure and loss of caste occupation. Blaikie (1983: 267); and Stiller (1976: 144) continue the same view by arguing that the development of roads and concomittant monetisation in recent years has also eroded traditional relationships, that is, *jajamani/bista* relations of grain for work. Occupational groups have shifted from artisan production to wage labouring and have become

weaker as a group in this process.

Such a view raises a number of questions about caste and occupation in south Asia. In India castes have not functioned as a group except on a local basis. Also only a minority of the members of any one caste ever followed that caste's associated occupations, and all castes had multiple functions or occupations, for example some Sudras were warriors, Brahmins were merchants and so on. In Nepal, Brahmins may be poor farmers and labourers, with only a few serving as priests, whilst rich Sudras such as butchers may be prosperous businessmen. In northern India blacksmiths may be tied almost forcibly into the *jajmani* system in the village context, whilst goldsmiths have a looser relationship and work only on a piecework basis as in Nepal (Lewis 1958: 58ff).

Metalware production is very variable in the hills of Nepal. One artisan may serve many families, or a number of villages over a wide region (Teague 1981). Metalworkers may live in villages on a regular, temporary basis, that is for several months annually whilst producing wares for local peoples, or travel on a regular basis searching for business. Patrons may force changes in caste occupation according to economic and cultural preference. In the Kathmandu Valley the Jyapu Newars of Pyangaon obtain their agricultural and domestic tools from an Indo-Nepalese Kami, regarded as an Untouchable, who is cheaper than their local, clean-caste Newar blacksmith, a Kau. The Kami is paid in grains; or in cash, food and drink when he works as a labourer for them (Toffin 1978: 478). At Kot Gaon, a Sunar goldsmiths' village in north-western Nepal, although all the men can work in gold none do so, since they have no stocks nor any orders. Local people prefer to buy their jewellery in

Nepalganj, some ten days walk away. Where metalworkers or metal sources are absent, locals turn to self-help. In Sangda, an isolated village in west central Nepal where no Kamis are resident, the ordinary villagers buy ingot iron in the lower Kali Gandaki valley and make their own agricultural tools.

In eastern Nepal, despite the increasing shortage of fuel, extensive ferrous metalworking by family groups following their caste occupation is present in or near towns such as Dharan, Bhojpur/Taksar and Chainpur. Outside Dharan in 1984 a number of Kamis from the Bhojpur/Chainpur area were working during the slack farming season in a kukri ' factory' located in the Gurkha Cantonment at Dharan in the eastern Terai. This production is precarious and dependent on outside forces. By 1990, following cuts in Gurkha recruitment, the Cantonment and the factory were closed and the craftsmen dispersed. Plans to turn the site into tourist accomodation are now under consideration.

Variations in caste occupation are apparent. Kamis generally subsist on a mixture of craftwork and labouring, and lack enough land for their entire subsistence, but these conditions are shared with members of some higher castes and tribal peoples and appears to be the result of rising population and the failure of land reforms rather than monetisation as such, which it long pre-dates (Dunsmore pers comm 1993; 1987 fieldnotes). A similarly varying range exists in jajmani/bista relationships. Whilst these have been eroded in some cases, as among the Gurung, in others, such as Tichurong and among the Sherpas they are on the increase. Metalworkers in particular appear to have retained more employment in their caste occupation than some others (Blaikie 1983: 267).

Whilst the social and economic aspects of caste within Nepalese society are variable, as in India (Klass 1980: 130), there is evidence of constancy in its cultural aspects: Kamis appear to carry the process of ' Hinduisation', from below, among both Hindu and Buddhist populations. Fisher (1987: 49) describes the religion of the Magars of Tichurong as ' caste Buddhism' or ' Hinduism without Brahmins'. The categorisation of Kamis as low caste ' Untouchables' has had general application in Nepal. The varna system, although prohibited and sometimes shaken, still shapes society in Nepal, as in India. ' In Nepal there has been accomodation but not much real change in social relations between castes...caste (ideology) still informs the wider society.' (Caplan 1978: 64-5; also Furer-Haimendorf 1975: 272; Karki 1983: 445; Panjiar 1991; Robinson 1989: 380). Marriage patterns formerly included child marriage, unequal marriage and polygamy according to Vedic rites (suttee was abolished in 1920). The New Civil Code of 1963 reformed these practices, banning bigamy and raising the age of consent to 18 years for a girl and 21 for a boy, or 16 and 18 respectively if their guardians give consent. Some inter-caste marriages and a degree of social mobility do occur in Nepal. An individual may marry up or downwards, even among the Hindu caste groups, and an individual may buy entry into a higher caste if he can validate his claim ritually as well as economically (Maloney 1974: 207). An entire caste group may also attempt to rise in the hierarchy, as the case of the Newar oilpressers, Sami, indicates (Furer Haimendorf 1956).

The social identity of blacksmiths remains ambiguous today. The New Civil Code abolished caste discrimination and untouchability but in 1965 King Mahendra called for Nepal to be a Hindu nation (Wilson 1972: 42). In

1984 the government was said to be implementing the Social Behaviour Reforms Act to counter discrimination on caste grounds (Rising Nepal 4.9.84), and in 1988 the World Hindu Conference, held in Kathmandu, resolved to eradicate the caste system and untouchability as ' evils of Hinduism', yet the present King has made Hinduism the state religion by decree. Legislation against the caste system is one thing, practice is another. Caste discrimination particularly against ' Untouchables' still occurs, with caste cases now occurring under other labels. Although some Nepali scholars see caste organisation as providing a single hierarchical scheme, for example for the Newari Hindu and Buddhist communities (Nepali 1965, 146), others see caste organisation and religion as maintaining the fragmented and hierarchical nature of Nepalese society which inhibits its development as a unified nation (Kumar 1967: 3).

The persistence of some degree of hereditary *bista* relationships between Kamis and their patrons in the rural areas of Nepal indicates something of the nature of the rural economy and the status of Kamis (Epstein 1967: 232), and is in contrast with the developmental nature and the contractual relationships among Newar metalworkers to which I now turn.

Chapter Six

STATUS AND ROLE OF METAL CRAFTSMEN IN NEPAL II: THE NEWARS

The Newars provide metalworkers in non-ferrous, precious and ferrous wares. Since their social structure and culture has marked differences from other sections of Nepalese society, I give some indication of Newar society as a whole before discussing their metalworking groups.

In 1952 there were 383,184 people registered as Newars in the Kathmandu Valley, among a total Valley population of half a million. In 1981 there were 448,746 Newars in total in Nepal, with perhaps over one million resident elsewhere in Nepal and abroad (Bista 1987: 16; Central Bureau of Statistics (CBS) 1990: 22; Gellner 1992: 23; Nepali 1965: 19, 82).

Table 11.

Percentages of Newars in the main cities of the Valley

	Kathmandu	Patan	Bhaktapur
1952	68%	78%	98%
1981	35.8%	51%	83.5%

In 1969 Newars comprised about 50% of the population in the

districts based upon the three main cities and were numerically dominant in smaller towns in and around the Kathmandu Valley including Kirtipur, Thimi, Sankhu, Chapagaon, and Banepa.

Newars have also settled elsewhere in Nepal for several hundred years, particularly during the last two centuries, although most Newars still lived in their capital city of Patan' about 1850 (Oldfield 1880: I, 121). Newar communities are found in bazaars, trading centres and mining sites along the length of the Middle Hills, from Ilam in the east, through Dharan, Dhankuta, Chainpur, Bhojpur/Taksar, Okhaldunga, Ramechaap, Those, Gorkha, Pokhara, Tansen, Dailekh and Dhoti Silguri (Frank 1974: 91). The fewer sizeable communities in the Terai include Butwal and Dharan. Outside Nepal Newars settled in India, Sikkim, Bhutan, China, and, until 1959, some 20,000 in Tibet (Bista 1987: 17-18; Chattopadhyay 1980: 11; Doherty 1978: 434; Frank 1974: 91-2; Hagen 1980: 111; Nepali 1965: 19-25; Shrestha 1981: 187; Slusser 1982: 11-12)

Newar Origins

Newars are generally taller and more slender than the hill tribes of Gurungs, Magars etc., but the lack of a modern study of their physical anthropology makes their racial origins debatable (Doherty 1978: 435; Furer-Haimendorf 1956; Imperial Gazeteer 1908; Lobsiger-Dellenbach 1955).

The Newars may have been the original inhabitants of the Kathmandu Valley from prehistoric times, perhaps a branch of the Kirantis, the autocthonous population of Nepal. Alternatively, Newar folklore refers to their origins in Tibet or China, which may

echo the movement of peoples west and south through the Himalayas in prehistoric times (Doherty 1978: 435; Oldfield 1880: 2, 74-5). In the Kathmandu Valley these peoples intermarried with immigrants, including traders and craftsmen from India and elsewhere in Asia to form the present population of Newars. In legendary terms there are two versions of the origin of civilisation in the Kathmandu Valley. In the Buddhist version, Bipaswi sowed a lotus seed in the lake which covered the Valley. A lotus grew from it bearing the image of Swayambu, the self-born god. The Bodhisattva Manjusri then came from China and, with one sword cut, opened the Valley by draining the lake away which allowed cultivation to develop, and enabled pilgrimage on foot to the only religious site which had existed as an island before this time: Swayambunath. According to this myth, civilisation including economic activity thus grew around a religious centre. A Hindu version of the myth describes the sword cut as being executed by Vishnu. The Sakyas, one of the higher castes of Newar metalworkers, have myths of their origins in both China and from Sakyamuni Buddha's clan from around Lumbini. Newar civilisation may have begun in the sixth century BC, and been further developed by Indian Buddhist influence (Bista 1987; Furer-Haimendorf 1956; Mukherjee 1978: 162; Regmi 1952; Sjekelj 1959: 98; Slusser 1982: 9).

The Newars perceive themselves as different from the hill tribes of Nepal, referring to the latter as ' *parbate*', or *parbatia*, hillmen. The hill tribes, who carry loads with a headband or tumpline, often refer to the Newars as ' *karpane*', or those who use the load pole with two baskets, Karpan, as is Chinese and Indian practice (Kihara 1957;

Macdonald and Stahl 1979; Okada 1957). Whatever their origins, the Newars perceive themselves as an ethnic group defined by their primary residence in the Kathmandu Valley, with their own cultural property and language (Gellner 1992: 5).

Language

Newari, a distinctive language with six differing dialects, has Tibeto-Burman features and some Sanskrit elements, and is related to the languages of hill tribes such as the Gurung, Magar, Tamang and Limbus. Newari was the state language of the Kathmandu Valley from 879 until 1769 (Bista 1987: 16; Furer-Haimendorff 1956; Lobsiger-Dellenbach 1955; Slusser 1982: 10).

The Newars have their own script derived from Indian *Brahmi* (Pal 1991: 28). ' Newar' as a name first appears as written epigraphs in 1173 AD, and then in written form in 1654 AD, and probably derives from the word ' Nepal'. The ' classical' period of Newar literature was about 1350-1850 mostly using the Nepalakhala alphabet, then, from the 18th century, Devanagari, a Sanskrit script was used. After the conquest, Nepali, a Sanskritic language used by the Gorkhas, became the lingua franca of the whole of Nepal. The government obliged Valley Newars to speak Nepali and the Ranas particularly suppressed Newar culture until 1946. Recently the ban on teaching Newari has been lifted, there has been a literary renaissance and a Newari language newspaper is now published. Ethnic solidarity and some re-assertion of culture has thus persisted despite setbacks. Today, some 4% of the total population of Nepal speak Newari, mostly Buddhists, whilst Hindu Newars tend to speak Nepali (Blaikie 1983: 95-

98; Doherty 1978: 434; Gellner 1992: 61; Macdonald and Stahl 1979: 12; Okada 1957; Slusser 1982: 9, 50).

Economy

The economy of the Newars taken as an entire group is based on a mixture of cultivation, craftwork and commerce. The farmers, Jyapu, who form over 50% of the total community of Newars in the Kathmandu Valley, specialise in irrigation agriculture mostly on smallholdings. Formerly, only the short hoe, *kodali*, was used, despite the Valley being one of the largest flat areas in the hills of Nepal. This is in strong contrast with the use of the plough elsewhere in the hills. In recent years, the scratch plough has been employed in the Valley and, in the last decade, the rotovator.

The main Valley crops are rice, vegetables, and some wheat, a recent addition. Two harvests a year are grown. Agricultural labouring is done by temporary annual associations of men, *bola* (New)/*parma* (Nep). Water rights are controlled by guilds or corporations, *guthis/gothis*. Increasing population density, over 2,100 per sq. mile in the Valley; and a lack of firewood, is leading Jyapus to relate increasingly to the urban economy of the Valley, where tourism provides alternative employment opportunities.

Many Newars are merchants, shopkeepers, hotel keepers, artisans and skilled craftsmen who may also hold some agricultural land. Newars, with Chetris and Brahmins, now dominate the higher posts in the bureaucracy and National Parliament, and provide more than half of the civil service.

Residence

' The most striking feature of Newar civilisation is its totally urban character.' (Furer-Haimendorf 1956: 16). Even farmers prefer residence in large, multi-occupied houses in both the larger cities and in the smaller towns and villages, so that housing is not directly attached to cultivated land (Shrestha 1981: 118). Newar urbanisation is in marked contrast with other tribal and caste groups, most of whom, apart from parts of western Nepal, prefer residence in isolated or separated houses in rural regions.

Newar houses are large, brick built structures with three or more storeys. The ground floor may be used for storage, to house livestock, or as a shop or workshop. The bedrooms are on the first floor; the second floor forms a visiting area or living room, the third floor a kitchen and dining room (Shrestha 1981: 121). Metalworking may take place on the ground floor inside a house, in an adjoining courtyard, or on the top balcony, for example when doing mercury gilding. A new house is purified or pacified and worshipped by burying a copper vessel with a yantra of a fire wheel symbol, drawn on paper and sealed inside, under the threshhold. This ceremony is termed *griha suddhi* or *grihasanti* (Mukherjee 1976: 161).

Newar settlements are of two types, with clustering by caste and religion very high both in Patan and Bhaktapur (Shrestha 1981: 171). Udas, Jyapu and other heterodox Buddhists live scattered throughout the cities and towns, whilst groups of high caste Newars such as Vajracharyas/Guwajus, married priests, and Sakyas/Bares/Banhras live in a square or quadrangle of houses, formerly monastic compounds,

viharas (Skt) *bihar/bahal/baha* (New). In some baha, the majority of residents usually follow the same occupation, trade or craft. A part of the quadrangle is set aside for the living quarters of the priests and their attendants who are in charge of the temple and its religious apparatus to which the baha is attached. Formerly in the village context, each caste group present lived in its own area, *tol*, with the highest castes living around the paved central area, *chowk*, and lower castes on the edges of the village (Blair 1983: 57; Okada 1976; Oldfield 1880: 1, 123-4).

Newar residence is patrilocal, with an extended joint family as the basic unit of social structure. Land is inherited individually from father to son, or is held collectively by voluntary associations, *guthi* (Nepali 1965: 39, 251ff). A number of patrilineages, *phuki*, combine to form a wider group of people, an exogamous clan, *kul/kalah/khala* (New), which has some bilateral elements (in contrast with the unilateral descent groups, *santan*, among other Nepalis). Clan members claim relationship by their descent from a common male ancestor, and are linked to a specific residence and place of worship (Gellner 1992: 66). Each clan has a ritual centre, *agon*, in a house where the heirlooms and ritual objects are kept and the members meet to worship. The kul has a tutelary god, to whom blood sacrifices are made by the assembled members in the Diwali cult (Nepali 1965: 194). These social groups are hierarchically ranked and are ' differentiated and united in public ceremonies' (Macdonald & Stahl 1979: 65). The clan structure is now disintegrating (Slusser 1982: 11-12; Toffin 1978: 480).

Voluntary associations

The Newars form voluntary associations, *guthi*, co-operative or common trust organisations which are endowed with cultivable lands. There are three types of guthi: religious, social and public service. The guthi organise and pay for festivals, pujas and temple maintenance; for road and bridge repairs, for voluntary social clubs and feasts; and for funeral and cremation costs. Guthi have officers including a headman, thakali, and a treasurer. A guthi may be formed for economic co-operation such as field work, and to give financial help in illness and for weddings. Guthi numbers vary from a few to several hundreds. Some Newars may belong to several. Collaboration is usually for life. Although Brahmins and Chetris may work with Newars as agricultural labour, they are excluded from *guthi* membership since this institution is peculiar to the Newars and membership is exclusive to them alone (Deutschle 1986: 234-239; Furer-Haimendorf 1956; Hagen 1980: 114-16; Nepali 1965: 38-9; Regmi 1966: 706-9). Doherty (1978: 442-4) argues that the Newars place more reliance on lineage groups, *phuki*, and the associations, *guthi*, which these form, rather than on caste groups.

Co-operative association appears to be limited to the activities outlined above, rather than in craft production. For example metalworkers and other artisans work either as individuals, as members of one family, or with friends; as master and apprentice(s), or employer and employee(s). Disputes are common when friends and relatives go into business together (Gellner 1992: 32, 236).

Social organisation and religion

The social organisation of the Newars is strongly influenced by religious factors. Newar religion is a combination or syncretism of ancestor worship, aboriginal practices and beliefs including animism, and the Great Traditions of Hinduism and Buddhism, including their tantric forms. Metalwares, used instrumentally and expressively, play a part in public and domestic cults, as well as in house building and marriage.

The Newars are characterised by the presence of a strong Buddhist community which has persisted from ancient times until the present. This was reinforced by the influx of refugee monks during the early Malla period. Apart from this, and some influence from Tibetan Buddhism from the 16th century onwards, there have been no substantial external Buddhist influences. Newari Buddhism turned in on itself until recent years, when Theravada Buddhism began to be adopted in the 1930s (Gellner 1992: 62, 352n35).

The Newars are renowned for numerous festivals, *jatra*, both in the domestic context and as communal, public events. The festival cycle, which is based on the agricultural cycle, reinforces ' group solidarity at the...levels of caste, patrilineal group and family ... through a large network of feast dominated institutions, which are not found among the other ethnic groups of Nepal' (Nepali 1965: 37, 343, 415). Animal sacrifice, 'the core of Newari ceremonial and religious life', is accompanied by commensality involving the consumption of large amounts of buffalo meat and alcohol, a feature of every community festival, giving rise to an adage: '... the Parbate (Nepali

speaker) is ruined by his sex appetite and the Newar by his food appetite' (Nepali 1965: 43, 340-1). Commensality is according to (three) defined degrees of intimacy which are defined by ritual aspects in the consumption of food (Nepali 1965: 149).

I do not wish to discuss Newar festivals at length but merely note particular festivals to indicate something of Newar cultural property especially where this involves some association with metalworking.

Two festivals which are of central importance in Newar religion, and are largely in the hands of Buddhist Newars (Gellner 1992: 87), are peculiar and special to the Newars and are celebrated by both Buddhists and Hindus. The Newars regard Machendranath/Matsyendranath as the most ancient of the jatras. This festival opens the religious year and brings on the Spring rains. The Newars term the god *Buga/Bhagero*, a deity who does not appear in either the Buddhist or main Hindu pantheons, although he is revered as a patron saint by a branch of Saivite yogis, the Kanphata, in India. Buga's pupil, Goraksanatha, also revered by the Kanphata, is the patron saint of the Gurkhas (Chattopadhyay 1980: 21-22).

Indra jatra, another monsoon festival, honours Indra, Ganesa and Bhairav. This festival '... is typical of the Newars and is, perhaps, nowhere to be found in India' (Nepali 1965: 358). A particular feature of this festival is the appearance of the living goddess, Kumari, who is paid homage by the entire population of the Valley, including the King. There are several Kumaris resident in different towns in the Kathmandu Valley. They are pre-pubescent,

virginal girls from the Newar Buddhist community who serve as guardian and companion to Machendranath. In Bungamati, five kms south of Patan, the Kumari, perhaps the original, is a Vajracharya girl who is selected on a rotational basis from several families and serves for two to three years (Khatry 1989: 98-100; Locke 1980: 277). In Bhaktapur, a Hindu city, the Kumari, who is always a Sakya from Adibuddha vihara, is the only Buddhist institution with city-wide importance (Locke 1980: 38). In Kathmandu the Kumari is drawn from the Sakyas and reigns until puberty. She is resident in her own palace near the royal palace of Hanumandhoka. Although Buddhist herself, this Kumari symbolises Durga and serves as the guardian deity of all the people of Nepal. On the last day of Kumari jatra the King pays homage to her in acknowlegement that she is the divine sovereign of the Kathmandu Valley. She renews her mandate to the King for him to rule the Valley (Nepali 1965: 187-8). The cult of Kumari is basically Buddhist, she does not feature in Gurkha rituals except for that of the King's homage, but is accepted by Hindus. ' It is the general belief of the Newars that the Valley belongs to (her)' (Nepali 1965: 312).

Newar culture has diffused to the caste groups of Nepal. Gai Jatra (Saparu, New), a monsoon festival formerly specific to Hindu Newars, has now been adopted as a national, Nepalese, Hindu festival to help those who have died in the preceding year to enter heaven, Yama's kingdom. Effigies, *tahamaca* (New), of cows or yaks are carried and cow masks are worn; one masked man drags a copper utensil and a model cot. Gaijatra is celebrated by Newari blacksmiths, *Kau*, whilst Buddhist Newars celebrate this festival by worshipping Avalokitesvara (Gellner 1992: 61; Locke 1980:

235; Nepali 1988: 354-5). Dasein/Dasera, an autumn festival to worship the Goddess, is common to Nepal and parts of India. A main feature is the blood sacrifice of a multitude of animals, which is inimical to Buddhists, yet the Newars, Buddhists as well as Hindus take part (Imp. Gaz 1908: 43). Although the Newars worship the Bhairavas (forms of Siva), Ganesa and Bhimsen among others, Goddess worship is a marked feature. Hindu Newars extend this to worshipping male Buddhist deities as females, for example the Bodhisattva Manjusri is worshipped as the goddess Saraswati and at Sankhu a figure of Sakyamuni Buddha is worshipped as the Blacksmiths' Queen (Gellner 1992; Nepali 1965: 102-3, 340, 416ff; Pal 1991: 19).

Caste Organisation

Newar ethnic solidarity is maintained and reinforced by their inter-relationships in religious activities, but 'caste is the principle basis of social hierarchy' (Nepali 1965: 146, 178). The Newar caste system is based on two interdependent functions: occupational and communal, which each caste fulfills, usually in a religious capacity. Newar caste groups are ' religious organisations as much as secular ones', as may be seen by their duties at religious festivals (Chattopadhyay 1980: 7). The members of a caste are regarded both by themselves and others, as a social entity. They call on family priests of the same rank, engage in similar rituals and have the same social and ritual privileges. In a one-caste baha the oldest man is the headman, *thakali*. In a mixed-caste baha, each community of *Guwajus* or *Banras* has its own *thakali*, and the head of a caste council is termed *kaji* (Nepali 1965: 172, 416-17).

The same principles of caste organisation operate among all the

Newar castes, Buddhist and Hindu, with some differences between higher and lower. Each caste is largely autonomous with its own internal social controls, and practices commensality (Furer-Haimendorf 1956). Each caste has sub-castes and groups which try to mark their differences from the others by myths of origin, language and musical styles. Outsiders are excluded as far as possible in the attempt to maintain group purity. This exclusion is correlated with the marked attachment of social groups to particular localities, which results in ' territorial introversion' (Gellner 1992: 310-11).

Newar villagers tend to marry out (Toffin 1978: 480). In the urban context, towns tend to form the limits of marriage for patrilineal descent groups. Newars in other towns are regarded as ' outsiders', except in some cases where emigrants have retained kin and commercial ties with their ancestral residence (Furer-Haimendorf 1956). In eastern Nepal non-ferrous working, Sakya Newars in Bhojpur, Chainpur, Dhankuta, Sanguthar and Okhladunga claimed (1984, 1991) to have originally come from Patan and maintain ties, largely for marriage and the initiation of young men, with Newars in Patan, whilst ferrous-working Newars at Those do not (Furer-Haimendorf 1956; Gajurel & Vaidya 1984: 41, 47; I. B Sakya pers comm 1984). Newars in Pokhara (1987) stated that Newars in eastern and western Nepal, originated, like themselves, from Bhaktapur.

Newar marriage has marked differences from the forms in orthodox Hinduism. Every Newar girl is married before menstruation to a *bel* fruit. In this, the most sacred of all domestic rituals, *yihee*, the girl is ritually and indissolubly married to Narayan (Nepali 1965: 106). This initiation ceremony allows girls to re-marry in adult life, in contrast

with the difficulty of re-marriage in orthodox Hinduism. Following this the girl is secluded for twelve days and married a second time to a doll, *bara khayakhayak*. The girl emerges from seclusion in full marriage ornaments, and is paraded around the settlement and a party is given for her. At puberty a husband is selected for the girl and mediators are used to effect the marriage, her third wedding. Among the Sakyas at this ceremony, the father of the groom places a silver anklet on his new daughter-in-law.

Marriage to a man is a subsidiary contract with divorce readily available by placing betel nuts in the groom's bed (Okada 1957: 196). The Newars repudiate sati, and divorcees and widows may re-marry if they wish. The Gurkhas despise marriage to the *bel* fruit (Sekelj 1959: 100), and easy re-marriage was discouraged by the government during Jung Bahadur's regime (Gimlette 1886; Slusser 1982: 1, 68). Dumont (1972: 161) suggests that Newar primary marriage may allow girls to have unions with men of lower social status.

Each Newar caste is preferably endogamous but this rule is not kept as strictly as in India, and historically the Newars have intermarried between their own castes and sub-castes, and with other social groups including immigrants from India, tribal peoples, Tibetans and Hindu caste groups. The Newars failed to assimilate the Gurkhas after the conquest, perhaps because the latter brought in enough women to avoid this (Nepali 1965: 17).

The tolerance of cross-caste line marriages is probably due to Buddhist influence and the Newar view of marriage as an association which either side can end at will (Furer-Haimendorf 1956). Intercaste marriages

are celebrated informally, but in some cases even the second marriage of a woman to a man may be celebrated with full rites. Both men and women may marry upwards if the social distance is not too great, and if the claim to status can be backed by wealth. When sub-castes intermarry, the children either take an intermediate caste position between those of the father and mother, or belong to the mother's (lower) subcaste if social distance is too great, in contrast with Hinduism where the child adopts his fathers's caste. A lower caste wife and her children are not included in the husband's lineage group (Nepali 1965: 148-9; Okada 1957).

The offspring of marriages between Newar men and tribal women are separately classified, for example *nagarkoti*, the children of a Newari man and a Gurung or Magar woman, are numerous in the Valley and the surrounding areas. The children of Newar men and Tamang or Sherpa girls are classified as members of these tribes, not as Newars, despite their common Buddhism. The Udas, a relatively high caste among the Newars regularly married Tibetan girls when they were in extensive residence there, and their offspring were termed *kachara* (see below).

Whilst Hindu caste groups formerly tended to remain distinct from the Newars, and marriage, divorce and dietary practices '... are still the fundamental grounds on which the Nepali speaking group distinguishes itself from the Newars' (Nepali 1965: 148), this distinction is now breaking down and some intermarriage between Newars and Brahmins and Chetris is creating a major new division, *khatri*. At the same time a counter-process is occurring. High caste Hindu Newars are regarding divorce with disfavour and its incidence is declining (Furer-Haimendorf 1956). Both Hindu and Buddhist higher castes may punish divorcees by rendering them

outcaste with forfeiture of the right to participate in the ancestral cult and commensality (Maloney 1974: 408; Nepali 1965: 206-7). These processes must be seen in the context of the Hinduisation of Newar society.

Caste organisation and Hinduisation

Although the Newars are currently organised into caste and sub-caste groups, this structure has been subject to change. At the start of the Licchavi period, the Newars were heterogenous in beliefs, which included animism, ancestor worship and Mahayana Buddhism; and had an apparently casteless social organisation which consisted of clans including: Mallas, Shresthas, Padhans etc., and a structure of monastic and secular orders. The monastic order, *Banhras/Vanras*, was subdivided into four classes according to the degree of asceticism practised, and the secular orders followed various trades and occupations (Gellner 1992: 99; Hagen 1980: 114; Lewis & Jamspal 1988: 198; Lienhard 1984: 108).

Since then a process of ' Hinduisation' of the Newars appears to have occurred, although when is subject to debate (Gellner 1992 verb comm; Nepali 1965: 146ff). Various rulers of the Kathmandu Valley are cited as fostering Hinduism and caste organisation, despite their tolerance of Buddhism among the population, especially in the Early Malla period when religious change apparently affected the mass of the population rather than merely the aristocracy as before. At this time, Indian refugees, both Buddhist monks and caste members settled in the Valley and intermarried with the Newars. Some of these immigrants converted to Buddhism, others retained Hinduism, and a syncretism of Buddhism and Hinduism also took place. As Tantra and Vajrayana Buddhism became established in Nepal,

support for ' orthodox' Buddhism declined. Buddhist monks started to break their vows of celibacy, to marry and have families, and subsist by craftwork (Lienhard 1984: 108; Oldfield 1880: 2, 74-5; Slusser 1982: 1, 72-3; Snellgrove 1987). It is not clear whether immigrant Brahmins retained social pre-eminence and imposed the Indian caste system on the Newars (Hagen 1980: 123-4), or whether a rigid caste structure based on occupation rather than religion already prevailed in Nepal during the Malla period, and was re-organised to incorporate secularising Buddhist monks as a ' new caste' (Regmi 1986: 651, 656, 660, 685).

In the 14th century Jayasthiti Malla is thought to have formally organised Valley society into four *varnas* and 64 castes with Brahmanic advice (Chattopadhyay 1923: 470; Nepali 1965: 146). Buddhist and Hindu Newars now became organised in parallel divisions with prescribed rules and rituals, and Buddhists were ranked and classified by occupation. Buddhist Newars believe that Jayasthiti forced their Vajracharya and Sakya ancestors to marry, possibly to Sunar women, to take up low caste employment as goldsmiths, to sacrifice buffalo to Taleju and adopt meat eating (Gellner 1992: 86-7, 355n26). Despite the adoption of caste organisation, celibate monks living in communities in some 25 compounds, *baha*, persisted in Patan until the 17th century, when one of the main *baha*, Ubahal, was built. It is not known from which caste the monks were drawn (Gellner 1992: 18, 55, 57, 351n23, 352n35; Furer-Haimendorf 1956; Labriffe 1973: 188; Lienhard 1984: 110).

After the conquest of the Valley the Hinduisation of Newar society was emphasised over the next two centuries (Lienhard 1984: 109; Maloney 1974: 402, 407-8; Rahul 1985: 87). Under the new Nepalese government

Buddhism was repressed. Hinduism became the more prestigious religion and its pantheon was used as ' an instrument in the process of Hinduisation' (Macdonald & Stahl 1979: 59). Hindu gods came to be seen as ' protectors' of Buddhism in Nepal, and a further synthesis of the two religions was made among the Newars. 'A liberal tradition under which Buddhism had thrived on equal terms with Hinduism was set aside by the more puritanical outlook of the (new) Thakuri and Chetri rulers who lent the whole power of the governmental machinery to the enforcement of Brahmanical values and invested the Raj Guru, a Brahman ... with the authority to regulate behaviour in many spheres of life and to adjudicate caste disputes ... The replacement of Newari rule...involved not only a shift of political power ... It caused the decline of a pattern of life moulded by the Newars' emphasis on the importance of aesthetic values and the commerce and crafts which provided the basis for their realisation, and favoured the growth of martial and nationalistic ideals' (Furer-Haimendorff 1966: 24; Gellner 1992: 18). Whilst higher Newar castes such as Sakyas and Shresthas were recognised as Vaisyas, the Gorkhas regarded all Newars ' ceremonially as Sudra', and treated them as one caste in relation to themselves, due to Newar traditional practices of diet, marriage, divorce and re-marriage.

Most Newars were excluded from influence in the political system and their economic base severely damaged (Nepali 1965: 147-8). Under the Mallas, each temple had lands, *jagir*, permanently attached to it. The produce from this land kept the temple in repair, supported resident priests, and paid the expenses of festivals. After the conquest, Prithvi Narayan made large-scale appropriations of land in the Valley, especially those of temples in Patan, for the construction of new temples and farms

for the Gurkhas. Some Newars were given poorer lands in recompense (Regmi 1978: 40). Later rulers such as Bhim Sen Thapa(1806-1837) and Bam Bahadur Rana (1856-7) confiscated jagir which Prithvi Narayan had spared. Only temples which the Gurkhas themselves used were allowed to retain some of their jagir, and remained in good repair. Most temples which were dependent on the voluntary support of a now impoverished Newar population, including the craftsmen who provided architectural fittings, religious figures and apparatus, were in decay and ruin by the mid-19th century (Oldfield 1880: 1, 116; Regmi 1978: 40). Royal or state patronage of craftsmen in the Valley '... all but disappeared' (Alsop and Charlton 1973: 25-6), Newar crafts generally declined, and metal sculptors fell back on private patrons by producing images and paintings for the domestic cult (Gimlette 1886: 1890-1). Under the Ranas, '... caste played havoc with Nepalese society, keeping it hierarchical and fragmented' (Kumar 1967: 3; 136-7). During the 19th century, the government actively proselytised Hinduism, enforced Newar caste organisation by law, ' It was illegal to live by a trade or profession which was traditionally the preserve of another caste' (Gellner 1992: 18, 95), and placed disabilities on practising Buddhists who declined in numbers annually (Chattopadhyay 1923: 10, 36-7; Gellner 1992: 62; Waddell 1893: 44).

Nineteenth century reports on caste organisation among the Newars give varying interpretations. Oldfield (1880: 1, 120; 2, 84-5, 188, 286, 299-303; and Gimlette 1886) thought that Newar Buddhism was in its last stage and predicted that it would probably be extinct by the mid-20th century. They estimated that two-thirds of Newars were Buddhists and one-third were Hindus, and that caste distinctions were becoming universal

among all Newars. The Imperial Gazeteer (1908: 43) disputed this view, and noted that there was little or no evidence that Hinduism was replacing Buddhism.

There is some evidence that ' Hinduisation' has continued during this century. Twentieth century estimates are that two-thirds of Newars are now Hindus, and only one-third remain Buddhists (Dwivedi 1982: 81), or that only 7.5% of Newars are now Buddhists, since many Newars now call themselves ' Hindus' in order to gain employment and to rise socially... ' Hindus get on best' (Slusser (1982: 305). After 1951, Newar dress became ' Indianised' and clean-caste Newars try to maintain caste status. The Newars themselves regard their form of Buddhism as corrupt or decadent compared with traditional Buddhism, and lay the blame for this decline primarily on the Vajracharya, less so on the Sakya, for their loss of celibacy, learning and control of major temples. There has been a general decline in religous practice over the last 50 years, and the Vajracharya have lost ground against Brahmins and Theravada and Tibetan Buddhists, although Buddhism is now giving some Newars a group identity (Gellner 1992: 94, 99-100).

Contemporary scholars still have differing interpretations about the nature of Newar beliefs and social organisation. ' In theory ... Newar caste organisation is based on the same Hindu principle (as in India): the five-fold division of society ... It represents the former Hindu society of the Valley ... which has ... become modified through the historical process ... of several centuries.' (Nepali 1965: 146, 416). Alternatively, Lienhard (1984: 114) asserts that '... life in the communities of the Newar *viharas*,

baha, has until now remained intrinsically Buddhist, and therefore contrasts with the way of life of other, non-Buddhist groups in the Nepal valley.' There are differences between the caste systems of India and Nepal,' especially in that occupational specialization in general professions is not enforced' in Nepal (Doherty 1978: 442). The Valley caste system does not fit the Indian model in its growth and elaboration, but was ' formally imposed on the Newars' (Chattopadhyay 1923: 442). Hinduisation and inter-relations between Newari caste groups are not dependent upon the ritual aspects of caste organisation so much as the results of political control (Furer-Haimendorf 1956), and contextual circumstances (Gellner 1992: 85-6; Fisher 1978: x-xi).

Today, with the legal abolition of caste, although there have been changes in caste occupations the religious functions of caste groups persist (Nepali 1965: 52-3, 68, 169, 416). Although a formal division of the Newars into Buddhist and Hindu castes remains despite abolition, there is indication of some indifference to such a religious differentiation among the Newars themselves, who do not regard it as a major division within their society. The Newars have no terms in their own language for ' Buddhist' or ' Hindu' Newars, although they may use the terms ' Bhoudik' and ' Saivik' when referring to other communities or people (Furer-Haimendorf 1956). Some families call both lamas and Brahmin priests for different rituals as required. Buddhist and Hindu Newars co-operate in rituals, for example Banhras Buddhist priests officiate at, and secular Buddhist Newars participate in, some Hindu festivals, whilst Hindu Newars visit Buddhist temples and join in Buddhist festivals. Nepalese and Tibetan Buddhists are allowed entry for worship into important

pilgrimage sites such as Pashupatinath, Changu Narayan and Sankhu, from which Untouchables are excluded, since Buddhism is regarded as a form of Hinduism (Gellner 1992: 54, 351n21; Pal 1991: 19). Images of both religions are found at shrines in towns and villages, and there is a Hindu temple at the major Buddhist shrine complex at Swayambunath. The presence of Hindu deities in Buddhist shrines appears not to be evidence of Hinduisation since such figures have been present from the earliest times in Buddhist shrines in India (Locke 1980: 61-2n71).

The persistence of meat eating and alcohol drinking, which are such marked features of Newar behaviour, indicates, I would argue, against the imitation of the Brahminic model, that is ' Sanskritisation', among significant sections of Newar society. Even so caste structure remains a useful framework in which to discuss the role of metalworking groups.

Different authorities (Chattopadhyay 1923; Furer-Haimendorf 1956; Gellner 1992; Khatry 1989; Nepali 1965; Oldfield 1880; Regmi 1966; Satyal 1979) give differing models of Newar caste structure, but usually separate Buddhist and Hindu groups. The Newar caste system is a twin hierarchy with ' two competing centres' (Gellner 1992: 43-4). Rosser (1966) is an exception in providing a composite structure of Buddhist and Hindu castes which incorporates and subordinates the former to the latter (see Table 12).

The number of caste groups varies according to differing sources. By collating several medieval chronicles, Regmi (1966: 641, 647-50, 658-9) concludes that there were between 64 to 82 in four varnas in the Malla period. In the 19th century Oldfield (1880: 1, 177-88) describes 68 distinct, hereditary classes or castes among the Newars, with orthodox

Hindus, about one-third of the total Newar population, divided into 14 classes, none of which are metalworkers. Orthodox Buddhist Newars are divided into nine classes of Banhras or Sakyas, most of which are craftsmen, primarily metalworkers; and seven classes which include metalworkers amongst other commercial and craft occupations. Heterodox Newars, lower in the social scale, who combine worship at Hindu and Buddhist shrines are divided into 30 classes or castes, including farmers, *Jyapus*, some craftsmen such as blacksmiths, *Kau*; and eight unclean ' out-castes'. Locke (1980: 11) criticises Oldfield's list as, 'a confused mixture of caste status, occupation and religious designation'. More recent accounts indicate a reduction in Newar caste groups over the course of the last century (Gellner 1992: 44; Michaels 1988: 21-2; Toffin 1978: 463), for example an overall number of 26 (Rosser 1966); 19 (Greenwold 1978: 485-6); or 16 Sakya ' clans' reduced from 30 (Mukherjee 1978: 28).

Although ' caste is the principle basis of social hierarchy among the Newars ... and brings both the religious sections ... under one single scheme of hierarchy' (Nepali 1965: 146), castes among the Newars appear to change according to a variety of factors: castes may rise or fall according to a kingly decision; fall as the result of an accident; change religious allegiance or simply disappear (Nepali 1965: 169ff, 171, 173-5; Regmi 1966: 678-9). Nepali (1965: 153-4) states that the sub-groups of metalworking Sakyas which Oldfield listed no longer exist, having either merged or become extinct. The practice of caste occupations may also change due to fluctuations in the supply of particular types of metals (Michaels 1988: 22-3). Competition between castes may lead to political

Table 12.

Newar caste structure (Rosser 1966):

Caste	Traditional occupation	Personal Surname
1. Deo Brahman	Family priests	(only entered where it denotes a metal-working occupation.
2. Bhatta Brahman	Temple priests	
3. Jha Brahman	Temple priests	
4. Gubhaju	Family priests	
Bare	Gold and silver smiths	Sakyabhikshu
5. Shrestha/Sheshya	Merchants	Shreshta, Malla etc.
6. Uray/Udas	Merchants and craftsmen	Tuladhar (merchants) Tamrakar (coppersmiths) Kamsakar (alloy-workers)
7. Jyapu	Farmers	
8. Kuma	Potters	
9. Saymi	Oilpressers	
10.Khusa	Palanquin bearers	
11.Nau	Barbers	
12.Kau	Blacksmiths	Nakarmi
13.Bha	Funeral duties	
14.Gathu	Gardeners	
15.Tepe	Cultivators	
16.Pum	Painters	Citrakar
17.Duhim	Carriers	
18.Balami	Field workers	
19.Pulu	Funeral torch bearers	
20.Chipa	Dyers	
21.Jogi	Musicians and tailors	
22.Nay	Butchers and musicians	
23.Kulu	Drum makers	
24.Pore	Fishermen and sweepers	
25.Chami	Sweepers	
26.Halhulu	Sweepers	

Greenwold (1978: 485-6) gives a similar listing to Rosser with minor differences in ranking, for example he ranks blacksmiths, Kau, as number 14 rather than 12, and, since they are of clean caste status, are eligible to call for Brahmins or Vajracharyas to perform their domestic rites.

conflict, and upward mobility is a particular feature of the social process as castes dispute their place within the hierarchy (Furer Haimendorf 1956; Nepali 1965: 149). Gellner (verb comm 1991) describes an overall process of homogenisation and breakdown of caste organisation among the Newars today, which is correlated with modernisation amongst the young.

My own impression is that hereditary callings are still followed where this is profitable, but that there has been a merging of groups and the adoption of other occupations in many cases. Contemporary opinion is that ' there is no caste among the Newars' (R.K. Sakya 1991 pers comm). Given the overall rise in population and the dispersion of Sakyas from the Valley over the last century, along with the overall reduction in caste groups, an opposite process to the proliferation of endogamous caste sub-groups and the struggle for upward mobility which is found in India is apparent. The ' Hinduisation' of post-conquest Newari society thus appears to have changed in more recent years.

Newar metalworking castes

In the mid-19th century, most Newars had restricted occupational roles, '... whatever his present occupation may be, every Niwar, whether Sheo-margi (Hindu) or Buddha-margi (Buddhist), belongs to some hereditary craft or profession...(and) must perform the inherited duties of his occupation on certain occasions ... a member of one craft never interferes with or encroaches upon the technical duties and rights of another' (Oldfield 1880: 1, 177, 180; 2, 134). In many cases hereditary craft occupations were insufficient to provide subsistence, so were combined

with more general occupations such as agriculture.

Today over 50% of Newars are farmers, *Jyapu*; 20% are Shreshthas; 10% are Bare; and 5% are Uray/Udas. Non-ferrous and precious metalworkers are drawn from the Bare and Uray castes, that is primarily from Buddhist Newars, and blacksmiths from the Kau, a clean, low caste (Michaels 1988: 21-2; Oldfield 1880: 1, 177, 180). Metalcraftsmen are thus drawn from about 10-20% of the total Newari community.

There are conflicting reports about Hindu Newars being metalworkers. Furer-Haimendorf (1956) states there are no artisan castes, and was doubtful whether there were any mercantile castes, among this section. However all the potters in Thimi and Bhaktapur are Hindus (Birmingham 1975: 3, 10), and Mukherjee (1978: 162-4) reports meeting Hindu metalworkers, Kangsakars of the Vaisya varna, in Kathmandu, some seven or eight amongst the 600 Kangsakars resident there; as well as a group of Hindu Tamrakars, coppersmiths who were also making brass utensils, who were resident in Patan and in Bhaktapur.

The Buddhist Newar metalworking castes of Nepal worship Manjusri, the Bodhisattva of learning and creation from China, who has a temple dedicated to him on the western part of Swayambunath and presides over handicrafts. Hindu Newars worship Manjusri as the goddess Saraswati. He is also identified as an incarnation of the Indian Universal Architect, Visvakarman (Nepali 1965: 290, 305-6; Macdonald & Stahl 1979: 51), and is conflated as Sasudyah who is worshipped by all Newars at the Sri Pancami festival (Gellner 1992: 84).

Bare/Bade/Banras/Vanra/Bandyas

Bare are Buddhists and are divided into two sub-groups: Vajracharya or Gubhaju and Sakyas. About puberty male Bare children initiate temporarily as monks, which includes shaving the head indicating the rejection of all caste status, rather than as ' twice-born' Hindus. Vajracharya children (a minority) then have a second initiation, which enables them to function as priests for a large part of the Newari community and gives them higher status than the Sakyas (Locke 1980: 10). The relationship between these two sub-groups appears to have varied over time. About 1600 it was apparently possible for a Sakya to become a Vajracharya, but by 1650 this was no longer so and the Vajracharya formed a closed descent group (Gellner 1992: 266-7). Subsequently the relationship appears to have opened again in Kathmandu, with intermarriage and commensality occurring, then about 50 years ago the Vajracharya became concerned about their caste status and intermarriage declined (Rosser 1966: 126), in that Vajracharya would take wives from the Sakyas but did not reciprocate (Nepali 1965: 153-4). Currently both groups freely interdine and intermarry isogamously with full religious rites, and male offspring take the caste of their father (Gellner 1992: 62; Locke 1980: 11n7). The Bare thus function as a single endogamous caste group, although their anomalous status as such in Nepalese society is recognised. The Bare claim that caste status was imposed on them by the Malla kings, especially Jayasthithi Malla who forced them to renounce monasticism and marry (Gellner 1992: 355n26; Locke 1980: 12). Gellner (1992: 64, 66) observes that the term ' Bare' (Bade/Bada) is a non-honorific term used by high caste Hindus for the Vajracharya and Sakya

combined. The Sakyas and Vajracharyas are distinguished from high caste Hindu Newars such as the Shresthas, by their lack of internal status grades, and do not fit easily into the *varna* system, since they are at the same time: priests (in the case of the Vajracharya), householders concerned with their caste status, and married, part-time monks who refer to their initiation for boys as ' becoming a Buddhist' (Gellner 1992: 49, 58-9).

The Sakyas worship the historical Buddha Sakyamuni along with the Buddha-before: Dipankar Tathagata, and claim to be descendants of Sakyamuni's clan who migrated to the Valley from Lumbini (Locke 1980: 10-11). They also claim descent from Ksatriyas who were formerly monks (Gajurel & Vaidya 1984: 1ff; Pal 1985: 21; Regmi 1966: 658-9, 703-4). Formerly they would chant Buddhist hymns as they worked (Gellner 1992: 33). The Vajracharyas and Sakyas have a particularly significant role in the religious life of Nepal in relating the Newari and Nepali communities by providing Kumari, the living goddess, from among the families who are goldsmiths.

Most Vajracharya and Sakyas live in Patan and the fewest in Bhaktapur, where some 209 households form 4% of the city population. The Vajracharyas as a sub-group are few in number, 590 in Patan and some 2,000 in Kathmandu (Locke 1980: 19; who notes that there are no Valley-wide figures). In some hill towns Newars form the dominant population which controls the manufacture and retail trade in metalwares, for example 15-20 of the 300 households in Chainpur (1984), with fewer numbers in nearby Bhojpur. Newari metalworkers in both towns are Sakyas and Kangsakars.

In the Kathmandu Valley cities Vajracharyas and especially Sakyas are primarily resident in ' monastic' compounds, *baha* (New) or *vihara* (Skt), built around a central shrine. In the Licchavi period some 44 baha are recorded, and in the 14th century 128. It is probable that these numbers are an inaccurate record. At present there are 120 baha in Kathmandu, 167 in Patan, nearly all of which are extant, and 20 in Bhaktapur (Locke 1980: 13-14n13), .

Metalworking among the Vajracharyas and Sakyas is passed down among certain families and in certain localities. In Patan, these are as follows (Gellner 1992: 265): Uku Baha, metalwork and figure making; Mahabuddha, curios; Guji and Si Baha, woodcarving; Ha and Om Baha, goldsmithing and refining gold dust, *dhusah*; Na Baha, casting; Bhiche Baha, stonemasonry; Nag Baha, curio and figure making. This listing is not entirely absolute since I have seen figure making in Mahabuddha, on the Patan Industrial Estate, and in Kathmandu. The antiquity of some baha is considerable. Kwa Baha in Patan dates from c. 1,000 A.D. on documentary evidence, or from c. 600 A.D. according to folk belief (Locke 1980: 18n16), and Uku/Ubaha was built in the 17th century (Labriffe 1973: 187). Some Sakya metalworkers trace back their ancestry for several hundred years.

In the medieval period goldsmiths were termed *Vepak Bade*, and Bare who were metalworkers, sculptors and painters were termed *Nevas* until about 1850 to distinguish them from other Bades (Regmi 1966: 643, 669-70, 703, 1003). Oldfield (1880: 1, 182) refers to a group of Bare called *Nibharbharhi* who worked in brass and iron, making metal images of gods, and cooking utensils including tinned wares (a Muslim fashion).

Currently goldsmiths and carpenters may term themselves *lohanka:mi* or *sika:mi* but these terms relate to their traditional occupations and have nothing to do with caste status (Locke 1980: 10-11). Traditionally a goldsmith's work, but not a silversmith's, was despised, but this changed when the Banras as ex-Buddhist monks adopted the goldsmiths' occupation (according to Regmi 1966: 703-4). Whilst gold and silversmithing are practised by high castes among the Newars, goldsmithing may be combined with blacksmiths' work and its associated low social status among Hindu occupational castes, although social status is not in itself connected with the type of metal which is worked. Gold and silver are pure metals which are regarded as resistant to impurity (Hofer 1979: 101).

Within the Bare there is egalitarianism, and a variety of occupations are followed without the stigma or loss of status attached to artisan work found amongst Hindus. Most Vajracharyas and Sakyas are artisans, working as gold and silversmiths, the traditional caste occupation, and in the production of metal figures and curios; as carpenters and stonemasons; shopkeepers and traders (a large minority), businessmen, doctors and in government employment. In some baha all the resident Bare practise one craft. Sakyas often also hold lands which they may rent out to tenant farmers (Furer Haimendorf 1956; Gellner 1992: 49, 265; Hofer 1980: 41-2). As the price of gold has risen, goldsmithing, one of the most lucrative crafts, has tended to drop off (according to Gellner 1992: 49; although I observed an increase in goldsmiths in Kathmandu in 1991). Most Sakyas work in their home workshops. Usually they work for themselves, that is, to commission from individuals or shopkeepers and

exporters. In a few cases they work on a production line in a workshop or small factory for a large exporter (see Chapter 8; and Gellner 1992: 31). The family is the primary production unit, with links to the wider society for supplies: metal from the *Tamvah*, clay from the *Jyapu*, iron tools from *Kau* Newaris, and coal, firewood and wax from the Tamang peoples; although coal and metal may now be obtained from India, and wax from Burma (Alsop & Charlton 1973: 32).

In 1982-3 Michaels (1988: 21-2, 24-5) observed that only Sakyas resident primarily in the two baha of Ubaha/Oku bahal, where they numbered some 2,000, and Nagbaha/Nag bahal in Patan, were involved in metal casting, with the exception of a few Shreshthas (merchants) and Jyapus (farmers); and that many artisans were abandoning their traditional craft in view of economic constraints on non-ferrous production. The increased demands from local tourism and export markets over the later 1980s appears to have reversed this decline. Today the Sakyas dominate in producing and selling religious figures and apparatus, domestic utensils and implements, and curios for domestic, tourist and export markets. These products are made in metals which are traditionally associated with groups lower than themselves in the Newari caste structure: Sakyas make domestic utensils and implements in bell metal and brass (Kangsakars' work); and work in copper sheet (Tamrakars' work) to produce figures, masks and reliefs and fittings for modern hotels and Kathmandu airport.

Bare have the closest cultural affinities with the Udas caste which ranks below them, but have ritual contact with other Newari castes, both Buddhist and Hindu, at weddings, when, as a goldsmith, a Banra goes to the

bride's house to place a silver bangle around her wrist for the Kalya-Nhyake-Gu ceremony (Nepali 1965: 153-4, 179).

Udas/Urays/Urha

The Udas caste has experienced centuries of intermarriage with other groups. There is some debate about their origins (Nepali 1965: 164), which are probably various and include a mixture of families: seven Shreshtha, one Kow/Kau, and one Malla who refused to accept the caste system, combined with the offspring of Vajracharya and Sakya men and Tibetan women; Shrestha men and Jyapu women, and artisan migrants from India who adopted Buddhism (Chattopadhyay 1980: 73; Furer-Haimendorf 1956).

Most Udas live in Kathmandu where there were 1,098 households of them in 1970-2. There are a few resident in Patan but none in Bhaktapur (Greenwold 1978: 485; Nepali 1965: 162; Oldfield 1880: 1, 183; 2, 145-6; Regmi 1966: 704). The caste consists of seven groups which intermarry and practice commensality, but not with lower castes (Mukherjee 1978: 163-4). Udas may receive food from Bare as their superiors. Udas are orthodox Buddhists who regard the Vajracharya as their only priests, and do not attend Hindu temples for public worship (Regmi 1966: 669). Whilst a Bare may lose caste status and become an Udas, an Udas may never become a Bare. An Udas may lose caste and become a Jyapu, but a Jyapu can never become an Udas (Chattopadhyay 1980: 16). Udas consider themselves of equal rank with the Sesyo/Shrestha caste as Vaisyas.

Udas particularly worship Bhimsen, the god of wealth (Nepali 1965: 321-2). Every 12 years, until 1967/8, a living ' Bhimsen' from among the worshippers at his shrine in Kathmandu travelled to Tibet as representative of the god and was given an amount of gold by the Tibetan government (Bista 1978: 189). Udas were involved in the foreign trade of Nepal, especially that with Bhutan, China and Tibet over which they exercised a monopoly (Uprety 1980). Formerly the most wealthy class amongst Buddhist Newars as a result, their wealth and social status diminished in the mid-19th century (Oldfield 1880: 1, 183), when Udas were perhaps superseded in their control of Nepalese-Tibetan trade by Vajracharya and Sakyas (Furer-Haimendorf 1956: 20).

The first and most important group bears the caste name, Udas or Uray. In the 19th century, Udas men were distinguished by having a top knot of hair. Some 2,000 Udas in the Valley also kept a household in Tibet. At weddings among high caste Newars, the men carrying the apparatus for worship dressed as Tibetans to demonstrate that the groom's family had a trading house in Lhasa (Nepali 1965: 220). Newars in Tibet maintained their guthi associations, about 12 in Lhasa alone, each guthi had '... its own patron deities ... ornaments, jewelry, ritual texts, pots and pans and dishes for holding big feasts' (Bista 1987: 195). Their offspring by Tibetan wives were excluded from guthi membership, trade, and inheritance of most of their father's property.

In Tibet the Newars settled in Lhasa, where they formed the main metalworking community, and in Gyantse, Shigatse and the east in Derge. ' It would appear that central Tibetan metalworking was, into very recent times, in the hands of the so-called *kachara*, or Newars of mixed blood,

who live around the Barkhor of Lhasa and in other major centres' (Alsop 1989; also see Bell 1928: 118). In the mid-19th century Huc (1852: 251) reported that 'Pebouns' (Nepalese) ...' were the most numerous community of foreigners in Lhasa ... The Pebouns are the only workers of metal in Tibet, and in their quarters must be sought the smiths, braziers, tinmen, plumbers, goldsmiths, as well as the physicians and chymists (sic)...The Pebouns fabricate vases of gold and silver, and ornaments of all kinds for the use of the Lama Convents. It is they also who furnish the beautiful gilt plates for the temple, which resist so well the inclemency of the seasons, preserving unimpaired their first freshness and brilliancy. Their religion is Indian Buddhism.' Waddell (1893: 328) noted that, although most craftsmen in Lhasa were lamas, a few of the best figures were made by Newar craftsmen from Nepal. Nepalese metalworkers from Tibetan monasteries were among the Tibetan refugees who settled in Nepal after 1959. On return from Tibet, Newars were regarded as unclean and required purificatory rituals before being re-integrated into society.

Udas caste members can never work as priests, nor as gold and silversmiths, but follow a number of different occupations which are not restricted to caste occupations. Most are merchants and in recent times they have spread all over Nepal as petty traders and shopkeepers. The two groups of Udas which provide metalworkers are numbers two and five in their hierarchy: the Kangsakar and the Tamrakar (Bista 1978: 195; Chattopadhyay 1980: 102; Furer-Haimendorf 1956).

Kangsakars/Kamsakars/Kasa/Kasar

Kangsakars (group 2) may be Kshatriya in origin, and are known from the medieval period, when they were called *Kansyakara* (Regmi 1966: 648-9, 670). They worship the same gods as the Sakyas but do not intermarry with them. Kangsakars regard themselves as higher in status and do not intermarry (down) with Tamrakars with whom there are some indications of caste competition. Kangsakars are primarily resident in Kathmandu, with a few in Patan and perhaps in Taksar (Bista 1878: 195; Gajurel & Vaidya 1984: 41, 47; Mukherjee 1978: 163-4). Kangsakars traditonally work in bronze or bell metal, and in brass and copper, making domestic and religious vessels for the Newar community. Their particular products include the traditional dish or plate, *kans*; bells, both for Nepalese and Tibetan use; and jingles, bowls and cups (Gajurel & Vaidya 1984: 49; Mukherjee 1978: 163-4; Nepali 1965: 181; Ronge 1980). In Hinduism, bell metal is forbidden for the manufacture of cooking utensils. In 1964, of the 600 Kangsakars estimated as resident in Kathmandu, only seven or eight were working in bell metal, which they regarded as coming from a ' foreign country', and, since it was then becoming scarcer, were turning to production in brass (Mukherjee 1978: 163-4).

Tamrakars/Tamots/Tamauta/Tamo/Thambat/Tava

The Tamrakars derive their name from the word for ' copper', *tama* (Hindi)/*tamra* (Skt). This caste, which may have migrated to the Valley from Mathura (Gellner 1992, 65, 350n16), is composed of five sub-groups resident mostly in Bhaktapur, where there are about ten to fifteen exogamous groups, *gotras*; with some in Kathmandu, in Ikhatol and Kel Tol;

and in Patan (Chattopadhyay 1980: 87-8; Gajurel & Vaidya 1984: 31; Michaels 1988: 21-2; Mukherjee 1978: 3; Regmi 1966: 669-71).

The ambivalent religious allegiance and caste status of the Tamrakars, especially those resident in Patan, results in some disagreement among scholars. Tamrakars are staunch Hindus who call Upadhyaya Brahmins for their rituals (according to Gellner 1992: 51, 57; Mukherjee 1978: 3; Nepali 1965: 163, 295), whilst Regmi (1966: 667, 669-71) states they are Buddhists and call Vajracharya priests). Tamrakars worship Vishwakarma, god of artisans; Bhimsen, the Mahabharata hero; and Bhagavati or Durga. In Kathmandu the Tamreshwara temple has a solid copper Siva lingam with four faces, and in Patan, the Tamrakars are associated with the construction of the Krishna Mandir temple.

Tamrakars eat meat, drink alcohol, and have social relations with carpenters, *Kathkars*, stonemasons, *Silakars* and *Rajkarnekars*, but not with other artisans who work in copper alloys (according to Mukherjee 1978: 3). Tamrakars are on friendly, easy visiting relations with upper class Sakyas in Patan in 1984. They do not intermarry with Sakyas nor Kangsakars but do marry other Buddhist caste groups. Today, the Tamrakars of Patan and Bhaktapur claim to belong to the Shrestha caste, and state that coppersmiths in Nepal are of higher caste than Sudras (Regmi 1966: 667, 669, 696), whilst the Tamrakars of Kathmandu claim to be the same caste as Buddhist Tuladhars (Udas). Other Udas groups do not recognise the Patan Tamrakars as Udas since they eat chicken (Gellner 1992: 51, 57; Nepali 1965: 163, 295).

Tamrakars specialise in making large water vessels, *gagri*. They also make other copper vessels, including cooking utensils, votive plaques,

and ritual plates with tantric designs which are made for Hindu temples both in the Valley and in the Hills, and were carried by pilgrims to India, Kashmir and Tibet. Since copper has become scarcer in recent times Tamrakars have started to work in other metals including brass, gold and silver (Nepali 1965: 163), zinc (Mukherjee 1978: 163-4), and lead (Barker & Barker 1984: 107), that is in alloys which are traditionally associated with Kangsakar work. The richer castes of Newars prefer to use metal vessels made by Tamrakars and Kangsakars, whilst Jyapu Newars prefer to cook in earthenware vessels. The Gurkhas (sic) and other castes are also obliged to buy these articles from the Udas, although Indian Tamots now import ready-made copper and brass vessels, which affects Nepalese business (Nepali 1956: 50, 59, 188). Tamrakars work on an individual or on a small factory basis.

Kau/Kow/Kou

Newar blacksmiths, *Kau*, are ranked tenth in a group of 30 castes and eight outcastes, and are the only caste among this group to provide metalworkers. Their personal surname is Nakarmi. Kau may be either Hindus who worship Siva (Nepali 1965: 354), or Buddhists (Oldfield 1880: 1, 188 terms them ' Heterodox Buddhists') who call Guwaju priests. Blacksmiths worship an 11th century bronze of Sakyamuni Buddha in Gum-vihara, Sankhu, which is known as the ' Blacksmiths' Queen' (Slusser 1982: 1, 72-3).

In the medieval period Kau were regarded as untouchable but are now ranked as one of the clean castes. Newar blacksmiths are thus less degraded and impure than either blacksmiths in India, and the Hindu

occupational caste of blacksmiths, Kami, in Nepal. Even the lowest untouchable caste of Newars, the *Chyankhala* who remove night soil, consider themselves superior to the Parbatia untouchable castes including the Kami. Kau usually reside as one household, often at a distance, per community; for example at Satepa, in the western Kathmandu Valley, there is one Kau household among 194 households of various Newar castes (Greenwold 1978: 485; Hofer 1979: 101; Nepali 1965: 101, 107; Regmi 1966: 674, 694; Toffin 1978: 463).

Newar blacksmiths work in all types of iron, making and repairing iron tools, knives and weapons for agricultural and domestic use, and were traditionally paid in grain for their services at harvest time. Today cash payments are also made. The Satepa blacksmith works for Satepa itself and for nearby villages. He is paid in fixed amounts of grain by half his patrons, the other half pay him in cash. Newar villagers may also prefer to buy ironwares from Kamis who produce them at cheaper rates (Ishii 1978: 507-8; Nepali 1965: 50, 184; Toffin 1978: 478).

Chapter Seven

PRODUCTION OF FERROUS AND PRECIOUS METALWARES

FERROUS PRODUCTION

Iron ores occur in scattered deposits in the hills of Nepal, and extraction and exploitation have usually occurred in the locality concerned. In the east deposits are present near Dharan; in Bhojpur District at Salpa; in Chainpur District at Linling, Fapung, Lahakot and Ghate. Major deposits occur at Phulchowki Hill, in Kitini near Patan in the Kathmandu Valley, where human bones and clay pots are found in old mining systems, and at Jirbang in Narayani Zone. In western Nepal, deposits occur at Labdi in Gandaki Zone and at Bharikot near Ghat in Jajarkot District. Surface deposits such as the latter are grubbed by local blacksmiths, Kamis. The ore is then either smelted locally, or in Jajarkot; some is also taken for sale in Jumla.

During the 20th century Nepal became dependent on importing iron from India. The 1980/1 Quota allowed 1,000 MT of iron ore to be imported into Nepal (Karki 1983). Today 98% of Indian iron production is based in Bihar and Orissa, south-west of Calcutta where the largest iron deposits are found. Most of the better ore is haematite. The largest

firm, which became dominant in the Indian iron industry from 1911 onwards, is the Parsee-owned TATA Company. TATA iron scrap, usually in the form of sections of old car and lorry springs and railway line, is imported into Nepal on a large scale. In the hills, iron ingots may be portered for considerable distances. For example, the villagers of Padmara near Jumla, in western Nepal, bring iron ingots from Nepalganj for Jumla blacksmiths to make up into tools for the village, a journey of ten to twelve days when loaded. The villagers of Srinagar in Mugu have an even longer distance: 18 days' march when loaded, to porter this material from Nepalganj. The porterage costs of metal are high, in Jumla an ingot costs five to six times its purchase price in Nepalganj. Blacksmiths are provided with iron by their customers when the latter comission wares, or they buy scrap as stock. In Patan several factories now make ferrous wares, that is engineering parts, metal furniture, railings, corrugated iron etc. as well as agricultural implements. When worn or broken these products may be re-cycled as scrap metal.

Table 13.

Estimated deposits of iron ores
(Gajurel & Vaidya 1984: 22)

Location	Estimated deposit of ore (tons)	% of iron
Phulchowki	10 million	56
Labdi	1 million	38-65
Those	8 million	30-65
Jirbang	1 million	(unknown grade of varying %)

The pre-industrial production of iron artifacts is as follows:

Extraction and smelting

Iron ore is dug from mines or grubbed from surface deposits. After hammering it to powder, it is then washed by hand in an open wooden pipe or trough, *doond*. The trough is then inclined, allowing the water to carry away the clay and impurities and leave ore particles behind, and the ore is sun-dried to prepare it for smelting.

A variety of furnaces have been used for smelting iron in Nepal:

a) a shaft furnace in the form of a cylinder on a base of stone slabs, with bellows or tuyere holes at the base of the cylinder, and a tapping hole at the front bottom. This type was in use at Those into this century.

b) a cube-shaped furnace made from stone slabs and clay usually about four feet long, wide and high, but variable according to the amount of ore to be processed (Gajurel & Vaidya 1984: 20). A circular pit is dug in the base of the furnace, and filled with a six inch layer of charcoal. On top of this a six inch layer of ore is placed. Charcoal and ore are then layered across the width of the furnace until it is stacked fully up to the roof.

The fire is lit and the nozzles of four skin bellows are inserted into the two draught holes at the base of each side wall. A continuous draught is provided from bellows operated by two people, one on each side of the furnace, and each working two bellows. Blowing is continuous for 24 hours, with operators taking shifts in turn. The molten ore and its slag collects in the pit at the bottom of the furnace. The furnace is allowed to cool and the bloom is removed. It is then heated and hammered

to separate the metal from its slag. Relatively little iron is now produced in this way.

Forges

The forges and houses of ferrous workers in the rural context are located away from main settlement, either in isolation, or in hamlets and villages populated entirely by Kamis, again at some distance from settlements with populations drawn from other caste and tribal groups. The forge may be isolated from the house, or may be incorporated into a house, for example as a basement. In an urban context forges may be more or less makeshift - a lean-to of branches, or a shack which may have open walls. Urban residence is usually peripheral rather than central, although one example (Bhojpur 1984) is exceptional in that the only Kami household resident in town lives in a shack beside the central market place. Another singular example is that of the kukri factory in Dharan Cantonment (1984; see below). In 1987 the Kamis in Jumla lived in a terrace of houses on the edge of town, whilst in Pokhara the Kamis, although they worked in town, lived outside it.

Manufacture

Ferrous wares are mostly manufactured by forging. The forge typically consists of a pit, which may vary in size from 1.5 to 2m long, 1m wide and 0.5 to 1m deep, with a charcoal fuelled hearth and bellows. Bellows are of various types. The traditional type, which is still in use, is made of ox or goatskin on a bamboo frame with an iron nozzle, which is

inserted into the clay tuyere which passes through a clay wall to the hearth. Other types of bellows may be worked by a belt over a bicycle wheel. The type of bellows used determines the name applied to the forge: where a skin bellows is used the forge is termed *bhatti*; where an Indian metal bellows, *masinic/machine*, is used the forge is termed *aran/arun*. Some forges use both types of bellows, and a blow tube made from bamboo or iron may also be used to provide a draught. Female members of smiths' households may help in some stages of production such as operating the bellows.

Anvils, *li*, are of varying sizes, from 4x4x4", to smaller T and half-T shapes, *tango*, which are either driven into the ground or set into wood. Tools include a variety of hammers, *hatro*, *bhari*, ranging from sledges with a 4-5" head on a 1m haft to smaller hammers with 2-3" heads. Chisels, *chino*, which are roughly shaped iron bars about 3-4" long with one sharp end, are held in tongs, *sansatto*, made from iron strip. Iron spikes, *suiro*, are used for piercing holes. Punches, *sumba*; shaped and cylindrical forming plugs, *bhatno*, for forming shaft holes; and files and scrapers, *bankh*, complete the tool kit. A wooden water trough, *dur*, is used for quenching hot iron, and a grinding wheel, *laha*, for sharpening. Some tools such as the larger hammers and files are bought in the bazaar, others are made by the smith himself. The fuel is typically charcoal, *koila*, which is formed into a bed, *ogina*. There is now a problem in obtaining charcoal due to government forest-conservation schemes.

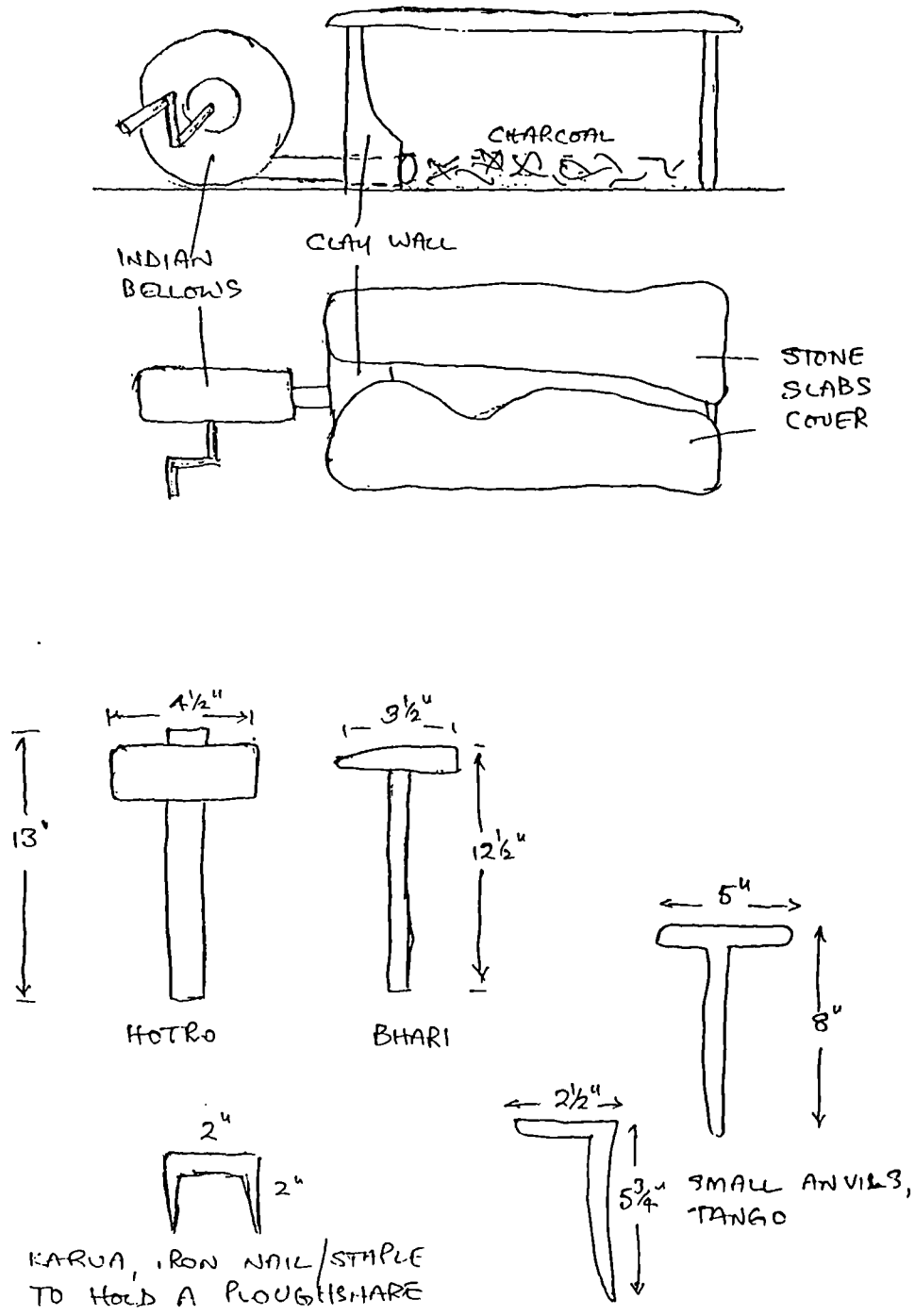


Fig. 1. Blacksmith's forge and tools, Adikari village near Chainpur, East Nepal 1984.

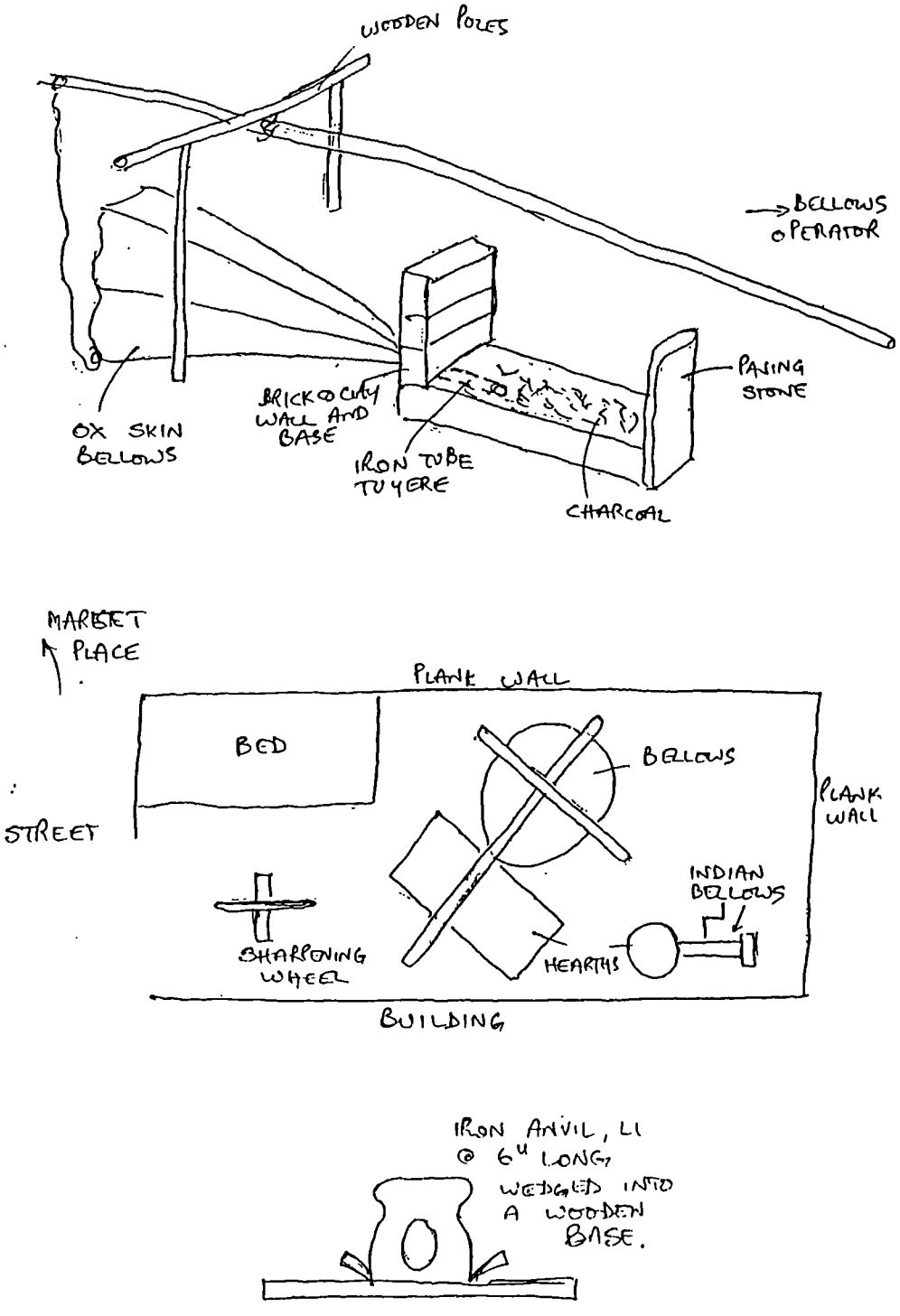
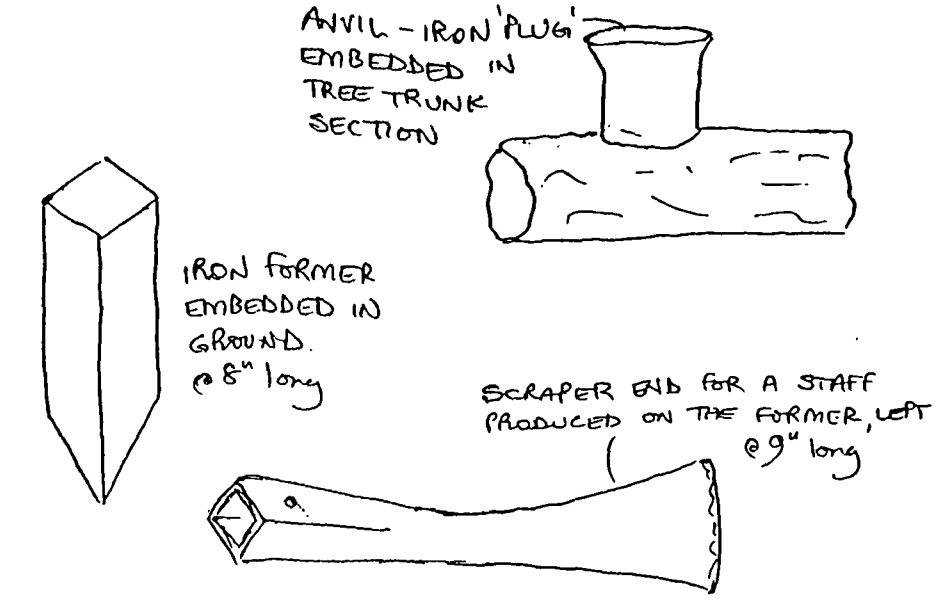


Fig. 2. Blacksmith's forge, *bhatti*, Kukri workshop, Dharan Cantonment, East Nepal 1984



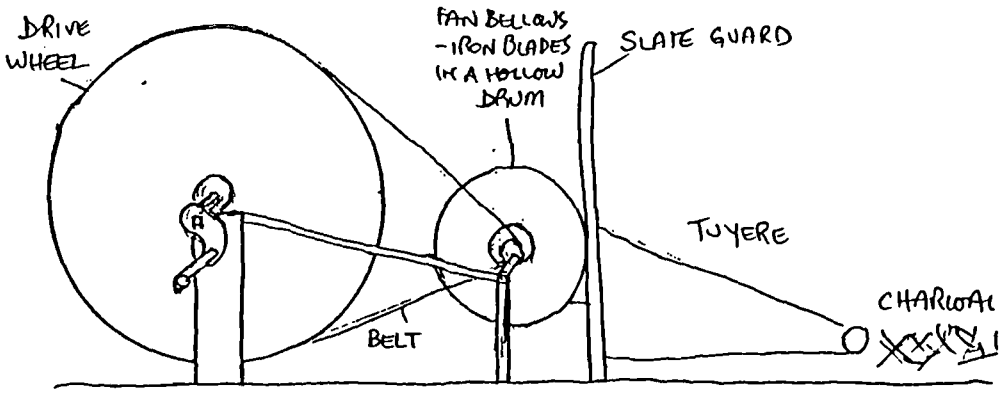
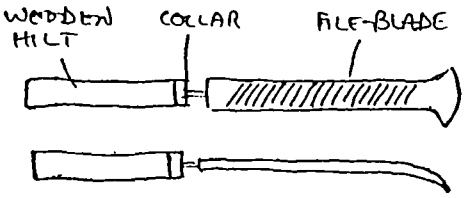
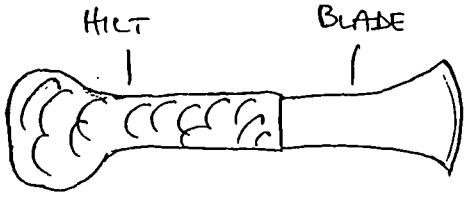


Fig. 3. Kami's forge, Beni, West Central Nepal 1981

TOOLS



BLADE SCRAPER/CHISEL MADE FROM A BASTARD FILE (cf THE PLATE SCRAPER'S TOOL (BRONZEWORKER) IN DHARAN BAZAAR)



CHISEL, RAPI, USED TO CARVE WOODEN SHEATH FOR KUKRIS.

Fig. 4. Tools used in Kukri workshop, Dharan Cantonment East Nepal 1984

Products

Ironworkers make and repair a range of artifacts. Primarily these include farming tools: ploughshares, hoes, sickles, axes and clearing tools. Kukris serve several purposes, including brush clearance and as a weapon, but not all ironworking Kamis make them. The kukri makers in Dharan, a notable centre for this product, said that the steel which they obtained from old car springs was the best in Nepal (Pitt 1970: 30). The general demand for weapons has declined. Sacrificial swords, *kora/katti*, are consecrated and kept in a temple. The Kamis in Jumla now (1987) make iron ploughshares for about 25% of the local population. This is a new fashion, most people still use the wooden shares typical of this area.

Domestic items include trivets or pot stands, frying pans and some cooking pots, graters, quern spikes and kitchen knives. Some places are noted for their specialities, for example axeheads from Kalikot in west Nepal; kukris from Bhojpur, Pyuthan and Sallyann. Miscellaneous items manufactured include locks and keys, staff ends, finger rings, tin lamps, water boilers for the kitchen, tools for other Kamis and for non-ferrous metalworkers, and, more recently, shears and weavers' combs for the carpet trade; some Kamis make musical instruments such as jew's harps, as well as curios for the tourist market and for export.

Kamis may also make altar lamps and figures in precious metals, copper, brass and wood, according to their commission and more commonly where no Newar craftsmen are present. For example, when a silver figure was required for the Goraksa temple in Jumla a few years ago, several local Kamis were locked in the temple for ten days until they had finished

making the figure. Rarely a Newar metalworker in Patan will cast a figure in iron.

Case study: Workshop production of kukris, DHARAN Cantonment, East Nepal; 1984.

For a number of years the ' Aran Workshop - Kukri Kharkana', in the Gurkha Camp outside Dharan in the eastern Terai has produced kukris for the Nepalese Army and Police as well as for general sale.

The workshop consists of two long, parallel, single-storey sheds, each with an open side facing inwards towards the other. The painted sign has the title of the workshop, with five kukris of differing types below: *markatnay* (for goat and buffalo sacrifice); *sirupatay* (leaf-like blade); Limbu type, *sirupatay/sirupathay* (slender blade); Bhojpuri type, *biduna* (broad fore-blade); Dhankuta type. To the left is an 'Army type'; to the right is a Dhankuta type wooden sheath.

The workshop primarily makes kukris but will make other knives to order. A variety of blade sizes are produced, ranging from 6" to 18" long. The small knife, *karda*, which is used much as a penknife, as well as for skinning, and the sharpening knife, *chakmak*, which is also used as a strike-a-light, are made as a standard part of a kukri set. The long Limbu kukri, *sirupathay*, with its blade shape based on the leaf of a gum tree, and especially the broad-bladed Bhojpuri kukri, *biduna/buduna*, which is used by the Rai, are typical of eastern Nepal, whilst a kukri with a bamboo leaf shaped blade, *baspathay*, is more common in central and western Nepal, and an angulated blade is made in Jumla.

Bhojpuri blades may be decorated with punch marks along the back. Formerly they were pattern-welded three times in forging. This is still possible if the customer specifies, but now they are more often 'folded' only once or twice. A 'blood-drip' in the shape of a cow's hoofprint near the hilt indicates that a such a kukri must not be used to sacrifice cows.

The workshop's source of metal is Indian scrap: RSG girder and car spring sections, bought in Dharan Bazaar. A two kg piece of ingot, measuring c. 6" x 6" x 1½", can be made into four blades. This scrap is heated in a fire and then cut into blade blanks with a hammer and chisel. These components are now displayed at the Horniman Museum in London.

The main forge is of the *bhatti* type, with an ox skin bellows and an iron tube tuyere providing a draught for a stone and clay hearth which burns charcoal. Indian metal bellows are used elsewhere for other parts of the production process.

Production process:

1. a blade blank is heated on the hearth to red heat.
2. one man using two pairs of tongs, *sanaso*, removes the blank from the fire and holds it on a peg anvil, *li*, which is spiked into the earth. Three men now beat the blade and tang into shape with sledgehammers, *ghan*. As they hammer, the holder moves the blade to different positions.
3. after the blade is shaped in this way, its edge is forged with a small hammer, *botra*, on a spike anvil.
4. the blade is now re-heated to less than red heat, and is beaten again, whilst cold water is poured on to temper it. Blades are never quenched in a container of water.

5. the blade is now filed with a file, *ret*, to a near finish.
6. the blade is again slightly heated and again tempered by beating, whilst cold water is poured over it.
7. the blade may be decorated with punch-work or brass wire inlay as required. A pierced hole may replace the open-edged ' blood drip' near the hilt.
8. the blade is finally scraped clean with a chisel made from an old bastard file. This chisel has an end which has been widened, curved and sharpened in a manner very similar to the chisel used by the bronzeworker making plates in Dharan bazaar.
9. brass mounts are cut into shape from sheet metal with snips and are then hammered to form the collar, pommel and chape.
10. the hilt is carved to shape from buffalo horn which has been sawn into hilt lengths. The tang hole is pierced with a cord-powered rotary drill, and the hilt is filed and smoothed to its final shape with cloth-backed emery paper, which is either held on a wooden block or is used as a strip in rotary fashion.
11. the hilt is worked onto the tang with mastic, *laha* (see below), taking a brass collar along as this is done. The collar and pommel are set in place with *laha*, and the tang is then hammered through the brass pommel and secured by hammering and filing the end of the tang to form a 'rivet' head. During the stage of cold working, the blade may be held with tongs held by the foot against an iron spike anvil.
12. the blade edge is now ground on a *laha* wheel. *Laha* mastic is made from a mixture of clay, gum from the *sal* tree and cooking oil, either mustard or millet seed. These ingredients are mixed with river sand by cooking them over a fire and then quenching them in water to set the mixture. A wheel is made from this mixture and is set on a rotary-operated wooden spindle. This is turned by two men, one working the cord, the other sharpening the blade edge against the wheel. The *laha* wheel sharpening process leaves a clay like deposit on the blade which is finally scraped off. The *laha* wheel itself 'spreads' in use. One wheel lasts for about fifty blade sharpenings. The ' spread' is removed by holding a piece of 'cement' against the laha wheel with the foot, while the wheel is turned and laved with water. The ' cement' is eventually worn away into a claw shape. Silver-workers also use this wheel.
13. sheath manufacture involves the use of a variety of materials. The sheath consists of two pieces of *chimal* wood, which are held against a board on the craftsman's chest, or on an A-frame, whilst they are carved to shape with a chisel, *rapi*. The two shaped pieces of wood, *daap*, are then placed together and covered with ox-skin which is glued on with oat flour paste. The skin cover is then sewn along its joins with cotton twine, and surplus skin trimmed off with the chisel. The ox skin is imported from India (Calcutta) since oxen are not killed in Nepal. One man may carve the wooden sheaths, and another fasten the skin covers into place. The sheath is now dried for about one hour, either in the sun or by the fire, then polished with boot polish, and the brass chape, *koti*, is fixed on with *laha* mastic.

As an abstract production figure, one may note that one knife takes one man one day to make. A few Kamis can still make a kukri in all its stages, but most, like the 15 to 20 craftsmen in this workshop, are specialised to work in metal, wood, horn, or skin, in particular stages of production. By contrast one may note that the single Kami household in Bhojpur (1984) which consists of four men and one woman, makes 15 kukris per month. Temperature and water quality are factors in the manufacture of kukris and some tools. Low-lying towns such as Dharan are thought by smiths to be uncomfortably hot for forging, since the climate compounds the heat from the forge (hence the lack of a day shift in the non-ferrous mill in Dharan as noted above). ' Low grade' or ' bad', that is polluted water, near towns such as Dharan and Kathmandu is also thought to reduce the temper of the blade in quenching and grinding; a practical recognition of the fact that saline water speeds this process and leads to overhardening compared with purer water (Hill pers comm). ' High grade' water and cooler weather help smiths to make sharper, longer-lasting blades. The Bhojpuri smiths guarantee their kukris for 20 years. More kukris are made in eastern than in western Nepal. Similarly the quality of eastern kukris is generally superior to those of western Nepal, with some exceptions such as kukris from Pyuthan and Sallyann.

PRECIOUS METALWARE PRODUCTION

Gold.

Gold is used in quantity for fire-gilding religious figures as well as for making ritual objects, for example butter lamps, and jewellery, but only minor alluvial deposits are found in Nepal, which formerly relied primarily on Tibet for its gold supplies. In Tibet, apart from alluvial sources, there are extensive gold deposits in the western part of the country, along a line between Leh and Lhasa, and around Lhasa itself. Tibetan gold mines have been famous from the time of Herodotus and Tibetan gold has been exported through the ages to Kashmir, India, Central Asia and Peking (Holdich nd: 113). Due to Tibetan inhibitions on mining, the working of these deposits was often leased to Indians or Nepalese. The trade in gold, which was extensive in the 19th century, was also two-way. About 1900 Newari traders were sending gold bars from India to

Lhasa for minting there. India itself lacks gold deposits, and has acquired its enormous stocks by importing gold from elsewhere, primarily Europe, over the centuries.

Within Nepal gold is derived from several sources. Fishermen and boatmen pan river sand and gravels, secretly to evade government restrictions, in the lower Kali Gandaki and the Kathmandu Valley rivers. The sand is washed in wooden troughs to isolate gold particles which are then melted into rough ingots, *majhinawa*, which are sold to goldsmiths who refine it.

Waste from goldsmiths' workshops is re-processed to recover gold, silver and copper. In Patan this is done by a group of Newars, *Dhoosa*,most of whom live in Hakha Bahal (Gajurel & Vaidya 1984: 24-30, 57-65). *Dhoosas* formerly received waste free of charge, now they either buy the goldsmith's waste at a rate estimated from the content in a handful of workshop dust, or they dig the earth under the eaves of temples which have gold or silver roofs. The waste is repeatedly washed in a winnowing tray to isolate the larger particles, which are then mixed with charcoal powder and water from boiling rice, *mand*, and refined in a pit oven. Gold and silver are separated from the resulting mass of metal, *kohyon*, by repeated stages of melting in a crucible, hammering and volatilisation in the processes of liquation and cupellation. Precious metals may also be recovered from scrap jewellery and figures by various processes including the use of sal-ammoniac, nitric acid and citric acid mixed with salt to separate the base and precious metals and to refine the latter. Gold is also refined by oxidisation.

Silver

Silver is used extensively for jewellery, both personally and for religious figures, and for manufacturing ritual and decorative objects. It is frequently used as an inlay in copper figures; and on the roofs and doors of shrines and temples. Silver is also taken as medicine.

There is no geological evidence of silver mines in Nepal, although Kirkpatrick (1793: 177) thought that Nepalese lead contained silver. Silver is also found in low proportions in gold nuggets and dust (Hill pers comm). Some silver may have been imported from China and south-eastern Tibet via Bhutan (Lo Bue 1981: 53), but most of the South Asian stockpiles of silver, ' the poor man's gold' have been produced by centuries of trade, and largely derive from European coinage and bullion.

Workshops

Gold and silversmiths usually have an open-fronted workshop on the ground floor of their house, as is the case with other metalworkers. The workshop may range from a sparsely furnished room to a well-appointed workshop typical of long established Newar goldsmiths. In the former, working processes are carried out in a crouching position on the floor, in the latter seated cross-legged behind workbenches.

A variety of hearths are employed by different goldsmiths, for example a stone basin, a clay basin, *makal*, bought in the bazaar, mud bricks, or a biscuit tin. A draught is given to the charcoal fuel by means of small Indian bellows, and a blowing tube of bamboo, *kucha*, or metal, *bugnal*, which is about 11" long and 1/4" diameter, made from steel or brass and is imported from India. The metal is melted in clay

crucibles, *handi*.

Jewellers buy most of their tools. The toolkit includes heavy hammers, *martol, hatauri*, small hammers, *mayli*, for fine work; anvils, *li*, of varying sizes, for example with heads of 1½ - 2½" square, which are inset into wooden blocks or are driven into the earth floor; iron tongs, *chimta* and *khainchi*; snips; calipers, *compas*; and wire brushes, *kucho*. Iron files, both large and needle types, pattern formers, *chap*, drawplates, *janch/jantari*, which have holes of varying sizes and are held against the feet as metal wire is drawn through the holes with pincers, *sanaso*, are all imported from India, as are iron moulds, *kasala*, which are 1" cubes with various sizes of indentated pits used to make pellet bells for earrings etc. Bricks with scored indentations may also be used as moulds, *sancha*. Punches, *chino*, are usually made by jewellers themselves from iron nails bought in the bazaar. Plastic, numbered ring sizes, an Indian-made import, and printed catalogues enable designs to be selected by the customer.

Jewellers in hill settlements often use old gold provided by their customers to remake new objects, keeping part for themselves. People prefer this method since there is not much cash around and modern gold is often adulterated. If a customer provides three *tolas* of gold to make a necklace, the goldsmith will use two *tolas* and ninety-four *lals* of gold with six *lals* of solder thus making a profit in the manufacture. When jewelllery is melted down for re-manufacture most of the soldering material melts away with some adulteration of the gold from remaining impurities.

Case study: goldworking, *tilari* manufacture by Purna Bahadur Biswa Karma; Tallo (lower) Kopchey, Dhankuta 1984. I amplify this description with comparative data from Sangha Ratna Sakya, Newar, of Etumbahal, Kathmandu in 1991.

Purna Bahadur's workshop opens on to a street leading into the market place. It forms the groundfloor of his terraced house and is the only jewellers in the street. Higher up the same street, nearer the market, are several retail shops selling utensils, mostly in aluminium and stainless steel. The street's occupants are a mixture of rich and poor. The Karma workshop is run by Purna and his brother, who live entirely by this business, and work mostly in silver and some gold. They make jewellery to customers' orders, not for sale in the market. Their main customers are local villagers, with some small business from Dhankuta residents. They make all kinds of ornaments, for example ear, nose ornaments, necklaces, bracelets, rings etc., including some in copper They also make sets of dowry ornaments in a style decided by the customer after looking through the jewellers' moulds or at catalogues (no catalogues were in evidence).

A *tilari* is an ornament worn by married women on a necklace, one of the items of adornment which signifies her status.

The total production time of this piece was about 1½ hours.

1. Gold is melted in a small clay crucible, *handi*, one of several crucibles of varying sizes in the workshop, then run into a brick mould, *sancha*.
2. The resulting ingot is beaten out to a flat sheet on an iron anvil, *li*, embedded in wood, one of three with heads of varying sizes.
3. The sheet is trimmed with snips and then wound around one arm of a pair of iron tongs, *khainchi*, to form a tube.
4. A solder, *rasian/rhation* is made up from a mixture of scraps of gold, copper and zinc, *jasta*, cut from torch battery-casings. These ingredients are melted together in a hollowed piece of coal in the hearth. The solder ingot is quenched in a bowl of water and then hammered out to a flat disc shape about 1/4" in diameter. A slightly different recipe for gold solder is given by Gajurel & Vaidya (1984: 27-8): four lals of gold, and two lals of small pieces of brass, copper and silver are melted together (one tola is the weight of one sixteen anna Indian rupee, there are one hundred lals in one tola). When cool, the mixture is cut into small pieces. When joining sections of an item, these small pieces are placed in the joint and heated in the fire with the help of a small blow tube.
5. A borax stone, *swarg*, was then applied to the join of the tilari tube as a flux for the solder. The swarg is bought in India.
6. The solder is melted and painted onto the joint of the tilari with a chicken's feather, then the joint is cleaned with an acid, *nawsagar*.
7. *Tarpin* (see below) is now mixed with mustard oil and brick dust in a bowl and heated. The tilari is removed from the tongs handle and the molten mixture is poured into the inside of the tilari, and allowed to cool for 2-3 minutes. This filler mixture then serves as a cushion against which the tilari is carved. More of the tarpin-oil-dust mixture is also melted onto a wooden board, then moistened and kneaded with a hammer to get it to the right consistency. The tilari is then stuck down in this

surface for carving, *tappal*. Other jewellers in Dhankuta and Terathum (1986) were observed raising a tubular tilari from the inside, holding the piece in the left hand, and working on a bent, iron-spike anvil anchored in wood. The spike was about 8" high and 6" long (see sketch).
8. The tilari is carved and punch decorated with a variety of hammers then cleaned by immersing it in a solution of acid, *nawsarga* and a melted mixture consisting of a turquoise coloured stone, *nilatutu*, and a white coloured stone (borax ?; both bought in India), and soda (? saltpetre). The *tilari* is immersed in the solution for 30 seconds and is then held in the fire to remove the acid. The *nilatutu* solution causes the gold to spread to hide the join. Immersion in this solution also demonstrates the quality of the gold.
10. The tilari is removed from the fire and is covered with a paste made from a red stone, *geruwa* (? from England), and *nawsarga* and is re-heated in the fire for 10 minutes.
11. The *tilari* is removed from the fire and the paste is washed off with soap and water. The piece is now ready for sale, by weight.

Tilari production on a specialised basis was also observed in the workshop of Sangha Ratna Sakya, Etumbahal, Kathmandu in 1991. This Newari goldsmith knows of six generations of his family resident in Kathmandu. His shop-workshop is situated between a side street and a courtyard, *bahal*, away from the tourist areas. It opens on to the street, measures about 4 x 3 metres, and has a small stone hearth with an Indian bellows. At one end, at right angles to the hearth side, is a low wooden workbench with an engineers vice and a flatiron sunk into the surface. A recent addition, still under wraps, is an Indian-made mill to make gold sheet from wire. SRS is all in favour of machinery since it helps speed manufacture and gives a more regular finish than handwork. A variety of modern tools were in use as well as a ' blow lamp' made from a kerosene-filled tin with a spout and wick, which is lighted from the hearth then directed onto the piece being worked with a blowtube. Finishing is done with needle files. The main iron anvil, about 4" square was sunk into a wooden log, other spike-anvils were hammered into the log and removed as required.

SRS and his two sons were working, with occasional, tolerated interuptions from the elder son's small daughter. The elder son was making gold tilaris, with repeated heating and hammering, and adding sections of gold wire which had been shaped by hammering into stone moulds. The younger son was finishing them at the workbench. SRS was removing repousse decorated silver sindur box lids from the laha cushions on a piece of wood, on which they had been worked. He softened the laha by heaping coals onto the lids so that they could be prised off. He subsequently went on to make-up his 4 pm hookah as he talked to us.

The family make only to order, mostly for local Nepalis (' tourists don't buy much gold'). Despite an influx of new goldsmiths in the neighbourhood, and Kathmandu generally (who are making for sale rather than to order), business is better than ever and the family continues to enjoy the fruits of its long-standing, high reputation, without serious competition from the newcomers.

They have made temple ornaments but prefer not to make figures themselves, since SRS sees the market sale of figures as a debasement of their proper function as objects of worship. They work less frequently in silver, and may transfer a good design into gold. They use a mixture of old and new designs, with the latter being brought in to them by customers to be made up as wished. SRS thinks that gold ornaments in themselves can be conducive to good health, but the best effects are obtained if gold is combined with stones in significant numbers such as nine. SRS has worked in five-metals, *panchdhattu/panchloha* in the past. Iron, which is too difficult to melt with the other metals involved, is

inserted as a separate piece. He has never worked in eight-metals, *astadhattu*, and does not know anyone who has.

Case studies: silver working

Silver is worked in several different ways as follows:

(1). Manufacturing process: decorative silver chapes for Kukri sheaths, Pothali Bazaar, Dharan, East Nepal, 1984.

Four Sunwars, a father and three sons, jeweller-blacksmiths, work near the Gurkha Cantonment. The father was originally from Pokhara, and had worked for 18 years in the kukri workshop in Dharan camp before setting up in his own business. He works in both iron and precious metals. He makes no sales to local people. Nearly all his production is for private orders from the camp, making to his customers' specifications of number, type, style and decoration. He has also sold material to the Gurkha Museum in Canada. He showed two display items: a small kukri with a 6" blade of brass, with a horn hilt and a sheath decorated with silver on red velvet; and a very fine kukri, full size, his own prize knife, with a shining blade.

When interviewed the craftsmen were making decorative silver chapes, *koti mura*, for kukri sheaths.

1. Scraps of silver were melted in a crucible, then poured into long, flat, rod-like, open moulds.
2. When cool, the ingot, 4" x ½" x 1/4", was turned out and hammered into sheets, about 7" x 3" in size, on a spike anvil.
3. The sheets were then wrapped around a brass mould, *pitalo*, for working. The moulds, which are made by the craftsmen themselves, have low reliefs of flowers, peacocks etc. on them. They last for about five years.
4. The moulds are set into mastic, *laha*, and the silver sheet is hammered into the mould. Pierced work is also incorporated, using nail-like punches and working from the rear side. The inside of the chapes are finished by working with punches against a small iron spike anvil held with the foot on a block of wood.
5. Chapes are made in two pieces which are soldered together with a solder made from silver, copper and ' battery metal', that is the zinc casing from torch batteries.

Of the four craftsmen working, each was specialising in different stages of production. The two younger sons were melting silver and hammering the ingots into sheet. The father and the oldest son were hammering and punching designs into the sheet silver. Samples of these stages of production were obtained for the Horniman Museum.

The charcoal used in this process is made from the *shakua* tree. In their opinion not every wood is suitable for charcoal. This was the only time I heard this particular view expressed among metalworkers. Everyone else said that charcoal from any wood would do.

(2). Silver may also be worked as the applique decoration of a figure; craftsman: I.R.Sakya, Newar, Patan 1984.

1. Silver was rolled into a sheet on a handmill, and then cut to shape, for example as the collar of a figure.
2. The silver was then hammered into place with a wooden mallet through a piece of lead or wood to protect the silver, and secured by a ' pushover' or crimping technique: the copper of the figure is forced over the edges of the silver to hold it in place. No glue or fixing agent was used.
3. When the silver was firmly in place, it was carved with punches and needle files. Indian needle files are used because of their availability but their quality is disparaged in favour of British, German or Chinese files. The punches are re-sharpened on garnet paper.

The timing of work is very variable, for example when observed it took one hour to complete the silver inlay on the collar of a 7" high figure, yet I was informed that a 12" high figure would take about one week to decorate in this way. The home production of figures shows a high division of labour. The silver collar was worked on to the figure by I. R. Sakya, who came into I.B.Sakya's house only for the one hour which it took him to do this.

(3). Making a silver butter lamp, Patan 1984; craftsmen: name not known; porch workshop in a Newar courtyard, *vihara*.

1. Silver sheet was hammered into a bowl shape on a small A-frame and a curved iron spike anvil.
2. The shape was then heated in a small hearth with a small Indian bellows to soften it for working. The hearth, rather than being pit-sunk in the traditional form, was made from a biscuit tin, c. 18 x 15" with clay inside, with a central cleft.

At the same time his daughter was also working in the workshop on a silver presentation spoon (with double ends, like a christening spoon, see sketch). The spoon had been carved into shape whilst it was set in mastic, *laha*, on a wooden board. She was now decorating the spoon with a hammer and punch against a mould. Spoons such as this are made for weddings, rituals and for the tourist market. Other products from this workshop include Tibetan-style sets of teacups, and turquoise and silver earrings and bracelets. Formerly this craftsman used a drawplate and pincers to make wire, now a wire maker mounted on a stand is used to make wire for earrings etc. Like other jewellers he uses his own designs and common methods of finishing, for example silver bracelets are quenched in a ' pickle' , a 10% nitric acid solution, after soldering to improve their appearance. Figure silvering is also done by melting silver in acid and then smearing the liquid over the surface, as in cold gilding.

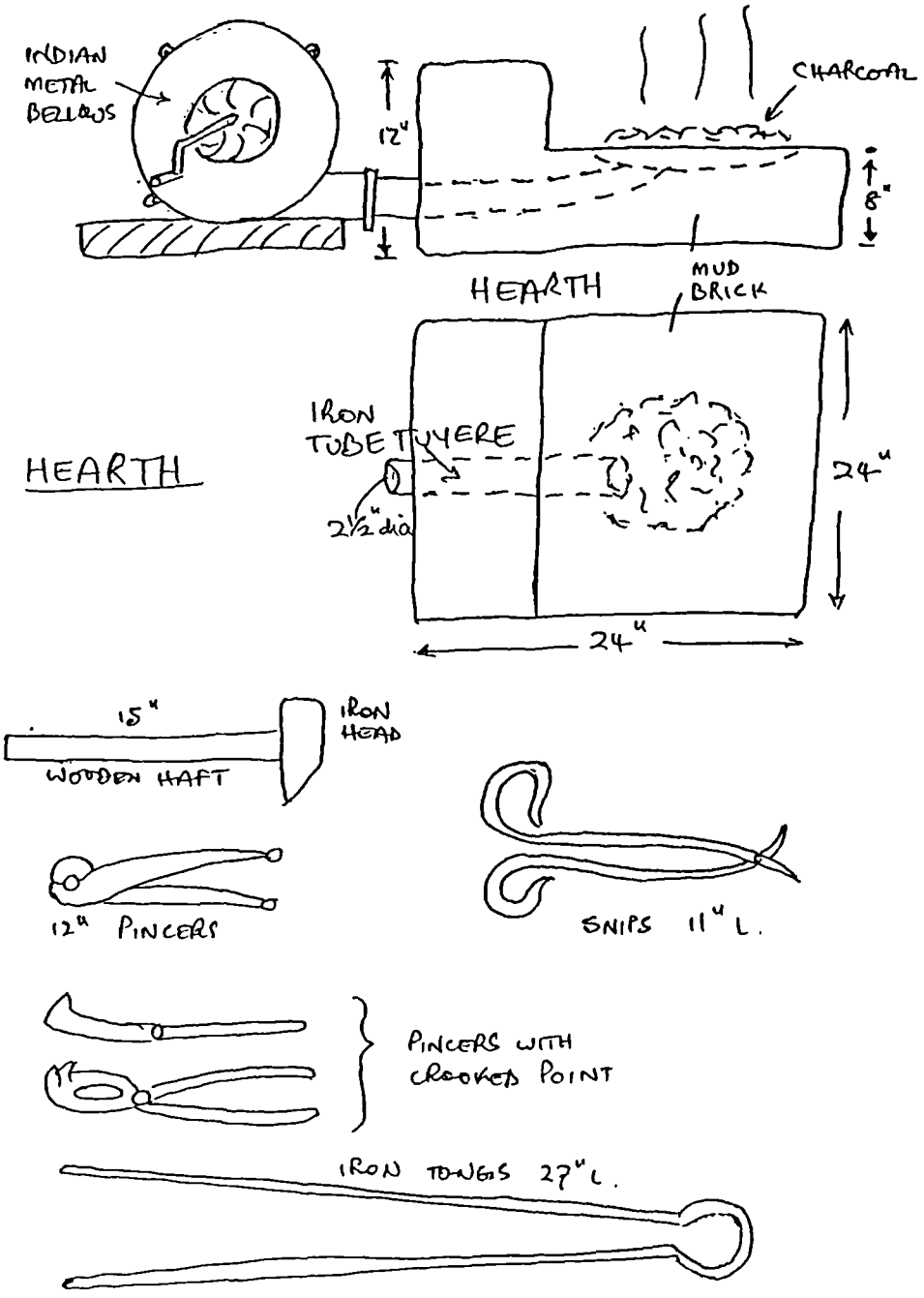


Fig. 5. Sunwari Jeweller-Blacksmith's hearth and tools, Pothali Bazaar, Dharan, East Nepal 1984

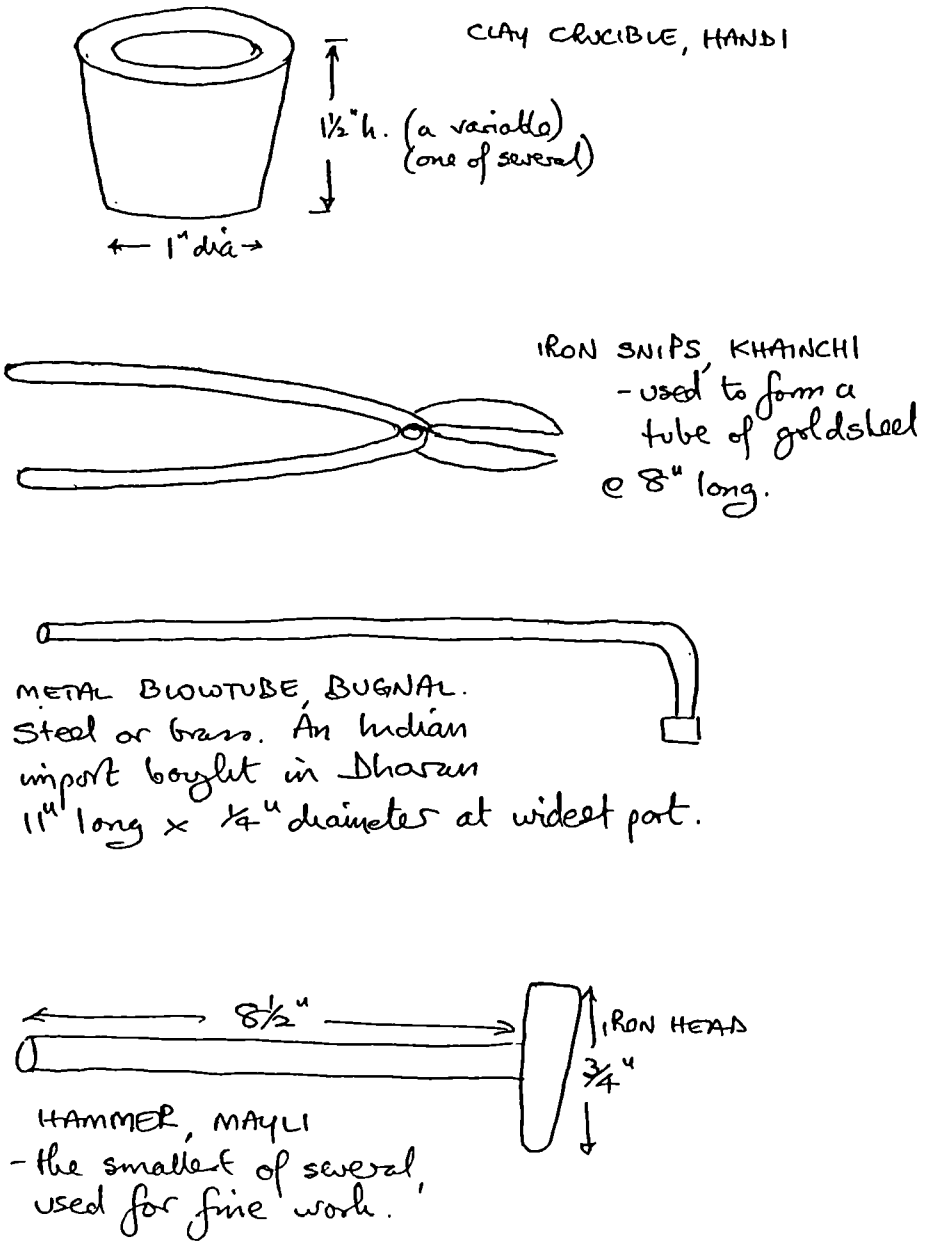
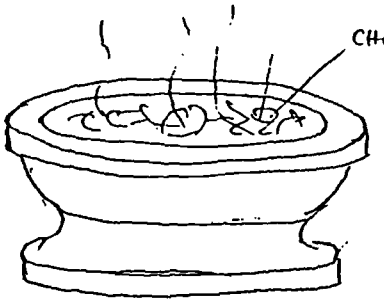
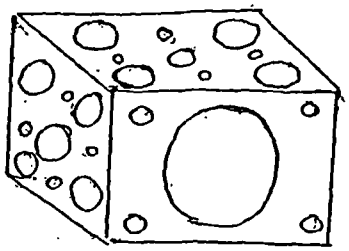


Fig. 6. Jeweller's crucible and tools used in *tilari* manufacture, Dhankuta, East Nepal 1984

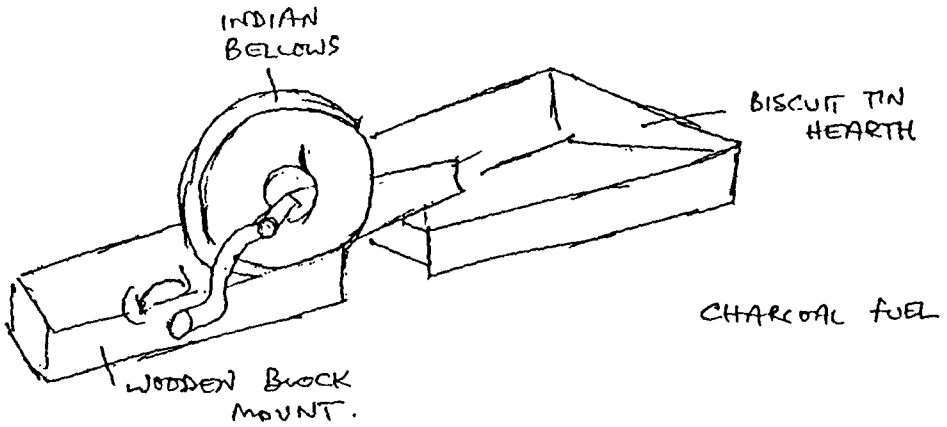


HEARTH.
A FREESTANDING
CLAY POT, MAKAL
- made in local villages
and bought in Dhankuta.
@ 8" dia x 6" h.



MOULD, KASALA
An iron cube with
depressions, used to
form globs for earrings
etc. or pellets, including
pellet bells.
Imported from India.

Fig. 7. Jeweller's hearth and mould, Dhankuta, East Nepal 1984



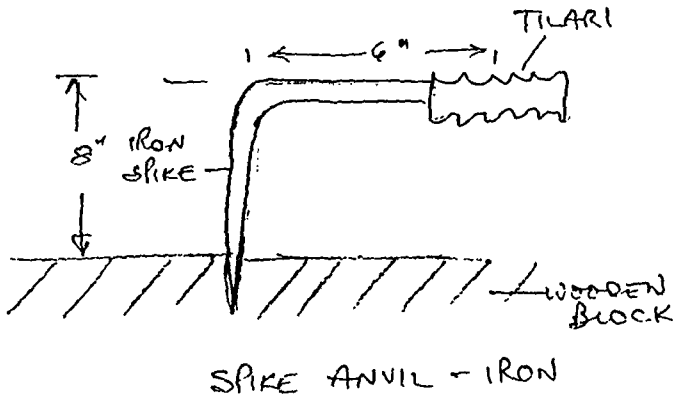


Fig. 8. Jeweller's forge, Terathum, East Nepal 1984

Gold and silver serve as wealth, insurance and as an indicator of social status. Both are smuggled into Nepal in quantity from Tibet and several other countries in South and South East Asia, according to frequent newspaper reports. Gurkha soldiers returning from duty overseas also bring in gold to be made up into jewellery for their wives and daughters.

Machine-made silver jewellery from India, ' Tibet' and Bali is increasingly imported into Nepal, often carried in by couriers. This jewellery is cheaper than hand-made wares and now (1991) forms most of the silver jewellery on sale in Kathmandu. It may be sold as ' hand-made' to gullible customers. Sales are reasonable but seasonal according to the tourist season. Jewellery shops selling both stones and made-up pieces are a feature of most sectors of the tourist market in Kathmandu: Durbar Marg, New Road and Thamel. In shops in the latter, ' turquoise', a popular stone, may often be glass or a compound of ground turquoise and other material, as is Tibetan ' amber'.

Chapter Eight

NON-FERROUS METALWARE PRODUCTION I

Copper

The earliest reference to copper, *sīja*, in Nepal is in the account of the Chinese pilgrim Hsuan-Tsang, dated about A.D. 629 - 645, which reported the production of ' red copper', and its use as currency, for all utensils and implements, jewellery, and for roofing the king's seven storey palace (Beal 1884: II, 80; Jayaswal 1936: 238-9). Copper ores are found throughout the Himalayan region, in Nepal, Kashmir, Zanskar, Tibet and Sikkim, where the Nepalese mine for it on an extensive scale (Craddock 1981: 3; Hamilton (1819) 1986: 76ff, 94; Lo Bue 1981: 39).

Copper deposits were traditionally plentiful in Nepal, many with a high metal content. Patan/Lalitpur in the Kathmandu Valley appears to be the oldest centre of metallurgical development in the country. Copper is present at Tribeni Hill, Patan, and the Chobhar area. Ipa, south of Pharping/Pherping, on the southern rim of the Kathmandu Valley, has deposits with 30-50% copper present in variable qualities, for example *gudh* copper, a malleable type suitable for sheet production; *patru* copper, similarly malleable and suitable for sheet for utensils; and *khola* copper, which is useful for making an alloy such as *Kas*/kans. Today, some 60

deposits are known including Buddha Bare, Biringkhola and Bhaishe klani near Baglung in Dhaulagiri Zone. In eastern Nepal copper is present at Okhaldhunga, Sirise Majhakhani and Dhotele in Bhojpur District; at Tungkhaling and Solakhani in Chainpur District; near Dharan and Dhankuta; at Bapsa in Sagarmatha Zone, and at Sidhi Khani, Ilam, in Mechi Zone which has deposits with 8.86% copper.

At present, despite considerable prospecting and feasibility studies by the government in recent years, Nepal is unable to mine copper on a competitive commercial basis, either in the public or in the private sector, even though the ores have a high copper content. It is estimated that the amount of copper present in known deposits averages 4%. This contrasts markedly with the USA, where deposits of 0.68% content are mined (Gajurel & Vaidya 1984: 15- 16).

Zinc

Numerous zinc, *jasta*, deposits were noted in Nepal in the 19th century and are present today at Tribeni Hill and Phulchowki Hill, Godavari, Patan, and near Tiplin (Hamilton 1819: 76, 94, 195, 264, 272; Hodgson 1874: 109).

Smelting zinc is a difficult process due to its low melting and boiling points. If zinc oxide is heated above 906 °C, it tends to be lost as evaporating gas, unless precautions are taken. Zinc is produced either by reduction from zinc oxide in the presence of copper in a closed crucible or furnace, or by a more complicated method of precipitation, cementation and distillation. This latter method is a feature of Indo-Iranian zinc production (Craddock 1981; 1984,23).

Despite the difficulties in smelting zinc it was alloyed with copper to produce brass, *li*, which was used in Nepal for various purposes from early times. In the eighth century A.D. the king of Nepal was known as the ' king of brass' (Lo Bue 1981: 48). The manufacture of brass statuary flourished in Nepal and served local and foreign markets, primarily Tibet. During the 19th century, European zinc production superseded Indian production, and commercially-produced zinc, brass, lead and tin began to be imported in increasing quantity, rendering Nepal dependent on supplies from India.

Tin

There are no tin deposits in Nepal, the rest of the Himalayas, Tibet or India (Lo Bue 1981: 33-4). Bronze manufacture in Nepal thus depends on imported tin. From the 18th century onwards, tin has been imported into Nepal through India from Burma, Thailand and Malaysia. The lack of tin ores means that there are few if any true bronzes in Himalayan, including Nepalese, figure manufacture. In a test sample of 121 figures, both ancient and modern, tin, and lead, were present only in low percentages. Craddock (1981: 20) concludes that Himalayan figures, although commonly referred to as ' bronze', are generally made from copper and brass.

A variety of recipes are given for bronze production in Nepalese wares. In the Kathmandu Valley (according to Mukherjee 1978: 449-450) true bronze, or ' bell metal' is produced as follows: 12 pao of copper is melted with 3½ pao of tin in a crucible (1 pao/pau = 200 gms). This proportion of 77% copper to 23% tin (roughly 3½ : 1) is close to that of north Indian alloys. The molten alloy is poured into an ingot mould,

palan. The ingot is then hammered into the required shape. Similar proportions are given by Gajurel & Vaidya (1984: 48): *thakayen*, an alloy of six to eight parts of copper and two parts of tin is used for casting purposes; and ' bell metal' is three to five parts of copper to one part of tin.

Lo Bue (1981: 51-52) reports several Newar recipes for bronze or ' bell metal', *phul*, according to the artifact to be made:

a) a mixture of two parts copper and one part tin; is used for making water pots and wine jars in ' bell metal'.

b) a mixture of three parts copper and two parts tin; is used to make traditional plates in ' bell metal'.

c) ' bronze' is made from two parts of white metal and one part of tin.

d) white metal, *laiton*, imported from India.

The first three alloys are used only for domestic and ritual utensils, and for cymbals, but not for statuary. Figures may occasionally be cast in white metal. Bell metal articles, including vessels were exported to Tibet in the 19th century, and bells, cymbals and gongs were also cast from bronze in Tibet (Ronge & Ronge 1979). The large scale bronze casting of statues for public places is a feature of contemporary Nepalese work.

Lo Bue (ibid) notes the differences in Nepalese and European terms for ' bell metal' and ' bronze'. My informants often referred to brass, a copper/zinc alloy, as ' bronze' when discussing the manufacture of wine and water vessels and plates (see below). Labriffe (1973: 188, 191n15) also gives two recipes for ' bronze' as used by Patan figuremakers: twelve *pau*

of copper and five *pau* of zinc; and twelve *pau* of white metal to one and a half pau of zinc.

Lead

In the 19th century only two mines were officially worked, since all lead was reserved for the Raja (Hamilton 1819: 78). Lead, *mha*, was also imported in quantity into Nepal from India. Today lead deposits are present at Phulchowki Hill, Patan. Lead may be added to brass and copper to give a more fluid alloy for casting and to make brass easier to chase and engrave. The presence of lead however is detrimental to fire-gilding, a primary means of decorating Nepalese figures cast in copper (Craddock 1981: 23). Today the lead from old torch battery casings is an ingredient of the filler used when soldering.

Mercury

Mercury is used for fire-gilding religious figures, and is mixed with vermilion to make sindur powder which is used extensively in Newar worship, for example to anoint religious figures and to make the *tika* mark on one's forehead. Hamilton (1819: 78) reported the presence of cinnabar mines in Nepal and its export for sale to India. Mercury may be extracted from cinnabar, but it has usually been imported from India from the 18th century up to the present, as well as from Tibet (Imperial Gazeteer 1908: 51).

Sheet, manufactured wares and scrap metal

Imported scrap may be used as such by metalworkers or it may be

milled into sheet and ingots before it is purchased for use by them. Relatively few mills supply large areas. Dharan Mill (established in 1975, see below) supplies the Arun Valley for example, whilst rolling mills at Balaju and Patan Industrial Estates and in Kathmandu (established in 1977) now supply sheet metal to the Valley and, from 1983, to Pokhara. A further mill was established at Butwal in 1984. Until the 1970s copper and brass sheet was produced by three to four metalworkers working together beating out ingots by hand. The availability of milled sheet metal has boosted utensil production in quantity but often results in inferior manufacture. Some imported sheet, from the UK and the USSR (1984) and formerly from India (K.K.Tamrakar per comm), is also bought and used by some craftsmen. Two kinds of copper and brass are recognised, one suitable for casting, the other for hammering.

The scale of manufacture by hand may be considerable, for example in 1984, metalworkers at PIE were completing an export order for more than 30 tea cauldrons, *khasi*, for establishments in Lhasa. Each cauldron weighed 15 - 25 kgs, some ten tons of copper in total. Four sizes were made, the largest measured 30" diameter. *Tsampa* bowls of copper, tinned inside, were also being made in quantity to fill a Tibetan order in 1991 at PIE.

Manufactured wares

Previously manufactured metalwares may be repaired when worn (Kamis are particularly involved in such tinkering in the hills), or may be re-cycled as scrap which is processed to provide metal for new artifacts. Old and broken vessels are often provided by a craftsman's customers when

they are comissioning a new utensil, or a craftsman may amass his own stock of scrap metal. Today such a stock is often a mixture of hand-made and factory-made scraps of a variety of metals, everything from bits of old figures and utensils, to modern bathroom fittings, wire, chippings etc., all of which is melted down with salt to remove impurities. Such craftsmen were relatively few in 1966 when Indian metal dealers stopped supplies to Nepal in order to raise prices, with the result that craftsmen with stocks could charge high prices whilst others suffered (Hofer 1980: 42). In 1984, due to a falling market demand, most figure casters in the Valley in 1984 were working in re-cycled scrap metal rather than buying fresh metal on the market (I.B.Sakya pers comm).

The repair and replacement of hand-made wares is declining due to competition from cheaper, factory-made utensils and parts. Imported aluminium discs are machine-pressed into the bottom and middle parts of water pots in several factories in the Kathmandu Valley, Biratnagar and Pokhara. The neck and mouth still need to be formed by hand, and then joined to the pressed sections. All of these parts thus require completion by hand. Machine forming needs more metal than manufacture entirely by hand, which increases the expense of this method (Gajurel & Vaidya 1984: 39-40, 48). Aluminium wares may be spot-hammered in the traditional decorative style or steel polished to imitate stainless steel. Factory-made products from both Nepal and India are thus steadily replacing traditional utensils made in brass and copper.

In general, the poorer sections of Nepalese society are acquiring aluminium, plastic and imitation stainless steel utensils, whilst more affluent people, especially in the towns, are acquiring stainless steel.

As a result of a rising population, consequent de-forestation, and government controls to redress this situation, charcoal is in increasingly short supply and has become expensive. Individual metalworkers have started to use coal or coke instead, when casting figures for example (Lo Bue 1981: 76; Mukherjee 1978: 448; and Schneider 1987: 24). There is no coal in the Kathmandu Valley, nor any deposits in Nepal (according to Varma 1972: 91-2; and Gajurel & Vaidya 1984: 245ff). There are deposits near Dharan, but their location is not published by the Nepalese government. Coal is found in eastern Tibet and India. It is not known if it was imported into Nepal in the past, but in recent years, Nepal has imported coal from India to fuel its rolling mills.

Contemporary non-ferrous production includes:

1. Mining and smelting.
2. Milling - the production of ingots and sheet.
3. Production of domestic wares by individual and master craftsmen.
4. Small factory production.

Mining and smelting

Although traditional copper mining methods are rarely practised now the mining and smelting process may be outlined as follows:

Copper ore is grubbed from open trenches on a local basis by people termed *Khaniwalas* (Gajurel & Vaidya 1984: 14, 16) or *Agari* (Hamilton 1819: 76-7: each miner digs about 1970 lbs in a year). Hammers and chisels are used to break ore off in chunks. The chunks are hammered to a powder

and mixed with cow dung in circular cakes. The cakes are then sun dried.

A pit is dug in the ground and lined with a layer of charcoal. The dried ore cakes are packed into a crucible and placed on the charcoal in the pit. A fire is lit in the top of the crucible and leather bellows are used to provide a draught. The copper melts and settles in the bottom of the crucible, whilst impurities collect as slag on top. The side of the crucible is now pierced with an iron stake to drain off the slag. The crucible is allowed to cool and the copper is removed. It is now ready for manufacture.

Hamilton (ibid) describes a slightly different process: the ore is first roasted, then put in water for two or three days, then powdered, and finally put in small furnaces each containing three to five pounds of the powdered ore. Whilst the Agari are the miners, smelting is done by Kamis.

Milling

Case study: the milling process, Pothali Bazaar, Dharan, East Nepal, August 1984.

The rolling mill at Pothali is owned by Bhojpur Nepalis who retain ties, and presumably distribution networks, in the hills in that region. This mill processes brass, copper and ' bronze', although ' no tin is processed '. Some local scrap is processed, but most supplies are imported from various sources: sheet from the United Kingdom, copper wire scrap from Singapore, and zinc from Australia.

The composition of the standard alloys produced in this mill are:
copper ingots: Cu 200 kgs, Zn 7 kgs.
brass ingots: Cu 200 kgs, Zn 50-60 kgs.

Production is by shift work from 2 am to 8 am. It is too hot to work during the day. The last complete production cycle is from 6 am to 8 am.

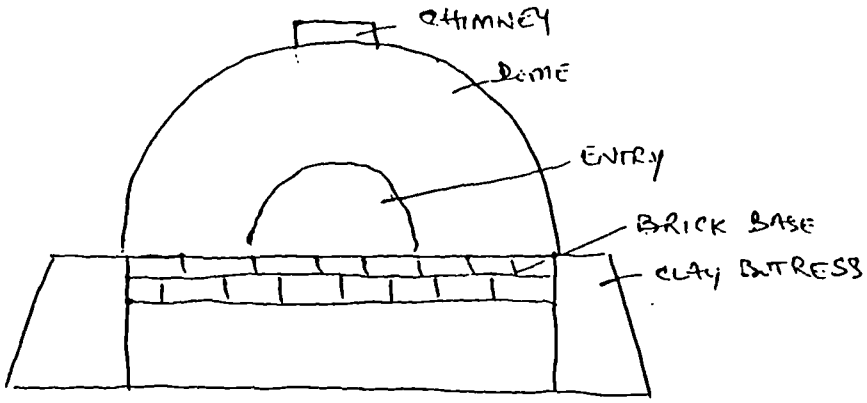
Scrap metal is brought from the mill store and weighed on a beam scale in the yard corner, next to a blackboard with prices marked in chalk on the wall. The scrap is then taken to the crucible room, where the crucible, from London, is set into a pit furnace. The fuel used here is ' railway coal', that is, mined coal from India broken into small lumps. The scrap metal is piled into the crucible and melted. The metal is stirred with iron rods periodically to help this process. The molten metal is scooped out of the crucible with a container held with tongs, and

poured into open moulds set along the low wall. Copper ingots are circular and of varying sizes: from 3" to 8" diameter by 1" thick. Brass ingots are rectangular and measure 8" by 5" by 1". The ingots are then individually picked up with tongs and taken into the yard to cool. This batch serves for the next night's pressing.

The night's work starts at 8 pm, when copper and brass ingots are placed in the furnace to heat until 2 am. The furnace is made from bricks and clay in the form of a hemispherical dome with a central funnel, on a square brick base with buttresses. The entry is semicircular, level with the top of the base. The entire furnace is about 10 feet high by 12 feet in diameter; the base is about 3 feet high. The furnace is fuelled with sal wood kept in two piles along the back wall and in the front yard of the mill. The furnace lasts about one year before needing repair or replacement.

The production process starts at 2 am: the ingots are raked out of the furnace as needed and pressed to form them into either circular copper sheets or rectangular brass sheets. This process involves repeated pressing, quenching and re-heating three times in the furnace. After the initial pressing, and quenching in the concrete water tanks in the yard, the stack of copper sheets is beaten onto a layer of powdered brick dust, *mato ko gair*, to stop the metal being too ' noisy' when being worked. The stack then goes to its second heating in the furnace. Two men service the furnace, working as a pair to move the stacks of sheets in and out, but only the younger man re-fuels the furnace. The entry to the dome is levered up and down, open and closed, and the sheets are moved in and out with a long bar with its end turned at right angles. The press is driven by an engine with a belt-geared drive. As the ingots thin out into sheet, they are fed through the press in stacks of six to eight or ten sheets. Some twelve pressings are done. As the stack passes through the press it is measured roughly with a chalk-marked rod. The sheets are then spread around the room, and re-stacked and re-arranged periodically to help them cool. The stacks of sheets are fed into the press by two or three men, and received and returned by two or three men. All use tongs except when a heavier stack is coming through, the central receiver may then use a crowbar as a lever to help return the stack over the mill rollers. The ' top hand' finished the shift with a flourish by putting through a stack of copper discs singlehanded. These were received and returned by two men.

Forty-five sheets of metal were produced on the two hour shift observed. The cooled, roughly milled sheets are next cut down to finished sizes. Brass sheet is cut down from c. 36" by 27" to 31" by 25". Finished copper sheets vary in size from 9" to 24" diameter depending on the initial size of the ingots. The hand-powered cutting machine is worked by two men: one feeds sheets on to the cutters, and the other works a windlass to power the machine. A third man gathers up the waste metal and beats it into manageable sizes for storage and re-working. The circular copper sheets are used as bases for rakshi pots, *phosi*, Nep; *tholi*, New. and the brass sheets for the sides of these pots.



TILE FURNACE, @ 10 ft. high, 12 ft. diameter, base 3 ft high.

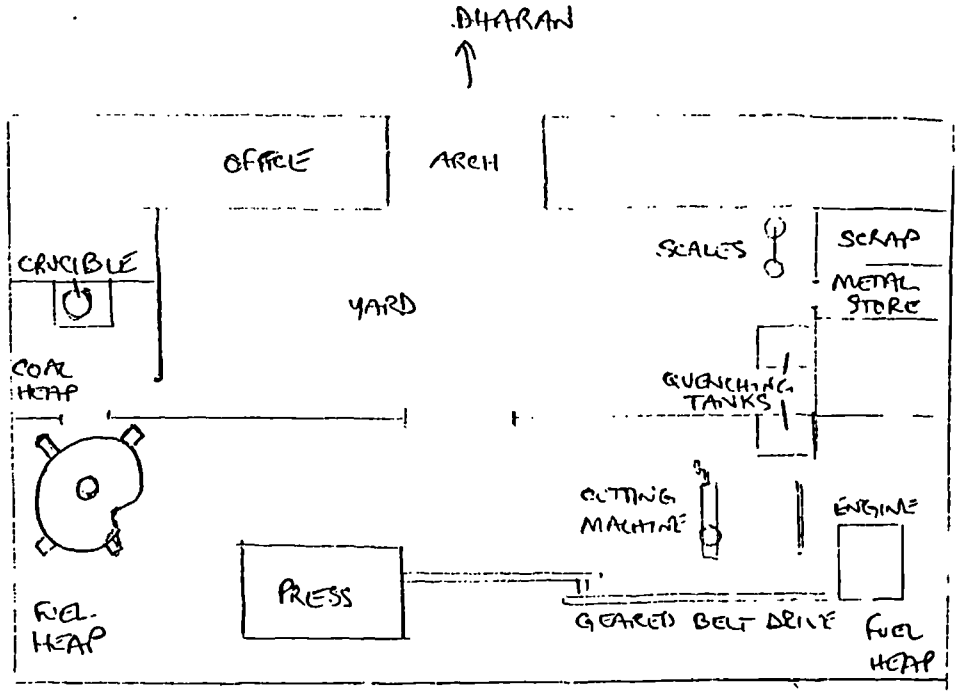


Fig. 9. Mill layout, Pothali Bazaar, Dharan, East Nepal 1984

This mill supplies brass and copper sheet to the entire Dharan area and further north into the hills to Bhojpur and Chainpur (see map) in the Arun valley. Although it is the only mill in this region, metal supplies are also available from other sources, for example copper sheet (72" by 36") imported from Britain via Kathmandu is also available in Dharan. The mill in Dharan employs Indians since these people are thought to be able to endure the heat better than Nepalis.

Production of domestic wares

Non-ferrous, domestic hollow wares are manufactured by hammering sheet metal, by lost-wax casting and piece moulding; cooking implements such as ladles and spatulae are open cast. Forms of decoration include spot hammering and applique.

Hammering

This outline of the production of hollow wares by hammering is drawn from Newar Sakya and Tamrakar craftsmen, working in Taksar, Dharan and Patan in 1984, notably:

Small cooking pot, *dhaney thasala*, manufacture by Chatra Kumar Shakya, Newar, Adrsha village, Ward no. 2, Taksar, Bhojpur, Kosi Zone, East Nepal, 1984.

CKS is about 30 years old, and is the fourth generation of his family of Newari craftsmen to have lived and worked in Taksar. Taksar is a Newar town about half an hour's walk south-west of Bhojpur, and is the older settlement, dating perhaps from the fifteenth century. Taksar craftsmen produce metalwares which are famous throughout Nepal.

Large cooking pot, *phosi/phonsi/fosi/foshi* (Nep)/*tholi* (New),

manufacture. Pothali Bazaar, Dharan 1984: two brothers, Newar Tamrakars, from Bhojpur.

Brothers often work together with sisters, wives and children helping at various tasks in production such as turning the bellows, snipping sheet and cleaning pots (womens' work) after manufacture is completed. Older members of the family may look-on or carry out chores as production progresses.

Water pot/container, *gagri/gagro/gha/ghada/ghani*, manufacture by Kirti Kumar Tamrakar, Chakra Bahil, Patan; September 1984.

Workshops

Workshops are usually open-fronted on the ground floor of the craftsman's house, often about 10-15 feet by 8-10 feet in size, with an earth floor. The hearth and forge may be incorporated into the workshop or housed in a separate building. The hearth may have either mud-brick or plank walls about 5-6" in height, with a floor of stones or mud-bricks, and usually measures about 4 ft long x 3 ft wide. A brass or copper tuyere passes from the centre of the hearth through the wall or a mud shield to the bellows which provides the draught. The tuyere is replaced when it becomes distorted, perhaps every three or four years. Formerly a bellows of sheep or goatskin, *achum/khalatis/bhow/bhao/bhoncha*, was used. Recently, from about 1970, a factory-made bellows from India has been generally preferred. This consists of a casing of two circular metal halves, lugged and bolted together, with a windlass handle which turns a fan composed of cupped metal blades inside. This bellows is usually mounted vertically, sometimes horizontally, on a wooden base (see sketch).

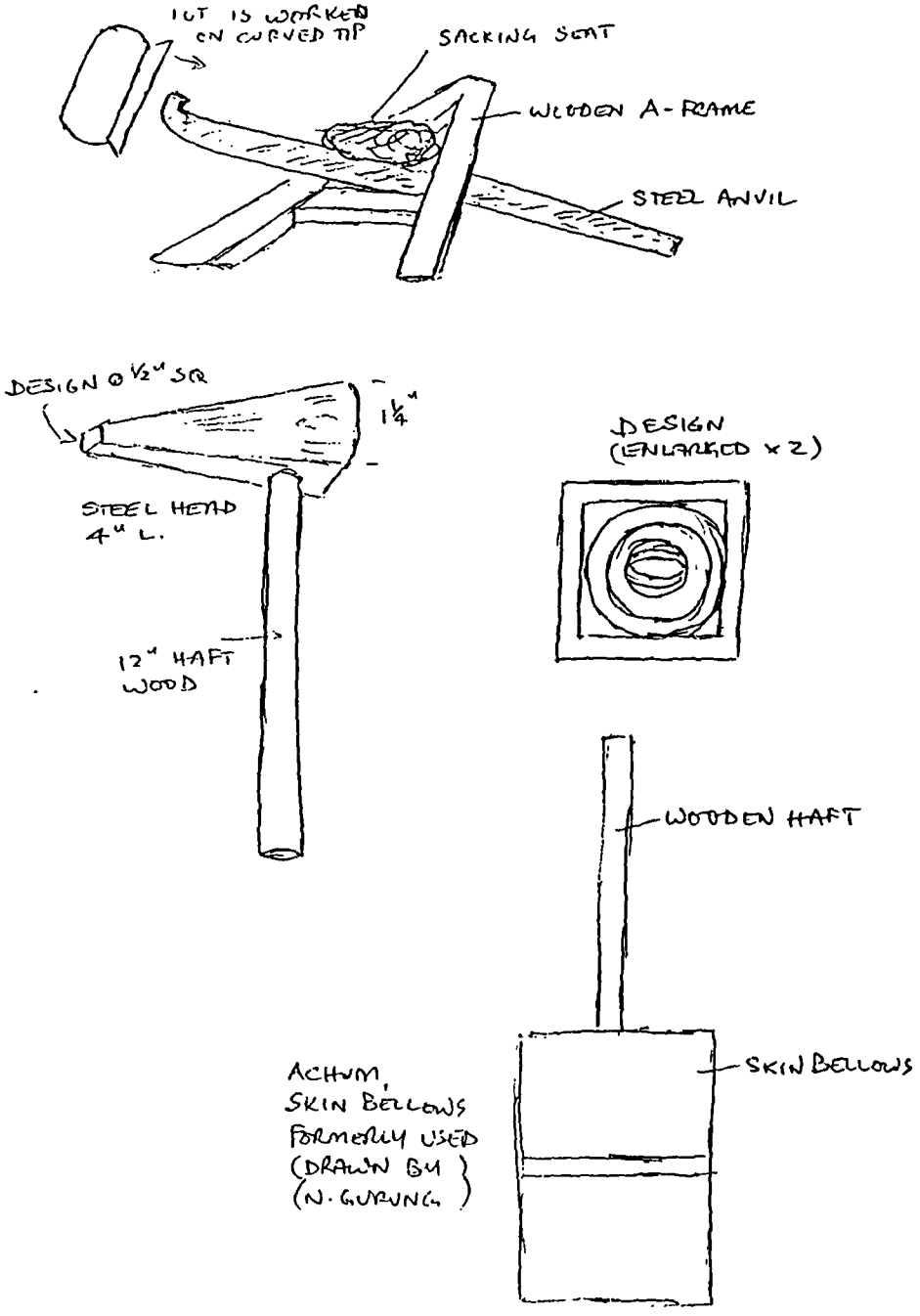
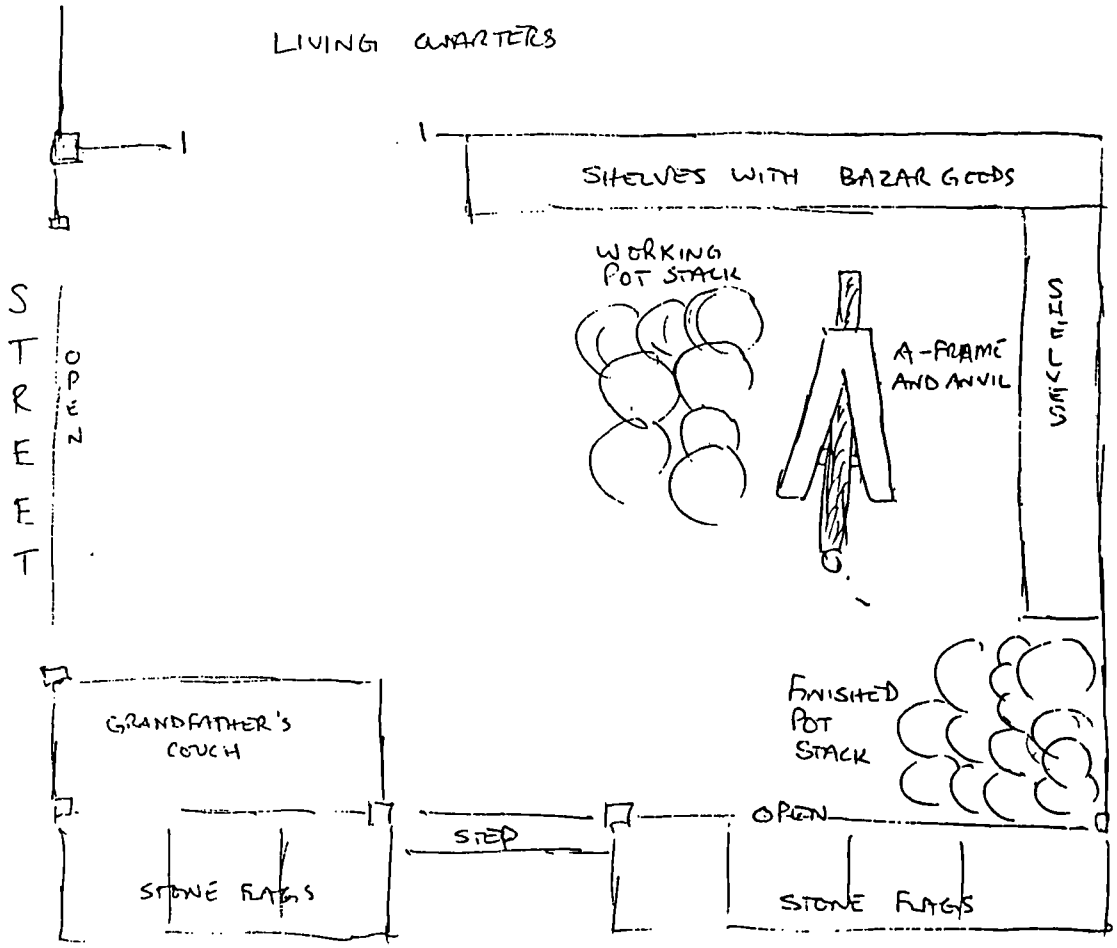


Fig. 10. Tamrakars' apparatus and tools, Pothali Bazaar, Dharan, East Nepal 1984



MAIN STREET, TAKSAR

Fig. 11. Grain pot maker's workshop, Taksar, East Nepal 1984

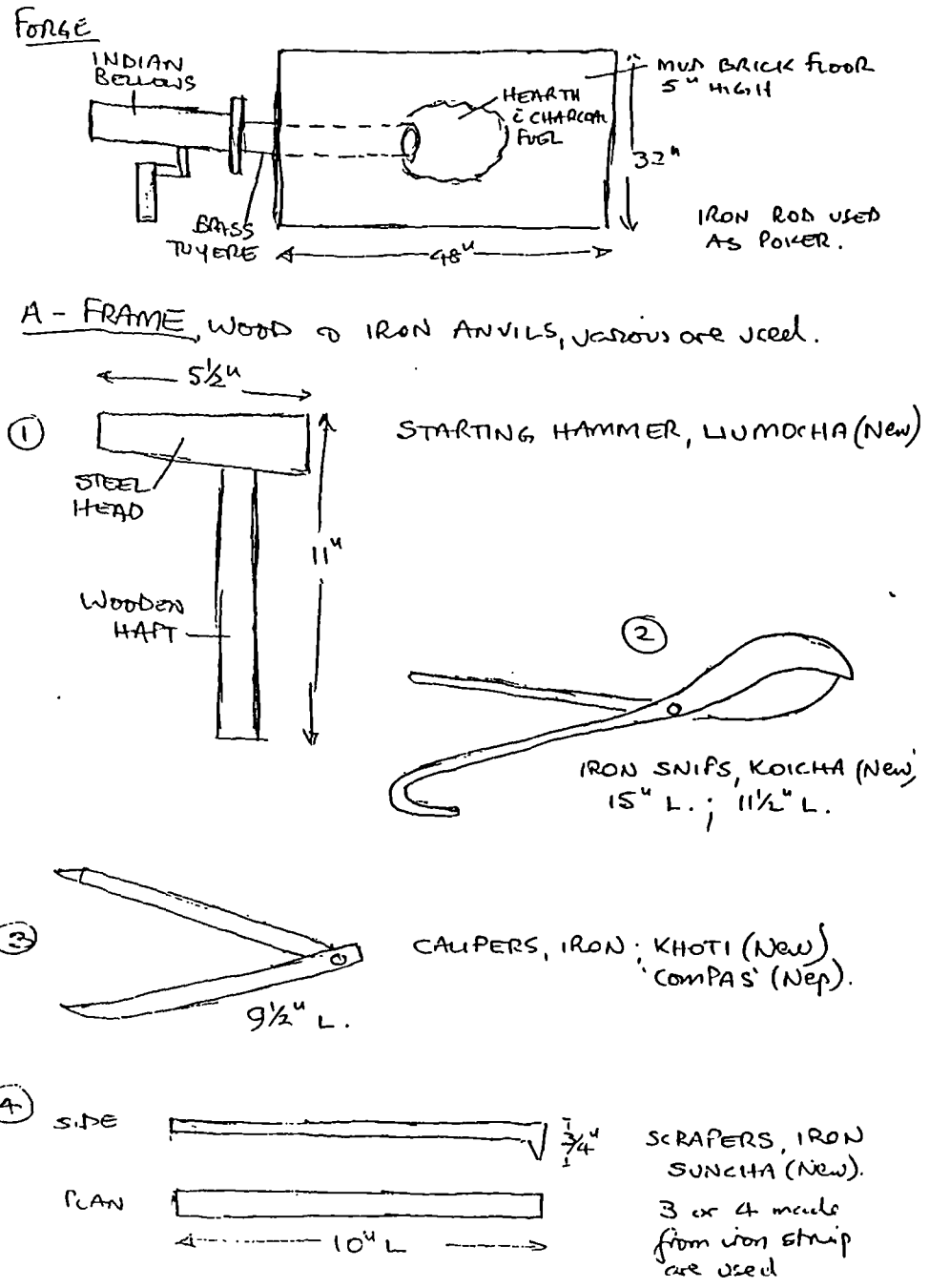
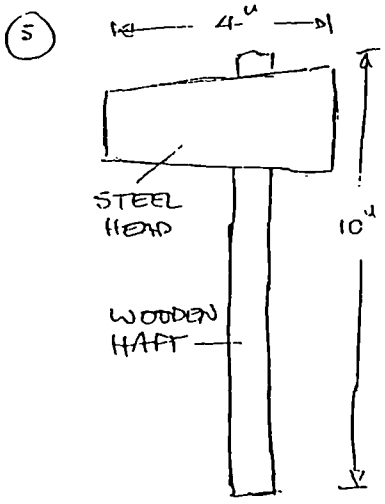


Fig. 12. Tools used in grain pot manufacture, Taksar, East Nepal 1984

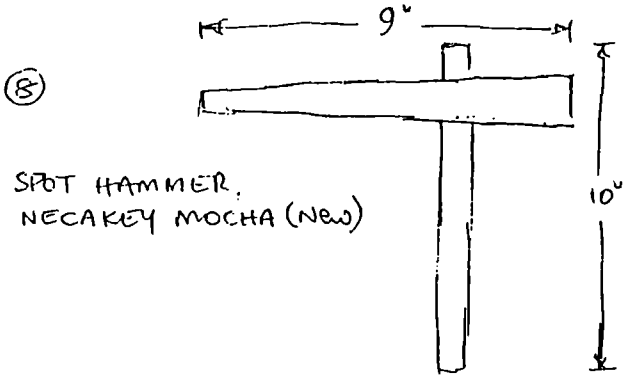


HEAVY HAMMER, BUTTOY MOCHA (New)
- used to flatten edges of base and walls & to join base and walls

6 SMALL SNIPS, see above



TONGS, CHALI (New)
- used to bend up the 'teeth' of the walls.



9 2 FILES, RETI, shop bought

Fig. 13. Tools used in grain pot manufacture, Taksar, East Nepal 1984

The fuel is usually charcoal made from locally obtained wood. The iron tools used in non-ferrous metalworking may be either inherited, made by the craftsman himself, or made by local ironworkers, *Kamis*, for the craftsman.

Metal sources

The two main sources of metal are scrap and sheet. Sheet copper and brass, from Nepalese mills or imported, is either bought by the craftsman or is provided by the person commissioning work, for example a retailer. In the latter case the craftsman charges only for his labour. Different gauges of metal are used for the base (20 - 22 gauge) and walls (18 - 20 gauge) of hollowares. Brass wares tend to be made from heavier gauges than copper wares. Copper utensils, more expensive than brass, usually have walls made from 18 gauge, whilst large brass pots will have walls of 20 gauge or more. Craftsmen may specialise in one metal, or work in both copper and brass.

Case study. Forming process

Working from scrap entails melting it down into an ingot, then beating it into appropriately shaped sheets: about 12" in diameter for a small cooking pot, 14-18" diameter for a water pot, and a rectangular sheet for the walls.

The circular base disc is marked out on the sheet with a home-made *compas*, and then cut out with snips. This is a difficult process and the sheet needs repeated (perhaps three times) heating, cooling and hammering to soften it for cutting. If craftsmen are in a hurry they will quench copper sheet to speed this stage, but brass is never quenched. After it is cut to size, the base disc is again heated and then shaped in a bowl-shaped, stone mould or anvil, *pwaka/ga* (New), or on an iron anvil, again with repeated re-heating to soften the metal. During this stage the metal, even if it is copper, is not quenched. Anvil types have changed over time. Older anvils were simply irregularly-shaped stones, then bowl-shaped, stone anvils came into use, and are still used, especially among Newars. This type may be sunk into the floor of the workshop (Gajurel &

Vaidya 1984: 51 fig 42). Latterly iron anvils, dome-shaped or in a variety of interchangeable ' spikes', *khalo*, of differing lengths and curves, mounted on a wooden A-frame, have come into use. The craftsman sits on the A-frame to steady his work and hammers the base from the outside. This is in contrast to working on a stone bowl anvil, when the hammering is done on the inside. Some craftsmen also use iron, spike- anvils which are wedged into a wooden plank. The ' basin' which results from mould forming may then be shaped further in a wooden former, *silin twaka/shilin lin*, and on an iron, spike- anvil, to raise the lower wall from the flat base of a water pot (see sketches). Formerly wooden hammers were used for mould forming, today iron headed hammers are in general use. When finished, the rim of the base is snipped into crenellations.

The sides or walls of the vessel are now formed from sheet, either as a cylinder, for a water pot, or globular, for a small cooking pot. The edges of the seam and the lower rim are also snipped with crenellations which are interleaved and gently hammered into tightly fitting joints joining the base and walls. Vessel necks may be a simply everted rim around the top of the walls or have a more complex shape in the case of water pots. The neck and mouth of a gagri are hammered into shape on a wooden former, then soldered to a ' waisted' cylinder with four lugs on its lower rim, which form the means of attachment to the upper edge of the body (Gajurel & Vaidya 1984: 32-5, 38). In a water pot, the crenellations are about ½" - 1" apart and deep. All the joints are then soldered. Solders are made to a variety of recipes. *Rasian/rhation* is made from a mixture of brass scrapings, *pital*, and a soldering metal which resembles typeface. Copper scrapings, *khapri*, may also be added to this mixture. Another recipe consists of 1 part of powdered zinc, 2 parts of powdered brass and a flux of borax, *swarg/suhag/lisan*. The powdered metal is ground with the borax and some acid in a mortar and pestle (Gajurel & Vaidya 1984: 32, 36). The cold solder is laid on the joint, then the vessel is heated so that the solder melts and runs freely into the joint. A soldering iron is not used (unlike in mask making from sheet and in joining cast vessels when a soldering iron is used). The soldered joints are filed smooth and the work-blackened vessel is now ready for cleaning.

Small metal pots are scrubbed with a mixture of water, half a cup of sulphuric acid, clay and wood ash. This is scrubbed on with a hank of rice straw soaked in the lees, *chuk/kat*, from millet beer, *chang*, for about five minutes. Then lemon juice or some other boiled citrus juice, *ajika* (New), is rubbed all over the pot, and it is left to dry in the sun for 10 - 15 minutes. Larger vessels may be steeped for two to three days in the lees of millet beer before they are scrubbed. An alternative method of cleaning which is used in Patan is to smear diluted sulphuric acid all over the vessel, then scour it with fine sand and clay dust for 10 minutes. In 1983, sulphuric acid cost NR12 per pint in the Kathmandu Valley.

Vessels may be left with a plain finish, some craftsmen's preference, or are decorated by spot hammering, *dam halne/butta dam* (Nep)/*nurajao* (New), a popular finish in Nepal. A small hammer is used for this purpose; the more pointed the hammer, the shinier the spots. Decoration, and sizes, vary according to customer specifications when wares are commissioned. Worn pots are renewed by either soldering any cracks or by inserting sections of new metal.

Rates of production

The rate of production is variable according to orders and the craftsman's inclination. Two Tamrakars in Dharan (1984) usually made 16 *phosi* in a week but could make four in one day if necessary. Two Sakyas in Taksar (1984) reckoned that they could complete an order for 50 to 60 cooking pots in three sizes in about 15 working days. In this workshop it took ten minutes to snip, join and hammer together the pre-formed base and walls of one pot to make it ready for soldering. *Gagris* may be made at the rate of one per man per day (Patan Tamrakars 1984) or four per man per day (Pokhara 1987). Rapid manufacture tends to result in a poorer finish.

Prices vary according to the material, copper wares being more expensive than brass, and according to the time spent on manufacture. In retail shops, metalwares are commonly sold by weight. Craftsmen make wares to individual order, in a few cases as a bista relationship with local farmers (Sakyas in Taksar 1984 doing tinkering work; an unusual relationship in eastern Nepal and more common in the west), for sale by themselves in the bazaar, or as piecework for a commissioning retailer. In Patan (1984) some 30 households were engaged in making *gagris* which they sent to shops in Kathmandu and Patan where they were sold to locals and to hill people. They also sent *gagris* for sale in eastern and western Nepal. Retailers may sell metalwares in their own shops or have them portered further afield to neighbouring towns, villages and markets.

In Taksar (1984) five households were engaged in making non-ferrous wares out of 10 or 12 households which usually manufactured, the rest

were farming or working in Dharan. At this time there was a decline in production in Taksar (Dunsmore 1984). In Pokhara and Tansen (1987) some 25 households were engaged in non-ferrous utensil production in each town. Most craftsmen were Newars with a few Kamis.

Craftsmen usually make a range of utensils and cooking implements. Small pots, for cooking and serving rice, lentils and millet, are used domestically by both men and women. Larger cooking pots used to cook meat and make spirit, *rakshi* (Nep)/*ela* (New) for festivals, may be hired out(Bista pers comm), and serve for display.

Style in hammered wares

Differing styles of utensils are known and valued widely in Nepal. The *gagri* may serve as an example.

' A Patan -made gagri lasts a lifetime'. (Kirti Kumar Tamrakar, pers comm 1984), who made the following observations about the forms and styles of gagri:

In the Kathmandu Valley the size of gagri varies with the thickness of metal which is used: shorter gagris have thicker walls, taller gagris have thinner walls, also Patan-made gagris are stronger than those made in other parts of Nepal. For example, although many of the copper and brass workers in Dharan originally came from Patan, they now make gagris of different style with more joints. This makes them weaker than Patan gagris, especially in the base joint, and they need more repairs.

In the Valley, the traditional shape, which has named parts, persists in popularity, as does the material: brass is prefered to stainless steel or aluminium. A factory-made steel gagri has no joints, and therefore no names for the different parts. Even though brass and copper sheet are

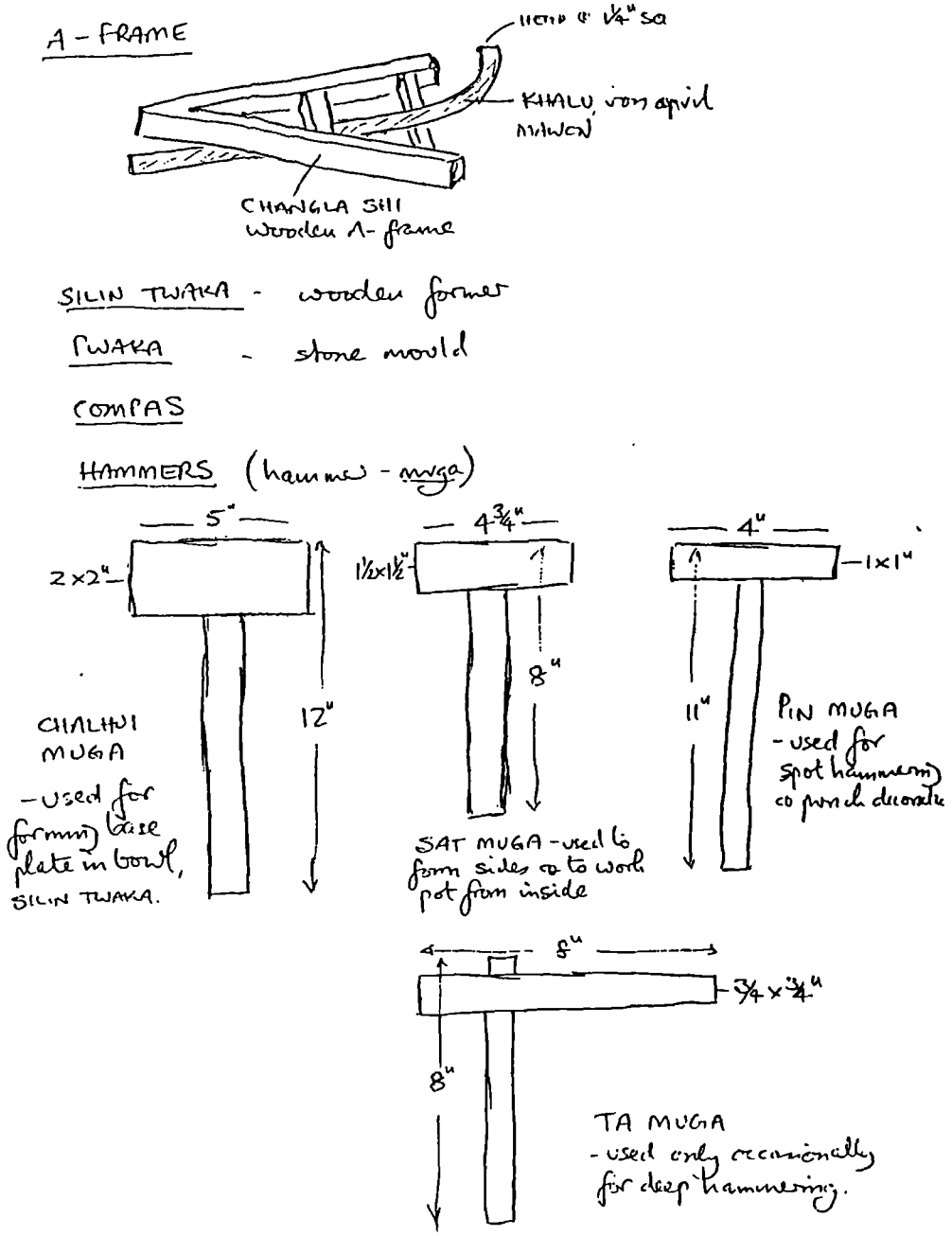


Fig. 14. Tools used in the manufacture of a water pot, *gagri*

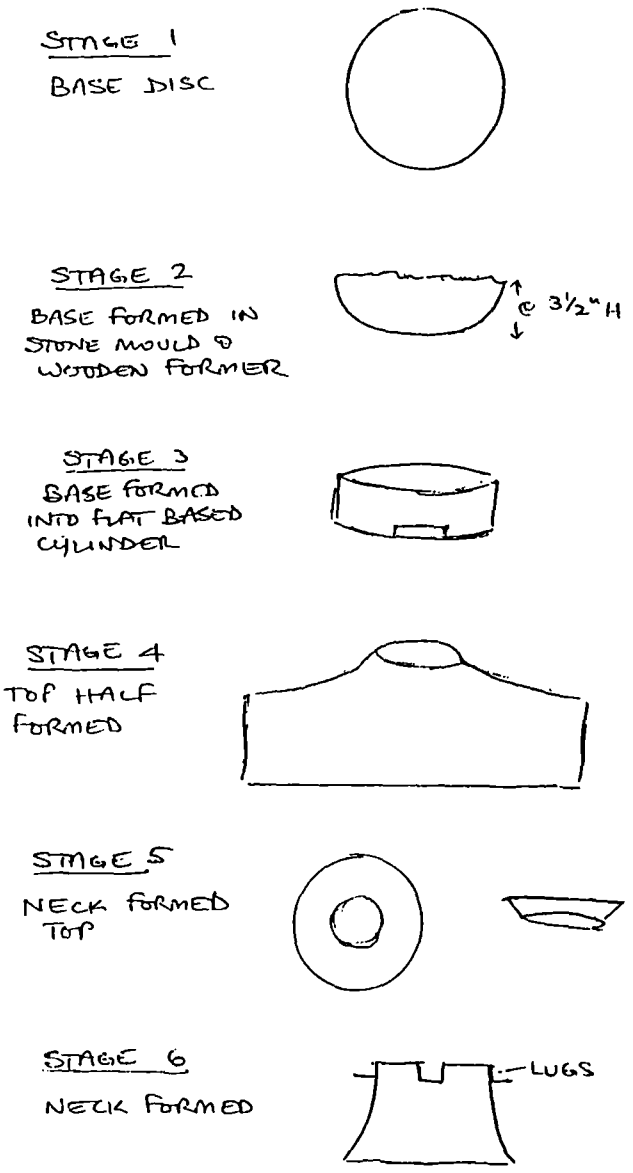
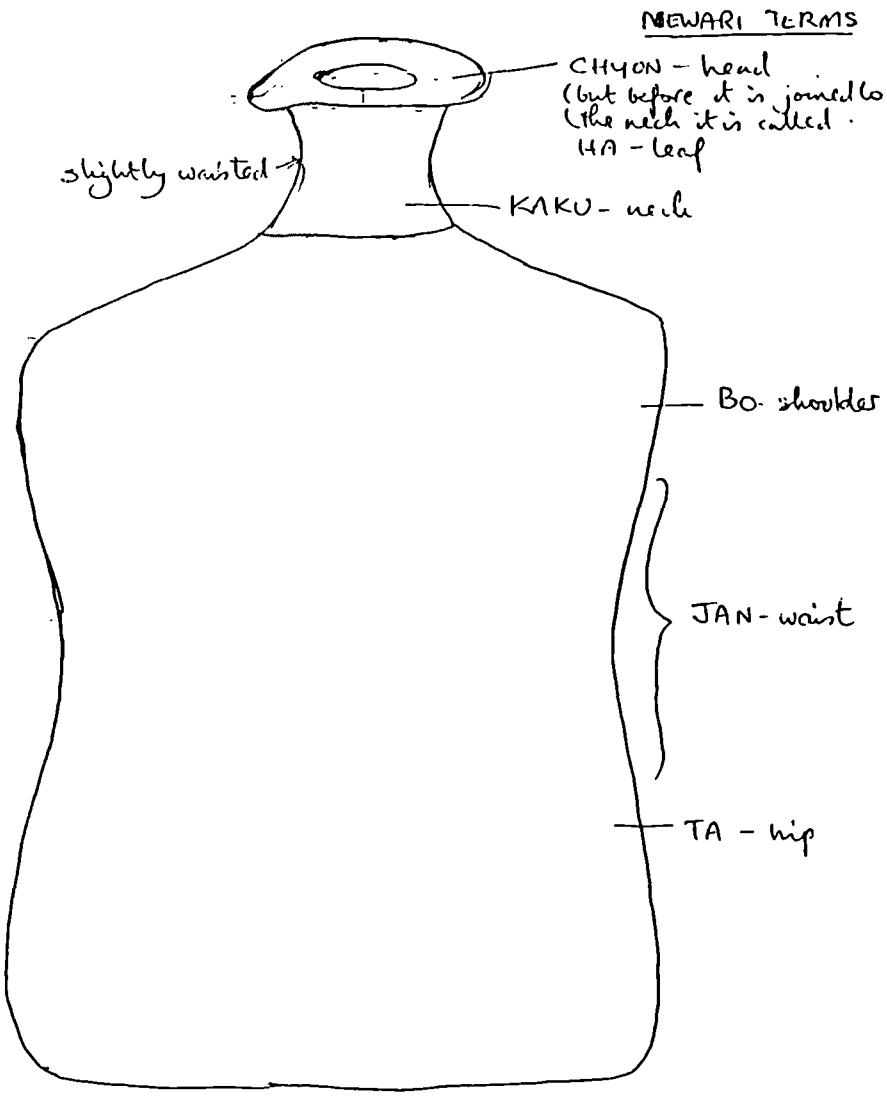


Fig. 15. Stages in the manufacture of a water pot, *gagri*

harder to work than aluminium, making gagri from the latter material is a generally unpopular method. According to Gajurel & Vaidya (1984: 38, fig 30) in a survey of the Valley, Polkhara and Tansen, older gagri were taller than present vessels, and had a slightly rounded base. This shape was less functional than gagris with a flat base, hence the change to the flat-based style which is now preferred in the Valley. Even so, round-based types are still found in the Valley (Birmingham 975: 10,3; and in the hill regions throughout Nepal). Valley gagri styles also differ from those in west central Nepal, where a gagri with a conical neck and decoration on the neck and shoulders is preferred (Gajurel & Vaidya 1984: 35, fig 26).

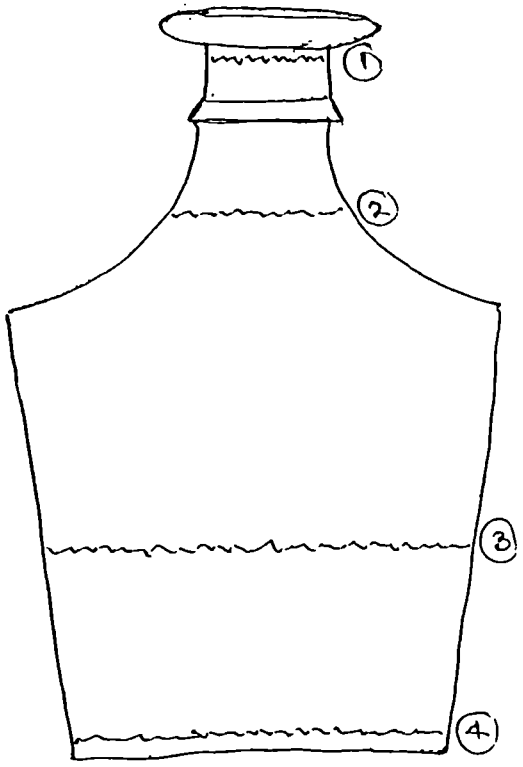
Among the variety of styles, two are predominant. In the Kathamandu Valley and eastern Nepal, brass gagri are preferred. These are shaped with a cylindrical body, which may be slightly waisted, or may widen out from the flat base. There is a square, angular look to the shoulder which runs sharply inwards to a narrow neck with an everted lip. This type is usually undecorated. There are exceptions to this predominant type, for example the short brass gagri of Indian make at Karkineta, 1987 (see sketch). In Bhojpur 1984, two styles were in favour: a shorter version than the Kathmandu type, with walls which sloped outwards from a flat base; and a copper pot with a globular body and rounded base, *tama ko gagri*, which might or might not have raised decoration, usually around the shoulder. This type was also present in Pothali, Dharan and Pakrabas. In Okhaldunga (1991) a mixture of gagri types were present, both circular and square-shouldered in copper, brass and aluminium. Hill people around Okhaldunga still prefer circular copper gagris which are also worshipped



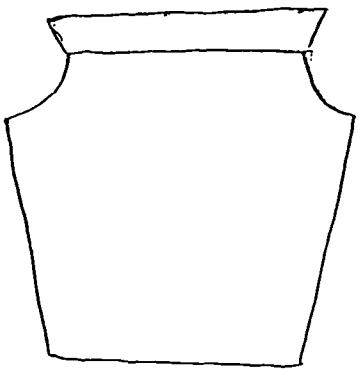
SIZES VARIABLE
AV. @ 10 - 12" dia x
12 - 14" high

Used to fetch and to store water.

Fig. 16. Patan-style water pot, *gagri*, 1984



A LARGE GAGRI
@ 15" high,
has four joints
CHAINPUR, 1984



SMALL BRASS
'GAGRI'
7" high.
CHAINPUR 1984

Fig. 17. Water pot, *gagri*, types, Chainpur, East Nepal 1984



Fig. 18. Water pot, *gagri*, with rope holder, Sai Khola, West Central Nepal 1981; termed *gaila* when made of clay.

as a symbol of Siva, but square-shouldered ' Kathmandu-style' gagris are becoming more popular. In western Nepal, from Pokhara westwards, and especially in rural areas, a round copper gagri is preferred. A copper gagri also serves as protection against evil spirits. This type, which is called, *maghagha or paschim gagri* (Mukherjee 1978: 450, 459), has a more rounded body, often with raised work decoration, done from the outside, around the shoulder and sometimes the upper body, and a flat base. As exceptions one may note Kathmandu type gagris in Jumla and Gum Ghadi in north-western Nepal, and decorated copper gagris in Dharan in eastern Nepal; the stylistic division is not absolute. In west central Nepal, Pokhara-made copper gagris are thought to have a better finish than those from Tansen.

The gagri, or waterpot, is one of the most important items of Nepalese material culture. It is an essential piece of household equipment, since water must be collected from stand pipes, springs or streams in most of the country. Even in the main cities, many houses still do not have piped water. Families thus rely on their womenfolk to perform the daily task of water collection. In extreme cases, in the hills, water collection may take several hours of hard daily labour up and down steep tracks. In Nepal, gagri are carried when full, and for short distances, under one arm on the hip, usually the left, not on the head, as waterpots are carried in India (according to Mukherjee 1978: 148). Exceptions to this occur in the Karnali Valley (1987), where Indian influence is strong, and where round-based gagris are carried on a head ring, in Indian fashion. In Patan the stone reliefs on the Siddha Pokhri

palace, probably dating from the 16-17th century, also show women carrying round-based pots on their heads. Conversely in southern India today, water pots are also carried on the hip (N. Tobert pers comm). For longer or harder distances gagris may be carried in a doko with a head tumpline. When empty they are just carried in the hand. Gagri are one of the most important parts of a girl's dowry. They are given at the wedding ceremony. Such dowry goods may be donated as votives to temples by women. Votive gagris, some perhaps several hundred years of age (Gajurel & Vaidya 1984, 31), are nailed to the top storeys of some temples in the Valley as a dedication by Newars on the death of a member of the family.

Case study: Plate, *thal/kans/charesh*, manufacture, Dharan (1984).
A man and his son were working on their porch behind the market place. This man makes only bronze plates (which he called *phoolkasa*), ' for sale to wealthy people'.

The forge consisted of a solid clay ' igloo' shape; a new one was drying. His fuel was said to be charcoal made from coal (sic). The draught was provided by an Indian bellows. The plates are formed by heating, hammering, and ' tempering', *painhalnay*, them with water. The plates are finished by scraping them with a sharpened steel rod which is riveted half way along its length, and is held in place with a round iron rod which passes around the rim of the plate as a guide. The shavings are re-used.

This craftsmen buys sheet ' bronze' from the nearby mill at Pothali and can make 20 plates of traditional style from ten kgs of metal. Formerly plates always had raised sides, to make eating with the hand easier. Today, many people, especially the young, prefer to eat with a knife and fork, so flat plates are used (Bista pers comm 1984). However the traditional form with raised sides is still popular in stainless steel, both in the Valley and in rural areas.

Factory-made plates are produced in bronze and stainless steel in Nepal. The rolling mills at Balaju Industrial District, Kathmandu and at the Patan Industrial Estate now turn out *kans* sheets of the required sizes and shapes. This has done away with the need for hammering them out into shape. Circular sheets, bought by the kg from the mill, are shaped into the finished product by hand. Stainless steel plates may be made either in Nepal or imported from India. Whilst imported factory-made plates are cheaper to buy than hand-made bronze plates, an inhibiting factor is that factory-made wares have no re-cycling value but traditional wares fetch cash as scrap, *patru*.

Casting techniques

Open moulding

Two main types of true bronze, *kans (Nep)/kayen* (New), that is an alloy of copper and tin, with varying proportions according to the craftsman's assessment, are made in Nepal: *thakayen*, which is used for casting objects such as bowls, some cooking utensils, and lamps; and *dakayen*, which is used for making dinner plates, *thal*. Plate bronze is produced in two different alloys which are used to make two types of plate: dishes, *kans*, which form an essential part in wedding ceremonies, but are not made in any quantity; and plates, *charesh*, which are superior in quality to *kans* plates, and are more expensive to make.

The traditional method of producing bronze plates is as follows (Gajurel & Vaidya 1984: 48-50, 53):

1 *dharni* of copper (2kg 400 gms) is mixed with 5 *paus* (1 kg) of tin, *rang* (Nep)/*kayentha* (New), then placed in a closed crucible and heated in an oven on a bed of charcoal. The charcoal is given a draught from below on two sides by a leather skin bellows. The crucible is shaken, using tongs, to test when the metal is molten, and when this is so the crucible is removed with tongs from the oven, broken open, and the metal poured into circular, clay open moulds, *palla*, and allowed to cool enough to solidify.

The discs of metal are then removed from the moulds while still red-hot, and are hammered on an iron anvil. One man holds and moves the disc as needed, whilst two or three other men hammer it. The ingot is annealed or re-heated on an open fire to enable the hammering to produce a flattened disc of about 10-12" diameter. The roughly-shaped plate now has its edges shaped. The plate is again heated over the fire until it is red-hot, and is then placed on a stone mould and the edges are shaped by hammering into the stone mould.

The plate is now tempered by being pasted, on the inside surface only, with a mixture of salt (500 gms) and ordinary clay (4 kgs), and allowed to dry in the air. The inner side of the plate with the paste is then heated over the fire. It is moved with two iron rods during this stage to maintain uniform heating. The plate is then quenched and immediately removed from the water. This tempering is termed ' giving the pine', or ' pine-giving' (Gajurel & Vaidya ibid), and is thought to improve the resilience of the plate against cracking if it is dropped. Some plates are said to be 200 to 300 years old. However, *kans* plates may crack by long exposure to sunlight, and they develop cracks when heated. After tempering the plate is dark-red on the inside and blackish on the outside. A finishing polish is given to the plate by attaching it to a wooden lathe and filing it whilst it is being turned.

Kitchen implements such as spatulas, *paniu/panyu*, and ladles, *daru*, are also made by open moulding.

Case study: Dan Bahadur Shakya and his daughter, Newars, Taksar 1984.

DBS is a Buddhist, about 60 years old, living in a combined dwelling and workshop, the last one going east out of town, near the temples.

DBS specialises in manufacturing spatulae, for cooking and serving rice, and ladles, used for cooking and serving dhal and other liquid foods. A woman should possess both, and both may be used by men or women in the kitchen at any time. The shape is common to India and Nepal. DBS makes these kitchen implements, and small cooking pots, for sale through his outlet, a retail shop in Taksar, which then sells them in Dharan and Kathmandu. I saw none on sale in Bhojpur market.

DBS walks to the Pothali mill at Dharan to buy brass and zinc scrap, which he then mixes in the proportion: five kgs of brass: 200 grammes zinc. The furnace, *bhatti*, is made of mud brick and is about four feet high by three feet wide by three feet deep. Charcoal fuel is made from any available wood. The draught source is an Indian bellows. DBS makes his own crucibles and moulds from a mixture of clay and rice husks; he had about 20 in the workshop and furnace.

The metal mixture is packed in crucibles, *hanlutho*, and heated for 3½ hours in the furnace. The crucibles are then lifted out with tongs and the molten metal poured into open moulds, *sansha*, to form ingots. His daughter helps him with this stage. The ingot is then cold hammered into one of two metal formers (Indian made) to fashion either a spatula or a ladle. The ladle bowl is raised by hammering it on an iron spike anvil (18½" long by 2" diameter) which is wedged with pieces of wood into the earth floor.

The utensils are cleaned by his daughter, who polishes them with acid, clay, ash and lemon juice in the same manner as in the cooking pot sequence described above. Finally DBS spot hammers them to provide a decorative finish.

Lost wax casting

A variety of utensils are made by a lost-wax casting technique including: water vessels, *amkhora/amkora/ankhora*, similar to an Indian *lota*; a spouted drinking vessel with a globular body, *koruwa*; spirit decanters, *anti*; and goblets, *gilas*. Although these vessels are in general use they are regarded as prestigious vessels when made in ' bronze', rather than aluminium.

I outline the techniques used by Sakya craftsmen in Chainpur and Taksar (1984), notably Krishna Shakya, Ward no. 5, Purano Dabali, Taksar-Bhojpur, Kosi Zone, east Nepal, since these have differences from those involved in figure casting (see below). Koruwas are also made by a piece moulding technique in a small factory context by Tamrakars (Pokhara 1987).

Workshops

The workshops of lost-wax casters are of similar layout to the manufacturers of hollow wares described above, that is open-fronted rooms on the ground floor of their houses. Here the work of forming the clay model and finishing the cast artifact is performed on an open hearth with bellows and a lathe, whilst investment of the wax model may be done outside on the porch. Melting the metal is done in charcoal fuelled ovens, *kwajhya*, in a back room.

The tools used: chisels and scrapers, may be made by the craftsman himself from scrap iron (car springs) bought along with files in Bhojpur.

The artifact under manufacture is modelled in beeswax, *main*. Taksar craftsmen obtain their wax from near Okhaldunga, three days' walk to the north-west. Investments of the wax model are made from a local red clay, *sacha*, mixed with rice husks. Crucibles are made from a mixture of clay, *gicha*, sand and rice husks. Crucibles are moulded over a wooden shape, and have walls from ⅛ - 3/4" thick and a lid (Gajurel & Vaidya 1984: 36).

Metal sources and mixtures

Case study: Krishna Shakya, Taksar, August 1984, manufacture of a stemmed goblet; described as typical, with the addition of other data as appropriate (also see Appendix - Wax).

KS buys copper and zinc scrap from Dharan or Kathmandu and mixes this in a proportion of five parts of copper to two parts of zinc. That is he works in brass rather than true bronze, although he, like many Newar craftsmen practising this technique, refers to himself as a ' bronzeworker'. The brass which he and other local craftmen use is much whiter than the sheet brass which is used to make the kitchen utensils. KS has never worked in true bronze, that is a mixture of copper and tin, nor has he ever worked in pure copper.

Other recipes for amkhora production include: eight parts of brass to one part of zinc; 24 parts of brass to one part of zinc; and equal parts

of copper and zinc. Today the scrap from old brass vessels, *khu*, forms the main source of supply (Gajurel & Vaidya 1984: 45).

Forming the wax model

1. A lump of wax is warmed over the hearth, and mustard oil taken from a small pot is worked in, as a wax model of a goblet is formed in two parts by hand.
2. The roughly formed cup is then placed in cold water in a small brass pot to harden.
3. A soldering iron, *kwancha* (New), is heated on the hearth.
4. The goblet model is pressed onto the face of the lathe, *nyan* (New)/*kuney kal* (Nep)/(*Yon/Yan* (Mukherjee 1978: 452, 456), and is fastened in place by dribbling wax onto the join with the hot soldering iron.
5. The wax model of the goblet's bowl is now turned on the lathe. KS rests his wrists on a small stand shaped like a saw-horse and shapes the goblet with a chisel. The belt-driven lathe (Indian made) is bolted down on wooden blocks and is turned with a windlass handle by the younger son at variable speeds.
6. The wax model of the stem is now formed in similar manner and is attached to the bowl by dribbling wax with the hot soldering iron.
7. The model of the goblet is now invested with clay and sun-dried for 15 days. Single or double investments may be made; a double investment is 7½" x 6½" in size, a finished goblet is 5" high x 2 1/4" diameter.
8. After drying, the invested models are packed around with charcoal and fired in batches in the big oven behind his workshop. They are heated for fifteen minutes in order to melt out the wax, which is collected for re-use. The remaining mould is now ready for casting.

Casting

9. Scrap metal, copper and zinc, in the proportion noted above, is melted in a small, clay crucible, *bhonsa* (New).
10. The fired clay mould is now fastened to the top of the crucible containing the melted scrap with a clay seal, which is dried for two hours to secure it.
11. The crucible-mould is then placed into the big oven, *kwajha*, with a batch of others, with charcoal packed around them, and fired for two hours. The crucible-mould is then shaken with tongs, whilst it remains in the furnace, to see if the metal has melted. If so, it is inverted so that the molten metal pours into the mould.
12. The crucible-mould is then removed from the oven and allowed to cool for half an hour. It is then broken open and the artifact or its parts are removed and roughly cleaned. If blowholes have occurred in the metal goblet, they are repaired with a solder of the same copper-zinc alloy. When artifacts are made in two parts, for example the body and neck of a drinking vessel are made separately, they are soldered together at this stage; the koruwa spout having been filled with clay and cast separately. The solder, *rasion/rhation*, is made from brass and copper scrapings mixed with *suhag*. The soldered joint is then filed and scraped smooth.
14. The metal goblet is now heated on the hearth, then stuck on the lathe face with wax as an anchor, and scraped and smoothed with files, *reti*, and a scraper, *hong* (New)/*bakh* (Nep), for about 30 minutes.

Finishing and decoration

15. Selected parts of the goblet are now polished with emery cloth and Brasso on a cloth to give them a shiny finish. Aluminium pots may be finished in the same way.

16. Goblets may also be decorated by applique. Wax decorations are made by pressing wax sheet on to an open stone mould, *butta ko chap*. The wax is trimmed, removed and stuck onto the outer surface of the wax model of the goblet before it is first invested with clay. The impressed wax is called *butta*. The moulds, carved by KS's father, are on hard, black pebble, which KS calls ' slate', and measure about 3" x 2½" x 3/4". The decorations have specific names, for example the decoration on the amkhora in the Horniman Museum Collection is called ' money plant flowers'. When decorating religious figures in this way, KS casts the decorations separately and then solders them on to the completed figure.

An amkhora is made essentially by the procedure outlined above, with some variations. A wax model of an amkhora is made by placing a layer of wax on clay or metal moulds of the pot's quarters. These quarters are then joined into two halves: the upper and lower parts of the pot, by melting the edges of the wax sections. The two halves of the pot are then cast separately (Gajurel & Vaidya 1984, 41-46). The wax model of each half is finished by turning on a lathe and by carving with a small knife, for example the small knife from a kukri set.

After the removal of the wax by heating the moulds, the latter are re-fired ready for casting. In producing amkhora and koruwa the moulds are not attached to the crucible but are kept outside the oven and the molten metal poured into them there. In this case a small piece of wax, *khoto*, may be put into the mould through the pouring hole, *nowcha*, before pouring, to help the flow of metal. The crucibles may be kept for further use.

The upper and lower sections of the amkhora are now soldered together with a soldering iron but they remain mobile, so the vessel is packed with hot charcoal which is blown to red heat with a tube or an Indian bellows for two to three minutes to set the solder. The solder in use in Chainpur (1984) comprises: 50% soft white metal, ' typeface', and 50% heavy white metal, *rang*. *Rang* is an expensive (NR500 per kg) Indian import bought in Dharan. These two ingredients are melted with a little *tarpin* oil. One metalworker also had a bar of made-up solder, labelled ' Fry' from the United Kingdom.

The outside of the soldered join is coated with *tarpin* oil to help the solder to set. The joins are then cleaned with sulphuric acid. Any dents in the vessel are filled with a mixture of one part tin to three parts of bronze and a very small amount of lead (G. Sakya, pers comm). The vessel is finished by filing and scraping as it is turned on a lathe.

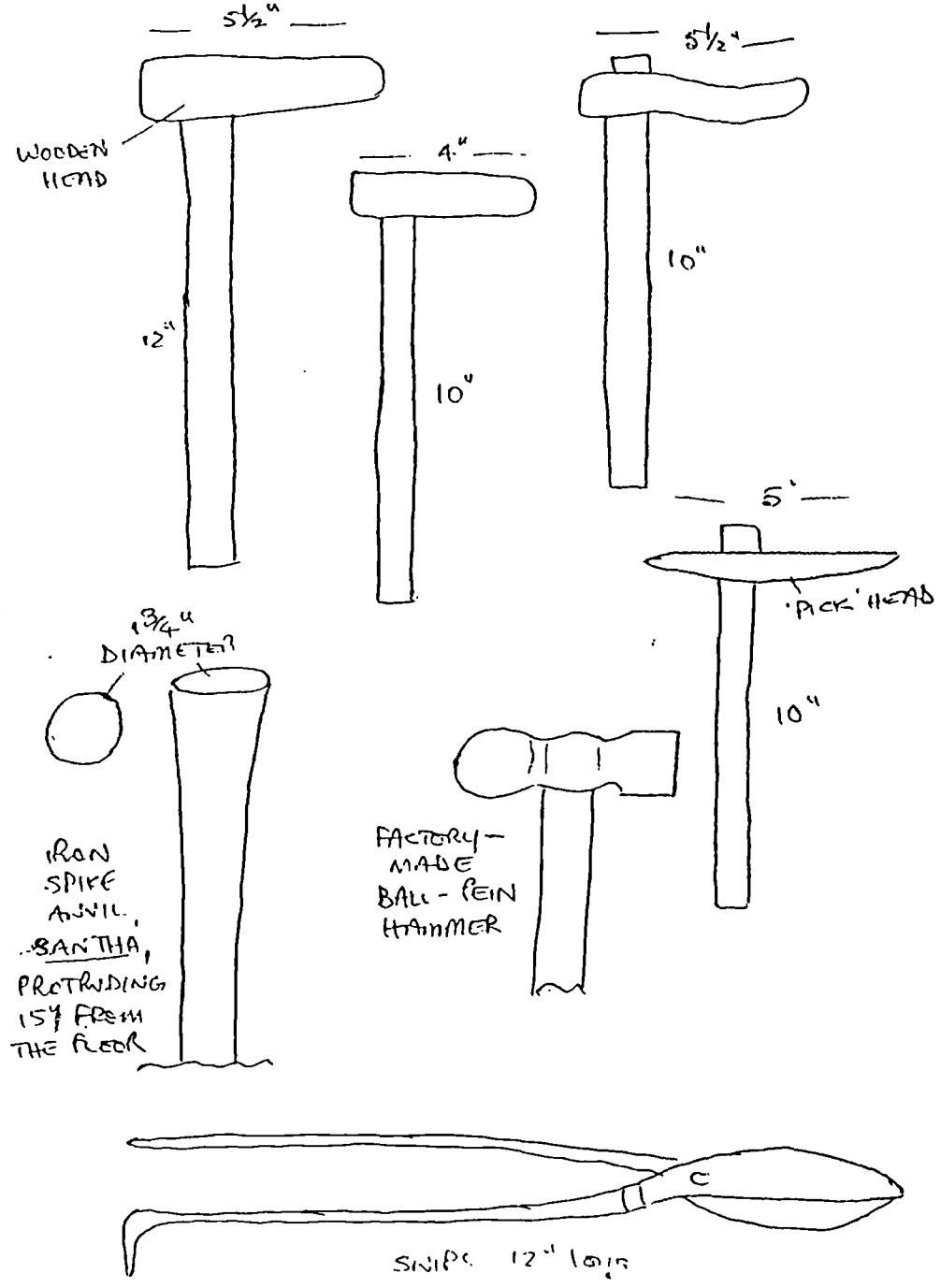


Fig. 19. *Lakhe* mask-maker's tools, Chainpur, East Nepal 1984

Workshop

An open fronted shop 20 ft l. x 7 ft. w. x 6 ft h. Five shelves on the back wall hold the materials a/m. Engineers vice, 4" jaws.

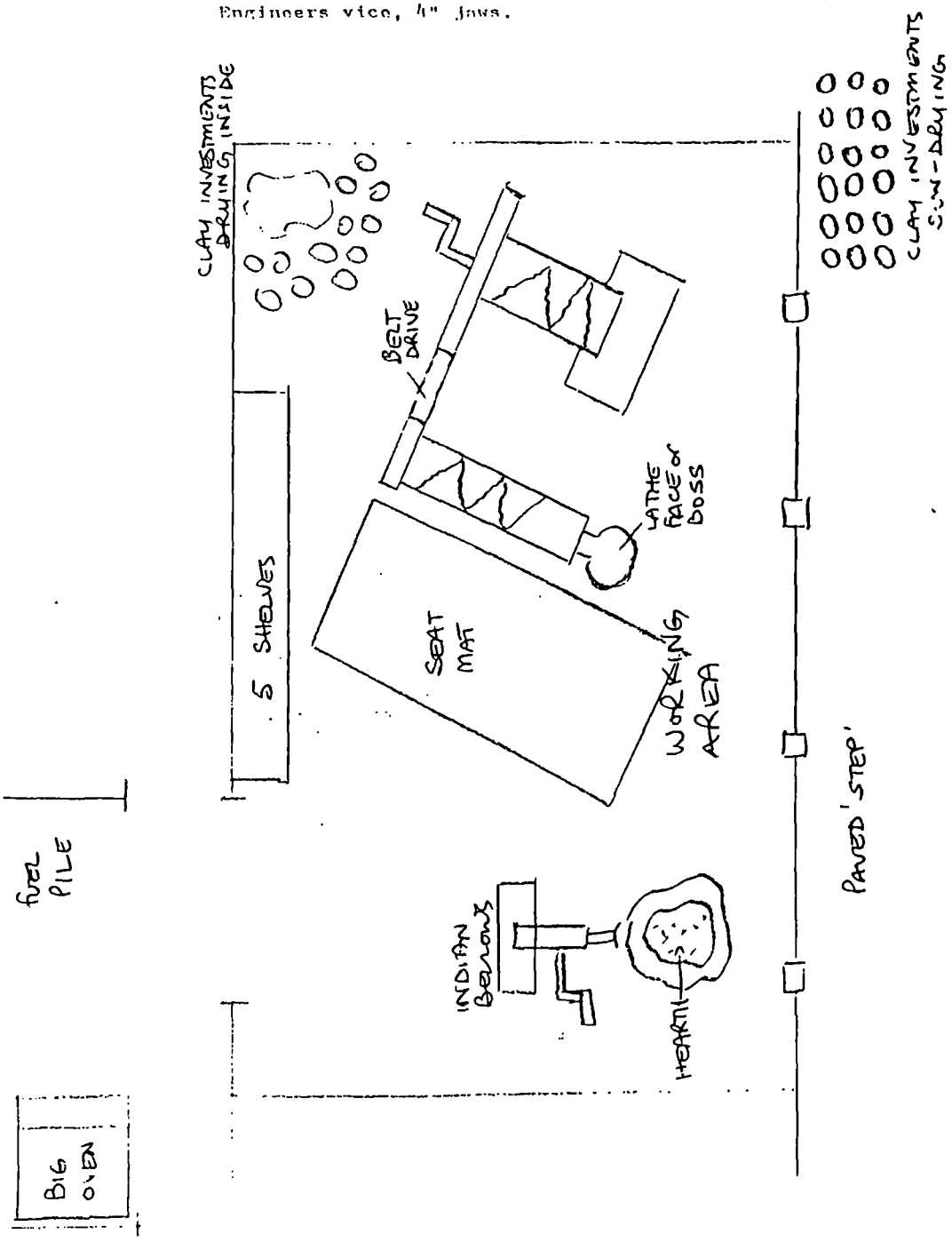
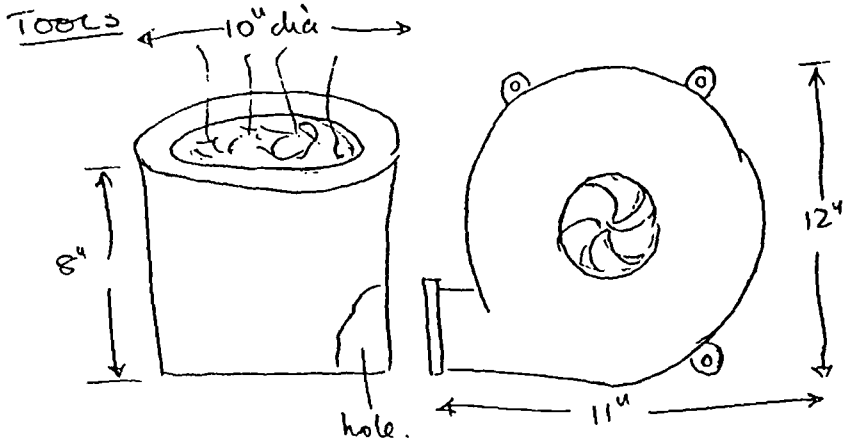
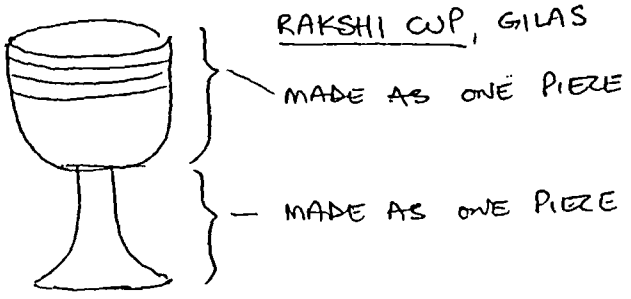


Fig. 20. Krishna Sakya's workshop, Taksar, East Nepal 1984. Open fronted, c. 20' l. x 7' w. x 6' h., five shelves along the back wall hold materials.



HEARTH

Portable, clay pot, MAKAL, burning charcoal, MOINA, made from sal wood. A hole in the side allows the draught from the portable Indian bellows to enter. The bellows is carried with a windlass handle & is stamped: "Forge and Blower Company, Ten Inch Double Gear". It is made in India.



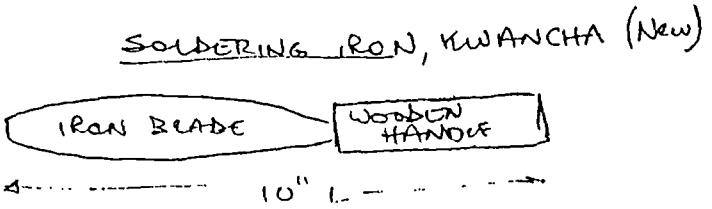
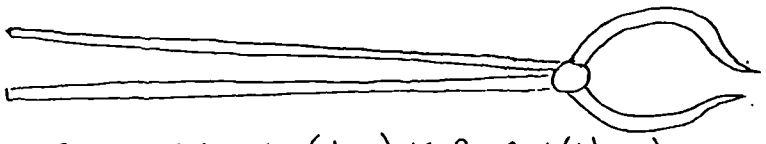
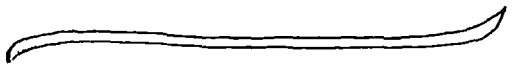


Fig. 21. Lost-wax manufacture, tools used in Krishna Sakya's workshop, Taksar, East Nepal 1984

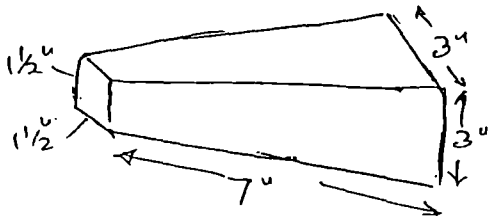


TONGS, SANASHO, (Nep), KAPCHALI (New).
Rod steel; 2 pairs used: 1 × 54" L.
1 × 38" L.



SCRAPER/CHISEL, BAKH (Nep.), HONG (New).
6–7 in use, 15 – 18" L.

FILES, RETI
are bought ready made, without handles, and are converted into turning tools when worn out.



WEDGE, LI
portable, iron; used to chop metal on, with a hammer & chisel.

Fig. 22. Lost-wax manufacture, tools used in Krishna Sakya's workshop, Taksar, East Nepal 1984

Cast wares

Whilst specialising in making sets of rakshi decanters and goblets, amkhoras and koruwas in ' bronze', KS also makes other items in brass and aluminium, such as millet beer pots, *tungba*. He also makes religious figures by the lost wax method and had one investment drying when interviewed. Such figures are made to order, both for domestic and temple use. KS produces pots and figures more for the Kathmandu market than for local use (see below). Examples in stock included:

1. a pair of amkhora (females) and one koruwa (male) in a set priced at NR675 (£32 in 1984).
2. a peacock oil lamp, *kupi*, 17" high, priced at NR750 (he refused NR650).
3. Siva, brass, standing 15" high (NR500).
4. Ganesa, brass, 8½" high (NR350).
5. Saraswati, brass, with four arms, 16" high x 13" wide.
6. Buddha, brass, in earth touching posture with an exposed right shoulder and Chinese features, seated on a double lotus throne, 20"high x 13" wide. KS made this figure for himself in 1980 (bought for NR250).

The Siva and the peacock lamp are typical Bhojpuri style. The Ganesa is unusual but available in Kathmandu. Where KS tends to make utensils primarily, with figures as a secondary production, in Patan figure makers make koruwas as a secondary occupation (Hofer 1980: 55).

Variations and styles in lost-wax wares

Taksar, Chainpur, Patan and Tansen are noted for their amkhoras. KS noted some regional differences in metalwares, for example a Bhojpuri *amkhora* (*lota*, Hindi) has a fluted neck and a bigger belly than the plain-necked, small bellied Kathmandu type. Bhojpuri vessels are also more squat

and stout than Chainpur vessels. However both Bhojpur and Chainpur wares are now available in Kathmandu, produced by local smiths for that market. KS says that the styles of local pots have changed during his lifetime (he is fifty years old). Indeed, he has himself changed the styles, which he inherited from his father and grandfather, according to his own choice. Krishna Shakya's family originally came from Patan. They have been in Taksar for four generations. They are Buddhist Newars, but his sons did not return to Patan for initiation.

KS thinks that the quality of metal which is produced by Taksar smiths is declining, although he tries to maintain his own standards. His wares were the best finished which we saw in an area noted for its fine metalwares. This quality was confirmed by his older son, who claimed that his father was the best at decorating and finishing metalwares in the entire district. His wares are now too expensive for locals, other than government officials, to buy. He therfore makes wares for the tourist trade in the Kathmandu Valley and finds his market is expanding. He has also sold wares in Hong Kong and the USA. Some Americans stayed with him some time ago, and talked of taking him to the States but nothing has come of this so far (1984). KS has two sons. The younger, who operated the lathe, is not interested in continuing the family craft. The older, who runs a photographic studio in Bhojpur at present, will continue to do metalworking, ' even though doing such work marks you as lower caste'. The women of the family also do light work to help: cleaning up the inside of vessels and any decorated parts.

Case study. Factory production of *koruwa*, Pokhara 1987.

The *koruwa* is a water pot or drinking vessel with a rounded body and a spout (see sketches; Birmingham 1975; Gajurel and Vaidya 1984: 46-48; and Horniman Museum collection). Brass *koruwa* are now used only for making offerings at the temple. In the home people often use cheap aluminium koruwas. Hindu Newars avoid touching the spout of the koruwa when drinking from it, to avoid the pollution of saliva (Maloney 1974: 218). Taksar-Bhojpur koruwas are noted for their decoration, especially with floral motifs. In Taksar and Chainpur this vessel is made by individual craftsmen using the lost wax technique described above.

In Pokhara (1987) *koruwas* were being manufactured by piece moulding in a small factory context. Ananda Man Tamrakar runs a factory employing some twelve men, half of them Indian, on the outskirts of town. AMT's family were originally from Patan. He won prizes for metalworking in a craft competition some four or five years ago, and now enjoys government sponsorship. He is the only man in Pokhara who can make figures, but when visited was making koruwas and candlesticks for Diwali. Other utensils are also mass produced here. The metal source was scrap collected in the Pokhara area. Supplies of bronze from India are restricted. The manufacturing process is as follows:

1. The piece or section of the koruwa to be copied is packed in fine earth in large, cylindrical, two-piece iron moulds, open at either end, whose halves hook together. The model is positioned by eye. After the impression is taken, the model is then removed.
2. ' Bronze' is melted in a small, dome-shaped clay furnace and poured into the earth impression in the mould (see below for the identical method for manufacturing jeans' decorations in Patan 1981).
3. When cool, the cast sections of the koruwa are then soldered together over a hearth with a bellows. Four men are employed in this section of the factory. In the yard between the moulding shop and the main workshop, another man was also soldering several vessels together with a blowlamp. The main workshop has two rooms which contain several belt-driven machines serving various finishing functions, including turning and buffing. The finish is generally crude compared with the hand finish of utensils in Chainpur and Taksar.

Piece moulding in fine earth or sand is a recent introduction into Nepal from India.

Chapter Nine

PRODUCTION OF NON-FERROUS METALWARES II

Production of religious figures.

Religious figures, a major item of metalware production throughout Nepalese history, continue to be so today. Figures are one of the main types of evidence for the art history of Nepal, but study is now hampered as contemporary access to photographs of older pieces has resulted in a proliferation of styles (Alsop & Charlton 1973: 43).

Newar craftsmen prefer to cast religious figures in copper, even when they also cast in other metals. Pure copper is difficult to cast. The high melting point (1083° C) makes it more sluggish to cast than its alloys, so a little zinc or tin is often added, which removes the oxygen and improves the flow. Traditionally lead was not added; although it lowers the melting point and increases the fluidity of copper its presence hampers fire gilding. Today lead from old torch batteries may be added. Once manufactured, copper is easier to work and decorate by the preferred methods of chasing and fire gilding than its alloys.

Brass has been used for Newari statuary from the 10-11th centuries onwards (Lo Bue 1981: 82), or from the last 300 years (according to Pal 1985: 81), and is the principal alloy used for casting figures today

(Michaels 1988: 43-4). Most Nepalese ' bronzes', especially older figures, are made from copper or brass rather than true bronze, which is the most difficult non-ferrous metal to engrave (Alsop & Charlton 1973: 32; Lo Bue 1981: 33). Nepalese metalcraftsmen occasionally cast figures in silver; a nickel alloy called ' German silver'; and in iron (Schneider 1987: 26; 1987 fieldnotes).

It is often stated in the literature that northern Indian and Himalayan figures may be cast from a compound of eight metals, *astadhatu*: copper, tin, lead, antimony, zinc, iron, gold and silver; or, less commonly, in five metals, *panchdhatu/pancaloha: gold, silver, copper, zinc and lead* (Kar 1952: 29; Tucci 1973: 179). Olsen (1950-70: III 4-5, IV 52ff) states that Tibetan figures, bells and cymbals are made of ' bell metal', *Li*, (Tib), an alloy of four or five metals: copper, zinc or iron, gold and silver, with varying proportions producing different colours. This alloy derives from Indian sources. A similar claim is made about some Nepalese figures. For example Mukherjee (1978: 30, 455) states that a scrap of astadhatu is added to bell metal scrap to sacralise it when making a figure. Gajurel and Vaidya (1984: 9-10), give a number of recipes for these alloys, and claim that the images of the Jata Dhari Lokeswara and the Machchindra Nath of Patan are made from them and are about 1500 years old. The basis for these claims is uncertain (Michaels 1984: 44).

Contemporary craftsmen (1991) in Nepal all denied making artifacts in astadhatu. Chini Kaji Sakya stated that while there are some figures made from panchdhatu in Nepal, there are none in astadhatu. The latter are only to be found in Nalanda Museum in India. Siddhi Raj Sakya produces figures of multiple metals but states that this is not astadhatu

work. In an analysis of 121 Himalayan figures (Oddy & Zwalf 1981), Lo Bue (1981: 33-4) observes that not one is made of *astadhatu*, nor, he argues, was it commonly used in India either. It is probable that this idea ' merely reflects traditional Indian alchemical ideals'. If a figure is to be made from more than one metal, each metal is melted in a separate crucible and then cast in order of increasing hardness.

The primary method employed in Nepalese figure casting was and is the lost-wax technique, *kataniya* (Nep)/*katamkigu* (New). Both hollow and solid casting methods are used, smaller figures tend to be solid, whilst larger figures may be made by casting particular parts, for example the head and hands, and combining these with the larger sections of limbs and body made from sheet metal which has been either cast from wax models in moulds or cold hammered against a stone mould.

Case study: figure casting by Siddhi Raj Shakya, Jata Okhbahal, Patan, 1991.

On 18th April 1991 we recorded with photography and video the casting of a large figure, the first since the marriage of two of SR's four sons. The casting, which took place in his courtyard, involved SR, his two married sons, his wife and his daughter working as a team. The finished figure, of Sakyamuni Buddha in the earth-touching posture, is about 1 metre high, with a separate throne and surround.

The casting process was as follows:

1. The crucibles were filled with copper scrap - old waste and wire imported from Singapore.
2. An electric bellows much like a hair dryer was wired to the hearth to provide constant heat to melt the metal.
3. Coals were taken from the kiln already in use baking the moulds to start a fire in the hearth. This was then fed with hard coke.
4. The filled crucibles were then placed on the hearth and covered with heaped coke.

Whilst waiting for the metal to melt and the moulds to bake we visited other metalworkers across the road, to see smaller figures being removed from their moulds and the initial cleaning. We also visited Patan bazaar to see sheet metalworkers making musical instruments and religious apparatus. On our return we discussed proportions of figures with Siddhi Raj and Yadi Bhajracharya, whilst the former continued modelling another figure of Dipankara Buddha in wax with the help of his wife, who warmed

the wax for him. The wax is a mixture of beeswax (75%) and sal resin, sila (25%). In winter a little ' fat' is added to make the wax more malleable.

The proportions for his figures are all based on spans of the head and foot, with multiples and fractions of these spans for the body and limbs. YB provided the theoretical input to this discussion. I should note that although Yadi Bhajracharya, the Head of the Handicrafts Promotion Centre at the Patan Industrial Estate, knows SR, he had not seen metalcasting before this occasion. PIE is some 200 yards away from SR's house. Again, the ' compartmentalisation' in Nepalese life is notable.

5. The baked moulds were removed from the kiln by the sons and placed around the courtyard propped with bricks to support them. Sacking was used to protect the hands whilst the moulds were put in place.

6. The crucibles with the now molten metal were removed from the hearth with iron rods, tongs and loop clamps, and the scum scraped from the top.

7. Siddhi Raj and his daughter then poured the metal into the moulds. One mould leaked and was immediately patched with wet clay and bare hands by SR. Pouring was done in stages since the fumes prevented a view of the first levels of metal in the moulds.

8. The moulds were then cooled with water, both by standing them in water-filled containers, and by playing water from a hose pipe led from a tap in one corner of the yard.

9. The moulds were then broken open with crowbars. This was helped by the wires which had been embedded in the mould walls prior to their being baked. The clay moulds were chipped and scraped from the figure and its appurtenances, leaving it ready for finishing.

We also visited Siddhi Raj's brother, Khadga Raj Shakya, who was baking a mould for a torso and cleaning out the base of a figure - one of several large figures which he was making for an order from Japan. KRS also has a workshop in the Patan Industrial Estate which we visited later. Here there was a six foot high figure of Avalokitesvara for the Japanese order, and a huge wax model, lathe turned, of a bell for a temple in Madras.

Gharelu Moortikala Udyog, Rudradeva Mahabahal, Patan

GMU is head of a Newari family which manufactures figures on a production line basis to order for the tourist market and for export. He and two juvenile assistants were modelling figures in wax whilst watching television. GMU's family have worked in metal in Patan for five generations, and are well known in the city.

GMU's figure manufacturing process is as outlined in Appendix 4 with slight differences. He buys beeswax which is obtained from near Pokhara, Tansen or Bhojpur, and uses nails as chaplets to secure the core of the mould. The wax is melted out in one kiln, and the moulds are baked and the metal is melted in a crucible in a second, circular furnace at the same time. GMU observed that this method is more economical to use but is dangerous to handle. He then sends the figures to other craftsmen for finishing, for example to the workshop of five young men round the corner from Rajkumar Sakya.

We met a figure caster who is also a wholesaler with two warehouses

near the Mahaboudha temple. A range of figures and some apparatus and turistica were assembled here for sale on the local tourist market and for export. A pair of copper lion-dogs, temple guardians, c. 30"h. x 36"l. were priced at £5,000 for the pair. We visited his house on the south-eastern outskirts of Patan. He employs several craftsmen in the workshops in the yard. In one of them is a figure of Biswa Rup about ten feet high, which has taken him some ten years to make. The finish is not particularly good. He also had an almost life-size wax model of Amithaba seated on a throne. Neither were made to particular orders, but they will be sold at some time. He also uses hard coke as fuel.

The demand of the tourist market is also stimulating innovations in metalworking techniques.

Case study. Chini Kaji Shakya, Nardevi Tole, Kathmandu, 1991.

CKS and his son, Devendra, are Newari figure makers with an open fronted, unassuming workshop on a main street south west of Thamel in Kathmandu. The workshop is about 5m long by 3½m wide with a forge, workbench, safe and two display cases containing some figures, religious apparatus and jewellery. More figures are on display in glass-fronted cases on the back wall. Above their working area are prints of Buddhist subjects and thankas.

CK's family are gold and silversmiths, with no tradition of figure making. About 25 years ago Chini's brother learned a technique of deep undercutting and the imitation of applique on figures, a variation of the repousse technique, and taught this to Chini. They then came to Kathmandu where Chini developed this technique further and is now ' the only figure maker in Kathmandu who is practising it'. The production process is as follows:

1. Copper sheet is formed into a topless cone.
2. The lower third of the cone is ' belled' out.
3. The cone is crudely shaped into the form of a figure then filled with solder.
4. The figure is then carved against the solder cushion.
5. The solder is melted out.
6. The figure is cleaned up.
7. The figure may then be filled with wax, laha, and the base sealed with a metal plate with crossed thunderbolts.

Carving is done with a large variety of punches and hammers, cold working, on log anvils. If regularly worked at, a 14" high copper figure can be made in two months, and will sell for R16,000.

The family also makes figures by lost wax casting with a mercury gilding finish. They specialise at present in ' two-tone' copper and silver figures, but also make them in brass and gold. CK had a set of the Five Dhyani Buddhas in two-tone copper and gilt, about 5" high. It takes one man about 14 months to make this set. They also make figures of Sakyamuni Buddha, Sita, Indra and Milarepa, mostly Buddhist figures. In their spare time CKS and his sons also work in silver relief, making rice mandalas and altar vessels etc., and copper crowns for Vajracharya Newars.

CKS has all the designs and proportions in his head and does not use manuals or guides. They recently made a new crown in repousse for the large figure (about five feet high) in the temple in Tridevi Marg.

Chini Kaji Shakya is featured in the ' Handbook of Craftsmen' published, in Nepali, by Yak and Yeti Enterprises. Business is good and they can ask high prices for their work. (Bought: Buddha teaching, two-tone, R2,500; Indra R700. They asked R7,500 (£150) for a six-piece sequence illustrating the manufacture of a 4" high figure, as outlined above).

Finishing and decorating

A figure is prepared for carving with files, *vahca*, scrapers, a wirebrush, sandpaper, *khalsi*, and cloth rags. The first stage, which may take two or three days, involves filing and sanding areas which are difficult to reach. Any holes are filled with the same metal and smoothed down. Smoothing is completed by hammering shaped dies, kata, against the figure to remove irregularities. This stage, which may take several days depending on the size of the figure, improves its finish and increases its value. The figure is now polished with a cloth and black polish, *kora*, followed by red polish, *lal*, to remove scratches.

When smoothing and polishing are completed the figure is carved by a specialist chaser or chiseller from the Katakipi, a sub-group of Sakyas, who are paid by the commissioner of the piece. The name *katakipi* derives from ' kata', chisel. These men perform all the finishing apart from gilding. Chiselling is a time consuming, expensive process which corrects any remaining flaws in the figure, and raises its value by an additional 25% (Michaels 1988: 50, 52-4, 56-7; Udyog pers comm 1991). Figures are carved against a wooden block, *tvaka*, with small hammers, chisels, tuphayagu, and a variety of punches, *jaki*, all about three inches long. Chiselled motifs include the Eight Auspicious Symbols of Buddhism, animals,

flowers and clouds, swastikas and Chinese long-life symbols, *shou*. The entire process of finishing, including prior sanding is termed ' engraving' (Alsop & Charlton 1973, 39).

The times taken over the process of figure production are variable and difficult to establish precisely. Modelling the wax figure may take several days, months, or even years. The caster is at the mercy of the weather whilst the investments are drying. The complete casting process, from scrap to extraction from the investment, of a large figure about one metre high, was done over the course of seven hours in Patan in May 1991, whilst Lo Bue (1981: 77) timed a copper casting process as one hour and thirty-five minutes for the moulds to be fired and one hour and fifty minutes for the metal to melt.

Chiselling and decorating are also variable in timing. Three or four people may make about six or seven pieces to one design over a period of six or seven months. One man may take six months to finish one piece, a very large piece may take two years to complete. Production also varies according to the availability of materials, labour and time and may be delayed by the cycle of Newar festivals and family affairs (Alsop & Charlton 1973: 37-8; Labriffe 1973: 189, 192; Michaels 1988: 33).

Figures are made according to demand. If made to the specifications of a particular customer, for example for use in domestic worship, the owner now has the figure filled with relics and prayer scrolls, blessed in a puja ceremony, and sealed with a copper plate which may be engraved with thunderbolts, vajras. If figures are made for the open market, buying fashions dictate the types which are made, for example silver Lakshmis are popular with the wealthy. Figures may also be sealed with a plate with

engraved thunderbolts, as mentioned above, but not blessed. These are sold on the open market to tourists. Most religious figures produced in this way are made by Buddhist metalworkers in Patan.

Apart from chiselling, religious figures are decorated by a variety of techniques including gilding, *lu siigu*; silvering; and inlay, *jarau/jarao jya*, either with other metals, for example copper is inlaid with gold and silver, brass with copper, or an inlay of semi-precious stones. The latter is an especially popular finish amongst Tibetans, whilst mercury or fire gilding is most popular in Nepal, where it was also applied to temple roofs as well as religious figures. Gilders are primarily Sakyas.

Gilding takes best on copper. If brass is to be gilded it needs an 80% copper content to ensure adherence. Mercury is obtained from a Nepalese ore, probably cinnabar, a red-coloured substance called *hingul* (Hamilton 1819: 66), which is also used to paint the face of the Red Machhendra Nath of Patan.

Case study. Mercury gilding process by A.R. Sakya, Patan, September 1984.

This process was carried out in an airy, top floor living room with several windows and a linoleum floor (the main workshop is on the ground floor). Good ventilation is essential, to offset the poisonous effect of the mercury vapour which is given off during the process. This craftsman wore a cloth over his nose and mouth whilst evaporating the mercury amalgam. The tools used were small tongs, pincers, iron spatula/scraper, blow lamp, two wire brushes, toothbrush, paint brushes, chemicals. The process is as follows:

1. The gilding material (according to A.R. Sakya) consists of an amalgam of three parts mercury and one part gold (Gajurel & Vaidya 1984, 55-6) give these proportions as four to one) mixed together in advance: sheet gold is cut into small pieces and ground in a mortar with mercury, salt and citrus-fruit juice, *chuk*. More mercury is added and small pieces of stone or brick and some water, and the grinding repeated, three or four times, until the layer of gold rolls up when the mixture is rubbed on the palm of the hand, or a small pilule does not break under pressure. Any excess water is finally drawn off. This stage may take seven or eight

hours (Hofer 1979: 53-4).

2. A finished, five inches high copper figure of the Buddha, seated in earth touching mudra, *bhumisparsa*, was placed on a brick and heated with a blowlamp, front and back for about four minutes. Formerly the figure would be heated in a fire.

3. After being heated to less than red heat, the figure was quenched in a bowl containing a weak solution of sulphuric acid to clean it of any grease and dirt.

4. The figure was then scrubbed in this solution with wire brushes, first with a smaller, then with a larger brush.

5. The figure, now darker brown in colour, was rinsed and scrubbed under a water tap with a wire brush.

6. Wood ash was now moistened with a few drops of the acid solution and rubbed over the figure. The ash was then scrubbed off with a wire brush, and the figure deemed to be clean and ready for gilding.

7. Soya bean sauce, *tsupong*, a thick brown liquid, was now mixed and diluted with a few drops of the sulphuric acid solution and rubbed on the figure.

8. Neat mercury was now rubbed all over the figure with a spatula, working it into all cracks. A few drops or a smear of tsupong are added periodically to make the mercury flow more easily. The tsupong, mixed with a small amount of wood ash, may also be periodically smeared on with the fingers, and a wire brush used to work the mercury in. The head was covered with mercury last of all.

9. After the head was covered, the figure was immediately scrubbed under the water tap with a wire brush and dried with a rag leaving it shiny silver in colour.

10. Another mixture of tsupong and sulphuric acid solution was now made up and painted on to the skin areas of the figure with a brush.

11. The spatula was used to spread some of the gold-mercury mixture onto the skin areas: the chest and shoulders, with additions of the tsupong-acid solution mixture with a small brush, to help spread the the gold-mercury mixture. The gold-mercury mixture was applied very carefully over a period of one and a quarter hours. The treated skin areas are dulled to a light brown colour by the application of the gold-mercury mixture, whilst the rest of the figure remains shining silver in colour.

12. The face was treated last with the gold-mercury mixture, and the very tip of Buddha's top-knot, *usnisa*, last of all.

13. The figure was now allowed to stand for a few minutes to ensure that the amalgam had taken. If a green tinge appears during this time it indicates that the amalgam is incompletely applied, such areas are then touched up with the tsupong-acid solution and more amalgam applied.

14. The figure was now heated with the blowlamp from all sides for about two minutes. This resulted in the evaporation of mercury in white fumes and liquid pouring off the figure.

14. The hot figure was steadied with pincers whilst being swabbed with cotton wool, then again re-heated and swabbed on the front.

16. Under the heating, the skin areas slowly turned a light golden-brown colour, whilst the untreated areas, the clothing, turned from their silvery colour to a copper colour.

17. The figure was finally quenched under the tap.

18. The figure was now cleaned up by standing it on garnet paper and working on it with a steel scraper, used for awkward corners and to scrape away the brown stain and burnish the skin areas of the figure; and a jade point mounted in a holder to give the final polish. This burnishing process results in a figure with golden skin and copper-brown robes.
19. The figure may, or may not, now be given a patina finish on the ungilded areas according to taste, that is mustard seed oil may be smeared onto the hair and robes.

The entire gilding process (apart from the preparation of the amalgam) took about two hours. Variations on this account may be found in Bimson (1981: 100), who states that this process when she observed it took about three hours for a 10½" figure of Dipankara; Gajurel & Vaidya 1984: 54-7, who note the use of an agate as a burnishing tool; Hofer 1979: 53-4; Jackson 1976: 264, who notes the use of a smooth steel rod as a burnishing tool; Lo Bue 1981: 83). Gajurel & Vaidya (1984: 27), also note a process of ' gold plating' with a gold-mercury amalgam, which differs from the process described above, and in the other accounts referred to:

After the amalgam is painted on the idol it is fired to volatilise the mercury and leave a thin coating of gold on the figure. Since the idol looks dull, it is plastered with a paste made from caustic soda, sal ammoniac, red ochre and water. When this paste has dried, the figure is again fired and then rubbed vigorously with a brush to make it bright and shining. Mercury gilding is ' guaranteed a lifetime' (I.R. Sakya pers comm).

The technique of mercury-gilding, or fire-gilding as it is also known, was probably introduced from northern India into the Kathmandu Valley about the ninth to tenth centuries AD (Oddy 1981: 83, 87, who notes that this technique was in use in the west from the third century A.D., and that there are obscure references to the use of fire-gilding in Tibet in the seventh century A.D. However these texts are debatable and the earliest evidence of the technique in Tibet is from the 14th century AD, having presumably been derived from Nepal). Fire-gilding is more suitable for copper, the preferred metal for Newari images from ancient times, than brass. Only pure copper figures can be gilded. If brass with a lead content is used the gold peels off (CKS). Mercury-gilding is preferred as a finish by the Newars despite the recent introduction of other techniques such as electro-plating. However, not all Newar copper images

are intended to be gilded.

Mercury gilding produces what I term ' two-tone' figures, that is copper figures which have the skin areas darkened by mercury gilding and pickling in sulphuric acid as described above, with golden robes. These figures may also have brass or silver inlay. In 1984, there were numerous two-tone figures on the market in Patan, at the start of the tourist season. In Kathmandu at the same time, most figures on sale were made in brass, with some silver, whilst copper figures formed only roughly 10% of retail figures. This impression of a decline in the sale of copper figures from 1981 to 1984 was subsequently confirmed at PIE, but in 1991 there were again numerous ' two-tone' figures on sale, especially in Patan. Craftsmen and retailers noted that Tibetan lamas rather than tourists appear to have prompted the increased production of two-tone figures in the last few years.

The production of a two-tone finish is not a traditional Newar technique. The traditional Newar style was overall gilding. Two-tone work has developed only over the last 20 years to meet tourist demand and preference (according to Ratna Kaji Sakya and Yadi Bhajracharya). One should observe that this finish is found in a few Tibetan and Mongolian figures. In Mongolia, where Newar craftsmen were present in the historical period, and where techniques of deep undercutting were practised, such figures, for example in the Choijin Lama temple in Ulaan Baatar, are attributed to periods between the 17th century (to Zanabazar and his school) up to the 1920s (Teague 1992; Tsultem 1989: 102).

Gold painting

Cold-gilding figures has been practised as a decorative technique by the Tibetans from the 15th century AD onwards, and by a few Newar craftsmen. In this technique figures are decorated by painting them with, or by dipping them in, a gold solution. Some figures have only their faces painted with gold. Today (1991) this gold is derived from expensive, water soluble ' gold tablets' bought on the market. The secret of their manufacture is limited to one family or even one member of a family in Patan who currently denies it to his own son. Cold-gilding gives a typical matt finish which is not durable. Newar craftsmen practising cold-gilding do so only on figures for the Tibetan and western markets, not for their own consumption. Buddhist statues may also have painted hair: dark blue for benevolent deities and red for ferocious deities. Facial features may similarly be picked out (Michaels 1988: 59; Oddy et al 1981: 83, 87, 100; RKS pers comm 1991).

Plating

Gold leaf may also be burnished or hammered on, as is shown in the case of a few Tibetan figures. In 1979, electro-plating was introduced into Nepal. This is largely done in factories. Although it is a cheaper, faster method than the mercury-gilding process it is not durable and craftsmen such as the Sakyas prefer not to use it (IBS pers comm 1984).

Inlay and filigree

Gilded images are often inset with turquoise rubies, garnets, lapis etc. as well as coral and pearls, usually for the Tibetan rather than the

Nepalese market. This technique, is termed *jarao/ jadoba*: ornamental filigree work of gold, silver or copper wire, straight or twisted, which is worked into a fine tracery and set with stones or jewels. Jarao is often called 'inlay work' but it is not really so, although it does resemble cloisonne when used on some surfaces. Apart from its traditional use to decorate figures, temple ornaments and the hilts of swords and knives, jarao is used today to make openwork jewellery and ornamental items such as coasters and Christmas decorations for the tourist market.

Case study. The jarao process was observed in two forms in Patan (1984): in a workshop staffed by distressed women; and in a household in Nagbahal.

In the workshop Christmas decorations were being made as piecework for a retailer. The tools consisted of one or two hammers, pincers, small anvils, snips, *kainchi*, and a drawplate. The process was as follows:

1. Copper or brass wire is bought on the market.
2. The wire is drawn through a plate to the required thickness and then made up into spirals and curves, *palicha*.
3. A copper dome is covered with a thin coating of fine clay, and the copper wire is laid on.
4. The joints are touched with a solder made of copper filings, silver and brass, applied with a fine spatula.
5. The filigree is then heated for ten minutes; nowadays with a blow lamp, formerly over a charcoal fire.
6. The filigree is removed from the clay-copper dome and is placed on an ' anvil' consisting of an iron pipe resting in a wooden blockfor working. (Mukherjee 1978: 453, 458 describes three small spike- anvils: *kholu*, *kan* and *tisa* in use in jarao work).
7. Glass stones are glued to the frame, either with melted down metal type-face, or imported ' quickfit' glue.
8. The piece is dipped in gold solution, and is now ready for sale. In 1981 and 1984 several Kashmiris were engaged in selling such items on the pavements in Kathmandu.

The ' jewels' used as inlay are made locally from broken up stones, they are not bought. A number of semi-precious stones are found or mined in Nepal, including garnet, beryl, tourmaline, aquamarine.

Manufacture and decoration of figures by the jarao process, Nag Bahal, Patan, September 1984:

In a workshop is on the top floor of a house, a woman and her two sons were making and decorating lions which were about 12" long x 8" high. Her husband is in Tibet. Both sons are studying at the Fine Arts Campus, Tribhuvan University, Kathmandu. An apparently well-nourished family.

Heavy brass moulds with walls about 1/4 - ½" thick, which had been

made by the lost wax method were in use. Imported sheet metal (formerly mostly from Britain, now imported from various countries), was used to form the bodies of the lion figures. They also decorate already made-up figures.

1. Copper or sheet brass was hammered into the moulds to form sections of the hollow bodies of the figures.
2. The sections were then soldered with a mixture of brass, copper and silver filings mixed with borax, swarg.
3. The figures are filed smooth.
4. Wire, bought ready made, is cut up into rings, *fakon*, spirals, *shikon*, and U-shapes which were laid on the surface of the figure and soldered on with a blow lamp.
5. Stones are inset as outlined above.

This workshop makes 12 to 15 such pieces in a season.

According to this informant, *jarao* is a Nepalese craft which originated about 25 years ago then spread to Darjeeling and Kashmir, from where it is now returning to Nepal. RKS (pers comm) also thought *jarao* to be a Nepalese invention which spread to Tibet, China and India from where it is now returning to Nepal. Another view, that of the head designer at PIE, whose family formerly specialised in *jarao* thought that the technique probably originated in Mughal India about 200 years ago, and that from its peak in Nepal, about 50-60 years ago, that it had declined in quality. Several examples of this technique were displayed at the Colonial & Indian Exhibition in London in 1886 (Gimlette 1886). According to Lo Bue (1981, 80) the techniques of inlay and mercury gilding both derived from northern India during the Pala period. A number of Mongolian figures dating from the early 20th century, and Tibetan figures which are probably older also illustrate this technique. Before 1951, *jarao* production generally in Nepal was small scale, but has since developed with the expansion of the tourist market, for example for animals, trinkets and ornaments, reaching an export peak in 1970. Since 1970, *jarao*, as is the case with several other metalcrafts, has declined in

production. There are small exports, but it is mostly sold on the local market. In (1984), there is not much demand and many filigree workers were changing to other work.

Antiquing

Figures may be artificially aged or given an ' antique' finish to obtain their sale. This has been a practice from the 1960s onwards in response to increasing demand from the western art and tourist markets. Various methods are used, including heating brass figures at high temperature to produce a black patina; covering a figure with black liquid shoe polish and smoking it over a kerosene stove then wiping it off, to dull the polished shine; covering a figure repeatedly with mustard oil and heating it over a lamp; covering a brass statue with a paste of rice-starch, salt, charcoal powder and lime juice and standing it in the sun for several days; smearing the figure with lemon or lime juice and salt, wrapping it in cloth and placing it in a damp place for six to twelve months until the surface has a greenish tinge; smearing a figure with liquid manure, cow dung, ashes and salt and burying it in the ground for a year, which darkens and may corrode the surface; gilding deeper places, for example folds, and sanding more exposed parts to imitate wear and tear Hofer 1979: 55; Labriffe 1973: 192; Michaels 1988: 59).

Lo Bue (1981: 84-5) reduces antiquing methods to two main techniques: rubbing and heating. Rubbing is carried out with a cloth made greasy with milk or incense, over a number of days. Heating a mercury gilded figure smeared with a chemical agent such as sal-ammoniac or ammonium chloride, gives an effect of mild corrosion. However Newar and Tibetan

figures are usually relatively free from corrosion since they derive from a temple and shrine context rather than from an archaeological context. In general Newar figures may show more physical wear than Tibetan figures, due to the greater handling of images in Newar worship, and a damper climate than in Tibet. A green patina on Himalayan figures is usually the result of forgery (Pal 1974: 32-3). The antiquing of figures is illegal in Nepal.

In summary, Lo Bue (1981: 85), notes that ' very few technological innovations have occurred in the statuary techniques used by Tibetan and Himalayan sculptors to this day' (although see the case history of Chini Kaji Sakya above which describes an innovative technique). Newar sculptors in Patan still practise ancient methods, manufacture their own modelling tools, and model clay and wax in traditional ways. Coal and electric fans are used in some cases, instead of charcoal and traditional bellows. Split pins are rarely used today. Brazing and silver soldering are used for minor repairs; and appear to have been introduced after 1975. The finishing methods: chasing, engraving, inlaying and gilding are still carried out by traditional methods. Finishing tools are now usually imported from India although it is recognised that Indian files, for example, soon wear out (IBS pers comm 1984).

Religious apparatus

A variety of items of religious apparatus are also made by craftsmen including shrines and fixtures, for example waterspout heads, often made in copper repousse in the forms of an ox or snakes; temple gates, roof finials and pendant decorations; lamps; mandalas; offering containers and

crowns worn by Vajracharya Newars. Some of the earliest examples include the repousse sheath for the image of Vishnu at Changu Narayan, and a plaque of Vishnu dated AD 983.

Masks are made in a variety of materials in Nepal. Metal mask manufacture provides an example of this category of metalwares.

Case study. Lakhe mask making, Chainpur, Eastern Nepal 1984. Craftsman: Kuber Lal Sakya, Newar.

KLS has been making masks, mukunda, for about 30 years, since his early twenties. He and his cousin are the only mask makers in Chainpur. They also supply masks to Dhankuta, Bhojpur, Khanbari and Dharan, but not to Kathmandu.

Sheet copper, *pata*, is brought to Chainpur to order, either from the mill in Dharan or elsewhere. Indian copper and Russian brass are preferred since they are the easiest to work. KLS's workshop is on the main street of Chainpur. It consists of a room 18 feet by 8 feet, which is on the ground floor and is open to the street. It contains a few shelves with one or two items, for example a small copper Lakhe mask and two candlesticks, a bed, *charpoy* and a mat, *gundri*, on the earth floor. The process is as follows:

1. A circular sheet of copper is cut out with snips.
2. The features are inscribed on the sheet with a piece of glass.
3. The features are cold-hammered out from both front and back.
4. A tika mark of a dot in a crescent, *sundra*, which is peculiar to Lakhe, is raised from the surface of the face, as are the eyebrows, nose and cheeks.
5. The ears are made from sheet copper, and are soldered on with *rasian*, working from a clay bowl-hearth, *makala*, bought from Dharan. Rasian is made from one portion of zinc, three quarters of a portion of brass scrapings, and one quarter portion of *swarg*. *Swarg* is first painted onto a join with a feather to control its spread. The solder is applied with an iron. The join is then cleaned with *nawsarga*.
6. The teeth and eyes are made from a mixture of 60% low grade silver and 40% white metal, made up in the same way as the jeweller in Pothali, Dharan. These features are soldered onto the face.
7. The final polishing of the mask is done in two stages:

a) the mask is cleaned with *tisap*, an acid bought in Dharan which is mixed as one to three parts with water.

b) final polishing is done with a lemon or other aciduous fruit.

The entire mask-making process takes two and a half days.

A variety of hammers, *ghan*, are used, with the pick-like hammer being used for fine work. Iron punches, *chin*, are used to cut out the mouth and nostrils. Various iron spike-anvils, *santha*, are used with a wooden A-frame, *twakal*. Hammering is also done against a 12" square wooden board. All of these tools are made by local Kamis.

Two types of Lakhe mask are made: those with round eyes, and those with slanting eyes. There are a number of possible expressions. Copper

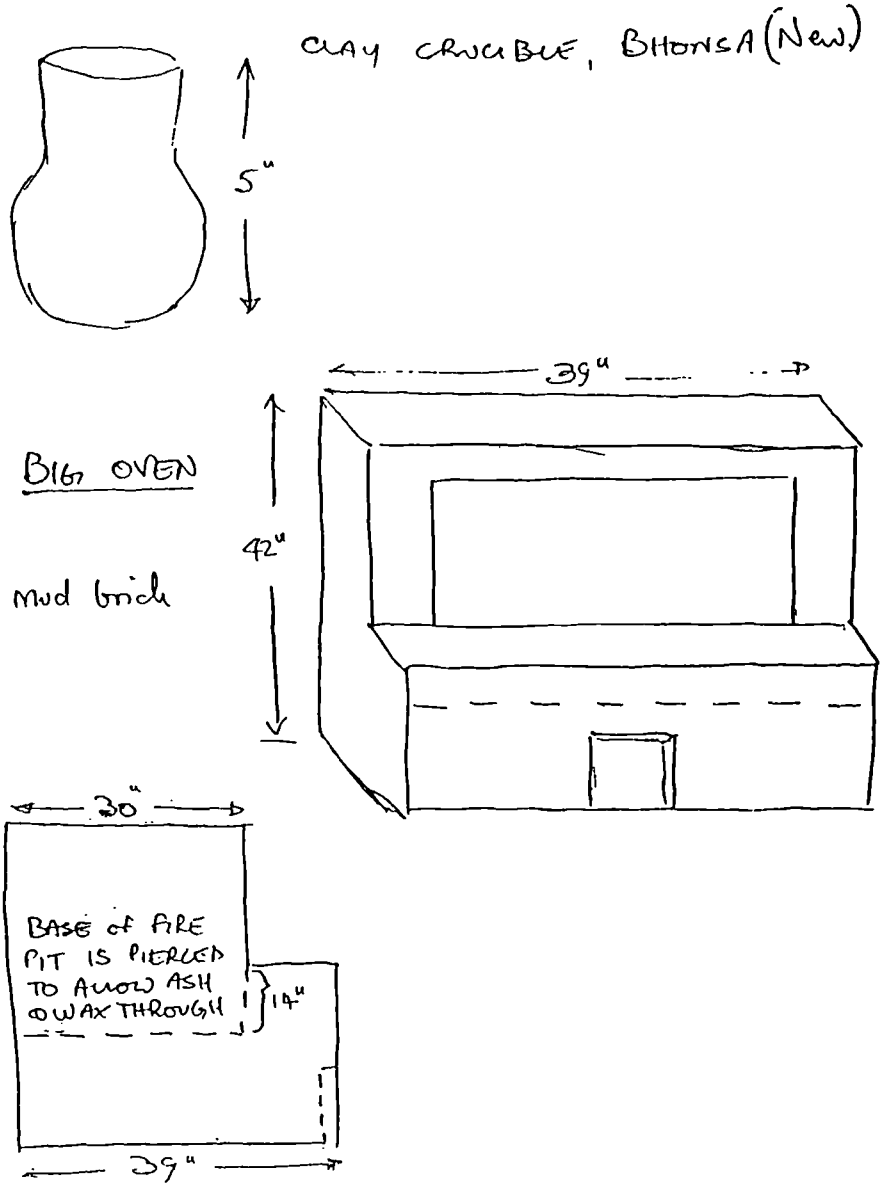


Fig. 23. Lost-wax manufacture, Krishna Sakya's furnace, Taksar, East Nepal 1984.

masks of Lakhe, a demon, *rakshasa*, are used only by the Newars in two ways, as a wall decoration during the year. These masks are not painted. KLS had just produced one for a factory at Bodropur in the Terai, and we had seen others in Bhojpur and Dhankuta. Lakhe masks are also kept in Kali's temples, where they are blessed by the priest and puja is made to them because all demons are under Kali's control. Lakhe masks are worn at Kali's festival, *Dasein/Dasera*. When being readied for masquerade, KLS paints the mask with oil paints bought in the bazaar. KLS makes three or four Lakhe masks for the festival each year, as well as masks for other festivals concerning Kali and Devi.

KLS also makes a variety of religious apparatus, for example he once made a Newari priest's crown and ornaments. These are now only used by the priests of the Royal Family and in the theatre. He has also made finials, *gaju*, for temple roofs. He has made seven of these in his working life, including one for a temple in Terhathum and one for a Sunwar village this year. When interviewed, he was also making copper trumpets for Damai to play at weddings. In hand he had sections of the large, curved trumpet, *narsingh*, since he was making an order for three. He also makes the metal ends of small trumpets, *sannay/sunay*.

Trumpet, *narsingh*, manufacture:
1. Sheet copper is hammered into four curved cylindrical sections, and a mouthpiece, all of which are soldered along their joints.
2. These sections are joined into two parts, a smaller with the mouthpiece, and a larger.
3. The sections of the two parts are soldered to each other with *rasian*.
4. Each join is covered with carved brass mounts, as is the rim of the horn and mouthpiece. The horn diameter is 6", and the largest section is 17" long. The smaller part is then stored inside the larger part. The 1984 price of a narsingh was R5-600. KLS also makes other objects including temple lamps, offering trays, in Bhojpuri style, candlesticks and water pots, *gagri*. He works only by hammering metal, as he put it, ' all by hand', he does not work in wax, although his cousin, Ram Prashad Sakya, does. RPS had providad a figure for the temple in Borodpur, and I bought a Ganesa from him. Both KLS and RPS had been taught metalworking by the latter's father, KLS's father was not a metalworker.

Case study. Traditional production of non-ferrous wares for domestic and tourist trade, Pratikbir Tamrakar, of Kastamandap, Kathmandu, 1991.
PT is a semi-invalid, Newar bachelor about 60 years old, with a workshop-apartment on the third floor of a typical urban, Newar building overlooking the Ganesa shrine on the corner of Durbar Square. During the course of the interview, two friends, one a thanka painter, called in to see him.

PT descends from several generations of metalworkers who formerly supplied the palace with figures and other items before tourism started, "only the wealthy could afford figures then". He thinks that Patan supplies all the figures for the Valley towns, and that there are no figure-makers in Kathmandu now (but see re Chini Shakya above). On his walls he had finely made figures of Saraswati and Green Tara, said to have been made either by his father or grandfather, prints of Buddhist gods and a coloured low relief in a glass frame depicting the Jataka tale of the

king who cut off pieces of his own flesh to feed tigers. This was made by his father.

His room has an earth or clay floor. He buys charcoal for his bowl hearth from a shop which gets it from nearby forest. He was engaged in two activities: making votive plaques of Bhairab and Garuda in relief work on thin sheet; people bring him scrap metal and he makes to order for local use; making carved wooden book covers in low relief for the tourist market.

Recent developments in metalware and curio production

Sand casting

' Gravity sand casting', a form of piece-moulding, is a relatively recent innovation from India. Apart from the manufacture of domestic utensils as described above, this method is also used to make some religious figures, but is despised by Newar figurative craftsmen, for example R.K. Shakya observes that, ' this process gives less detail'. Sand casting is also used in the manufacture of other types of artefacts.

Case study. Sand casting process: Saugal Tol, Patan 1981: manufacture of *bagchal* pieces and decorative plaques for jeans. (*Bagchal* is a national game in Nepal. Translated as 'Tiger's Move' it is similar to 'Fox and Geese' and may be played with brass pieces on a brass board).
Craftsmen: two young brothers and their mother, Newars. The workshop is an open fronted ' porch' workshop in a street in central Patan.
1. Brass scrap is melted in a crucible over an open hearth. Draught is provided by a bellows worked by the mother.

The pattern is usually an example of the item to be cast, in this case a decorative plaque which is sewn on a pair of jeans. The Bagchal figures had previously been cast in the same way.
2. The wooden moulding box, which is in two halves, is packed firmly with moulding sand which consists of wood ash, iron filings and fine earth.
3. The filler in the mould is levelled off and then dusted with fine ash to provide a ' parting sand' which enables the two halves of the mould to separate cleanly.
4. The pattern is also dusted with fine ash to provide a ' facing sand' and thus a smooth surface finish, and is then pressed into place in the moulding sand, more filling is added if necessary. The second half of the moulding box with filling is now pressed against the pattern in the first half and then removed. The pattern is removed, and the impression is dusted with ash.

5. A hole or gate is made between the pattern and the edge of the mould to allow the entry of the molten metal.
6. The two halves of the moulding box are placed together and hand held whilst molten metal is poured into the opening to fill the impression.
7. The box is opened almost immediately and the cast piece is shaken out on to the floor, then quenched and again thrown onto the floor to cool. The filling is returned to a heap on the floor.
8. When it has cooled, the piece is finished with a hammer and punch, and files. It is finally finished by polishing it with *kora* polish. At the same time as this process was occurring, Bagchal figures were being finished, by rapid filing, by the older brother. The figures were held in an engineer's vice which had a wooden strip in the jaws to give a working surface.

Unless it is removed, a ' flash' mark, indicating the junction of the two halves of the mould, is characteristic of products made by this method. In the production process observed, the pattern was placed in position by eye alone. It is essential that the pattern projects equally into both halves of the moulding box otherwise the mould is damaged and mis-casting results. The Bagchal board was provided by a craftsmen in another street nearby. This man primarily makes copper and brass vessels for ritual and domestic purposes.

Religious figures such as Hanuman, Ganesa and Manjusri are also made by the sand casting method. These are usually used for the domestic cult rather than as temple figures and are usually imported from India. Tibetan bells are made by this method (Ronge 1979).

Case study. Production of non-ferrous wares for the tourist market Pemba Lami, of Bijeshwari, Kathmandu, 1991.

PL is a Kirung, one of five working members of his family which includes his wife and a small child. Kirung is a pass to Tibet, NNW of Kathmandu. People from that locality take its name as theirs. Many of the metalworkers resident around Swayambunath (1991) are from Kirung.

The single-storey house-workshop is located between Kathmandu and Swayambunath in an artisans' district. On arrival three men were working on the ground in the open outside the house. It was a fine day. One woman, with a nosering, accompanied by a small child was working inside.

The three men were working separately at different stages in the manufacture of bracelets, kuma, for the tourist market. This type of bracelet, a feature of the tourist market since at least 1981 in my experience, is made from copper and brass which is formed by cold hammering. The sequence of production is as follows:

Copper, brass and white metal in the form of wire and sheet is bought from either of two shops in Patan. Metal is increasingly expensive.

The wire is ' cooked' in a small hearth inside the house using a small Indian bellows. Charcoal obtained from the dye vat fires of neighbouring Tibetan carpet makers is used as fuel. The cooking process is seen as critical: "even a strong wind during cooking can spoil the metal". The red hot wire is then allowed to cool on its own. It is never quenched, since this would render it brittle.

The metal is now cold-worked from two nails hammered into the

doorstep, by stretching and twisting it with pincers,and hammering. These stages were being carried out by the three men working outside: One man was twisting copper wire, another was hammering the twisted wire flat. Pemba Lami, seated between them, was attaching flattened twists to a backing plate. Inside the woman was using a hammer head set on end as an anvil. There was a cold forge in this room, with Saivite and Buddhist prints on the walls.

There is no soldering involved in this process, snips are used for trimming and files for the final smoothing of rough parts. Files and tools are Indian-made, and are bought in Kathmandu.

The finished bracelet is finally cleaned in a bath of weak nitric acid then washed in water, no tongs are used, merely bare hands. This is done outside since the fumes are recognised as harmful. They say that the acid, made, bottled and labelled in Biratnagar, is ' weak' and so can be handled. Remaining acid is poured back into the bottle.

This family specialise their production process for the sake of speed, but any one of them can perform all the processes involved in the production of these bracelets. One person can make eight complete bracelets in one day.

Formerly the family used to make tools for the carpet trade: hammers, beaters, shears etc., that is, they are ironworkers or blacksmiths. Now, they said, 'these tools are all machine-made.' This view was expressed despite the presence of two households of ironworkers on the main street about 200 yards away, who were making shears for the carpet industry.

Pemba Lama's family now makes only turistica, particularly bracelets, to order. The businessmen buying from them stockpile their products and sell them, mostly in season, to tourists, Indians and some to Nepalis. Such bracelets have been on sale since at least 1984 to my knowledge. Pemba Lami does not stockpile himself. They prefer the fixed price from orders, and do not sell themselves on the market. Business is good. Mostly there are enough orders, although they calculate that they will soon have to switch lines to make something else, since when something is selling well the bigger firms start to machine-make them and drive the small craftsmen out by undercutting.

Pemba Lami has done some work in *panchdhattu*. Usually the iron is inserted as a separate piece because it cannot be melted with the other metals (a goldsmith made an identical comment). Panchdhattu is made into rings and amulet bracelets to wear for protection and cures. Nepalis buy them at the Newar festival *Gatya Mangal*, when three iron nails are driven into the door lintel (present in Pemba Lami's house). According to Pemba Lama, ' *astadhattu* work is not done in Nepal.'

Case study. Pendant manufacture for the tourist market. Craftsmen: Bishnu Kumar and Baba Ram, Bijeshwari, Kathmandu, 1991.

These two friends are Magars who make medallions or pendants solely for the tourist trade. Their house-workshop is also in the warren of small houses near Swayambunath.

Bishnu's family, originally from near Gorkha in west central Nepal, have been resident in the Valley for two or three generations. Bishnu was a driver by trade, for the big tourist hotels such as the ' Yak and Yeti', then he had an accident with a trishaw and had to stop driving. He

saw his friend, Baba Ram, making medallions and took it up as employment. Bishnu sold his wife's jewellery for capital, and Baba Ram taught him the techniques. Bishnu is the first member of his family to do this work. He is an engaging man, literally, since he invited us to see his work after stopping by at Pemba Lami's to listen-in to our discussions there.

The medallions, bone and horn discs with metal inlay and mounted on a chain, are made as follows:

Bones and horns are obtained from the butchers and are scraped clean of any sinew or flesh still attached. These materials are then sawn and chopped into squares about 1 1/4" square and 1/4" thick; smaller pieces are also carefully saved for use.

The square is then circled with a compass and filed into a smooth disc against a nail hammered into a wooden block on the floor. Bishnu was working at this activity just inside the open doorway.

Circular depressions are drilled into the bone disc on both sides with a bow drill worked, ' like a sarangi' (one of Nepal's popular stringed instruments).

Beeswax, laha, is melted into the depressions. Baba Ram was working at this over a small forge heated with a kerosene lamp on the porch.

Motifs cut from brass sheet are then inset into the laha-filed depressions. The inlays have previously been stamped out from sheet against a cushion of solder on an axe-blade used as an anvil.

A binding strip of brass is snipped out to overlap and is soldered into place around the rim of the medallion. A small supporting ring is also soldered onto this rim.

The medallion is finally cleaned up with warmed garnet paper.

A ready-made metal chain is then added to form a necklace.

The inlay motifs are sun, moon, thunderbolt and mandala. They also make Yin-Yang medallions in white (from the bone scraps) and black (from the horn ends). Both types of medallions are present on the tourist pitches in Basantapur.

They buy and make their own files and punches. The costs of materials are rising. They buy brass sheet in Patan. In 1983, 200 gms cost R11; in 1991 200 gms cost R45. In 1983, wholesalers bought medallions from them at R50 each; in 1991 they are buying them at R30 each. Even so, business is ' very good'.

They mostly make to order but if they are short of ready cash they will knock-off a batch of one or two hundred pieces and sell them to a shop, and then resume their order work. One man can do all the stages of production, and can make six or seven medallions in one day.

Sheet working

New applications of sheet metal work are evident from the moment one enters the newly built Tribhuvan International Airport. Copper and brass plant containers, waste paper baskets and decorative plaques of scenes of the Life of Buddha etc. are prominent aspects of the furnishings. The

artist who designed this relief, Krishna Manandhar, had also been commissioned to design a similar relief for the Blue Star Hotel, Kathmandu when he was interviewed on 12th April 1991 (see below). The Blue Star relief, measuring about ten metres long by two metres high, is a collage in realistic style of various motifs: Buddha and his five disciples, Lakhe dancers, masked dancers from Bhaktapur against a background of pagodas and mountains (the patron wants the trees to be removed and a sun and moon, Tantric motifs, to be inserted). To produce the Blue Star relief Krishna has commissioned one of his ex-pupils, Rajkumar Shakya of Ubahal, Patan, and is hoping for completion within three months.

Case studies. Sheet metal relief manufacture, Ubahal, Patan, April 1991. Craftsman: Rajkumar Shakya, and his employees, Newars.

Rajkumar, a young man, employs several workers in his house-cum-workshop. A few doors away in the same terrace block, his father and elder brother also have a workshop (see below).

The sheet metal is imported from Japan and Russia. It is worked by raising it on spike-anvils. It is then mounted on a bed of pitch, laha, on a wooden plank for chiselling and engraving. They buy their chisels and punches as blanks from local Kamis and then shape the cutting edges to their own requirements.

The Blue Star relief was in process of manufacture, with newspaper cutouts in use as patterns or templates for some sections: the Buddha and some background, at 4 pm on the 16th April 1991. When we visited next morning at 11 am, these sections had been cut out in brass sheet and were being worked.

In the workshop along the street, Rajkumar's father and elder brother were raising sheet metal on iron spike-anvils. This was the surround for a six foot high figure they had made to an order from Tibet.

Another example of similar worksmanship is provided by a craftsman in Bubahal, Patan (1984) who specialises in embossed work such as the copper nimbus for figures made by someone else. When interviewed he was making a brass snake for a new temple in Patan. The snake was socketed and jointed, and fastened with nails and iron brackets. He was working from a postcard as his model. His working surface consisted of a board mounted with two ' sausages' of sal resin mixed with mustard oil. He chased or punched the metal from the front surface onto these. The metal was periodically heated in a clay hearth built into a biscuit box about 15" square, (rather than sunk into a pit) with a machine- made ' Aladfactory' Indian bellows. The introduction of this type of bellows has allowed hearths to be more portable than formerly.

The metals for religious figures were once carefully chosen and worked (Chinia Kaji Sakya, Head Designer HPC). Some fine work is still being done, but now at PIE any metals are used to speed production and rapid sale on the tourist market. CKS sees this as business and has no qualms about it.

The quality of production is obviously variable. Top sculptors can still produce, or employ people of sufficient skills to help them produce, figures of the highest quality, but the mass production of metalwares, both utensils and figures, is now a feature of several workshops on the Patan Industrial Estate. For example small teams at Shakya Handicrafts were making numbers of copper tea cauldrons for Tibet, to an order from the Chinese government, and Bhutan in both 1984 and 1991, as well as silvered tin lined copper tsampa mixing bowls in quantity for Tibet in 1991. Tin metal is applied with ammonium sulphate whilst the vessel is heated.

Single figures may be made by a team of men and the production of figures in Patan is now often done on a specialised basis, rather than one craftsman carrying out all stages of production as formerly. One workshop staffed by several people, including boys and women, will model in wax, invest and cast a figure, then send it to another workshop for finishing: chiselling, smoothing, mercury-gilding or painting etc.

Some deterioration in the quality of production has taken place. In the early 1970s the quality of engraving, as opposed to sculpting, had declined in quality due to demands from the mass market. Both sanding and engraving were being done to a minimum time and standard for a daily wage (Alsop & Charlton 1973: 40). In 1981 and subsequently I observed

assembly-line methods for the production of figures. In one workshop smoothing was started on an electric buffing machine operated by a man, with ten women continuing the finishing process by filing, brushing and polishing metal figures with a red ' stone' (? rouge) and cotton cloth. The end product was then ' antiqued' with soot and oil. Some lines consist entirely of women, others entirely of men. The scale of repetitively produced items can be enormous.

Piece moulding may be used to mass produce figures, which gives a cruder version of the original. The production of figures from rubber moulds has also been suggested but rejected by Patan craftsmen since they cannot produce rubber moulds economically themselves (I.R. Sakya, Secretary, Metalworkers Association, Patan, pers comm 1984).

Nepalese metal sculptors recognise that specialisation in the different stages of figure production is necessary to meet the increased demands from the tourist and export markets, ' This is the best method for fast mass production, but for the best quality work one man should do all the processes. There are few such craftsmen left now' (Ratna Kaji Sakya, and Rajkumar Sakya, Siddhi Raj Sakya pers comm 1991).

Chapter Ten

DISTRIBUTION OF METALWARES IN THE DOMESTIC MARKET

A Nepalese saying is to the effect that: farming is best, trade comes next, service is the worst of all.

Nepalese metalwares are distributed within and beyond the Nepalese social system. I have discussed international trade in Chapter 5, and will consider the tourist market in Chapter 12. In this chapter I discuss the internal distribution of metalwares within the national boundaries of Nepal, although it will be seen that this is an artificial division given the major influence on internal distribution of external factors, notably the investment of Indian capital and the action of Indian nationals, on internal distribution.

Apart from production in the eastern hills and Terai, there is no overall agricultural ' surplus' in Nepal. Most of the population are farmers who do not depend on market sales of food for subsistence. Most produce, other than some domestic garden products and meat, does not enter the market system. The distribution network serves largely to allocate imported goods: cloth, kerosene, factory-made foodstuffs and artifacts, cigarettes and craft products such as metalwares through a variety of sales outlets. Metalwares are also distributed through networks of relationships within kin groups or between a religious institution such as

a temple and its congregation. I discuss the latter form in the next chapter.

At the national level Nepal is characterised by geographical factors which affect distribution: the terrain of hills and mountains which tends to compartmentalise the country, and the north-south direction of the main river valleys in a country which has its main length running east-west. Also, annual heavy rains wash away tracks and damage roads.

An outstanding feature of the Nepalese economy throughout the centuries has been the lack of trade between the eastern and western parts of what is now Nepal. Although Kathmandu attracted some materials from these areas, the regions peripheral to the Kathmandu Valley have always tended to trade directly with India and Tibet rather than to the centre of Nepal (Regmi 1984: 111). The increasing network of roads built in recent years has served to mitigate this situation to some extent, and enables lorries to be used for distribution. Even so Nepal has one of the lowest ratios of road length to surface area of any country, some 1500 km of metalled road, 360 km of gravelled road, and 1500 km of fair weather tracks (Dunsmore pers comm 1994). The presence of roads near the Gurkha camps at Pokhara and Dharan means that there is an especially ready sale for gold jewellery in these areas (Blaikie 1983: 172, 281; Gajurel & Vaidya 1984: 26; Macfarlane 1976: 180).

Where surfaced roads exist, that is along the length of the Terai and as north-south roads into the hills to Surkhet, Tansen and Pokhara, Dhankuta, and to the Kathmandu Valley, wares are transported by lorry and, in the Pokhara valley and the Terai, by bullock carts. The routing of roads, as is to be expected, may cause once prosperous towns to decline

and others to rise in their fortunes, for example Chainpur, a ridge town in eastern Nepal, was founded as a fortified administrative centre about 200 years ago, and was formerly the district capital. After a visit by the Prime Minister about 1974, it was decided to shift the district capital north-west to Kandbhari, and to route the new road from Dharan via Dhankuta north-eastwards to Terathum rather than north to Chainpur. Chainpur and Bhojpur, both noted metalworking centres, are now in a political backwater. Chainpur's economy has declined as a result, house prices are reduced and metalworkers are either turning to other business, selling cloth for example, or are leaving to re-settle in Kandbhari and especially Dharan, now the major metalworking centre in eastern Nepal.

Away from the roads, goods are moved to sales outlets by the use of a variety of pack animals: horses, mules, yaks and their crosses, and sheep, but primarily by human porterage. Many retailers, *suhaji*, commission metalworkers and sell their produce. Both retailers and some craftsmen employ porters to carry and sell in villages and other towns. Porterage often entails journeys of several days over dangerous tracks and precarious bridges, for trade routes are not confined to the valleys. Porters paid by weight are tempted to carry maximum loads and may smoke marijuana to ease their physical discomfort. Porters also take a percentage of what they sell. This method of distribution is increasingly difficult since porters often steal from the retailers. Competition also occurs, craftsmen undercut each other and may porter their own wares to do so, and retailers sell the same wares as craftsmen but for higher prices. Porterage is also often a matter of self-help. People from the hill villages walk to the Terai and India for metalwares and other

manufactured goods, and an entire village may co-operate, for example, to bring in a metal bridge in sections.

Market development

Retail outlets in Nepal today consist of permanent retail shops, referred to as a bazaar, which are found in most villages and towns; periodic temporary markets with stalls and pitches; and fairs, *mela*, which have a religious association. Bazaars usually have no particular religious association. Retail shops, which may be combined with a craftsman's workshop, that is the point of manufacture, serve to distribute items both to their local community on a day-to-day basis, and may or may not take stock to periodic markets. At times the market form of distribution may ' invade' the permanent bazaar area for a specific time (Sagant 1968/9: 91). Individual craftsmen may also act in entrepreneurial fashion and bring their own products for private sale to a likely buyer.

Marts and markets were presumably the original form of distribution method which, with the exception of the Kathmandu Valley towns, preceded the development of bazaars of retail shops. About 200 years ago both modes developed and spread through Nepal. In the 17th century, the ruler of Gurkha, Rama Shah (1614-1636) invited Newari traders to settle in his kingdom. This process accelerated during the 18th century, when other rulers of the petty states in the hills followed suit, for example the ruler of Kaski invited Newars to settle in Pokhara in 1752 to promote trade, craft production and architecture (Blaikie 1983: 26, 123-4; Slusser 1982: 65; Zivetz 1992: 53). At this time the only proper towns were probably the three Valley towns and Butwal, the entrepot for Palpa state

and one of the oldest market towns in Nepal. The sites on which some hill market towns in eastern Nepal are currently established were controlled before the conquest by separate kingdoms, for example: Bhojpur and Okhaldunga by the Kingdom of Chaudandi; Dhankuta, Terathum and Taplejung by the Kingdom of Vijayapur (Regmi 1978: 3).

After the Gurkha conquest, the central government established a number of fortified centres across the country to administer their enlarged domain. Government controlled trading posts were established at some of these strongpoints which attracted retail activity. More mobile customs houses, *golas* (*mandis* in western Nepal) were also established, to which the government tried to attract traders in an attempt to develop them as market towns (Regmi 1984: 117-121, 202). This development may have been hindered by political activity, since customs houses were relocated from the middle hills to the Terai about 1800 to deal primarily with Indian rather than local trade (Hamilton 1819: 125-6). Regmi (1984: 111) argues that at this time there was ' an almost total lack of commercial intercourse between the hill region and the Terai. The two regions had almost nothing to offer in exchange to each other ... in the early nineteenth century.' This statement is difficult to equate with Hamilton (1819: 168-9, 284) who noted that hill peoples exchanged a variety of commodities: their agricultural produce, salt and borax (from Tibet), yak tails, woollen cloth, medicinal herbs and musk for cloth, metals and spices, either with itinerant traders from the Terai, or took them into the Terai markets themselves. In the early 19th century there were two great marts dealing with Indo-Tibetan trade in north-eastern Nepal: at Wallungchung/Alangchang on the River Tamar and at Hatiya on the Arun

River (Hamilton 1819: 156-7; Hooker 1854: 218). The trade routes from these marts passed southwards through Chainpur, lower down the Arun valley in the Middle Hills. The lack of local manufacture of metalwares in the Mewa Khola area obliged the Limbus to import jewellery, iron, brass and copper wares from craftsmen in Bhojpur and Chainpur (Sagant 1968/9: 111n29).

After initially encouraging local administrators to establish new markets, especially in the Terai and Inner Terai to develop and secure these border areas and capture Indo-Tibetan trade, the government later, as part of their isolationist policy towards British India, allowed many routes between the Terai and Hills to overgrow, effectively closing them, to give more defensible conditions against the British. This resulted in settlements at some open passes, Butwal for example, developing into large markets where ores and metalwares were among the commodities traded (Hamilton 1819: 180; Regmi 1978: 152-3).

Periodic weekly markets, *hat*, developed about 200 years ago, and by about 1800 a network existed in parts of the middle hills. For example there were 24 markets in the Morang District of eastern Nepal alone, and ten in the western part of Chainpur District (Hamilton 1819: 152, 161, 220 and map; although he also complains that travellers suffer ' great inconveniency from the want of markets').

Distribution at a regional level takes place through a system of fairs, *mela*, which are associated with pilgrimage to religious sites. These open air marts usually last for several days, and are held at different locations from other types of markets. For example at Rerighat in Palpa a large fair was held during the three or four months of

the cold season. Another fair was held at the Siva temple where the Dudhkosi and Sunkhosi rivers meet in eastern Nepal (Hamilton 1819: 165, 180). Hodgson (1874: 2, 60) describes the fair at Nawakot as typical of others in the Hills in the 1830s. Over the cold months, from December to March, craftsmen and traders from the Kathmandu Valley erected booths in which they lived. They exchanged salt with the northern peoples, dyed locally woven cloth, and engaged in tinkering and peddling.

The duties or taxes levied on markets, goods in transit and at Customs Houses, gave revenues which were important sources of state income, and new customs houses were created by the government, for example at Surkhet and Sunar in west Nepal, in the 1830s. Many commodities were subject to sales tax including iron (4 annas a load), copper (12 annas a load, the highest rate), metalwares, jewellery and wax (Regmi 1978: 67-8; Regmi 1984: 152, 213-4). The government claimed a monopoly on copper supplies, insisting that its own requirements for munitions were met, at stated prices and quantities, before allowing private trade in copper.

Before the conquest Limbu headmen collected such dues under the *kipat* or communal land tenure system for the benefit of the local community. After the conquest, markets in the east were detached from local control by the central government and became operated under the *ijara* system of revenue farming, where an individual, either the local headman, *Subba/Subah*, or a government appointed administrative officer, collected revenues on behalf of the state to which he paid an annual rent (Hamilton 1819: 168-9; Regmi 1984: 117-121, 148, 176, 228). Transit taxes, *jagat*, on goods were collected and retained by the landlords holding

an area. Local people were directed to trade at particular markets, a directive which was often counter-manded by the government in view of local protests about customary practice and the impracticalities involved. In the northern parts of the country marts and markets continued to develop, and sometimes disappear, for example in Thak Khola in the Kali Gandaki valley, Bhot Khola in the Marsiangdi Valley and in the upper Arun valley (Furer-Haimendorf 1975; Hamilton 1819: 154; Hooker 1854: 230-1; Messerschmidt & Gurung 1974).

During the regime of Bhim Sen Thapa (1804 - 1836) and then in the Rana period Nepal's economy was inhibited. Under Bhim Sen, central government restricted the free movement of farmers and goods and the practice of cottage industries. Subsequent governments also failed to act on the legal and economic problems involved in trade, coinage and revenues. The centre was aggrandised at the expense of the economic development of Nepal as a whole (Stiller 1976: 121, 141-5, 184). ' Rana rule...continued and extended the isolationist policy of the Shah dynasty, taking advantage of the luxuries available in nearby foreign markets, while stifling markets inside the country...the role of the government was primarily extractive (and) functioned on the basis of patronage.' (Zivetz 1992: 55). The result was that the Nepalese economy throughout the 19th century was,

' ... largely a subsistence economy with a low marketable surplus of commodities, hence an undeveloped commercial system and an insignificant amount of commercial tax revenue.' (Regmi 1984: 159)

The decline in commercial activity continued until 1951, '... of the provincial towns of Nepal there are but three which, by any stretch of the word, can be called important centres. These are Butwal, Palpa (Tansen)

and Pokhara.' (Landon 1928: 4). Newar merchants dominated trade in all three (Seddon 1979: 183). Before 1951, ' Intercourse with the outside world, and outside market places, was limited to the trade conducted by communities residing on Nepal's borders with India and Tibet. There was also a carefully controlled transit trade which profited only a small stratum of the population.' (according to Zivetz 1992: 52). Whilst agreeing with these assessments, one should note that such global views gloss over the development of markets and bazaars and the persistence of some crafts, including metalworking, in the Middle Hills of Nepal. In large part this localised economic development was due to the increased spread of Newar traders and craftsmen from the Kathmandu Valley after the conquest. Apart from increasing development in existing towns such as Pokhara, Tansen and Bandipur, this dispersal helped develop other market towns across Nepal including Bhojpur, Butwal, Chainpur, Dhankuta, Dailekh, Dolakha, Hetaura, Makwanpur, Okhaldunga, Ramechhap and Silghiri Dhoti.

By the early 19th century Pokhara was a major market town, rendering large duties from trade. In the later 19th century Pokhara, along with Tansen, where there was a market and a mint to strike copper coinage, was famous for its production of copper wares and its annual fair (Oldfield 1880: I, 45), whilst Newar merchants from Pokhara, Tansen and Bandipur went to Lucknow and other northern Indian towns to buy goods for cash and traded them northward through Manang to Tibet (Blaikie 1983: 28, 123-5; Frank 1974: 94; Hagen 1980: 111 fig 19; Hamilton 1986: 242). Commercial decline was partial rather than total.

Contemporary distribution patterns - *Hat Markets*

Periodic weekly markets, *hat*, developed differentially, without any government involvement, during Bhim Sen Thapa's regime (1804/6 - 1836/7). This difference persists to the present. In the east *hat* markets are a common feature of the local economy deriving from the surplus agricultural production of the Pallo-Kirat (Limbu) lands from kipat (customary communal) lands, as well as from greater contact with Indian traders, and the Indian model of village bazaars. In the 1960s Terathum had a weekly market, with another twelve in its surrounding area and four in the Mewa Khola valley to the north-east (Sagant 1968/9: 94). Elsewhere markets are less well developed, although there are some in the middle hills. For example Beni and Baglung have Saturday markets, and a number are held in the western Terai along the border with India. Several markets also developed in the Terai to cater for the workers when the road, the Mahendra Rajmarga, was under construction. These markets had varying persistence due to friction between locals and newcomers (Blaikie 1983: 123, 138-9, 167-8). Market development has been generally weaker in western Nepal because post-conquest central governments drained off what cash there was and did not introduce coinage, which would have promoted economic fluidity. Feudalism, high rents levied on farmers, which prevented them producing a surplus, combined with the persistence of the jajmani system and stronger caste organisation, especially in the Karnali area, all inhibited economic development in that region (Stiller 1976: 121, 141-5, 184). Some hat markets have only been established fairly recently, for example Namche Bazaar was founded in 1965 (Sagant 1968/9: 90, 94 n5, 110-12).

During the course of fieldwork between 1984 - 1991 I collected data on the locational aspects of metalwares in periodic markets in eastern Nepal. This data combined with the findings of Sagant's (1968/9) fieldwork in eastern Nepal in 1966/7, and Gell's in northern India (1982), allows controlled comparisons to be made on the distribution of metalwares in this aspect of the economic system.

Unlike fairs, *hat* markets have no religious pretext. Even so business is usually noticeably better when a market day coincides with one of the cyclic festivals such as Nag Panch. A religious festival held at a nearby site, albeit several days' walk away, tends to improve business. Markets held on Saturday, the national rest day, appear to be the most popular.

Markets are held on one day of the week only. There is evidence that formerly market days were set in accordance with the lunar calendar. Market days may change temporally. In the mid-1960s, Chainpur was a Thursday market (Sagant 1968/9: 94), but was a Friday market in the mid-1980s, while Okhaldunga has changed from a Thursday to a Saturday market. Nearby towns such as Dhankuta and Bhojpur have markets on Thursday and Saturday respectively. These three towns are located two or three days' walking apart. The spacing of market days means that entrepreneurial traders can sell the same mixture of commodities at different markets, for example at Terathum and Dhankuta on successive days, but longer walking time than one day between market places prevents such dealing. Each hat covers a trading area of about nine square miles (according to Sagant), although I have met traders who have walked for three days and have arrived the night before a market. Also, in 1991, Okhaldunga market was

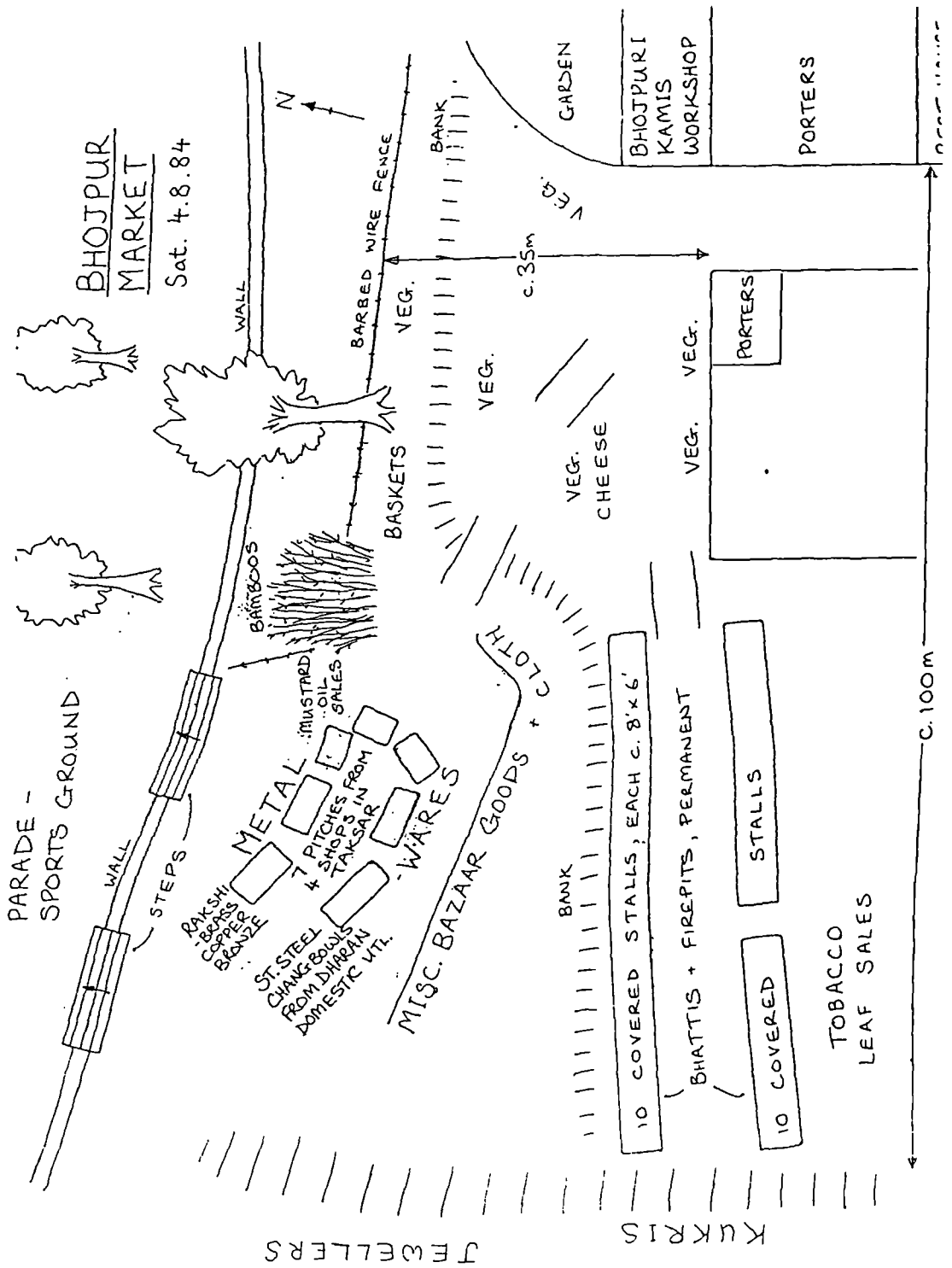

BHOJPUR MARKET
Sat. 4.8.84
N
WALL
BARBED WIRE FENCE
BANK
GARDEN
BHOJPURI KAMIS WORKSHOP
PORTERS
c. 35m
VEG.
BASKETS
CHEESE
PARADE - SPORTS GROUND
STEPS
BAMBOOS
MUSTARD OIL SALES
METAL WARES
7 PITCHES FROM 4 SHOPS IN TAKSAR
RAKSHI BRASS COPPER BRONZE
ST. STEEL CHANGBOWLS FROM DHARAN DOMESTIC UTI.
MISC. BAZAAR GOODS + CLOTH
10 COVERED STALLS, EACH c. 8'x6'
BHATTIS + FIREPITS, PERMANENT
10 COVERED
STALLS
TOBACCO LEAF SALES
c. 100m
JEWELLERS
KUKRIS

Fig. 24

supplying metalwares to Namche Bazaar and the upper Arun Valley, that is further afield than nine miles. I have no evidence of a hierarchy of markets in solar formation. Market sites are varied and include jungle locations, which permit the exchange of products between hills and valleys, and small hill towns. Market sites are abandoned or changed spatially for various reasons including floods, epidemic diseases and changing social and economic circumstances.

Markets are held in the open air in an area of open ground on average about 100 metres square, which may either be the central place or on the edge of a town. Commonly the site contains a resting place for travellers, *cautara*, or a fountain. Goods are sold from permanent thatched stalls, tables and from pitches: a cloth spread on the ground or from the ground itself. Selling points may be laid out concentrically, in parallel lines or apparently haphazardly. Different types of goods are sold in different parts of the market place. Goods are mostly portered in and out of hill markets. Dhankuta forms an exception since it is now on a surfaced road with lorry and bus traffic. The number of stalls or pitches varies between 100 and 200.

The internal organisation of hat markets usually follows the same pattern. The butchers assemble and start work in the early morning, then porters and traders setting up stalls from about six to seven am, then several hundreds of people assemble, mostly from about nine to ten am onwards, and disperse about 3 to 5 pm. A local government representative is present all day and takes market taxes which are graded according to the value of goods which are displayed. This representative supervises the prices charged, which have already been fixed by the panchayat, and

has the power to change prices at will (Sagant 1968/9: 95).

The centre of the hat is occupied by the most important merchants and their goods, who are then surounded by lesser merchants, often grouped according to the category of their goods. Untouchable butchers and ' illegal' traders selling beer, *chang*, and spirits, *rakshi*, form the periphery. This positioning echoes that of urban settlements in Nepalese society, that is the higher castes live centrally and the lower castes on the periphery. Gell (1982: 472-3, 485) hypothesises that in northern India, ' Dhorai market ... provides a cognitive model of society at large ... a mapping in space, time and in the form of market interactions, for the gamut of social relations found in the wider society. This mapping is quite overt in the spatial layout of the market.' Applying this insight to Nepalese markets indicates something of the commercial nature of some sectors of Nepalese society.

Newar merchants mostly occupied the central place in the markets of the Mewa Khola in the 1960s. Sagant (1968/9: 105-6) argues that the presence or absence of these professional merchants, who form about 15% of the total of market traders, makes a market live or die. Newar merchants and craftsmen with permanent shops nearby also occupied the central place in Bhojpur and Chainpur in the 1980s, but Dhankuta provided an exception in that the central place, from which metalwares were sold, was occupied by an Indian trader. Dhankuta, like Bhojpur and Chainpur is a Newar town amongst tribal peoples: Rai, Limbu and Santang; as well as Brahmins and occupational caste groups. Newars are thus not the highest caste group present, although perhaps they are among the most prosperous along with some Brahmins. In Chainpur (1984) Newar metalcraftsmen, who

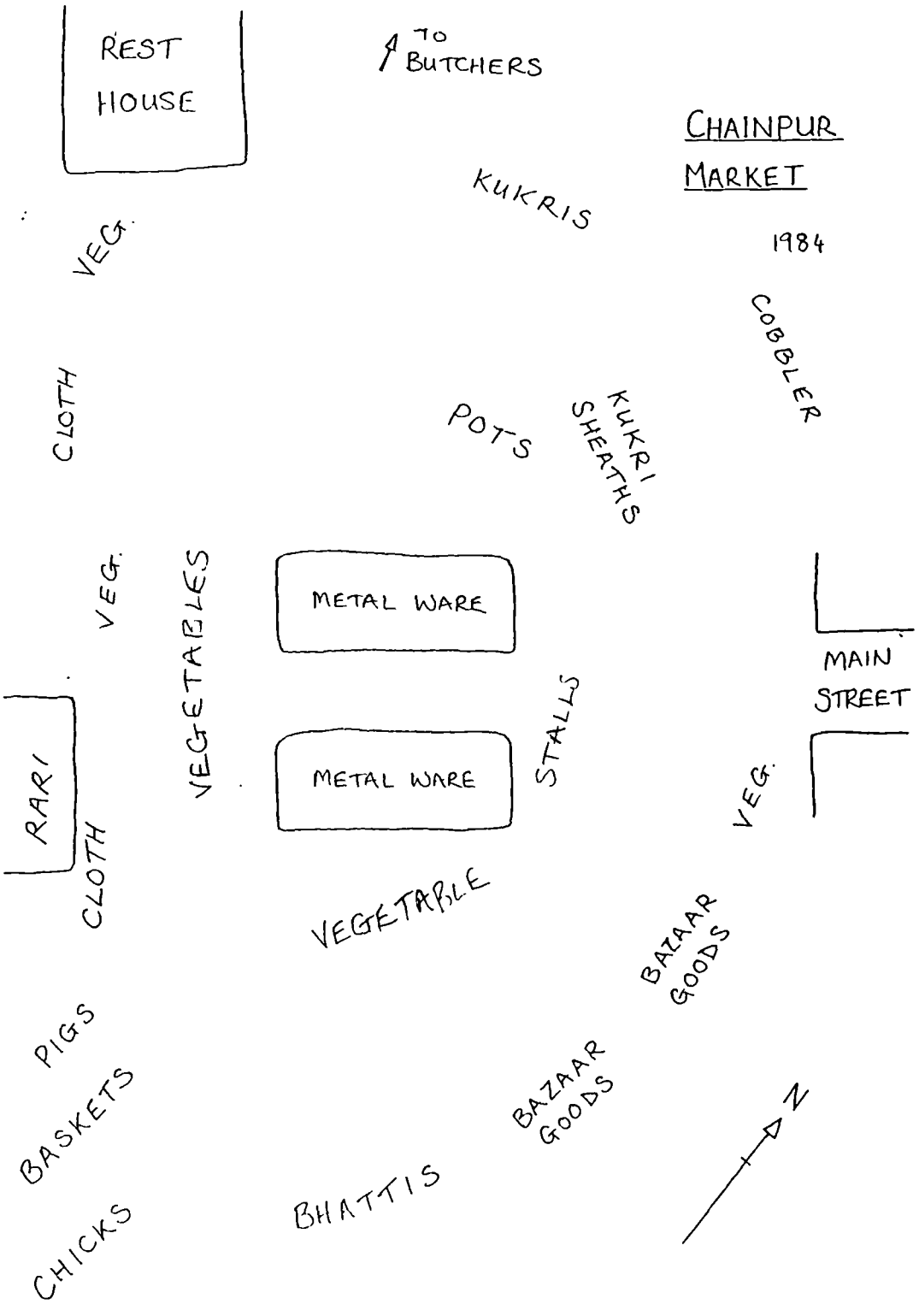


Fig. 25. Chainpur market, East Nepal, August 1984

occupied the centre of the market area, felt themselves increasingly disavantaged due to declining custom for their wares, and were having to marry out of, and socially down from their own caste group.

Goods on sale: material culture and social change

The location of the types of goods sold in a market appears to correlate with social status and social change. Gell (1982: 484, 490n6) argues that '... the hierarchy of groups in the Dhorai market area is...correlated with ... (and) encoded in the hierarchy of goods offered in the market place.' Gell draws an opposition between jewellery and luxury goods as central, ' higher order' goods, versus consumer goods and ' craft items of a utilitarian nature' as peripheral.

The types of goods on sale are roughly the same in all markets and include domestic garden produce: fruit, vegetables, ginger, garlic and tobacco; mustard oil, cheese; factory and locally made cloth. Tea and rakshi are sold to all comers. In the Mewa Khola markets, Sagant (1968/9: 96-8, 110) estimated a 6% variation in types of goods on sale, and observed that craft products were absent, despite the activity and high reputation of local craftsmen, including Newari utensil makers, Kami ironworkers and Sunar jewellers. This is in marked contrast with the presence of craft products in markets in the 1980s: baskets, glass bangles, and notably metalwares including jewellery, utensils and ferrous wares, as well as specialities such as pottery and felted cloth, *rari*, from nearby villages on sale in Chainpur market.

In the Mewa Khola markets, the central goods were high-prestige, imported spices and other foods, and cloth, sold by *kirani-dokan* and

kipara-dokan merchants in opposition to the products of ' non-specialised domestic activity' sold mostly by women, with an absence of agricultural produce, altitude-related products and craft products (Sagant 1968/9: 96-8, 105-7, 110) The most striking difference between the Mewa Khola markets in the 1960s and the three markets at Bhojpur, Chainpur and Dhankuta in the 1980s is the prominent presence in the latter markets of metalwares. Local hand-made, non-ferrous metalwares - ' craft items of a utilitarian nature' literally occupied centre stage at Bhojpur and Chainpur, whilst cheap, factory-made, utilitarian metalwares were centrally placed at Dhankuta, and the outer circles were occupied by a miscellany of stalls and pitches amongst which were ferrous wares: kukris, agricultural implements, locks and keys, tin lamps and jewellery. The jewellers tend to congregate in one part of the market place, and take orders on the basis of the few samples of their wares: gold earrings, necklaces and silver anklets, which they display.

A comparison of the metalwares on sale in in Dhankuta, Bhojpur and Chainpur markets in August 1984 shows similarities and differences. The overall amount of metalwares on sale in Dhankuta was not as much as the amounts on sale at Bhojpur and Chainpur markets, even though the area of Dhankuta market is larger than that of the other two. Amongst the metalwares on sale at Dhankuta there was a higher proportion of factory made metalwares imported from India compared with the other two markets. Local residents have noted the increasing amounts of Indian metalwares on sale at this market over the last few years (Dunsmore pers comm 1984).

There were two pitches at Dhankuta, one selling domestic utensils in aluminium: water pots, cooking pots in a range of sizes, milk and food

containers, kettles, kitchen implements and drinking vessels, as well as iron frying pans. The second pitch had a similar range of stock made in stainless steel, along with copper and brass votive pots, trays, spoons and bells, miniature iron sickles and polystyrene bowls and baskets. The salesman offered very variable prices for the same item during the day (NR26 asked of me for an aluminium *koruwa* at 10 am, sold for NR16 to the Rest House cook at 4 pm), and an attitude very much of, ' take it or leave it', both to me and to locals.

At Bhojpur hat the U-shaped metalwares section occupied the centre of the market area and comprised two stalls at the entry and five pitches of metalwares spread on cloths on the ground. All of these wares belonged to four shops in Taksar, the Newari town about 30 minutes walk south of Bhojpur. The stall on the left entry point was selling decorated pots and goblets for spirit, *rakshi* - the most costly and prestigious wares which are made locally. On the right was a stall whose contents included stainless steel beer bowls made in Dharan. The common element, alcoholic drinks, indicates a major, local taste.

The other pitches, on cloth on the ground, had samples from the range of metalwares stocked by the parent shops in copper, brass, bronze, aluminium and stainless steel: including rakshi distilling pots, water containers, lamps, candle holders, cooking bowls and small bells. These wares were carried to and from Taksar, where the copper and brass wares are made, in large light baskets. Factory-made wares included copper votive trays and aluminium lotas. Crudely hammered offering pots in thin tin sheet, made in Birganj in the Terai, were also on sale. At this market, Taksar-made brass and copper wares sell best, bronzewares second

best, stainless steel wares from Biratnagar third, and Indian aluminium wares last.

In Chainpur, cloth pitches with metal wares stacked on them were set up about mid-morning, that is after the market had started, in a central position in the market (see diagram). Metalwares on sale included pots and pans in brass, copper, aluminium and stainless steel. Ferrous-ware pitches, as at Bhojpur were set up on the edge of the market place. In general metalware sales at Chainpur were brisker than in Dhankuta.

The literally ' central' place of metalwares in two of the markets described above, Bhojpur and Chainpur, and the prominence of the metalware pitches in Dhankuta, indicates something of the high valuation placed upon metalwares in Nepalese society. This valuation holds despite the differing ethnic and national origins of salesmen and those attending the market. The change, over some 20 years, between the centrality of cloth to metalwares in markets in the same region, requires more fieldwork for explanation. It may be due to the limits of profitability in transporting metalwares, greater prosperity in the area, or most probably to increased amounts of factory-made wares. Local production of brass and copper wares has declined in Bhojpur and Chainpur, as has been indicated earlier.

In 1984, Chainpur craftsmen were also taking their wares to sell them at the roadhead at Hille. There is a temptation to correlate the increasing use of aluminium and stainless steel utensils in this area with the development of the road, whilst brass and copper utensils are more common in ' backwaters' such as Bhojpur and Chainpur. Whilst this correlation holds partially, the usage of aluminium wares appears to have

more correlation with wealth and social status. My impression from the journey to Bhojpur and after examining the town, was that the use of aluminium wares is widespread in the rural areas locally, whilst more brass and copper wares are used on a daily basis in Bhojpur and Taksar.

Market interaction at every level brings people into contact with other castes and ethnic groups and ' tends to encourage people to abandon their own religious traditions' (Fournier 1978: 174). It has opened some caste groups such as the Sunwars, to Sanskritisation if not to the practice of abstention from alcohol. Hat markets serve in the re-distribution of goods, but they also have a range of social functions, not least as a place and occasion for conviviality. Some hats are recognised primarily for this function, for example Sunchiray and Ramechap are, ' mostly places for drinking chang and rakshi' (N. Gurung verb comm 1991; Sagant 1968/9: 102). More women attend markets than men, and form the second class of market traders after Newars. The quantities of produce which they offer for sale are often very small and appear to be more in the nature of token goods or an excuse for attendance (Sagant 1968/9: 107). However, appearances can be deceptive and it must be stressed that minor trading provides some cash for women who are widowed or are housewives of subsistence farmers. Such income may be vitally important to the livelihood of the women concerned. Market day is a social occasion, a time for dressing in one's best and meeting friends. Markets allow young people to become acquainted and even to elope, a not uncommon feature of eastern Nepalese society.

Retail Distribution of metalwares

' In many cases a customer will patronise one particular...shop. Traditional rules of reciprocity make it incumbent upon customers to patronise the specific shop (or producer) which has extended them credit.' (Zivetz 1992: 223-4).

Metalwares are portable, storeable and, apart from their directly functional uses, form a relatively non-perishable source of wealth and social status which provides returns on investment. Distribution points such as retail shops serve as places of exchange where a local surplus is converted into imported goods. Whilst in India, petty shopkeepers are usually members of the lower castes, in Nepal shopkeepers are usually Newars or Brahmins who may also function as moneylenders.

The establishment of retail shops in smaller towns is a relatively recent development. In 1953, in west central Nepal apart from Pokhara, Tansen and Trisuli, commerce in metalwares was not extensive. Manufactured goods from the villages, where unhealthy living conditions also inhibited commercial development, were taken to the bigger towns for re-sale (Kawakita 1957: 25, 48). Retail shop development has tended, in part, to follow on the dispersal of Newars from the Kathmandu Valley. The primary sub-castes involved are Sakyas and Tamrakers, who retain a strong sense of ethnic identity despite their dispersal (Bista 1973: 39). The distribution of Newar metalworkers and retail traders in the rural areas of Nepal is variable, with fewer in the west than in west-central and eastern Nepal where they dominate the retail trade in some towns. For example in Jumla (1987), there were no Newar craftsmen present, the only Newars resident were shop and hotelkeepers. People in most of the towns and settlements in this region were obliged to walk to Nepalganj in

the Terai to buy metalwares and then carry them back again.

Metalwares are sold from two types of shops, those that double as a workshop, as described above, and those which are simply shops, with stock derived from craftsmen and sources elsewhere. Both types are usually the ground floor of a house, and generally a simple shop will stock more items than a workshop-cum-shop, and will also display wares in stacks on the ' pavement' outside the shop.

Shops retailing metalwares generally occupy a prominent position in larger towns, either along the main streets or in their own quarter. In Kathmandu, there are a few metalware shops, which are surrounded by shops selling tourist goods, along one of the main trading streets, Asan Tole, but most are in lesser streets. In Patan the main street leading south from Durbar Square is lined with shops selling metalwares.

In Pokhara all current sales (1987) of utensils and tools are from shops, with some jewellery and turistica sold from street pitches as well as shops. Pokhara does not have a market, and business is good despite, or perhaps because of, the strong presence of Indian money and tourists. In 1987 there were about 30 non-ferrous retail shops, a dramatic rise from the mid-1970s when Seddon (1979: 195) estimated that there were only some 30 metalworking households in the west-central region as a whole: about 12 in Pokhara, 12 in Tansen ... ' once widely reputed as the major centre of indigenous metalworking in the region', and the rest dispersed among the other hill towns.

In Taksar in eastern Nepal (1984) there were two main shops and three lesser, each with slightly differing stock. One of the main shops takes wares to sell at Bhojpur market, the other, which stocks more antique

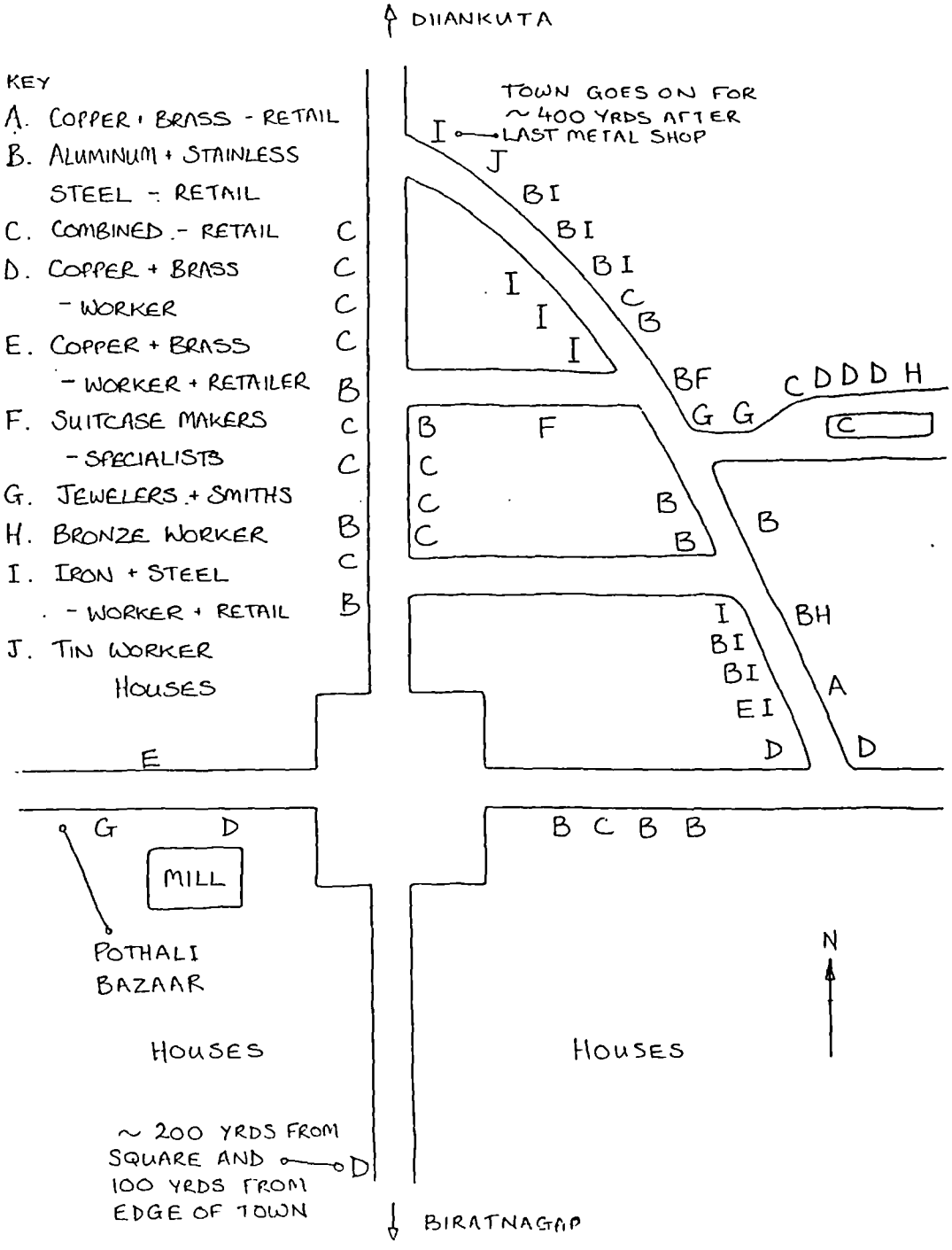


Fig. 26. Dharan town plan, East Nepal 1984

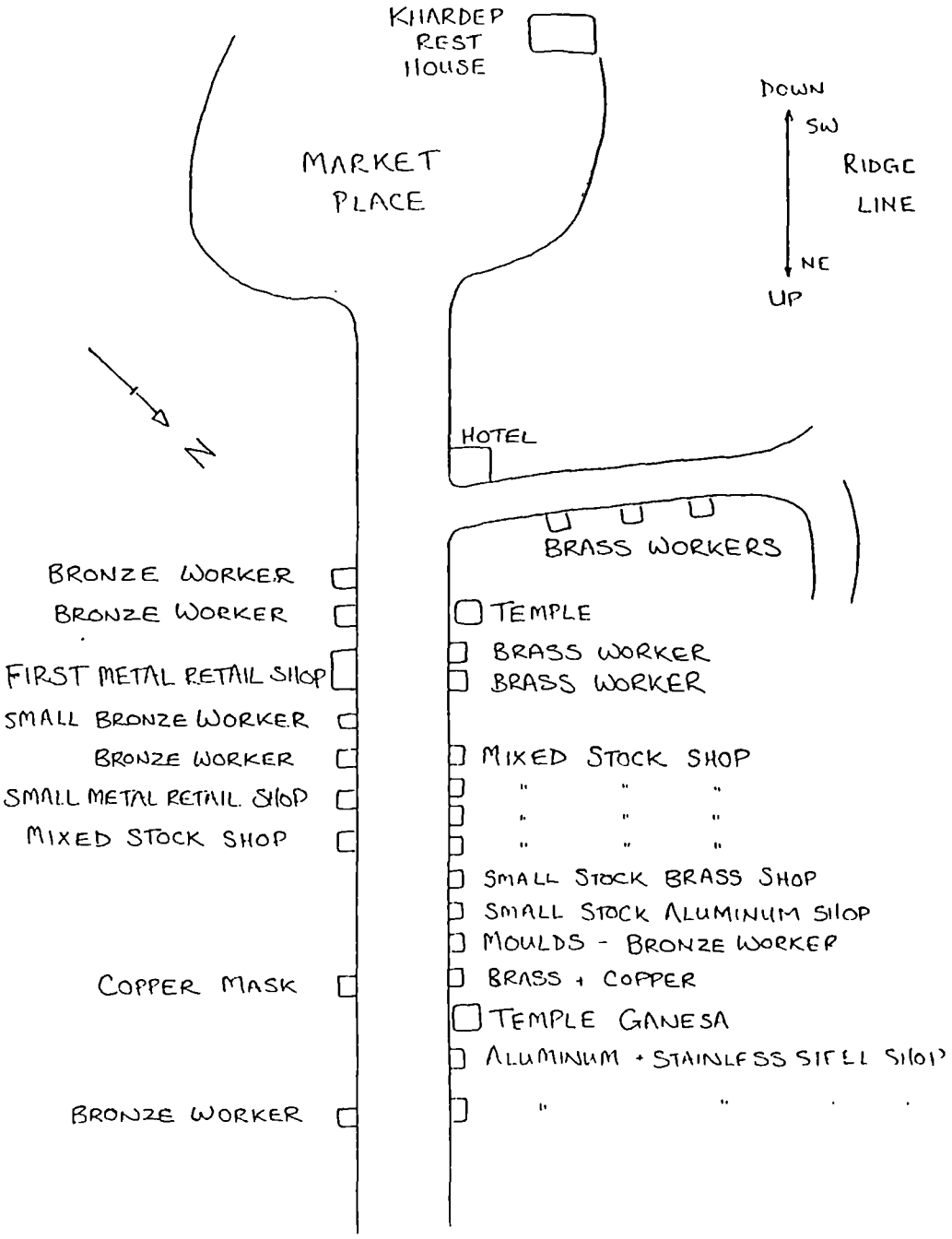


Fig. 27. Chainpur town plan, East Nepal 1984

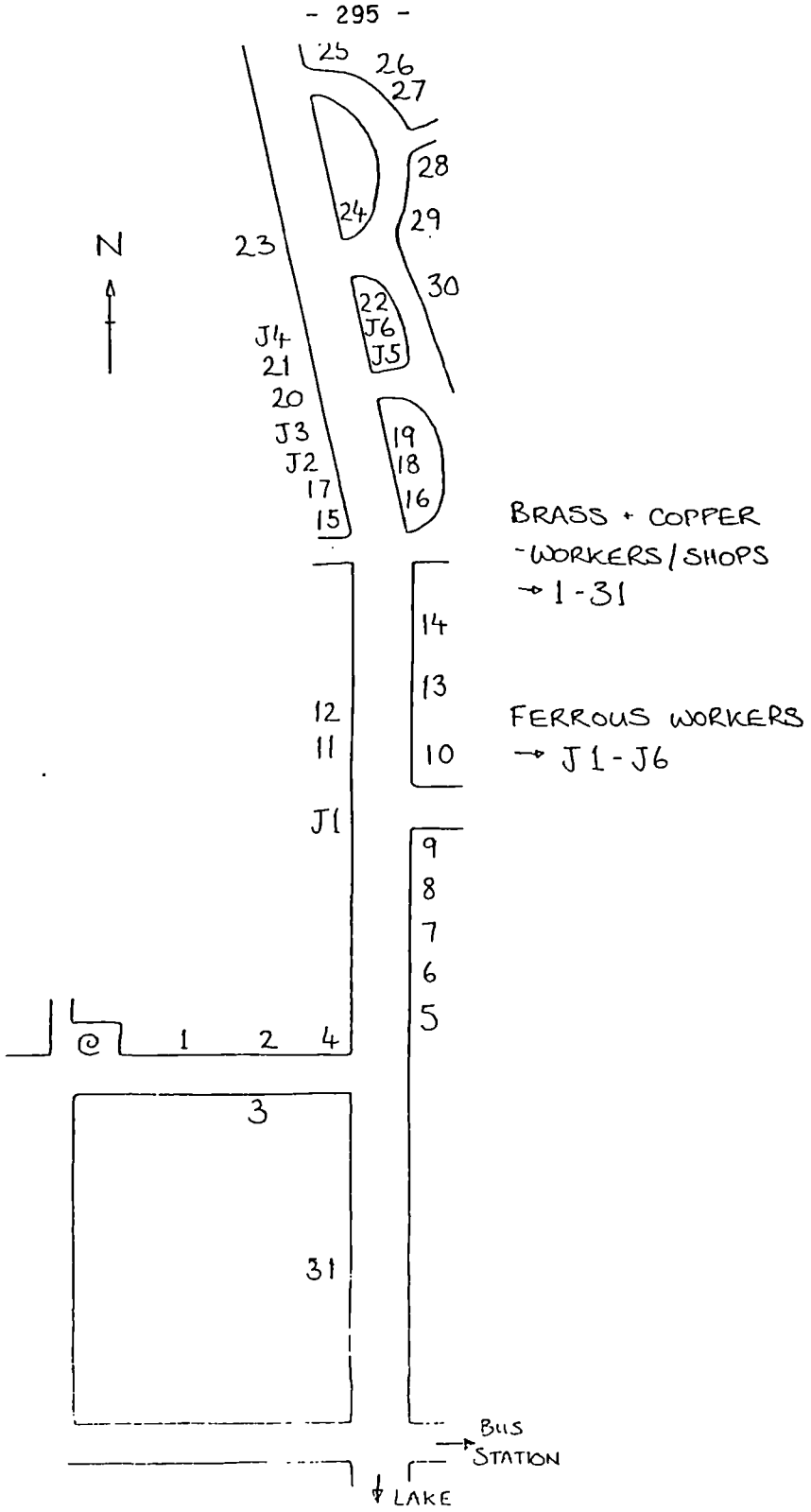


Fig. 28. Pokhara town plan, West Central Nepal, 1987

material, does not. In Beni, a small town in the Kali Gandaki valley north-west of Pokhara, there were four shops selling metalwares (1987), mostly aluminium and stainless steel, as well as plastic utensils, and one shop selling mostly copperwares including large rakshi pots, with some small brasswares: cups and oil-lamps. West of the Kali Gandaki as far as Jumla there were no metalware shops in the villages, nor even in Jajarkot, the district headquarters. All metalwares are brought in by porterage from towns further south.

In Jumla in western Nepal the resident metalworkers (1987) consist of 12 households of Kamis and Sunwars living towards the edge of town between the centre and the airport: six work in metal but have few wares on display, the other six are farmers. Metalworking is seen as low caste work. Nepalganj in the Terai forms a marked contrast with Jumla. A large, bustling town on the plain, Nepalganj (1987) has a wide variety of shops including a metalwares ' quarter' where copper vessels especially, stainless steel utensils, a few brasswares, and ready-made jewellery were on sale.

The distribution of locally-made ferrous wares is usually through local networks. Factory-made ferrous wares, either Nepalese or imported, are usually sold through retail shops. Generally shops selling ferrous wares tend to be fewer in number than shops selling other types of metalwares, for example only four shops in Pokhara were selling ironwares (1987), and only one in Dhankuta (1986).

Types of goods on sale

The types of goods sold in retail shops largely duplicate those sold in markets and the range of wares shows variation only in the relative

amounts of factory-made versus hand-made wares. Bargaining is practised. There is a regional variation in the retailed amounts of hand-made wares which follows cultural preferences, availability and relative wealth, brass is cheaper than copper and both are more expensive than stainless and aluminium wares.

Brasswares are more common in the east, copperwares in the west. This division is a tendency rather than an absolute division. Okhaldunga, a district headquarters town in east central Nepal perhaps indicates something of a changing point (1991) with many more copper wares on sale than brasswares, in contrast with Bhojpur and Chainpur a few days walk to the east. The three metalworking households in the town supply hand-made non-ferrous wares to a large area between Bhojpur and Ramechap and enjoy good business, but a few machine-made copper pots and bronze amkhora are now coming into this district from the Valley. Relationships are maintained with other Newari metalworkers in hill settlements and Patan.

In 1984, Chainpur metalworkers and retail shop owners were being undercut by the import of stainless steel and aluminium metalwares made up in Biratnagar using metal from India. A further problem in Chainpur was that townspeople are not allowed to make rakshi, so that the only demand for rakshi pots comes from villagers. About 80% of the pots which were being portered into surrounding villages were brasswares: gagri, cooking pots, and a few plates; and 20% were aluminium. ' Chainpuri ' bronze' plates in fact now come from Dharan and Bhojpur since there is no plate maker in Chainpur, although several shops stock them. Local tastes may also change, for example there was a declining demand for

Chainpur-made figures at this time, despite their reputation and the rise in the tourist trade. Chainpur craftsmen countered by opening a shop, the ' Chainpur Brass Company' as an outlet in Kathmandu. Changing tastes often result in the accumulation of ' old fashioned' metalwares which are then collected, either for re-sale as antiques on the Kathmandu market, or as scrap metal, by Newari and Indian traders.

In Pokhara (1987) relatively few brasswares were on display in the shops, as is generally the case in western Nepal, despite considerable purchasing by local hill peoples who prefer hand-made utensils. Large metal pots, common in the eastern towns, were absent. More stainless steel and aluminium utensils were on sale than, for example, in Dharan (1986), and Indian-made open cast religious figures. A few hill towns, for example Hille in 1984 and 1986 when it was the roadhead from the Terai, displayed almost entirely aluminium wares, including pots made in Tibetan style. Terhathum, a district headquarters, repeated this emphasis in retailing aluminium and stainless steel wares.

The Kathmandu Valley towns provided impressionistic evidence of the modernisation of Nepal, that is the substitution of factory-made aluminium and stainless steel wares for hand-made brass and copper wares, between 1984 and 1991. In 1984 in the main streets in Kathmandu about 90% of shop wares comprised stainless steel and some aluminium wares.
' Traditional' brass and copper wares were on sale in the poorer back streets. In Patan there was a lesser quantity of stainless and aluminium than in Kathamndu: about 80% stainless and 20% copper and brass wares were on sale in the main streets, with brasswares in larger quantity in the back streets, especially south of Durbar Square. In Bhaktapur the

proportions were about 50/50%, indicating Bhaktapur's relative isolation to modernisation when compared with Kathamndu, and the local preference for pottery wares. Bhaktapur, largely a city of subsistence farmers, Jyapu Newari, was formerly the market town for the eastern end of the Kathmandu Valley and its surrounding hills. Much of this trade has been lost to Kathmandu since the bypass road was built.

In 1991 many more aluminium waterpots were generally in evidence in Kathmandu, even than in 1987. Many newly-sited pitches were selling stainless steel utensils in the backstreets and near the central open spaces of the Tundhikel and Ratna Park, indicating that stainless steel wares are spreading down the social scale. In Patan there was also a marked rise, noticeable even from 1986/7, in the amount of stainless steel utensils on sale. At the same time there was still an active and extensive production of brass and copper utensils and apparatus for the local, Newar market, including large candlesticks for weddings, finials for temples, and other temple furniture and apparatus such as large butter lamps and incense burners. Some metalshops were selling both sheet metal and base discs in brass and copper, that is pre-formed sections, as well as finished products. Patan-made utensils are traded in quantity to northern Nepal, for example to Solu Khumbu, and to Tibet, and Patan-made figures are sold in Kathmandu, Bhaktapur and the pilgrimage sites of Bodhnath and Swayambunath. The Newar distributive network appears to be as evident in metalwares as in other commodities.

Compared with domestic utensils ferrous wares enter the market and bazaar on a smaller, less obvious scale. In Bhojpur and Chainpur markets for example, ferrous wares are (1984) sold from single, peripheral pitches.

In the bazaar ferrous wares are often sold from shops with a mixed stock which includes aluminium and plastic utensils. The number of shops selling ferrous wares is also much fewer than those selling non-ferrous wares (see sketch maps).

Hand-made jewellery has a similar scale of entry as ferrous wares in the markets and bazaars of hill towns but a much bigger entry in the bazaars of Terai towns, especially near army camps, and increasingly in Kathmandu where gold jewellery is increasingly ready-made for retail trade.

Nepalese markets - an overview

Nepal's economy is primarily agrarian with market relations in production and distribution of secondary importance. Industrialisation and road construction are recent developments, still with limited effects. International trade or distribution through the Kathmandu Valley has been one of the factors in social and cultural development there. The Valley has apparently been a cash market throughout the historical period, whilst barter took place at rural marts and probably *hat* markets originally.

The centre: periphery division in Nepal tends to result in a Valley-centric view. Similarly the closure of Nepal to British India tends to promote views of a ' static' Nepalese economy Examination of the distribution networks away from the Valley reveals patterns of socio-cultural variation and change. Although distribution is hampered by the terrain and lack of roads it has been facilitated by the establishment of state control following the Conquest and the subsequent diaspora of merchants and craftsmen, mostly Newars from the Kathmandu Valley, but

including Brahmins and occupational caste groups as well, throughout several parts of the country. The distribution network has thus expanded considerably in the last two centuries.

The development of markets and retail outlets on a national level is correlated with caste and ethnic groupings. In the west where there are fewer markets and shops there is stronger caste organisation with a Brahmin-Chetri majority among the population and fewer Newars; in the east, where there are more markets and shops, there is weaker caste organisation, tribal majorities and more Newars present.

The Nepalese distribution system shows evidence of ' rational' and ' non-rational' elements. Monetisation and the standardisation of weights and measures were present in part before the Conquest and have continued under the control of central government ever since. Despite the extractive nature of Rana rule, and the neglect of local cottage industry production, a system of markets developed in eastern Nepal in contrast with western Nepal which correlates with differences in socio-political organisation. State control is apparent in restrictive practices which are a feature of this system: apart from market taxes, local prices are fixed or changed by governmental organisations, yet bargaining also exists within this framework.

Nepalese markets are ' sectional' in nature, that is they link communities which each have their own economic speciality and ethnic and caste identity (Wolf 1966: 40), for example Brahmin and Newar merchants transact commercially with tribal cultivators. While this form of commercial relationships may erode or compete with the *jajmani* system of relationships, it may also lead to sanskritization among tribal groups as

the people of the Little Tradition interact with merchants who are carrying the Great Tradition. Most Nepalese merchants and shopkeepers tend to be Newars and Brahmins, that is of higher caste than shopkeepers in India. Although there is much repetition of a limited range of goods, shopkeepers tend to stock metalwares according to variations in market demand. These may include metalwares produced elsewhere, even where the shopkeepers are craftsmen themselves. Shopkeepers also function as moneylenders and as piecework contractors to metal craftsmen. Widespread distribution of a small amount of items also occurs as craftsmen work to commission, for example producing figures for quite distant temples. The archaic social form which a market represents continues today in the use of pitches in the tourist market in the Kathmandu Valley.

Entrepreneurial activity is seen as one of the avenues to development in capitalist economies, and the State trading agency, National Trading Ltd., is trying to develop such activity. This development is inhibited by competition between differing ethnic groups within Nepal and the Indian domination of large-scale commerce (Blaikie 1983: 149-50, 163-4; Enc. Britt. 1976: Macropaedia 12, 955; Furer-Haimendorf 1975: 155, 292-3, 298; Zivetz 1992). Yet there is some indication of entrepreneurial re-positioning among a few metalworkers in Nepal. Since his gloomy prognostications in 1984, Ganga Sakya, with the help of an American partner has succeeded in establishing a retail outlet in uptown Kathmandu, and is providing research facilities for students. Increasing numbers of rural craftsmen manufacture for the Kathmandu Valley market which serves also as an extensive warehouse for metalwares as durables which are a manipulable store of energy and wealth.

The ' non-rational' aspects of Nepalese markets are equally as evident as ' rational'. Of course maximisation is an operative principle. People want to buy and sell at the most favourable terms - ' the best price' - for themselves, just as the authorities wish to levy taxes and control access, but alongside these rational aspects, the elements of emotional valuation, even frivolity, are apparent, and many market transactions are token in nature (Sagant 1968/9: 107). Market days are fun - festive days when the ' gods' of the market place, that is, metalwares, in the case of some markets, are given due precedence at the centre of the market ' dance'. A similar element may be seen in retail shops, which are not only places to sell goods, but to meet, gossip and to decorate a town. In turn, this adornment entices the public to buy.

Markets are an arena where changing tastes, for example in jewellery or types of metal utensils, may foster social change in local communities. There is no indication of a ' solar system' of market locations in Nepal. That is, local markets do not appear to be linked hierarchically into higher level markets within a marketing community (Nash 1967; Skinner 1964). Yet markets do attract people from considerable distances, for example Bhojpur may draw attendance from people living three day's walk away, whilst shoppers in Nepalganj may walk the single journey from ten days and more away. Further east from Bhojpur, the road from Dharan through Dhankuta to Hille has affected the marketing community pattern, with people now shopping over considerable distances, and factory-made imports from the Terai and India finding an increasing sale.

Nepalese markets thus link village societies with wider economic systems, for example the fluctuating price of metals on the world markets

has repercussions on the availability of materials and the price of products locally. Even so cause and effect are not so directly linked. Metal utensils in Nepal are sold by weight, yet quality also enters as a factor. Local people around Bhojpur, for example, can no longer afford Krishna Sakya's pots with their superior finish. There is still some valuation of threatened craft skills, which themselves provide possibilities for development.

A primary example of the role of material culture in social processes is indicated by the mixture of types of metalwares on sale in Nepalese markets and shops. Given the agrarian nature of the Nepalese economy, most distributed goods are luxury items: imported cloth and foodstuffs. Metalwares form an exception in consisting of both luxury items such as jewellery and utilitarian items such as tools and utensils. The location and types of metalwares on sale in markets indicates regional differences and the processes of change. A comparison with markets in India indicates that ' central goods' there consist of jewellery and luxury goods; in the Mewa Khola in the 1960s, the ' central goods' were cloth and imported foodstuffs whilst metalwares are conspicuous by their absence. In Bhojpur, Chainpur and Dhankuta markets in the 1980s, utilitarian metalwares occupied the central place, with utilitarian ironwares and luxury jewellery occupying the periphery of the trading areas. Within these latter markets there is a preference for cheap, factory-made cooking utensils in Dhankuta and hand-made brass and copper pots, largely connected with drinking alcohol, at Bhojpur. Indian-made religious apparatus for domestic worship is on sale everywhere.

Whilst ferrous wares appear to be more stable in their production,

range and distribution, as were precious wares until the recent influx of factory-made jewellery from abroad, the great division in Nepalese metalwares is between hand-made wares in brass and copper versus factory-made wares in aluminium and stainless steel. This division or replacement I would suggest represents a major change in Nepalese values.

Chapter Eleven

METALWARES IN THE SOCIO-CULTURAL CONTEXT OF NEPAL

In this chapter I discuss Nepalese metalwares against various contexts to establish some of their functions and meanings in what may be termed the ' traditional' society. The division of the social system into sub-systems such as the economy, kinship, religion etc., and into ' traditional' and ' modern' stages is obviously artificial and overlapping. Even so this approach enables some discussion of the functions of metalwares to be made at the levels of society, group and the individual.

Metalwares in the ecology and economy of Nepal

The ' insignificance' of production from mines and manufacturing industry in the Nepalese economy (according to Blaikie 1983: 47; Minstry of Education 1962; Varma 1972: 92, 110) has been noted above. Yet such views mask the cultural role of metalwares in Nepalese society. Ferrous wares, in the form of agricultural tools especially, are essential in the predominantly agricultural economy. Over 90% of the population depend on farming for subsistence, and without cleared, cultivable land a man has reduced income and status in a society which places the highest value on landholding. The general contrast between plough cultivation in

the hills and hoe cultivation in the Kathmandu Valley was held for fear of offending Mahadeva by putting the bull, his steed, to work (Lall 1979).

Iron artifacts including cooking pans, pots, skillets, cups occasionally, tripods, kettles, firetongs, kitchen knives, and a miscellany of locks, lamps, needles and razors, all have a role in the domestic economy. With some exceptions, iron is never used for plates, and Jyapu Newars prefer to cook in earthenware pots, whilst richer Newars prefer to use entirely metal utensils (Nepali 1965: 50, 59).

Non-ferrous metalwares have a variety of functions in the domestic economy with some variations according to wealth and caste or ethnic grouping. Brass and copper pots are used to collect and store water, and as drinking vessels and cooking pots on a familial and on a wider social scale. Since grains, especially rice, are the staple diet, brass cooking pots are of particular importance. Bronze and bell metal utensils are used as serving vessels, plates, food bowls, wine and spirits flasks and cups, and beer mugs both domestically and, in a wider social context, along with large brass and copper cauldrons for cooking food and making tea in commensal festivals, and especially those held among alcohol-drinking social groups such as the Newars, Tamang and Matwali Chetris. Non-ferrous wares also have strong symbolic aspects. Brass, copper and bronze vessel utensils and other artifacts are regarded as family assets and heirlooms; metalwares brought back from military service and other work abroad, such as waterpipes and containers, are included in this category. The general preference for copperwares in western Nepal, and brasswares in eastern Nepal may perhaps be correlated with the more orthodox prevalence of Hinduism, and closer ties with India, in western

Nepal than in the east, or to greater access to brass from Bengal in the east.

As with the castes of society, so metals are clearly differentiated by their functions in Hindu thought and usage. Copper and ' bronze' are prescribed for religious images in temples and for smaller figures, lamps and other apparatus in the domestic cult. In orthodox Hinduism copper and bronze are forbidden for use as domestic utensils, and brasswares are prescribed for cooking and eating utensils for Hindus. This is in marked contrast with Nepal where domestic utensils made in all three metals are commonly used. Tinned copper vessels, a much later development, are used for cooking by Muslims. A housewife cleans her brasswares with ash in the morning, soap, which is considered impure, is not used (Lall 1979; Maloney 1974: 213).

Metalwares in the life cycle

There is a particularly intensive use of metalwares in the life cycle among the Newars. Pregnancy involves the continuation of domestic duties but with some proscriptions, a woman is recommended to carry water pots to ensure an easy delivery of a strong child, but she must not touch the ritual thunderbolt, vajra, otherwise she may have a miscarriage (Nepali 1965: 85, 86).

Birth itself is accompanied by purificatory ritual activity, *dackchina-chhayegu*, which involves the exchange of coins and objects made of precious metals and other materials. The child's father's sister presents it with a gold bangle, *piyucha*, and a red coral necklace. The female relatives of the mother's brother give coins to the child and its mother.

If it is the first male child, the mother's brother gives it two rings, one gold, one silver, and one mohar or ½ rupee. The midwife, *aji*, appropriates the coins given to the child, and is also paid in paddy (Nepali 1965: 91-5). At Newar housebuilding, which is connected with birth rituals, five vessels made of brass, or of five or nine metals, are placed in the foundation with a silver tortoise. When the house is completed, prestatory saris are redeemed by a payment of eight annas and one pice (Nepali 1965: 62).

At the first initiation rite, *machajunko*, the mother's brother sends the six-month old child a present of a silver ankle ornament. In the *lasakusa* ritual which is part of this process, the head lady of the lineage group performs a ritual with an iron key, and the second lady of the lineage sprinkles water from a spouted drinking vessel, *koruwa*. Other utensils used in this rite include a lamp, *sukunda*, for Ganesa, a big food dish with a pedestal, *thaibhu*, coins, rice and betel. The child is fed with rice on a gold coin, or, among poor people, a copper coin. A tray with objects is placed before the child, according to the object the child touches, its future career is determined (Nepali 1965: 98-101), a ritual which is precisely paralleled in the Chinese ritual, *zhuazhou* (Ting 1990, 17-18; Williams 1976, 42).

A purified razor, which may be made of gold, is used at the first haircutting ritual of a boy, when he is given a gold ring of nine jewels, *navaratna*. The head lady pours fruit and flowers from a grain measuring pot, *pathi*, over the boy's head, then all those present offer coins to the boy and give coins to the priest and to the father's sister. The head man, *thakali*, then worships a bronze mirror, *jwalahnhaika(n)*, and shows it

to the deities and relatives. The head lady, *thakalinaki*, then worships the vermilion container, *shinhamu*, and ritually displays it. All Newar rituals end with the ritual display of these two objects (Nepali 1965: 104-6).

In the first initiation ceremony for girls, *yihee*, which takes place between the ages of four to eleven years when a girl is ritually married to Narayan (Vishnu), the woman barber, *nauni*, is paid in cash and food, the girl's nail parings are collected in a copper dish by her father, and the mirror and vermilion container are worshipped. This ritual may be omitted among lower caste Newars (Nepali 1965: 106-112). The puberty ceremony for girls, *barha*, involves confinement, but no extensive use of apparatus apart from the worship of the mirror and sindur container (Nepali 1965: 112-16).

The initiation of a boy into manhood, *kaitapuja* or *vratavandha*, is often held on a mass scale. Coin offerings are made and metal utensils are used, including a bronze plate and razors. Among the Buddhist Newars this ritual, which is known as *barechhui*, involves the adoption of the monastic life for four days (Nepali 1965: 116-20).

On a daily basis, pollution rules apply to metalware usage among the Hindu Newars, women use their own utensils whilst they are ritually polluted during menstruation, and men avoid the pollution of saliva by not touching the spout of a koruwa with their lips during drinking (Chatopadhyay 1980; Nepali 1965: 49; Maloney, 1974: 218; Lall 1979).

Iron implements play more of a role in the three old age or death rituals. The eldest son or wife of a dying man washes his feet with water from a brass water pot, *kolla*, containing three silver coins which

are later paid to the physician. A koruwa and iron chains are ritually handled whilst the bier is made. At the cremation ground the chief mourner places an eyeless needle, a cooking furnace and a model wooden ladder to stop the spirit of the deceased returning to his house in the *paintilagu* ritual. When the mourners re-enter the deceased's house after the funeral, an iron key is used to drive away any evil spirit which may have haunted them and an iron nail is driven into the threshold to prevent the return of the spirit of the deceased. The Jyapu use a sickle, *incha*, instead of a key, and call a Gubhaju priest to drive the iron nail into the threshold. The mourners at the wake wash their hands with a jug of water and a big copper vessel, *bata* (Nepali 1965: 120-3, 127, 129, 131, 136-7, 141).

Among the Newars there is thus an intricate usage of a variety of metalwares amongst kinship and ritual relationships. Overall there is a change in the types of metalwares used according to age and the life cycle, that is, more precious metals and money in birth and youth, then more non-ferrous utensils during mid-life, and more iron at death: a descent, perhaps, down the hierarchy of metals from birth to death.

Metalwares and marriage

Marriages are one of the occasions in the life-cycle in which metalwares are used and exchanged on a large scale by all ethnic and caste groups, and Muslims, in differing forms.

Non-ferrous metalwares form a significant part of a woman's dowry, either as heirlooms passed on or bought for the occasion. Preferably a girl's dowry should include: two *amkhora*, one *koruwa*, one copper and two

brass water pots, *gagri* (one of the most important dowry items throughout Nepal), one flask and six to eight cups or goblets for wine or spirits, two or three cooking pots, *khansi/jansi*, two to three rice bowls, *kasori*, two to three bowls for lentils, *thasala*, two plates, *thal*, two to three ladles, spatulas and spoons. This amount is common throughout Nepal, except for the Newars. Other non-ferrous utensils variably given include copper and brass cauldrons, and other categories of material include jewellery, cash, cloth and clothing, and, in some cases, for example among the Gurung, agricultural implements and cattle.

The dowry is often given at the wedding, but parts may be retained for a time, for example until after the birth of a son, among the Thakalis. The Tamang give a second dowry of agricultural implements after the birth of a child, whilst the Gurung have an informal marriage ceremony in the groom's parents' house, then the couple may live separately for several years or until a child is born, after this the bride goes to live in the groom's house and is given her dowry which matches the value of gifts from the groom's family (Macfarlane 1976: 80; Majupurias 1978: 62-3, 132-4, 136, 140-8, 151, 155-8, 191-4). Non-ferrous pots form a source of household wealth which may be freely displayed, as by the Sherpas, or hidden away in back rooms so that they cannot be seen, as among the Magars of Tarangpur (Fisher 1987: 135-7, 165).

Three types of marriage ceremonial indicate the differing roles played by metalwares in different social groups.

Brahmanic weddings

The Brahmin priests of the two families exchange water vessels,

kalash, during the groom's procession to the bride's house to fetch the bride. On her entry to the groom's house, the bride worships a lamp, a kalash and Ganesa in the *bagdan* rite, then the bride and groom search for hidden coins in a dish of paddy. The bride's father keeps coconut, betel leaves, areca nuts, sacred thread and money in a pot which he gives to the groom. In the *kanyadan* ritual, the most important part of the ceremony, the bride's parents present a ewer and a large metal dish as part of the dowry. A copper pitcher is used to wash the feet of the bride and groom in the *godadhuwa* ritual. After the groom has placed sindur in the bride's hair, the bride mixes honey, yoghurt and melted butter in a bronze pot for them to eat. The groom then donates a brass pot full of rice to the officiating Brahmins (Majupurias 1978: 36-8, 41, 44-6, 98, 101-2, 104).

Marriage among the Chetris of Nepal is similar to Brahmanical marriage, but includes gifts of silver jars and jewellery (Majupurias 1978: 104-6). During the wedding rituals of the Tharu people of the Terai, who may be descended from Rajput Kshatriyas, a measure of paddy is poured over the bride, and the female members of the groom's family receive the bride with a pot full of glowing embers, a lamp and a water pot at the entrance to their house (Majupurias 1978: 153-4, 176, 178-9).

Tribal/ethnic weddings

There is a clear correlation of metals and social structure among the Kulunge Rai of the Hongu valley, north of Bhojpur in eastern Nepal (McDougal 1979). The quantity and quality of metalwares is important in indicating the economic status of the household. Wealth is indicated by the ownership of large copper vessels made and sold by itinerant

blacksmiths. In 1979 a good-sized copper vessel cost over NR100. Both copper and brasswares must be blessed at a Nagi shrine before being incorporated into the household possessions. Wealthy households keep an excess number of such vessels as symbols of wealth. They are used for communal cooking at feasts. Brasswares, for example the bowl, *dabaka*, are used for serving food or beer. Each son and daughter receive at least one copper vessel as part of their inheritance and dowry. Copper vessels are the medium of brideprice, traditionally one copper vessel, the largest, *jethi*, is passed across in the *lastur* payment, along with other household utensils and tools. Eight metal vessels named in the same birth order as sisters are given as dowry by the groom's family to the bride's family (in 1979 they cost about NR500). If these vessels are unavailable the rite may be delayed. Fewer vessels and a token cash payment may be accepted by the bride's brothers in the case of a poor husband.

Newar girls have more metalwares in their dowry than girls from the hill tribes and caste groups (Gajurel and Vaidya 1984:, 32; N. Gurung and K. Shakya pers comm). When a boy and girl are betrothed, the bride's family send a go-between, *lamee*, to the boy's parents with ten areca nuts, which wealthy people may place in a silver case. The groom's family send betel leaves and a vermilion box, *shinamu*, and a brass mirror, *jwalahnhaika*, to the bride's family. On the day before the marriage procession, at the *kalya-nhye-ke-gu* ceremony, a bracelet, *kalya* or *bahi* (Hind), with protective symbols of Ashta Matrika, is placed on the bride's wrist. This custom is especially common among the Bare, Shreshtas, Udhas and Manandhars (Nepali 1965: 212, 217).

The marriage procession is led by two people carrying metal lamps

followed by Kusle and Kasai caste members playing musical instruments. The *tutibaginhyekegu* ritual is performed just before the bride joins the groom's party - the thakali or oldest member of the groom's party touches the bride's feet and ties on to her the leg ornament, *bagi*. At the entrance to the groom's house, the bride stands on the ritual spot called *chhetrapal*, and is flanked by two maidens with lamps who represent the deities Syangini and Byangini for the welcoming ritual, *duchhaikegu*. During this ritual the metal measuring pot, *pathi*, is filled three times with fruits and flowers which are showered over the bride. The *thaibhu* ceremony is a most important part of the process; the newly-weds share food, in theory 84 items, from the same *thaibhu* plate and make offerings to various gods. During the ceremonies a lamp, twadeva, a grain measuring pot, pathi and a plate, trays and a lamp, sukunda with Ganesa, and coins all play their part, and the mother-in-law hands over the iron keys of the house to the bride. As part of the ceremony to win over the bride, *sapyakegu* or *kesh vandhan*, the groom places two combs, one silver, one ordinary, in the bride's hair and presents her with a bronze mirror and sindur container. The ceremony ends with the showing of the mirror to the bride. The term used for ' wife' is ' Kala' or Lakshmi, the Goddess of Wealth (Birmingham 1975: 385; Majupurias 1978: 111-114; Nepali 1965: 220-1, 223-4, 226-7, 268).

The traditional wedding presents are mostly copper, and apart from cooking utensils, dowry vessels also include a distilling pan, *foshi/phonsi*; a chamber pot, *kopara* (rural peoples use either an outside pit latrine or the open fields); a copper or brass pot with a lid and handle to carry offerings to the temple, *kalan*; large water pots, *gagri*; cauldrons of

differing sizes, *kharkulo* and *bata*; and drinking vessels, *koruwa* and *amkhora* (a set comprises one *koruwa* and two *amkhora*), beakers and metal cups. A Newar dowry may also include two tolas of gold, eight tolas of silver, a spinning wheel, craft wares, clothes and imported Indian cloth (Nepali 1965: 49). Today (1991) the Newars increasingly give furniture as part of the dowry.

Precious metals in marriage and dress

Jewellery is one of the primary elements in dowries and serves as a mark of wealth and ethnic and caste identity. In common with many of the peoples of South Asia, the Nepalese place a high value on gold and silver which is usually hoarded in the form of womens' jewellery.

The Dumvarahi terracottas dating from the seventh and eighth centuries AD show that Nepalese jewellery comprised earrings, necklaces and bracelets. Sumptuary laws distinguished the royal family and aristocracy from other members of Nepalese society and forbade commoner women to wear certain ornaments made from gold: neck and breast pendants, *padaka*, and golden bracelets, *keyura*, and *nupura*. Two sorts of earrings worn at this time are still worn by Newar women of Patan at present. After the eighth century earlier forms continued, with the addition of a crown, earrings, necklace and waistband in images of Vishnu and Lokesvara (Pal 1985: 89; Regmi 1969: 274-5, 294, 335). In the Malla period untouchable castes, including *Antajas*, *Po/Podya*, *Kasais* and *Kulus/Kullu*, were not allowed to wear gold but were obliged to wear iron ornaments and to live outside settlements (Nepali 1965: 177; Regmi 1966: 645, 647, 696-7). Formerly dress was used as a marker of social status within the

Newars and between themselves and other peoples in Nepal. Recently Newar dress has been ' Indianised', reducing such defining effects. Newar women use jewellery lavishly, in contrast with other ethnic groups, whilst having an absence of some forms of ornaments which are popular in other ethnic groups, such as the ear-ornament *dhungri*, the necklace symbolising married status, *tilari*, as well as nose ornaments. Many items of Newar jewellery have a ceremonial, ritual or a protective, amuletic function, whilst most jewellery is indicative of social prestige (Nepali 1965: 64-9).

A similar hierarchy of jewellery and social group thus formerly pertained in Nepal as in India. Today, gold jewellery is one of the primary gifts exchanged at Nepalese weddings with variations according to caste and tribal or ethnic grouping. Brahmins exchange gold rings between bride and groom and wealthy families will give a bride a gold necklace. The Magar dowry, *godha*, includes both gold and silver items, typically very large gold earrings, nose pieces and rings, *phuli*. Magar women also wear jewellery made from silver coins, coral, turquoise and glass beads. Gurung women receive gold jewellery including ear and nose rings, the latter signifying the bride's new status, and gold and coral necklaces. This jewellery is retained by the bride and passed on to her children (Majupurias 1978: 36-8, 41, 44-6, 62-3, 98, 101-4, 132-7, 140-8, 153-4, 176, 178-9).

The Rai groom also gives his bride jewellery, at the initial marriage ceremony the groom is expected to give the bride a rupee necklace of 50-100 silver Indian rupees, silver ' plate' earrings and a gold nose ring. Rai women also wear a nose button and finger rings. Poorer women, or

those making a second marriage may buy their own jewellery after they are married (Majupurias 1978: 57-8, 116-121; McDougal 1979: 68-9). In contrast with the Rai, among the neighbouring Limbu, women own only a little jewellery, more gold than silver: 50% of women have only a gold nose ring and nostril piece, some have silver bracelets, fewer silver anklets, and only the wealthiest have a silver charm box. The dowry remains the woman's possession. Sagant (1968: 113) observes that Limbu women are tending to despise the silver bracelets made by local Sunars, although gold is still highly valued and is given as wedding gifts. Caplan (1970) on the contrary notes the preference for silver jewellery on the part of Limbu women in comparison with local Brahmin women who prefer gold.

Among the Buddhist Sherpas a cauldron full of gifts, including jewellery and money, is presented by the bride's family at the wedding. The groom is expected to reciprocate, although this may be considerably delayed in the case of a poor husband. A dowry of utensils, jewellery, money and clothing is common among tribal groups as varied as the Chepangs, partly Hinduised Sunwars, partly Buddhist Thakalis and the Muslim communities of Nepal. The Thakali dowry, *daijo*, is only given after the birth of a son, whilst among the Nyinba of north-west Nepal, jewellery is considered as household property, which is passed down from father to son (Levine 1980: 200; Majupurias 1978: 63-8, 82-3, 151, 155-8, 162, 166, 170, 191-4). The use of gold jewellery appears to be spreading throughout the social spectrum, with a remaining if patchy preference for silver among some tribal groups.

Metalwares in the religions of Nepal

Three world religions, ancestral cults and various forms of shamanism and witchcraft beliefs, a mixture which one may term ' folk' religion, all find support in Nepal, often in syncretic forms. Saivite Hinduism is followed by about 87 - 90% of the population of Nepal, a minority are Vaisanavite, and Buddhism is followed by about 8%, including some Newars and the so-called ' Bhotia' peoples such as Sherpas of the northern border region. Some 2-3% of the population are Muslims (Dutt & Geib 1987: 93-5, 97).

Popular religion

Folk religion in the hill tribes of Nepal is characterised by the use of iron artifacts as amulets and, notably, by the kukri which is used symbolically in life cycle rituals, and instrumentally, literally, in animal sacrifice. I outline some of the practices of folk religion in the different regions of Nepal to indicate similarities and differences in the use of metalwares.

In Nepalese folk belief, 1,086 spirits or demons are thought to infest the fields, trees, mountain tops, springs, rivers and the night (Stephens 1988; Varma 1972: 143). Iron amulets and implements are worn and wielded by some of the 400 - 800,000 shamans of Nepal who oppose the demonic horde. Shamans or faith healers, as they are variously referred to in the literature, have different names in different parts of the country, including *dhami, jhankri, ngopa, pheydungba, pheydongma, and boju deotha*, ' grandmother ancestral spirit' (Shrestha & Lediard 1980: 6). Dhami-jhankri, who may be male or female, practice various methods of diagnosis and exorcism, and may also cast spells. In the Kathmandu Valley

and larger towns, Guwaju Newars also cast and cure spells. The use of special costume and artifacts is variable in use amongst them, but of those that do so, iron tridents figure prominently and iron jangles and chatelaines are sewn on to their costume in a similar fashion to central Asian shamans (Kawakita 1957: 14; Spaight 1942: 139).

A cold-hammered iron ring, *ghanta karna*, has a particular role. This ring, made from the cast shoe of a black horse, is worn on the middle finger of the right hand on Saturdays to ward off ghosts and witches, *bokshi*, and, as in northern India, the evil influences of Saturn. At certain periods Saturn also has benevolent influences which need the divination of a priest to determine (Crooke 1896: 11, 13, 16). If jhankris make iron amulets they become out-caste by doing so.

In the Karnali region of western Nepal, shamans who are permanently resident in the villages minister the local ancestral cult of Masta, the god of the family or kin group which is popular among the Matwali Chetris especially around Jumla, Tibrikot, Mugu and Dailekh (Sharma 1972: 1974). There are twelve Masta deities, collectively termed Bara Masta, whose names are totally different from the gods of classical Buddhism and Hinduism. The origins of the Masta cult are not known, it is probably the autochthonous cult of the Khasas before they adopted Brahmanism and Buddhism in the early Malla period. The Masta gods are incarnated through human mediums, *dhamis*, who perform their ministry at shrines, *thans*, made of stone and wood. Shrines are maintained by the Matwali Chetris although other castes also worship at them, including some Brahmins; Thakuris, who may also be mediums; and a few people from the occupational castes.

The *dhami* becomes possessed when the god is invoked for special consultation by villagers or on occasions for communal worship, *paith*. Puja offerings include pieces of red and white cloth, dhaj, and husked rice grains, *sik*. The Matwali Chetris also worship non-Masta gods and spirits. In none of these cults is the god represented by an image, only by an empty niche in the masta cult, which is in strong contrast with Hinduism and Buddhism. The god(s) have no physical form and the only material symbol in the shrine is a bronze bell, *jiughant*. Bells are given as commemoration of boons given by the gods of the masta cult, as they are by Magar soldiers in west central Nepal, who donate inscribed bells at the shrine of Black Bhairam/Siva (Hitchcock 1980: 31). The Matwali Chetris also celebrate Dasein and are partially Hinduised.

Apart from the Masta cult, other hill tribes have a similar syncretism of popular beliefs with world religions. The Magars of north-west Nepal are ' a tribe torn between two great traditions ... nominally Buddhist, strongly Hinduised and still partly tribal' (Fisher 1987: 96). The Gurungs of west central Nepal and the Rai of eastern Nepal have shamanist, Bon-po, Tibetan Buddhist and Hindu beliefs (Hagen 1980: 112). The Limbus of eastern Nepal, who have also been influenced by Tibetan Buddhism and Hinduism, celebrate Dasein and Tiwar, and have their own creation myths: Bhagwan is god; Niwa Bhuma is the creator who first made a golden man and then the Limbu; and have domestic goddesses which are inherited by a woman from her mother and are brought to the household when she marries. Each woman has her own set, but some goddesses are common to all women (Caplan 1970). Both Limbus and local Brahmins use divination by ritual specialists, *phedangma*, in illness.

Divination using melted butter in an ordinary bronze plate, *thal*, may be done by ordinary people, that is a pure boy or girl, but not by a married man or woman, as well as by *dhami-jhankri*. The King forms an exception to this rule when he divines in this way at his coronation. A bronze dish or bowl is also thought to be healthy to drink from, especially for pregnant women among the Newars, and is thought to absorb any poison present.

Non-ferrous wares, particularly domestic utensils which may also have their own classificatory terms attached, are used in various ways. In eastern Nepal each Rai household has an altar corner where the rakshi pots are kept and the ancestral spirits congregate to be worshipped.

Among the Kulunge Rai of east Nepal, the eight copper vessels given at the final stage, lastur, of the marriage rite are named in the same birth order as is designated for sisters: the largest, jethi, the next, mahili, and the smallest, kancchi (McDougal 1979: 68-9). Among the Newars, the koruwa is regarded as male, and the two accompanying amkhora of the water set as female. This designation of utensils by gender is also found in some systems of Indian symbolism, where pots may symbolise females or serve as symbolic bridegrooms which girls marry at puberty (Gell 1986: 129). In Nepal the parts of the waterpot, gagri, have anatomical names: the rim is called *chyon*, the head (although before it is joined to the neck it is called the leaf, *ha*); the neck, *kaku*; the shoulder, *bo*; the waist, *jan*; the hip, *ta*.

The kukri is employed at major events in the life cycle. At birth the umbilical cord is cut with the small knife, *karda*, from the kukri set. The knife is then placed under the head of the baby's cot to frighten away

witches. In northern India a knife or sword is similarly placed in a young mother's bed to protect her from evil spirits (Crooke 1896: 13). At marriage a circle of flour is drawn on the ground, and a kukri plunged into the earth for the duration of the ceremony. When the couple take their vows, the girl's hair parting and the tip of the kukri are painted with red sindur, and the kukri is placed on her parting. At funerals the eldest relative carries a naked kukri at the head of the procession (Pitt 1970: 30ff).

The sacrifice of live animals, usually with a kukri sometimes with a sword, plays a major part in popular religion and in the Saivite Hinduism which is followed by the majority of the population. In popular religion, sacrifice is performed as propitiation and thanks for boons by shamans, Brahmins and ordinary members of society. Hitchcock (1980: 26-8, 33) describing the Magars of west-central Nepal gives the rationale. All godlings are capable of evil and perpetrate it at some time. All expect to be fed at regular intervals, but even if they are, their characteristic baseless anger may cause misfortune. The cause of misfortune is diagnosed jointly by an Upadhyaya Brahman and a shaman. The resultant offering of food and the sacrifice of live animals, even pigs are acceptable, is performed by Brahmins and Magars, preferably by a young, unmarried, hence pure, boy. ' Even vigorous exhortation by Buddhist lamas cannot dissuade (the Magars of north-west Nepal) from animal sacrifice at the shaman's ... shrine.' (Fisher 1987: 97, 189)

Goats, sheep, and chickens especially, are sacrificed to local godlings and the forces controlling health, growth and reproduction, and to some of

the major gods and goddesses of Hinduism such as Laksmi and some manifestations of Siva, such as Bhairav. Other Hindu gods do not demand live sacrifice. For example, whilst the local minority of Vaishnavites among the Magars make a clear distinction between the great gods such as Vishnu, who are referred to as ' incense-eating gods or goddesses', *dhup-khanne-devta*, and local godlings, the Magars are less clear about this distinction. Local godlings are ' deities who eat food, *bhog*, ... what they enjoy most is the newly spilled blood of a sacrificial animal ... for the majority of them, chicken blood is what is most wanted'. The scale of such sacrifice of chickens, more commonly sacrificed than larger animals, has an adverse effect on tourism in the hills: ' One reason it is difficult to get chickens to eat when trekking in Nepal is because so many of them have been promised to godlings and are being saved for sacrifice on a specific date.' (Hitchcock 1980: 25-7, 30). In Tarangpur, in north-western Nepal, a chicken is slaughtered at the door of the animal shed when anyone returns from a trading expedition, and when putting a new roof on a house. Every year or two, a goat is sacrificed by households which can afford it. All of these animal sacrifices are to purge a house or person of whatever malignant forces and disease which they may have accumulated. Blood scares away demons in popular belief (Crooke 1896: 16; Fisher 1987: 151-2).

Metals in Hinduism

Most of the Hindu population of Nepal live in the Middle Hills and Terai, and are predominantly Saivite with a minority following Vaisnavism (Dutt & Geib 1987: 93-5, 97). Siva takes various manifestations; as

Pashupati, the Master of cattle, Lord of the Earth, he is the tutelary deity of Nepal; as Mahadev or Maheshvar, the Great Lord, Lord of Knowledge and Procreation, he is symbolised by the lingam; as Bhairav or Kala Bhairav, he is the Destroyer, whose head with four projecting canines is displayed on a big copper pot of rice beer in Indra Chowk during Kumari Jatra. Siva represents many of the forces which threaten social stability.

Vishnu is the warrior king, the Preserver who maintains the cosmic order by incarnating in each cycle of creation, in human or superhuman form, to rectify the balance when great evil is being perpetrated. Hindus see Buddha as one of these incarnations. The King of Nepal is regarded as the incarnation of Vishnu-Narayan, who requires the help of Siva's consort, the Goddess, to enable him to rule the country.

The worship of the Goddess, in all her manifestations has precedence in Nepalese Hinduism, in public and domestic contexts. Siva's wife has many forms, including Durga, the demon slayer with ten arms and riding a lion; as Kali/Mahakali, with black or dark-blue skin, a protruding tongue and skull necklace she holds a sword and human head; as Mahadevi, the Great Goddess, as Taleju and as Kumari, the virgin form of Parvati who is the mother of Ganesa/Ganapati, the elephant headed god (Macdonald & Stahl 1979, 111-12).

Kubera/Kuvera, Lord of all the Yaksas and demons and God of Wealth represents the forces of the earth and its mineral treasures, precious metals and jewels. Kuvera and his *yakshas* derive from a pre-Aryan tradition, with a strong role in early Hindu and Buddhist folklore, and serve as household gods (Zimmer 1972: 59).

As in popular religious practice, blood sacrifice is of central

importance amongst Nepalese Hindus and is deliberately fostered by the ruling house of Nepal. ' The ancestral lineage of Gorkha was encouraged to think of political hegemony over the rest by warfare, conquest ... and the ritual celebration of force, as much as by ideologies of centralizing synthesis (by) ... Hindu Brahmanical Sanskritizing philosophers....' (Pradhan 1991: iii). One should note that blood sacrifice is theoretically inimical both to Vaisnavite Hindu and Buddhist beliefs.

Appropriately, in the present Age of Iron, Kali Yuga, iron and steel weapons play a central functional role in Saivite Hinduism. In some festivals the king's sword serves as his representative (Nepali 1965: 350, 360), and sacrificial swords, *ram dao*, and kukris are literally instrumental in the performance of this form of sacrifice, both in major festivals which celebrate the Great Tradition and at shrines and in the domestic cults which celebrate the ' Little Tradition'.

The peak of public sacrifice occurs during the festival of *Dasein*. Dasein or Dasera celebrates the victory of Durga over the Buffalo Demon Mahisasur or Muhisha; armed by the gods with invincible weapons, the Goddess slaughters the demon, who is often depicted emerging from the cut throat of a buffalo. After the slaughter, in her aspect as black Kali, the Goddess rampaged with blood lust, even trampling her husband Siva before she was pacified. On the eighth to ninth day of the festival, *Mahastami*, five kinds of animals are sacrificed to different gods and goddesses: water buffalo, symbolising demonic anger; goats, symbolising lust or desire; sheep, symbolising stupidity; chickens, symbolising timidity; and ducks, which symbolise indifference. The larger animals are sacrificed in the Kot in Kathmandu, with the peak being the slaughtering

of the buffalos with sacrificial swords, *ram dao*. The *ram dao* is found distributed over much of northern India and Assam as well as Nepal. It is a heavy sword with a wide, flat, single-edged blade decorated with incised work towards the back. Near the tip is an eye and eyebrow, and there is often an inscription: either the donor's name or a slogan such as ' Jay Kali - Victory to Kali' (Rawson 1968: 54-6, Pl 30, 31). The tenth day of Dasein, Victory Day, *Vijaya Dashami*, is also known as *Tika* Day, which celebrates Rama's victory over Ravana, and is marked by sword processions in Kathmandu.

The aim of Dasein is to help people to achieve liberation, *moksha*. The sacrifice of animals symbolises the killing of the animal part of oneself, and is believed to ensure the barley harvest. The festival, which is celebrated all over Nepal, is regarded as a unifying time. Its martial aspects are evident. As Taleju, the Goddess Durga has been the tutelary deity of the kings of Nepal and the Protectress of the country from the Malla period onwards. After the Conquest, the Shahs also adopted Taleju worship. As Kumari, the Goddess consecrates the kings of Nepal at Indra Jatra, and gives them mandate to rule. During Dasein, on an individual level, blood sacrifice may be made in public, semi-public or in private; a blacksmith will make blood sacrifice on his anvil and tools as an offering, a motorcyclist will perform the same action in the streets of Kathmandu, splashing the blood on his front wheel; and a fastidiously dressed hotelier may enact the same sacrifice, using a kukri, splashing the blood on the tastefully framed pictures of his household gods. Tools, implements and utensils are all worshipped during Dasein (Nepali 1965: 408-10).

The Great Tradition of Hinduism gives the structure for Dasein and

its related cycle of rituals, whilst the agricultural cycle is the basis for Newar festivals. Even so, '... animal sacrifice is (also) the core of ... (Hindu Newar) ceremonial and religious life.' (Nepali 1965: 43). Another religious activity, the Lakhe masquerade, associated with the main festivals of Hinduism, celebrates and culminates in the victory of Krishna over the demon of disease, Lakhe. During his period of rule, Lakhe knows of his impending death and will kill as many children as possible. In Nepal, the Krishna cult is also celebrated in martial fashion.

Non-ferrous metals in Hinduism

In Hinduism, both in India and Nepal, gold is ranked most highly, followed by silver, copper and then brass. In India this evaluation was correlated with social hierarchy. In the varna system of India, Brahmins wore gold and silver ornaments of the highest quality. Kshatriyas wore gold and silver ornaments of inferior quality. Vaisyas wore brass ornaments, and Sudras wore iron ornaments. Sumptuary laws were used to regulate society by trying to control the status expressed through the symbols of possessions and behaviour. The Newars use artifacts made from precious metals as offerings when invocating rain in snake worship, and to Hindu and Buddhist deities. When rain is needed a golden or silver snake is offered to the Naga king Karkotak who has a subterranean palace made of gold, diamonds and other jewels in Taudah tank. The Newars believe that the Nagas bless them with wealth and all sorts of material prosperity, and older Newar men often believe that there is a snake coiled in their treasure box. Copper vessels are also used in such water rituals (Nepali 1965: 42, 324, 326).

Metal utensils are regarded as more pure than earthenware pots, since metal is washable and may be purified after being polluted, for example by low-caste or menstruating women; clay pots, which may also be made from defiled earth, cannot be purified (Bennett 1983: 43-4; Maloney 1974: 213; Srinivas 1952; Stutley 1977: 323). In the domestic context, daily worship, *puja*, consists of offerings of flowers, rice, small copper coins representing Siva who witnesses the vow being made, incense, fruit, sweets, water, and mustard oil lamps, to tutelary gods and goddesses (Hitchcock 1966: 27, 30). Most of the utensils used in the domestic cult of Hinduism are made of copper (Mukherjee 1978: 446, 449), and many represent deities. These include: a ritual vessel, *bhu/kundi*; an offering tray with recesses for votives, *saplapala*; a vessel for holding sacrificial pind, *kolla*; a water pot with a hole, used to wash the Siva image, *jalahari*; a water pot with spout, *kalas* (Nep)/*bajra kila* (with spout and rim in brass)/*bhumba* (Tib), (with copper belly, rim, spout and foot in cast brass); a tray for carrying ritual objects, *kota*; spoons for argha, *achami/kushi/kosha* (Hind); an oil vessel in yoni shape, *argha*, sits on a tripod, *trikhunti*; and a lamp, *dio*. Siva is represented by the circular copper water pot, *gagri*, and, as Bhairav, by the beer container, *anti*, which also repreents Kumari. Brass *koruwa* are now used only for temple offerings. In the home people often use cheap aluminium utensils on a daily basis, wealthy people may do so on a temporary basis then discard them or give them away, and reserve ' Sunday best' utensils for festivals (N. Gurung and Krishna Sakya pers comm 1984). At a funeral, pots and pans are given, along with food, clothing and furniture, to the officiating Brahmin as gifts for the dead in the next life (Bista 1987: 13).

Offerings of utensils, hung on the walls and roofs of suburban temples, for example in Kirtipur, ' appears ... (to have been) ... prevalent (from) the later middle ages.' (Regmi 1966: 870-3, 886). Copper rings and amulets also serve a protective function, as in the Hinduism of northern India (Crooke 1896: 16).

Domestic utensils are also used in major festivals. Dasein starts with the *ghatasthapana* ceremonial, when a water jar, *kalasha*, which symbolises the energy, *shakti*, of Durga, is filled with river sand and placed at a certain purified place in one's house, (usually on the top floor) according to scriptural instruction by the family priest or the oldest member of the family. Barley seeds and unhusked rice representing kumarihood are planted in it and watered. On the ninth day of Dasein, the seedlings are uprooted from the water jar. This period of nine days is believed to be the perfect time in which to invoke Durga to grant one's wishes. The festival of lights, Tihar/Tewar/Diwali/Deepavali, is held about the end of October in honour of Lakshmi, Yama the Lord of the Dead and the return of Rama and Sita from exile to Ayodhya. This festival symbolises the conquest of darkness, *Avidya*, by light, *Vidya*, or Vishnu's victory over the giant Narakasur: the liberation from ignorance, and is the start of the Newar New Year. Lamps are lit in doorways and windows, and oil lamps are floated on the Bagmati river, whilst groups of singers and dancers go from door to door and receive money offerings; and farmers worship their bullocks and farm implements.

Copper vessels and water jugs feature in ceremonies which are particular to social groups, such as Bhai teeka, which is celebrated by the Gurkhas but not the Newars, or in Gai Jatra, a festival held by Saivite

Hindu Newars, including Kow/Kau caste blacksmiths, but not by Banras, Udas and Manandhars, that is Buddhist Newars (Nepali 1965: 354-5, 383). Some cults are based on a locality as well as particular caste groups. For example the Pachali Bhairava festival in Kathmandu, which is especially associated with the Manadhars and Jyapu, starts with the ritual worship of a copper vessel, *kasi*, which is large enough to accomodate four people. Deities represented by metal pots and images may be worshipped both by Hindus and Buddhists. For example Ganesa is symbolised by the lamp, sukunda; Bhairava by the pot with rice beer, anti, which also represents Kumari. Kumari/Guheshwari herself is offered flowers and coins, the representation of Siva. A pot, *purnakalasha*, is worshipped instead of a figure in the Tantric Buddhist Annapurna temple in Asan Tole in Kathmandu. Annapurna, a benevolent form of Siva's consort Parvati, presides over the local grain market, and is represented by a grain measuring pot, *pathi* (Nepali 1965: 312, 347ff, 352, 367-8, 411; Sanday 1989: 86).

Although the major deities of Hinduism are represented in figurative forms, their number is fewer than in Buddhism (Regmi 1966, 912).

Metals in Buddhism

Nepal remained a Buddhist stronghold in south Asia after its destruction in India. Its adherents among the Newars changed their behaviour from the *sangha*'s lifestyle of mendicant celibacy to that of a married priesthood, and the practice of a variety of crafts including metalworking. Residence in communal blocks viharas, *baha* and *bahi*, is still a feature of modern Newar life as it was during the days of the

monkhood. All viharas have two names, one in Newari, the other in the official, Sanskrit name of their patron, and have three particular features:

1. a shrine of the Buddha, the Guardian of the Sangha, the Grandfather Deity, usually represented as Sakyamuni or Akshobya in earth touching posture; or as Maitreya, a standing figure with the right hand raised in wish granting mudra and the left hand gathering up his robe. Both are non-Tantric figures. The shrines face north. They are the centre of the lay cult and are open to the general public.

2. A stupa or chaiteya, with a mandala in stone or brass in the centre of the courtyard.

3. A Tantric shrine, usually containing a figure of Hevajra, which is open only to initiates. The deities mostly represent the more conventional Buddhist images, with Sakyamuni being the most popular. This tradition of discretion is probably based on an earlier Indian tradition (Snellgrove 1987: 323).

Buddhism in Nepal follows its own cycle of festivals. I do not wish to itemise these, merely to note that these festivals usually involve the display of lights, prayers and offerings, incense, pilgrimage to sacred sites, particularly Swayambunath and Bodhnath, singing, dancing, music and the display of numerous images of gods both in domestic and public contexts. Animal sacrifice does not usually play a part in these festivals (Nepali 1965: 37, 109).

Newar Buddhism, both Mahayana and Vajrayana, relies considerably on figurative representations. Sakyamuni Buddha received his enlightenment despite the opposition of Maya, Illusion or Art, which is also the force by which an artifact, or an appearance is produced (Zimmer 1972: 24). The

emphasis on figurative art in Buddhism is thus paradoxical since, '... (in)... classical Buddhism ... the body is the agency of desire for sensuous pleasure, which leads humanity into sin.' (Ortner 1975: 140-1).

Whilst Sakyamuni Buddha remains central in Buddhist thought, a multitude of other deities are also worshipped and depicted in metal images, painting, clay and carved wood. These include Amitabha/Amitayus/Adibuddha or Vairocana, the Resplendent One; Manjusri, who wields the sword of knowledge, and the Goddess Tara.

The *Mahasiddhas*, a group of 84 perfected beings, yogins and tantrics, some of them historical characters from the seventh to twelfth centuries, are also a common subject in Nepalese and Tibetan art. *Matsyendranath/Machhendra*, a Mahasiddha who is identified with Avalokitesvara/Lokesvara, has become the centre of a popular cult among the Newars in the Kathmandu Valley. This yogi transformed into a deity is a rain bringer. Machhendra is believed to have entered the Valley in the form of a bee inside either a water pot, *kalash*, or an offering pot. At Machhendra Nath coins are offered and at the end of the jatra a copper disc is dropped, in a ' heads or tails' manner (Nepali 1965: 318, 373, 375; Pal 1960: 66, 76).

In Buddhist religious ideology as it relates to metals, one should note that the Hindu god Kubera appears and is known as Vaisravana,(Tib), Namsrai (Mong), and, as Jambhala, is usually found, with his consort Hariti, in the porches of Buddhist monasteries (Zimmer 1972: 70).

Nepalese Buddhism is also characterised by its admixture with Tantrism or Saivite mysticism which worships the female energies of the consorts of Siva. Tantra developed in India during the sixth and seventh

centuries AD, and was quickly adopted both in Hindu and Buddhist belief and practice. In Nepal the cult of Taras, saviouresses who are the female counterparts of the gods of Vajrayana Buddhism, became prevalent, as it did in Tibet. Tara (star) is a Buddhist goddess but Hindus refer to her as Samkari, the wife of Siva. The Green Tara, Harita Tara is believed to have been incarnated as Brikuti, the Nepalese princess who married King Songtsangampo of Tibet and fostered the spread of Buddhism there.

Some deities are peculiar to Buddhist Newars. Vishwa Karma is worshippped by the artisan castes of Newars: Banra (goldsmiths), Udas (bronze and coppersmiths and carpenters) and Shreshthas (those who are carpenters), as well as ' The Nepali-speaking Kami caste (untouchable). That this god is not popular among the Gurkhas is chiefly attributable to the absence of an artisan caste among them,' (Nepali 1965: 323).

A variety of offerings held in metal containers, trays and pots are made in Buddhist worship including: rice, incense, sindur powder, flowers, light (in a lamp) and water in a jar or metal bowl. Water represents the presence of divinity and may take the place of an image (Zimmer 1972: 34; Ortner 1978: 151ff). Religious apparatus comprises an offerings, *puja*, container, *kalan/chandan*, of brass, copper or basketry, with small cups or bowls for the offerings; a brass or copper tray with compartments for offerings, *saplapala; a brass holy water pot, jhari/herkim bhumba (Tib)/ phumba/bhumba (New)/ kalash* (Nep); a brass incense burner, *dhunuchi*; ritual lamps, *panch deep/dipaura/serkunda/sukunda/tao dewa (on a tall stand)*, *khadolu* (decorated lamp holder) in bronze or brass; brass candlesticks; and a blessing vessel, *tshebung* (Alsop 1989; Kihara 1957: 182; Mukherjee 1978: 444- 446, 449). A set of seven altar bowls usually of alloy, sometimes

of silver, are used to make the offering of water, and a bronze or brass mandala is used to make rice or vermilion offering, *cholamu*. A bronze or brass container, *mashushina*, is used to contain the sindur powder. Metal artifacts used by priests in their rituals include a bronze mirror, *jola phakon*, a bronze bell, *ghanta*, a brass ritual thunderbolt, *vajra/dorje*, and a copper rice mandala to make an offering on the altar; the copper helmet and other items of regalia used by Vajracharya Newar priests have already been noted.

Musical instruments usually serve religious and social functions, for example at rituals, festivals, weddings and birthdays. I have not studied their use in detail, but have the impression that most instruments are used equally by Hindus and Buddhists with some exceptions, which I note below. I list only metal instruments, which are primarily non-ferrous in nature. These include a variety of trumpets: the long copper trumpet, *kahal*; copper or brass trumpet, *karnal*; brass trumpet, *hong*; jointed copper trumpet, *pong*; the curved copper trumpet, *narsinha*.

Percussion instruments include drums and cymbals. Most drums are made from wood and hide but copper drums are played for special events such as royal birthdays. Cymbals are traditionally made in bell metal. Types of cymbals include: large, *babou/bhusyas* (used by Buddhists but made by Hindu Kangsakars according to Mukherjee 1978: 163-4); small cymbals or castanets, *jhali/jhalo/madhurul*, and the smallest, *ga*. A wrought bell metal gong, *tai nai*, a bell, *ghanta*, and a triangle, *jinimuni/jrital*, and a rattle, *kartal*, are also part of the ritual ensemble (Gajurel & Vaidya 1984: 1-65, 176-84; Mukherjee 1978: 442-451; Lobsiger-Dellenbach: 1955, 113)

In summary one may say that metal artifacts play a role in all the major social activities in Nepal. Ferrous wares enable most of the population to exploit their environment, are essential means of social control and feature in some aspects of popular religion and Hinduism, but, kukris aside, have a minor role as products for the tourist market. Precious wares serve to distinguish social grouping and status.

Non-ferrous wares feature instrumentally and expressively in all aspects of social activity. Vessels serve as storeable objects of value which help to transform the social status of bride, groom and their families, and, apart from helping to maintain the domestic economy on a daily basis, serve to integrate a family into a wider social network as means to commensality and celebration.

There is a greater tendency to use copper for utensils and apparatus in Hinduism, whilst Buddhists predominantly use alloys. The increasing use of aluminium and real or imitation stainless steel both spatially and down the social scale thus represents more of an erosion of Hindu than Buddhist evaluations.

Non-ferrous figurative art is used most by Buddhists, less so by Hindus and least by tribal peoples; and enters the tourist and export markets on a large scale.

Discussing metalwares from the viewpoint of consumption or cultural functions illustrates the point that material culture ramifies throughout the social system rather than being tied closely to any one aspect such as ' kinship' or ' politics'. Unlike the production and distribution of metalwares which may be fairly closely correlated with particular social groups, when material culture is 'consumed' it is by society at large.

Despite this ramification, consumption is not random and I have discerned some broad patterns of the usage and meanings of metalwares within Nepalese society and culture.

Chapter Twelve

TOURISM AND METALCRAFTS IN NEPAL

One of the most obvious features of Kathmandu, and, to a lesser extent, the other main cities of the Valley, is the proliferation of shops selling tourist products including metalwares. Since the opening of Nepal tourism has played an increasingly important role in the economy, and is now the second source of income after foreign aid, and the single largest earner of foreign exchange according to the Minister of Tourism' (Acharya 1991: 3). Nepal accepted tourism as part of Western plans to develop the country, although the experience and opportunities which tourism provided was not new, for example Nepalese craftsmen and traders have lived, made and sold their wares to foreign visitors in Darjeeling, Kalimpong and other north Indian towns, for more than a century. While Nepal itself was closed to Europeans, the Nepalese have traded and worked extensively in Central, East, South and South East Asia. The close association between tourism and pilgrimage, and the function of metalwares in this process requires some discussion.

Tourism and pilgrimage

The analogy between pilgrimage and tourism, and Graburn's (1978)

model of tourism as a ' sacred' state away from home and normal time, or as a sacred journey which gives meaning to the rest of one's (mundane) life, have been repeatedly attacked, yet still provide a useful basis for discussion (Benthall 1988: 21; Feifer 1985: 224). There is a tendency to regard tourism as superficial and frivolous whilst pilgrimage is something genuine, authentic, serious and legitimate, for example the OED defines a ' pilgrim' as one who travels to sacred places as an act of religious devotion; whilst a ' tourist' is a person who makes a tour, or travels, for recreation. Graburn (1978: 24-6) sees a change from pilgrimage to tourism as correlative with the Renaissance and changing world views, ' In India, in medieval Europe and in the Islamic world, people made difficult pilgrimages to find spiritual enlightenment'. The post-Renaissance world view, which promotes the idea that truth lies ' outside the mind and spirit' provides the ' cosmological foundation for modern tourism'.
Other tourism studies reduce such a dichotomy. Pilgrimage can range from grave to boisterous and tourism from frivolous to serious. The difference between tourists and pilgrims lies in the language and symbols which these travellers use to express their experience (Teas 1974).

In the South Asian context, pilgrims have been attracted to the holy places of northern India, and the shrines and temples of the Kathmandu Valley. The pilgrims in turn have attracted craftsmen to meet their demand for religious figures and apparatus, jewellery and other souvenirs and tokens for centuries (Naqvi 1968: 269). Pilgrimage for religious purposes, by Hindus and Buddhists has been, and still is a feature of Nepalese society, and may be frivolous, boisterous and serious in nature. '... there is nothing new about tourism in India or Nepal. The ancient

tradition of pilgrimage (*tirtha*, Nep.) is organised and commercialised enough to evoke reverberations of tourism in the modern sense' (Fisher 1991: 41), amd, '... a clear distinction between sacred and secular journeyings (in India) is often impossible to draw ... pilgrimage is commonly combined with ordinary tourism' (Fuller 1992: 205).

The motivations for pilgrimage in Nepal vary. The Buddhist Tarangpurians of north-western Nepal make pilgrimage to gain religous merit, with no economic gain through commercial or cultural transactions (Fisher 1987: 153-5). For Tibetan Buddhists on the other hand, pilgrimage to religious sites is usually and normally combined with trade such as the purchase of figures and other turistica for re-sale in Tibet, ' pilgrimage is trade, trade is pilgrimage'. Japanese Buddhists and Indian Hindus similarly combine religious activities with recreation, that is ' tourism', in Nepal. Non-Asian tourists visit the holy places of Nepal in increasing numbers and a small proportion also worship at them (Messerschmidt and Sharma 1981). There is thus no hard and fast line between the two: the roles of tourist or pilgrim ' form a continuum of inseparable elements' (Graburn 1982).

The historical importance of metalwares in Nepal, both in terms of its own economy and in the spread of religious ideas between India and Central Asia, has been indicated in earlier chapters. In recent decades the latter process has been replaced and secularised by the spread of Nepalese culture through tourist and export markets, often by means of material culture including metalwares. Nepal was closed to most Europeans until 1951, then, from a zero rate in 1955, tourism has developed on a mass scale and is the single largest sector earning foreign currency. In

1988, 265,943 recorded tourists visited Nepal (Acharya 1991: 3; CBS 1990: 143). Of these the largest number were Indians who also entered by road across an open border so that their total number is not known. As tourists and pilgrims Indian nationals visit pilgrimage sites and spend large amounts of money shopping and gaming at the casino.

In general tourists like to take home artifacts as souvenirs of their experience. In 1974/5 tourists in Nepal spent an average of 19% of their total spending on handicrafts (Burger 1978: table 85). In the early 1980s it was estimated that 60% of metalware production in the Kathmandu Valley was for sale on the local tourist market. Of this amount, 10-15% was bought by Nepalese buyers. Forty percent of production (or 80% according to Michaels 1988: 16-17) was for the export market. In 1991 informed opinion was that export orders for metalwares now earned more than sales on the local tourist market (Y. Bajracharya pers. comm). These figures and opinions are obviously impressionistic rather than precise, and are difficult to quantify from government statistics, yet they do indicate the major role of metalwares in these markets.

Tourism has had various effects on craftwork in Nepal. In some rural areas such as the Everest region trekking tourism has injected cash into the local economy and has stimulated craft production for local and urban markets, but it is in the urban areas, in the Kathmandu Valley and Pokhara, where the effects of tourism are most apparent. Tourism there is blamed for adverse social effects including cultural degradation, as the life-style of budget travellers proves ' alien and provocative' (Satyal 1988: 106ff) to young Nepalis, and the meanings of things change. Satyal further argues that the putative negative effects of more subtle

influences, such as westernisation, profanation, materialism and the induction of a service-oriented mentality are not proven and require further research. Varma (1972: 112, 119, 124-5) argues that, ' One reason why the rate of investment in Nepal is low is an unduly high propensity of its people to consume ... locally made and foreign goods ..., following the demonstration effect of expatriates and the expansion of tourism.'

Metalwares have a particular involvement in tourism related crime. The opening of Nepal stimulated the interest of collectors in Nepalese religious art, primarily figures and temple fittings. These have been removed in quantity since 1951 and are still stolen frequently today despite government legislation to check this (Fisher 1987: 173; Greenwald 1990: 93-4; Moncrieff 1992/3: 36; Schick 1989; Smith 1989: 24-9). McGowen (1988) paints a sensational picture of Kathmandu as a centre of drug trafficking, with the involvement of some tourists, expatriates and metalcraftsmen: ' Long ago ... the city's bazaars teemed with ... traders doing brisk business in salt, spices and jewels. Now, the underworld markets are flooded with priceless temple art, contraband gold and large quantities of hard narcotics. The first circle of the underworld revolves around stolen art, a trade more or less the preserve of (expatriate) Westerners. Kathmandu's shrines and temples - loaded with centuries-old stone idols, brass statues, erotic sculpture and wood carvings worth fortunes- have been systematically looted. It is estimated that over half the city's original art has vanished. The museums in the West are to blame, and unscrupulous wealthy collectors'. McGowen cites the Manangis as being particularly involved in crime, and states that ' Kathmandu's artisans have become adept at sealing heroin inside bronze and brass

artwork, burnished for an effect that throws off the scent'. Smith (1989: 24-9) maps thefts of art in the Valley and notes that Patan has been worst affected, then Bhaktapur, Pashupatinath and Kathmandu, and concludes in view of this systematic looting that, ' almost all Nepalese works of art on sale in the west have been stolen'. Further, that the western preference for old things has led to ' a flourishing trade in forgeries'.

On a minor scale, there are considerable attempts to ' rip-off' the tourists in the prices of tourist products. If prices are compared, discrepancies become apparent. Different prices for the ' same' item also depend on factors other than simple greed (" an Indian habit": I.R. Sakya pers comm). A craftsman may have spent more time finishing an item for which a higher price is then asked. This demands an educated eye on the part of the buyer.

On the positive side, tourism may help to conserve traditional art and culture by promoting demand and boosting employment in craftwork. Governmental initiative has led to the employment of local craftsmen in improving major historical sites, including Hanuman Dhoka in Kathmandu, Bhaktapur, Gorkha Durbar, Pasupati and Lumbini (Sanday 1989).

In general the role of the Nepalese government in the tourist industry is as a promotional facilitator rather than a developer (Acharya 1991: 3). An exception to this is in craft production. The government gives some support to craft production through its Department of Cottage Industries and the Industrial Estates which have been established in several parts of the country. The Patan Industrial Estate (PIE) is that which is primarily concerned with metalware production for the tourist market. Some individual craftsmen are able to obtain funding to display

and sell their products at trade shows both in Nepal and abroad (Michaels 1986: 16-17), otherwise craft production for the tourist market is from the bottom up, by private enterprise. Some members of the Nepalese upper classes and European expatriates have established workshops, both on a private and on a co-operative basis. The latter often employ distressed women as a workforce, and produce a variety of craft products including metal filigree ornaments and trinkets, as well as textiles and paper products.

The Cottage Industries Emporium is the main, formal outlet for the government-run Cottage Industries programme in Kathmandu, although most of the products of this programme find other outlets. The Emporium takes in lines of goods at prices set by the manufacturing craftsmen or entrepreneurial dealer. If prices are set too high they are subject to discussion by a committee. Small ranges only are taken in to see if they sell. The style of presentation of the Emporium and its stock has altered hardly at all during in the last ten years (1981 - 1991), and it consistently attracts fewer shoppers than the much livelier shops further along New Road, in Thamel and the tourist pitches in Basantapur. Even so Emporium staff reported that business was generally improving in 1991, despite the difficulties of the previous year. The Emporium exports some metal artifacts to Thailand but the development of this side of the enterprise is largely in private hands and does not receive any government help.

Tourist Products

Traditional metalwares enter the tourist market in varying amounts

and types as demands are found. Among ferrous artifacts kukris and a few swords, *kora*, are commonly present but hoe blades and sickles are not, although the latter are equally ' typical' of Nepalese material culture. Metal jewellery is mostly present as imported items, a few older Nepalese pieces and locally-made cheap curios. The practices of making jewellery to the customer's order, and hoarding jewellery appear still to check the entry of the traditional corpus on to the tourist market. The overwhelming predominance of non-ferrous wares in this market consists of religious figures and apparatus, and curios, with a few older or ' antique' utensils. These generalisations may be invalidated almost overnight if a market develops for other items. A number of other types of artifacts have been added to what is available in this way.

Cymbals are used in worship in both South and Central Asia. In Nepal in 1984, cymbal production was another ' dying craft'. According to the musicologist Vegner, ' Only one old man is still making them in Patan. He is the last in the Valley and cannot make the old type of cymbals' (verb comm 1984). Cymbals are now (1991) found in profusion on the tourist pitches. Some shopowners in Swayambunath and Bauddha say that they are made by ' Tibetans'. Others, for example Chini Kaji Shakya of Chetrapati, says they are made by Nepalese who have copied the style from India. CKS buys them for re-sale in his shop, but does not make them himself. In Patan they are said to be ' Patan-made'.

Tibetan metalwares, historically a particular feature of Nepalese production, have increased in availability since the opening of Nepal and the occupation of Tibet. Today, an increasing amount of formerly religious metalware items: prayer wheels, ritual thunderbolts, butter lamps, singing

bowls, plaques and figures of Buddhist and Hindu deities etc. are made for the tourist market. This is not entirely a recent phenomenon. In 1900, Nepali bronzesmiths were reported working in Peking. They were producing ritual daggers, *phurbu*, up to a yard in length (the common length is six to ten inches) for the tourist trade, not for ritual purposes (Griswold 1964, 232). Similarly Tibetan artifacts have been produced in India for some time, either to order by Tibetans from Indian craftsmen in the cities of northern India such as Delhi. For example Jaipur-made ' Tibetan' teapots were exported from India to Tibet in the last century (Holbein Hendley 1895), whilst ' Tibetan' prayer wheels also appeared on the market in Peshawar earlier in this century (Horniman collection). Similar items as well as figures are now made in Patan and Solu Khumbu to Tibetan order and design, and are taken by Tibetan and Nepalese traders to Tibet for sale to tourists there as, ' made in Tibet'.

Craft products for the tourist market thus function as decorative and symbolic objects which say, ' you are now in tourist land', as material culture serves both as consumer goods and cultural markers.

Current distribution in the Kathmandu Valley

Kathmandu forms the major retail outlet for the tourist market, with the cities of Patan and Bhaktapur having respectively a lesser role. In Kathmandu sales outlets for tourist products have multiplied over the last 20 years, noticeably over the last ten, and especially during the last four years (1987 - 1991). In Thamel, the main area for budget tourists since Freak Street declined with the hippy dispersal, tourist shops, along with hotels and guest houses, are spreading north, east into Jyatha Tole, and

west into Chetrapathi. The area now has street banners advertising treks and other holidays. In the main streets of Kathmandu such as Indrachowk, Asan Tole and Keltole, traditional shops selling metalwares to customers from the Valley and surrounding hills are either swamped, replaced by increasing numbers of shops selling tourist goods, or relegated to the backstreets. By 1980 craft shops began to be housed in industrial complexes of modern buildings, which were visited by touring groups.

Although tourist shops and street stalls or pitches are proliferating, they are still localised to particular areas of Kathmandu and the main squares of the other Valley towns of Patan and Bhaktapur. In Kathmandu the top end of the tourist market is found in the shops along Durbar Marg, New Road, and the large hotel complexes, which cater for wealthier tourists. Hotel shops are hidden from the street and stock expensive goods: high-cost figures from Patan and imported items. These types of shops have marked similarities with sales outlets in airports around the world. Less expensive shops are also to be found in the hotel complexes. The entry road to the ' Yak & Yeti' Hotel, for example, is lined primarily with shops selling Kashmiri products, one or two shops selling superior Tibetan items, and one or two shops with ' freaky' (hippy-style) clothes. Tourist shops are open all year round, and one person may own several. Shops in Thamel tend to sell a more mixed range of items than in Durbar Marg, including some older, antique pieces resulting from ' house clearing' trips by Newar and Indian traders in the hills, which have been going on for some time. Kashmiri shops employing only Kashmiri salesmen and selling mostly textiles, leather clothing and papier mache boxes etc., are found in Thamel and Durbar Marg where a few Kashmiris extend their sales

area on to the pavement. Elsewhere, in Basantapur for example, Nepalese traders exclude Kashmiris from selling from stall and pitches in the street.

Pitches, where tourist products are spread on walls or on the ground, are generally individually owned. Pitch owners stockpile items either from craftsmen, who produce in quantity during the slack season (April - September), or from wholesalers on a sale or return basis. In the high season, craftsmen may also sell their wares from pitches.

The range of tourist products tends towards repetition, for example the contents of tourist pitches in Kathmandu in 1984 were a limited range of items which partially duplicated those in the shops. A notable change between 1987 and 1991 was the increase both in the number of shops and pitches and in the size of pitches - the cheapest end of the tourist market. Although the stock in Thamel and Basantapur has many overlaps, Thamel generally has ' brighter' stock including fine jewellery and figures, other wares, and ' freaky' clothes, while Basantapur, until 1991, had ' darker' stock, with more Manang and Tamang-made wares.

Despite repetitive overlaps, the proportions of types of lines differ, with bazaar ' quarter' elements in some areas, for example the street to the north of Hanuman Dhoka has the greatest number of shops selling thankas and puppets. These specialised areas imitate traditional quarters such as the pashmina stalls and the bead bazaar on Asan Tole and the potters' square nearby. In 1991, souvenirs, including metalwares, in the main tourist areas of Kathmandu still consisted of similar ranges of items but with some additions and differences. In Basantapur, where the number of pitches has multiplied perhaps five-fold in ten years, and dramatically

since 1987 (an observation corroborated by several stall holders), the pitches now occupy almost the entire square, selling mostly repetitive ranges of goods: cymbals, singing bowls, bracelets in copper, brass and silver, prayer wheels (including a new, globular type), kukris and wooden masks with metal inlay, as well as animal skulls with horns and silver mounts. In addition a few pitches contained material from almost everywhere except Nepal: machine-made plates and vases with floral decoration from Muradabad in India, figures, pipes and ' bottles' of carved plastic (sold as 'bone') from Hong Kong and Singapore etc. These items and other imports were also to be found in some Thamel shops. Businessmen, both Nepalese and foreign are thus now using Kathmandu as an outlet for their goods.

Basantapur pitches and Thamel shops also sell precious wares including hand-made ' Tibetan silver' jewellery, mostly made by Newars and a few Tibetans. An increasing amount of machine-made, low-grade ' silver' jewellery, brought in by couriers from India, is also sold. Thamel shops also stock ' Khmer' and ' Chinese' jewellery, from Patan and Bali. Hand-made jewellery is more expensive, and machine-made may often be sold as ' hand-made' if possible. Shops selling stones and made-up jewellery are a feature of all sectors of the tourist market such as Durbar Marg and Thamel, as well as the local market including New Road and the backstreets of Kathmandu. Kukris, and the occasional kora sword, form the main ferrous wares on sale in the tourist market. In the early 1980s most were obviously decorative rather than functional knives and were sold at exorbitant prices. In 1991, far more functional knives were available on

the pitches. Most of the blades of tourist kukris are made in and around Kathmandu (R. Neupani pers comm 1991). Antique items occasionally appear on sale in Basantapur on Saturdays, when local people tend to use it as their own market, and they are also used as window dressing in some of the tourist shops.

Outside Kathmandu, further tourist areas include the stupas of Swayambunath and Bodhnath. These are ancient pilgrimage sites with a strong, increasingly affluent, Tibetan presence. At both sites a range of ' Thamel-type' stock (largely Patan-made) is sold, with a greater range of Tibetan material on sale at Bodhnath. In both areas there are now more tourist shops, and arcades or ' supermarket' complexes in Kathmandu and at Bodhnath. A notice on the pavement outside the latter invites spectators in to watch Newar figuremakers at work. New lines at Swayambunath include decorative hangings ' introduced by a European', and a proliferation of old lines, notably singing bowls .

There is some indication that Nepalese craftsmen and retailers regard tourist products in a hierarchy of prestige, for example, figures and thankas are ranked highest; inlaid work and filigree, *jarao*, in the middle; and curios lowest.

Production for tourist and export markets

Production for the tourist and export markets fluctuates according to demand. In 1982/3, Michaels (1988: 16-17, 24-5) saw only poor prospects for Newar metalworking, with the possible disappearance of lost-wax casting within a few years, even though tourism, more than any other factor, had stimulated work in lost-wax casting. In 1984 the prices for figures and other artifacts were about the same as in 1981, and commonly

expressed opinions among metalworkers supported this view that the tourist market was in decline and had largely been saturated with Nepalese products. ' Many people come to look, but few are buying these days' (Y. Bajracharya pers comm 1984). The Secretary of the Metalworkers Union (I.B. Sakya pers comm 1984) stated, ' rich people no longer come to buy in Nepal and tourists buy only small objects', he also observed that many craftsmen were leaving Nepal as the opportunity arose. At that time there was no government help for the Sakyas and no patronage by purchasing their products for government offices. ' Things were better for craftsmen under the Ranas'. Government support was denied due to a claimed lack of hard currency.

Since 1984 such views are belied by the sheer expansion of outlets in the tourist sections of Kathmandu and government help for some leading craftsmen at least (see below). In 1991, although some entrepreneurs had suffered during the previous year due to political events, metalworkers, other businessmen and Basantapur stallholders generally asserted that, "business is good". Although seasonal, the tourist season never fully stops, even if it is only a trickle from April to September.

In the Kathmandu Valley, the city of Patan/Lalitpur is the primary metalworking centre of the entire country. Patan contains examples of both government supported workshops and a vigorous private sector with all levels of production and distribution present. Patan's craftsmen and their non-ferrous products dominate, even if they do not completely monopolise metalware production for the tourist and export markets in Nepal. The ' renaissance' of this craft, despite numerous problems and social change is apparent. The opening of Nepal and the demands of

tourism have played a major role in stimulating this adaptation. Amongst non-ferrous craftsmen, figure casters form the elite. Formerly located in two centres in Patan, Oku/U Bahal in the south-east and Nag Bahal in the north-west (Alsop & Charlton 1973: 27, 49; Michaels 1988: 16-17), figure-casters are now also present in Hakha/Saugal in central Patan and at the Patan Industrial Estate (PIE) south of the city. Today (1991), Patan has about 5,000 metalworkers with a reasonable development of its handicrafts, unlike the provinces (YB pers comm). Co-operative stores stock and sell equipment: everything from bellows and crucibles made in Delhi to oven gloves, jewellers rouge and metal scrap from Singapore for several hundred craftsmen in their locality.

Patan Industrial Estate (PIE)

Patan Industrial Estate provides premises where private craftsmen and companies maintain workshops, and is the Industrial Estate most closely connected with craft metalworking; since Balaju Industrial Estate provides industrial metalwares. Of the 100 or so firms with premises in the Estate, only about 60 were working in 1991. PIE like the other Industrial Estates in Nepal is stagnating to some extent, although this is less so than provincial Industrial Estates. Production increasingly consists of mass-production using assembly-line methods. In recent years some workers have demanded higher wages.

Despite this business generally is good. A number of tourists, both on package tours and as individuals, visit the Estate. Most are brought in by bus from the hotels where they are staying since the Estate is some distance from Kathmandu. Prices tend to be lower and more fixed than in

Thamel, so that shopping is ' safe'. Craft workshops housed in PIE produce for local and export markets, for example in both 1984 and 1991 some workshops were engaged in producing large quantities of utensils such as tea cauldrons and tinned copper tsampa bowls for export to Tibet, that is to fill orders from the Chinese government for monastic and secular use. The 30 tea cauldrons under manufacture at PIE in 1984, were in two sizes, weighing between 15-25 kgs each, that is some ten tons of copper, were being finished for dispatch to a monastery in Lhasa.

Patan craftsmen supply religious figures for the tourist trade, for Hindu requirements, and for Buddhist use for almost the entire Valley, including Bodnath and Bhaktapur, and for other regions of Nepal, for example a seven feet high copper Buddha of c. 500 Kgs was being made at PIE for the Ardusatur monastery near Pokhara (1984).

PIE's establishment contains a government-funded Handicraft Promotion Centre, the Handicrafts Promotions Section of the Department of Cottage and Village Industries of the Ministry of Industry. The Section was established in 1967 to promote and develop Handicraft Industries through ' Design, Research, Training and assistance to the concerned industries'. The Centre sponsors exhibitions and seminars for artisans, displays a selection of handicrafts in its reference room, and produces designs for a variety of items. The designs are then freely offered to local craftsmen and companies in the private sector. The problem is to design low-cost, lightweight, well-finished items that will sell both on the local tourist market and abroad. It is recognised that a ' handicraft' finish cannot compete with a machine finish, such as is found on factory goods from India. A recent success story was the production of designs by the Chief

Designer for silver jewellery, which combined traditional and modern motifs and had notable sales. The Chief Designer, C.K. Sakya, follows his familial occupation as a silversmith (although they formerly worked in Jarao), and himself exports to the USA, western Europe and Tibet. In 1989, exports of silver items to the USA and Europe (a recent development) earned NR20 million for Nepal (Rising Nepal 5.1.90, 1).

Individual craftsmen and companies working in PIE engage in stockpiling. For example a wholesaler near the Mahabuddha temple in Patan, has two establishments where he assembles a wide range of metal goods for local sale and for export. Items included copper lion dogs (about 30" high and 40" long - priced at £5,000 for the pair), Buddhist deities, apparatus and turistica. He is a rich man who owns a house on the outskirts of Patan with a courtyard containing workshops where he employs several craftsmen. Over the last ten years he has made a ten feet high figure of Biswa Rup. This is stunning in overall impression, but does not have a good finish. Its future destination is not yet known. He also had an almost life-size wax model of Amitabha seated on a throne, awaiting casting.

Patan metalworkers (1991), especially the better craftsmen, now produce for export markets. Much of this is to meet demands from Buddhist sources. Metalwares are exported to Bhutan, Sikkim, Japan, Korea, Hong Kong, mainland China, Thailand, Taiwan (by circuitous routes), the USA and western Europe: especially Germany, Switzerland, France and Belgium, but not the UK, which is ' a difficult market'. A large figure on display in the main tourist shop in PIE was commissioned by a Spanish customer. Mongols, Tibetans and Chinese have all commissioned figures, usually for

monasteries, from PIE firms. Large and small figures move around the world in this way.

The secularisation of Tibet under Chinese communist rule has not eliminated the market for non-ferrous figurative art and religious apparatus and utensils there, and a further market developed after 1959 among Tibetan refugees, which led to something of a ' renaissance' in metalware production for the Newars. Although there were artists, notably thanka painters, and craftsmen, especially weavers, among the refugees there was a lack of image makers (Alsop & Charlton 1973: 24). In rebuilding their religion and its institutions in India, Nepal and Switzerland, the Tibetans turned to Newar craftsmen to provide them with metal figures and ritual apparatus (Alsop & Charlton 1973: 49; Furer-Haimendorf 1990: 13).

Following recent social changes in Russia and Mongolia, and the renewal of Buddhism in the latter, Mongolia provides a recently opened market. Hong Kong also appears to be a recently opened market. Few Nepalese figures appeared there in the period 1960-1984 and most figures on sale there were said to be Tibetan or Sino-Tibetan made in China. Since then the numbers of Nepalese-made figures has increased to such an extent that, ' Sino-Nepalese' has been added as a category of figures. Most Nepalese figures arrive in Hong Kong either via India, or by Gurkha soldiers, or indirectly from Europe and America.

Non-ferrous wares, figures, religious apparatus and utensils, form the bulk of exports. Kukris for the main ferrous export with precious wares consisting of jewellery and some religious apparatus. Nepalese trade with other countries on a modern basis is a recent development, dating from the

late 1960s (Adhikary 1984: 106). It is now estimated (YB pers comm) that export orders probably earn more than sales to tourists, especially the exports to East Asia. Japan is now a major source of foreign aid to Nepal, and Japanese influence is increasingly evident, both in the number of export orders in production and in the growing number of Japanese tourists. The newspaper, ' Rising Nepal' has frequent accounts of Japanese patronising Nepalese artists, and inviting them to Japan. The case studies of named craftsmen (see below) indicate this connection.

Rural production for the tourist market

Metalcraft production is primarily connected with the town economies of Nepal, that is, the larger towns of the Kathmandu Valley and the Terai, and some smaller hill towns such as Chainpur and Bhojpur. The ' constant' production of ferrous goods at village level: mostly agricultural tools, has been noted. It is the recent development of the production of metalwares in village contexts, which are then fed into urban contexts for sale to tourists, which is indicative of social change, along with rural craftsmen taking up residence in or near tourist markets.

Production for the tourist market in areas outside the Kathmandu Valley occurs in both the private sector and in government supported establishments. The government supported Cottage Industries Emporium in Kathmandu, as well as stocking brass and copper figures, jarao work and utensils from workshops in the Kathmandu Valley, also stocks a few lines made elsewhere in Nepal: a few spirit jugs and cups from Bhojpur/Taksar, novelty kukris with a wooden sheath made in the shape of a fish or a revolver, made in Sallyan. Another new line - white metal figures of Buddha - " may be machine-made in India, who knows ?".

A Newar gallery providing an outlet for hill metalwares is that of the privately-owned Chainpur Brass Company in Durbar Marg in Kathmandu. This company was founded by Ganga Sakya (Secretary of the Metalworkers Union in Chainpur in 1984) and an American partner in 1986. Although business was uncertain during the first year, it has developed steadily since then. A fixed, marked price policy is followed, in an attractive, pleasant shop. Members of the family are employed among the salesmen, who are polite and do not hustle the customers. Business is helped by a connection with the nearby School for International Training in Naxaul. Foreign students, mostly from the USA, do project work, both in the shop and in Chainpur. This has had the effect of helping businesses to survive in Chainpur, and to continue to supply the local area with utensils. Bhojpur apparently fares less well in this local development, but does supply wares to Sanguthar several days' walk to the west, through a familial link. The stock of metalwares in the Chainpur Brass Company showroom is mostly from Chainpur, with some from Bhojpur, Tansen and Patan. Modern utensils form the bulk: spirit flasks and cups with moulded decoration, a Tansen koruwa, Patan candlesticks, incense burners and jarao, some antique pieces are also included. Our impression was that the standards of finish in these metalwares, and some others, seem to have risen over the last seven years. Staff of the CBC disapproved of the poor quality of Basantapur metalwares and the bargaining methods of the pitch salesmen.

In general, the Newars, like the Sherpas tend to have profited more than Kamis from the boom in the tourist market in Nepal. Some Newari metalworkers are now organised into unions, both in the Kathmandu Valley,

and in smaller hill towns such as Chainpur. Ironworkers are less organised and in the rural areas, like farmers from other caste and tribal groups, often have to seek work as migrant labour in the Terai and India in order to subsist (Berreman 1962). Ironworking, like other crafts such as weaving and basketry, has tended to remain more locked into the traditional economy.

It is in production for the tourist market in the Kathmandu valley and Pokhara where the Newar monopoly in metalworking is being challenged, if still only in a minor way. Production is increasingly shared with Kamis and members of non-metalworking tribal groups. Newars tend to produce prestige artifacts: figures, religious apparatus and containers etc., whilst Kamis produce kukris and trinkets. The Newars are more caste-divided in terms of metalware production: particular caste groups tend to specialise in particular types of products and metals; whilst Kamis, a single caste group, may produce the whole range of metalwares: figures, apparatus, trinkets, tools and weapons in ferrous, non-ferrous and precious metals for tourist and for local markets.

The traditional caste relationship between Kami metalworkers and other caste group patrons has recently been exploited by Buddhist tribal groups made increasingly prosperous from tourism such as the Sherpas and Tamangs in Ganesh Himal and Khumbu. The Sherpas of Solu formerly used to obtain their copper and brass vessels and ritual objects almost entirely from Newar craftsmen in the Kathmandu Valley towns rather than from Tibet (Furer Haimendorf 1975: 71, 83; 1978: 343, 354). Today (1991) these northern peoples employ local occupational castes to produce wares for the tourist market. For example Kamis working in Sertung village in Ganesh

Himal north-west of Kathmandu produce a variety of items including antiqued utensils and jewellery, in all metals: brass, bronze, silver, even so-called ' five metals', panchadhatu, for Tamangs who then sell them in Kathmandu in Thamel and Basantapur. Kamis in Solu Khumbu fulfill a similar role for Sherpas who bring their products for sale on the Kathmandu tourist market (Fisher 1991: 42; Furer-Haimendorf 1978: 343).

Hill craftsmen migrating into the Kathmandu Valley tend to cluster in other areas than Patan, for example, around Swayambunath, a shrine complex about one and a half miles west of Kathmandu which is a major centre for pilgrimage and tourism today and houses a range of souvenir shops around the temples. The district between Swayambunath and the Bishnumati River provides cheaper housing than in town, as well as more working space, although the water is regarded as 'very bad' or polluted at times. A variety of craftsmen live in this district including metalworkers in both ferrous and non-ferrous metals. Two or three households of Kamis have recently become established here, making brass bracelets for the tourist market. Others manufacture shears and weavers' combs for the carpet industry.

Types of craftsmen and the tourist market

Weber (1958: 95-100) defines four types of craftsmen present in India. Helot craftsmen settled on the outskirts of the single village which they service, who are paid in kind or some land; craft villagers producing for a tribal clientele; lords' craftsmen and independent urban craftsmen producing for sale in the local bazaar. All four of these types have been present historically and the latter three are currently, but

variably, present among both the Kamis and the Newars in Nepal.

In Nepal, the role of helot craftsman has usually been performed by Kamis rather than Newari craftsmen. Although the breakdown of caste organisation has tended to reduce this role type it still persists in some areas of the hills: in some of the Kali Gandaki towns, in Tichurong and RaRa for example, and in the Terai. Indebtedness to moneylenders also functions to preserve this status.

Both Kamis and Newars have served and do serve as craft villagers producing for a tribal clientele, but generally, Kamis have been more involved, until recent times, in the jajmani/bista system of exchange of services for grain payments, whilst Newars have produced for sale in hill town bazaars.

Both Kamis and Newars formerly acted as lords' craftsmen. Ferrous and non-ferrous craftsmen had a high reputation in Mughul India, and served as forced labour to the Gurkhas. There has been some decline in production as lords' craftsmen in modern times, with the decline in the use of arms and armour and locally made guns. Even so, such work may be undertaken on a national level, as in the case of the workshop production of kukris for the Nepalese Army and the Police at Dharan Cantonment, and the production of statues for the royal family. Both Newars and Kamis provide contemporary examples of figure production for temples.

The Newars have always had dominance in production for the bazaar, that is as independent craftsmen. In the 16-17th centuries Valley craftsmen were paid in cash, whilst the rest of the country lacked a cash economy (Regmi 1978). That this dominance continues, if not always easily, is apparent in the Newar response to production for the tourist

market. As tourism developed during the 1970s and early 1980s the fluctuations in tourist numbers resulted in souvenir shops often finding themselves overstocked. Whilst dealers could often absorb the effects of fluctuation, craftsmen were less protected. Primarily this was due to a lack of capital, which prevented craftsmen from buying and storing materials in quantity. Usually craftsmen bought only sufficient metal and fuel for one firing (Michaels 1988: 23-4). This had risks since poor results in casting meant a loss of wages. In this case craftsmen had to borrow more funds from the dealer, increasing their dependency. Some craftsmen produced utensils in quantity, rather than casting figures, as a means to avoid such risks. This approach was increasingly hampered by Nepalese factory production of metalwares and imports of aluminium, stainless and plastic utensils.

Production both for the local bazaar in terms of utensils, and for the tourist market, in terms of figures and trinkets, was thus in difficulties. In general Newar non-ferrous workers were most concerned, whilst Kamis engaged in the production and repair of agricultural implements at that time had less involvement in the tourist trade.

An advantage which the Newars have enjoyed in the exploitation of the tourist market is the mercantile network which has probably always existed among them. This structural feature has enabled Newari metalworkers to produce both for the local market and for international trade for several centuries. The Newars were producing metalwares, notably religious figures, for the pilgrimage market, as well as exporting their wares before tourism proper developed in Nepal. For example, the

Buddhism of the Newars had its role both in the social relationships which they had with Tibetans, as well as in the actual products, and their iconography, which they made. Such networks operate today, enabling craftsmen in distant hill towns such as Chainpur and Bhojpur, to produce for the Kathmandu Valley market, and for Valley craftsmen to supply wares, both figures and religious apparatus, to other areas of Nepal as well as central and east Asia, the United States and Europe. Exporting wares is a relatively costly business. In 1984 few craftsmen could avail themselves of this avenue, but by 1991 many more, in Patan that is, were doing just that. As a consequence of this process there is developing what one might term ' reflexive craftwork', as named, individual craftsmen become known to an international audience and produce to commission.

Named Craftsmen

Whilst only a few painters and sculptors are known historically (Pal 1985: 22), for example Visvakarman in the seventh century and Arniko in the 13th century, in the last few years there has been a development of named, individual craftsmen. This has occurred in two ways, by museum developments in the western world and by increased publicity in Nepal and abroad. Even while Nepal was closed to most Europeans exhibitions and museum displays during the course of the last century or so contributed to a wider knowledge of Nepalese crafts. The Indian & Colonial Exhibition of 1886 provides only one example of this process which has counterparts in recent times in North America and on the Continent. The display, supported by photographs, of a named, individual craftsman from a small hill town in eastern Nepal at the Horniman Museum provides a current example, along with exhibitions such as that held by the Minneapolis

Institute of Art in 1983.

Named metalcraftsmen are now reported in the newspapers, for example those casting figures of royalty, as well as being known at international fairs in foreign countries. Individual craftsmen also feature in academic and tourist literature. I present the background of a few named craftsmen as illustration of some recent social processes.

Ratna Kaji Shakya, Newar

One of the earliest internationally known craftsmen is Ratna Kaji Shakya, who is also a lecturer on the Fine Arts Campus of Tribhuvan University, Kathmandu (see CV; Michaels 1988). RK's family is said to be the oldest in Patan. Some 400 members live around Nagbahal in north-west Patan, and around Rumneodevi in southern Patan. They are renovators and custodians of the Golden Temple, Hiranya Varna Mahabihar. One of his daughters recently married a son of Siddhi Raj (see below). Nagbahal is the courtyard where, for one day in every five days, figures from all the temples and monasteries around are displayed. As a young man, RKS was was very energetic, needing only three to four hours sleep each night. He was recognised as a fine sculptor and was educated in India.

RKS has made figures for Indira Ghandi and the Nepalese Prime Minister. His portfolio shows that he was heavily involved in producing Buddhist and Hindu Tantric figures. In recent years RKS has sculpted and exhibited stone figures in Australia and Finland, and has made replacement stone sculptures for temples which have been robbed, under commission from the Nepalese Government. He has recently (1991) been commissioned, with one of his several foreign pupils, to make a 30' copper monument to the Democracy Movement of 1990, by the interim government. He owns several

houses and is building a new workshop and furnace as an extension to his main house.

RKS' self-produced brochure lists, with colour illustrations, a number of figures which he can produce and ship. On application to buy some of these figures, it became apparent that RKS was the leader of an atelier of metalcraftsmen including his sons, relatives and retainers, a system in common practice. The members of the atelier model very well in wax. They also cast and then send figures to other members of the family for finishing, gilding etc., again this appears to be usual practice now (see below), rather than one person carrying out all stages of production. We saw some stock at the first meeting on 5th May 1991, when we expressed an interest to buy. About 80% was poorly finished, but some pieces were excellent. More finished specimens were to become available in three days. RKS now works only to commission. He has several wax models of naturalistic figures in western style: an owl, a rhino and leopard in combat etc. His wife and children want RKS to start mass production to make as much money as possible. In conversation, RKS expressed a greater interest in preserving standards and leading a simple rather than a commercial life.

Siddhi Raj Shakya, Newar

Siddhi Raj is the best known contemporary metal sculptor in Nepal, whose work is signed, illustrated and described in international journals and museum catalogues (Greenwald 1990). Taught by his uncle, Padmara Shakya, Siddhi Raj has won several prizes in Nepal and Germany and had his work exhibited in the USA (Gredzens 1983). He made the crown for King Birendra's coronation and has made a large bell for the Kamaladhi temple

in Kathmandu. In 1984 Siddhi Raj made reproduction Victorian sculpture, mainly for India, and brass utensils which were sold by weight locally for very little profit (Y. Bajracharya pers comm 1991). Now (1991) his figures command the highest prices, for example he showed two figures which were distinguished by his deep cutting technique. These were bodhisattvas standing on lotus thrones, dressed in Chinese robes. The taller was priced at £12,000, the smaller at £6,000. They are made from eight metals, but are not astadhatu, with black hair, silver fingernails, copper skin, golden robes etc. In his store, amongst other figures, he had a completed Lokesvara, about seven feet high with eleven heads and 1,000 arms.

Siddhi Raj makes to commissions, especially from abroad. He is from a long-established family of metalworkers, some 13 to 14 generations. He now lives with his family in a large, modern, multi-storeyed house with a central courtyard, with spacious workshops and well appointed reception rooms. This adjoins two other houses owned by members of his family on the edge of south-eastern Patan. We also visited the workshop of Siddhi Raj's brother, Khadga Raj Shakya, another noted metal craftsman, who was baking the mould for a torso and cleaning out the base of one of several large figures, almost life-size, which he was making for an order from Japan. Khadga Raj also has a workshop on Patan Industrial Estate where there was a six feet figure of Avalokitesvara, also destined for Japan, and a huge, lathe-turned wax model of a bell for a temple in Madras.

Krishna Manandhar, Newar

Lecturer at the Fine Arts Campus, Tribhuvan University, and member of SKIB-71, a group of Bombay-trained Nepali artists, who run the

Contemporary Art Gallery, Jamal, Kathmandu, on a co-operative basis. This gallery, the largest of a growing number which have been founded in recent years, was established about two years ago, when the group decided that they could not work in the (' too conservative') government sponsored gallery. Initially the Queen patronised them by opening exhibitions etc.

All of the group have jobs, as lecturers, graphic designers, teachers etc., and paint or sculpt in their spare time. Their art consists of paintings, a mixture of realist portaits and landscapes, surrealist and abstract; and metal sculpture. They sell, both to tourists, and, increasingly to local people. The gallery has recently started running art classes for older children, three were in progress when we visited on Friday 12th May 1991. Boys and girls worked in separate classes and all were drawing still life: cubes, spheres etc.

Krishna Manadhar was commissioned to make the copper and brass reliefs of the life of Buddha etc. at Tribhuvan International Airport. He is now commissioned to make a copper and brass relief for the Blue Star Hotel. KM is basically a painter, with no tradition of metalworking in his family, which belongs to the oil-pressers caste, *Salmi*, The *Salmi* are an orthodox Buddhist caste of Newars which has risen in economic status in recent times and now has its own caste council and educational system (Furer-Haimendorf 1956; Nepali 1965: 50, 84, 126, 171-2).

Rajkumar Shakya, Newar

Rajkumar Shakya is thought to be the best sheet metal worker in Patan at present. A star pupil of both Krishna Manandhar and Ratna Kaji Sakya, Rajkumar studied to Intermediate Level at Tribhuvan University then got tired of studying and left to start work. He and his family have been

metalworkers for at least 200 years. Some of the family formerly worked in Lhasa, as did some of Ratna Kaji's family.

Rajkumar works to commissions. He and his helpers made the reliefs for Tribhuvan Airport mentioned above, and have made reliefs for government offices. Primarily he makes traditional temple fittings: ceilings, furniture and apparatus, for example for Swayambunath and the Red Machendranath temple. He also makes religious apparatus. At present they are making an order of votive stupas for Thailand. He also casts and gilds figures to order for the tourist market in Kathmandu, and has been invited to go to Japan to make a figure there. Along the street in another workshop, Rajkumar's father and elder brother were working. They have made a nine-foot figure for Swayambunath and an incense burner to order for Mongolia, where they also sent their own designs about nine months ago in search of further orders. When interviewed they were making a six-foot figure and surround for an order from Tibet.

Chini Kaji Shakya, Newar

Although ' there are no significant figure makers in Kathmandu' (RKS), we did meet one family, that of Chini Kaji Shakya, who feature in the Handbook of Craftsmen. Their workshop is in Nardevi Tole, in the western part of Kathmandu.

CKS and his sons produce local temple furniture, figures and some apparatus for tourist shops and large hotels, with orders also for export for example to Japan. The family are gold and silversmiths who worked in Darjeeling and Kalimpong for several generations, manufacturing for the tourist trade there. There was not a tradition of figure making amongst them. About 25 years ago as tourism started to develop in Nepal, Chini

and his brother came back to Nepal and set up a workshop in Kathmandu. They then developed a figure-making technique involving deep undercutting of sheet metal on a soft metal core.

Chini and his three sons are now the only figure makers practising this technique in Kathmandu. Several people have tried to learn this style from him, and failed since it is easy to spoil during production. The eldest son was recently invited to Japan to make a figure in gold, and has stayed on there. They make mostly Buddhist figures, the set of Panch Dhyani Buddhas, Sakyamuni Buddha, Milarepa, also Sita and Indra, and formerly made a few figures for Bhaktapur, ' they don't know metalworking there' (CKS). Local people cannot afford the (high) prices of their figures, although there were enquiries about apparatus and jewellery whilst we were there. Nevertheless CKS stated that, ' business is good'. They make little jewellery, since the market is very competitive and not very profitable, ' there are goldsmiths everywhere in Kathmandu now' (CKS).

Increasing tourism in Nepal is evident from the proliferation of hotels and sales outlets. The craftsmen of Nepal have responded to the growing demands from both tourist and export markets. The tourist market in Nepal is catered for by Newars, the traditional urban craftsmen of the Kathmandu Valley, but is increasingly drawing in the products of rural craftsmen from other caste groups. A major element in the demand from foreign markets is for Buddhist artefacts. This demand has stimulated production from particular Newar metalcraftsmen.

Chapter Thirteen

CONCLUSION

I began this study with questions about the role of metalworking in Nepalese society and the effects of large-scale tourism on this craft.

My aims were several. First to extend the study of Nepalese metalworking from its emphasis on the manufacture of religious art in the Kathmandu Valley towards the manufacture of all types of metalwares in several areas across the country. Given that acculturation theory suggests that material culture is often one of the first elements to change in conditions of culture contact, this was undertaken in order to effect ' rescue ethnography ' in a country facing modernisation, as well as to gain a wider view of Nepalese metalworking. This descriptive analysis also provides much new data for comparative purposes.

A second aim was to demonstrate the centrality of material culture as a focus for socio-cultural study, particularly in the difficult situation presented by a complex society. I have argued from the premise that since material culture is a central element in a socio-cultural system, its study requires a full account of all factors, historical, social, cultural and technological to be made before conclusions about its significance and development may be drawn.

As a methodological approach I took an aspect of material culture,

that is a complex of technology, products and their functions, and the personnel involved in this activity, and located this complex or ' unit' in various contexts in Nepal.

Since my emphasis was on material culture I should note that I have made only a beginning in the study of the significance of metalworking, a target which would require full-scale examination in terms of cultural anthropology. Another future direction would be to study distribution more extensively, particularly the porterage system.

I examined the status and role of metalworkers in the social system since Nepal is a Hindu monarchy with the implications which that has for the relationship between stratification, caste organisation and occupation. The two main groups of metalworkers produce for different types of relationship, that is largely for the bazaar or for bista/jajmani relations, but whilst non-ferrous workers are discussed in the literature, ferrous workers are often omitted from discussion.

I ended by describing the present and future role of metalworking in Nepal, with particular reference to production for the tourist and export markets. My aim here was to demonstrate that metalworking has always been a dynamic factor in the social system of Nepal, and may be correlated with its status as a host society. Contemporary production indicates that metalworking provides avenues for entrepreneurial activity for some craftsmen, and is a means to limited economic development.

In conclusion I now draw the strands together from preceding chapters to discuss patterns of continuity and change in Nepalese metalworking along the dimensions of technology and products, metalworkers and society, and metalworking in relation to tourism and economic development.

Technology and products

Non-ferrous metalworking and its products have always been an important aspect of Nepalese culture from the earliest historical times onwards, and probably before. The technology involved indicates both continuity and change. The techniques employed in pre-industrial metalworking are finite in number, basically consisting of hammering and casting, with a well-defined tool kit which has remained constant from its origins until industrialisation. In Nepal, the techniques of repousse and lost wax casting illustrate this element of continuity. Repousse work on sheet metal and lost-wax casting were both in use in the Kathmandu Valley from the fifth to sixth centuries AD. Surviving religious figures from this period show strong influence from Gupta India, but are Buddhist icons whilst most Gupta icons are Hindu. There is evidence of the continuous use of some domestic utensils such as the water pot, *gagri*, illustrated on stone reliefs, and the vase, *lota*, illustrated on Licchavi coins, along with seventh century reports of the extensive use of copper for architectural features on buildings, and as coinage and jewellery. Evidence for jewellery is sparse but shows some continuities, for example earrings which appear on seventh century terracottas from Dumvarahi are identical to those worn by Newar women today.

Folk stories associate the discovery or perhaps transmutation of gold with independence from Tibetan dominion and the start of the Newar calendar in AD 879. The decorative techniques of mercury gilding and inlay, derived from India, were added in the ninth to tenth centuries. Towards the end of the Transitional period and the start of the early Malla period, the Muslim invasions of India and the destruction of Buddhist monasteries resulted in an influx of refugee monastic craftsmen into Nepal and the crystallisation of

Nepalese style in religous art.

An efflorescence of artistic activity took place during the 400 year period of the Malla dynasty, reaching a peak in the ' Golden Age' of the 17th century. The increased production of metalwares was due to Malla patronage and rivalry, demand from Tibet, and probably the popularisation of cult worship including Tantra and goddess worship in the Kathmandu Valley. The original pool of non-ferrous metalworking technology present in the Kathmandu Valley thus appears to have been correlated with state formation and development and the economic development associated with the transmission of religious influences between India and Tibet. Since then, and given stylistic changes and the addition of decorative techniques, non-ferrous metal products exhibit continuity during the historical period and still serve to meet the demands of contemporary markets.

Major acculturation correlated with ferrous technology has twice occurred in Nepal. In both cases this process has derived from India and has taken place initially in the western hills, the periphery, rather than in the Kathmandu Valley or centre of Nepal.

It is not known when iron agricultural tools were first used in the Kathmandu Valley. Hoe cultivation may be assumed to have been a constant feature from the begining, given that horticulture was one of the bases for state formation there and continues to be the main method of farming today. In the hills the primary economy, which persisted in the eastern hills until after the Gurkha conquest, was based on pastoralism and slash and burn cultivation.

Surviving ferrous weapons are not evident until the ninth to twelfth centuries, that is the later Transitional and early Malla periods, and it is probable that such weapons were exclusive to rulers at this time, whilst

the peasantry of both Valley and hills were more lightly armed with bamboo bows and probably slings. The Muslim invasions of India resulted in innovations in working and using ferrous metals. The introduction of iron weapons and implements, swords and ploughs, by immigrant Hindu caste groups were then instrumental in significant changes in social organisation in the western hill regions of Nepal as petty kingdoms were established over tribal populations. Kora swords and kukris have persisted in use with relatively minor stylistic changes until the present.

Another process of acculturation occurred in the Late Malla period when the adoption of firearms from India was a major factor in the Gurkha conquest of the Valley kingdoms and the unification and expansion of Nepal. After the conquest non-ferrous and ferrous craftsmen dispersed further into the hill regions of Nepal to serve both the elite formed by provincial governors and their retainers, as well as commoners.

In general terms, and taking metals in a symbolic sense, one might see non-ferrous technology as having had an expressive role in the historical process, particularly in the religious sphere, and ferrous technology as instrumental, particularly in the political and economic spheres; whilst currency, both copper and precious, served both roles. Trading in all commodities, including metals and metalwares, was facilitated throughout the historical period until the present by the use of metal currency. Such usage was an advantage enjoyed over many parts of India where the use of metal currency was restricted to urban centres until recently. Nepal had a similar advantage over Tibet which had no currency until the late 17th century. The control of bullion and currency supplies was emphasised under the Shah dynasty; mercantile development and empire were thus closely connected.

An emphasis on the study of non-ferrous and precious artifacts thus raises the question of typicality in the representation of a society which has been characterised by the use of ferrous artifacts, swords and guns, in its persistence and relations with neighbouring countries.

In the contemporary context, ferrous and precious metal working by hand is largely static, changes which have occurred have resulted from the adoption of factory production within Nepal, and the import of factory products on an increasing scale. Sumptuary restrictions no longer apply to the jewellery which people wear but precious metals, usually in the form of jewellery, persist as means to social exchange, for example as dowry, and to mark status and socio-cultural identity. Coinage also plays a marked role in marriage ceremonies among both caste groups and tribal peoples, and as religious offerings. Minor changes include the manufacture of curios and items of personal adornment from materials such as bone and plastic.

Contemporary changes in non-ferrous hand-working include the transfer of goldsmith techniques such as the use of swage blocks and undercutting to figure manufacture, perhaps the adoption of filigree work, and the adoption and experiment with different casting methods including sand and latex casting. Modern machinery such as the Indian cased bellows is used on a fairly wide scale; less commonly buffing machines and acetylene torches, have been added in this sector. Another change has been the adoption of assembly line methods in some workshops in Patan. The milling process described in Chapter Eight has been included as relevant in terms of 'rescue ethnography', given the decline in Nepalese industry, and the increasing amount of factory-made products, especially from India. Aside from the Indian bellows, such changes are still peripheral to a craft industry which retains strong continuities of techniques

and products during conditions of rapid social and cultural change since 1951.

Given one of the generalisations of acculturation theory: that the material culture of a society is an element which undergoes the most dramatic change in conditions of modernisation, the persistence of techniques and products in Nepal is remarkable. Whilst one may agree that many contemporary production methods and products are archaic in nature, this technological ' constant' continues to cater for subsistence and the ideological values of the total population of Nepal, as well as for tourist and export markets.

Tourism often affects material culture as is demonstrated by the decline in quality of many artifacts produced for the tourist market, although I wonder if ' quality' artifacts ever were produced for the popular market in Nepal. I also wonder if there are any blanket differences between art made especially for the tourist market, and commercial products bought as souvenirs by tourists ? In both cases there is a wide range between fine and shoddy products.

In figure production, the demand for well finished pieces, especially from connoisseurs and some museums, has stimulated the manufacture of quality products and copies of older pieces also appear on the local tourist market, although expansion of that market has meant that less well-finished, simply-cast figures also appear there. In 1991 and 1994, the overall impression was that the quality of figures on sale in the shops of Durbar Marg, Thamel and Patan had improved even upon standards of 1984. Although some distaste was expressed at selling images formerly reserved for religious purposes to tourists the general view was

that ' business is business'.

Whilst the carpet and garment industries have experienced boom and then bust as neighbouring countries have undercut these industries, hand-metalworking has still not been so undermined and surpasses hand production elsewhere. The danger for Nepalese production lies in the seduction of mass produced metalwares of reduced quality. Overproduction in this way, at the expense of quality, will lose markets.

Metalworkers and society

One of the key relationships involved in the social location of metalworking is that of the patron-client. To patronise a craftsmen is to exercise power. In South Asia, occupational castes ultimately depend on whether there is a demand for their skills and the means to pay for them.

Geographical factors, the shape of the country and the nature of the terrain inhibit the homogenisation of Nepalese society and culture. Generalisations are therefore always questionable. Given this caveat some generalisations are valid to some extent, and some constant features of social organisation are present, notably stratification, caste organisation and the presence of metalworking groups.

A stratified state has been a constant form in parts of Nepal's social organisation for centuries, with changes in scale and degree of centralisation. With some exceptions such as the Khasa Malla empire and the temporary unification of the Valley kingdoms under Jayasthiti Malla in the 14th century, the political process in both Valley and hills was one of rivalry and the fragmentation of power, with repeated invasions of the

Valley by outside rulers, until the Gurkha conquest.

The patronage of the Valley kings, and latterly of some of the rulers of the hill kingdoms, for figures, architectural embellishment, jewellery, currency and weapons was a factor in stimulating metalware production in the city-state period. This was not the only patronage however, and one should note individual patronage by Buddhist monks and nuns who commissioned figures as donations to religious establishments. The aim in both types of patronage was to gain religious merit. Royalty appear to have had a particular role, whether real or legendary, as ' enablers' for some non-ferrous workers, for example Buddha raised the Sakyas from being ironworkers, Bhrikuti took craftsmen to Tibet and Arniko was related to the Mallas.

Metalware production on a more impersonal basis, both for a local market for pilgrims in Nepal, and for export was a feature throughout the historical period as it is today. The state and its control of markets and trade routes has always functioned as an institution of adaptation to the environment and, variably, ensured the supply of metals. A particular issue in the political process from the Malla period onwards, and perhaps before, was the struggle for control of trans-Himalayan trade and bullion supplies from Tibet. The control of trade routes resulted in the increasing prosperity of the Valley kingdoms and the avaricious interest of outside political forces, notably the rulers of Gorkha and the British in India, which culminated in the Gurkha conquest of the Valley and the unification and expansion of Nepal into a nation state. Under the Ranas the form of government changed in nature into a centralised oligarchy which persisted until 1951. Since then further political changes have

included forms of elected government, panchayat organisation, constitutional monarchy and, in the 1990s, again an elected government. Stratification persists today as an overall constant.

Changes in state development were accompanied by changes in the patron-client relationship between the ruling elite and craftsmen which are reflected to some extent in metal products. The peak of artistic production in Nepal occurred during the pre-conquest period, then, from an art historical viewpoint, there was a steady decline in the quality and perhaps quantity of figure production to the present, although the icons themselves remained largely the same. After the Gurkha conquest Newar production largely shifted to cater for the Tibetan market. The Nepalese government tried to control the export of metalwares to India and Tibet until the early 19th century, then European goods and materials were increasingly imported leading to declining local production of non-ferrous wares but an enormous increase in the manufacture of ferrous wares, especially firearms and munitions, as Nepal became increasingly militarised.

Along with political stratification, religious ideology and organisation have also served to structure the patronage of metal craftsmen. Nepal is characterised as an ' interface' between the great traditions of Hinduism and Buddhism, which are combined with Tantra and the variety of beliefs and practices held by the different peoples and caste groups comprising the whole society.

Indian influence both artistic and social has nearly always been dominant in Nepal. From the Gupta period c. 340 - 750 A.D. onwards various artistic traditions from northern India were all influential in Nepal. From the Late Malla period (1482 - 1768/9) onwards this influence

was increased, both in the Valley, where the Malla kings adopted Mughal manners and dress, and in the Hills.

Acculturation from India has repeatedly included the establishment of caste organisation in Nepalese society. Although caste organisation was probably present among the Newars from the begining of the historical period, various rulers felt it necessary to re-formulate and legislate about caste organisation, a clear indication of the fluidity of this structural feature in Newar society. This process of Hinduisation was re-emphasised after the conquest to incorporate Buddhist Newars into a more formalised caste structure.

Metal craftsmen

Metalworkers in Nepal consist of less than 5% of the total population, yet their products serve the entire population in many aspects of social and cultural life. Metalworkers are primarily drawn from two social groups: some sections of the Newars, and from the occupational caste of Kamis. These groups correlate to some extent but not absolutely both with the metals which they work and the social relationships involved. Newars primarily work in non-ferrous and precious metals for the bazaar; and Kamis primarily work in ferrous metals, formerly for bista/jajmani relationships according to caste principles, and latterly for payment partly in cash.

The correlation between ferrous and non-ferrous working and social group is not absolute. Some Kamis work on non-ferrous metals, especially where there is no local Newar community, and some Newars, Kau, are ferrous workers, whilst some Sakyas may make their own ferrous tools in order to

work in non-ferrous production. Nevertheless the general tendency is for these two social groups to be associated with these different types of metal and their associated technology.

Newars and Kamis have differing spans of historical presence in Nepal. The Newars, probably the indigenous population of the Kathmandu valley and perhaps Buddhists from the start of the historical period if not before, were primarily resident in the Valley until the formation of a strong state in Tibet in the seventh century A.D. From that time, and throughout the historical period, Newar metalcraftsmen have taken their skills to the centres of imperial power; to Tibet, to the Khasa Mallas in western Nepal and Tibet, the Yuan in China, the Mughals and British in India, and the Hill kingdoms of Nepal.

Several distinct groups within the Newars practice metalworking including Vajracharyas and Sakyas, jointly known as *Bare*; these Buddhists were re-inforced in the early Malla period by refugee monks from India who renounced monasticism, married and practised craft working as a means to subsistence. The centuries-old metalworking tradition of Nepal was thus enriched by Indian techniques. Apart from this group, the descendants of which are still mostly resident in monastic-style compounds in Patan, other Newar metalworkers, Udas, Tamrakars and Kau appear to show more evidence of Hinduisation or syncretism in their beliefs.

Non-Newar iron workers, Kamis, a Hindu occupational caste accompanied refugee Rajputs and Brahmins into the western hills of Nepal in the early Malla period. The presence of craftsmen at other, contemporary political centres in the hill regions of Nepal, for example at the courts of the Khas rulers of north-western Nepal, is probable but

their source and productive activity is unknown. It is possible that occupational castes settled in the Valley from about 1500 onwards, along with their Brahmin and Chetri patrons. After the Gurkha conquest, both Newar and Kami metalcraftsmen dispersed more widely throughout Nepal.

Both groups of metalworkers have always produced wares for political and religious patrons, but Kamis have never enjoyed the international patronage which the Newars have had. Both groups appear to have incorporated members of other social groups over time, less so in the case of the Newars than with the Kamis.

Kamis supply ferrous wares to the majority of the population, whilst Newar blacksmiths serve a much smaller community within the Kathmandu Valley. Kamis working as small, dispersed groups which meet local demands are thus more integrated into the caste system than Newars. Bista relations persist in part, although the relationship is increasingly changing due to monetisation and modernisation. As in India, the majority of this occupational caste do not work as smiths, but as wage labourers.

A further difference is evident in the Newar role in the distributive network. Members of Newar castes by combining the functions of metalware craftsmen and traders ('Sudras' and 'Vaisyas' in Hindu classification) are involved in both production and distribution, whereas the occupational castes present in Nepal remain solely as producers with only a minor role in distribution. As artisans, functional castes and shopkeepers, Newars have a variety of relationships with non-Newar castes, tribal peoples, Indians and Europeans which is wider than the range of relationships which Kamis have.

The socio-cultural history of Nepal thus indicates a complex of

largely persistent forms of material culture, that is metal techniques and products, with continuity in non-ferrous and precious wares, and greater changes in ferrous technology. A persistent association exists between some social groups and technology; Hindu craftsmen with ferrous working and production for domestic consumption; and Buddhist craftsmen with non-ferrous working and production for both domestic and foreign markets: pilgrims, tourists, traders and export.

Ideology or religious allegiance is correlated with both persistent and changing features. Factors at work here must be the inequality inherent in the social system which still places ferrous workers in the lowest social stratum despite the formal abolition of the caste system. A change which is now occurring is that social groups, notably women, as well as members of non-occupational caste and tribal groups, and individuals formerly not involved in metalworking are now taking up manufacturing for the domestic and tourist markets, and are making new products in this process. In Nepal women form 41% of the labour force, as opposed to the all-India average of 31.5%. There is considerable involvement of Newar and Kami women in all stages in the production of metalwares, both in the domestic context with individual rural and urban craftsmen and on assembly lines in Patan. This involvement in metalworking is not found among high caste Hindu women in Nepal.

Newars continue to provide the main group of metalworkers in a state which has been decreed to be Hindu. If they are primarily drawn from groups regarded as Buddhists their present success and expansion of

production may indicate the liberating effect of Buddhism despite Hinduisation. If Newars are regarded as Hindus, then how and why does caste organisation not inhibit production given that the occupational monopoly exercised by groups within a caste system often has a limiting effect on responses to social change ? A tolerance and syncretism of religious beliefs and practices appears to have characterised the Newars both historically and today. Craftsmen have always manufactured for Hindu or Buddhist patrons irrespective of their own religious affiliation.

Nepalese society has undergone a variety of social changes over time, and continues to do so. Whilst persisting in its overall form of a stratified monarchy, society has changed in scale and constitution, with the addition of repeated ideological re-organisation.

Despite such changes one can only conclude that these have been of minor consequence to metalworking groups, given their persistence as social elements. Although their distribution has varied with political and economic factors, both Newars and Kamis continue to carry their respective religious allegiance and produce broadly the same range of stereotypical artifacts.

The reverse case has been apparent in terms of technological innovation. The introduction and diffusion of technology, that is bronze working during the Licchavi period, iron working and plough agriculture during the Early Malla, and firearms in the Late Malla period may all be correlated with significant changes in social organisation. In Chapter Ten I postulated an erosion of values consequent on the substitution of traditional copper and brass wares by aluminium and stainless steel utensils. This may also have effects on future social organisation.

Tourism, metalcrafts and economic development

Tourism, in the Kathmandu Valley in particular, has resulted in the ' westernisation' or perhaps ' creolisation' of Nepalese culture. Service industries continue to develop and may be correlated with both rising crime and an elaboration of craft production for the tourist market, thus increasing the centre-periphery difference within Nepal.

Newar craftsmen are particularly involved in production for the tourist market, but one must note that the Newars are not new to craft production for a transient population, since they have produced for the pilgrimage market, along with working abroad and having extensive trading networks with other countries for centuries. The Newars, along with some of the other peoples of Nepal such as Sherpas and Manangis have thus experienced on-going acculturation. As well as being the 'victims' of mass tourism these peoples also represent something in the nature of a 'tourist culture' (Picard 1991), which exploits tourism for the economic opportunities it offers.

Within the metalworking world there have been several changes over recent years. Overall there has been an expansion in the number and size of sales outlets and workshops, and an increase in business from 1984 to 1991 expressed in a change from pessimism to optimism about their dealings and prospects among metal craftsmen and dealers. Craftsmen generally have not been de-skilled but on the contrary have increased in number to meet the opportunities provided by the tourist market. In 1973 when the Sakyas and to a lesser extent the Vajracharyas controlled about 75% of the manufacture of tourist items in the Kathmandu Valley, there were about 1,000 people involved in metalworking in Patan, in 1991 there

were about 5,000, that is a five-fold increase whilst the total population of Nepal has increased from 11.5m (1971) to 19.6m (1991).

Amongst the Newars the types of metals worked is no longer caste-specific. Sakyas now work in sheet copper and brass, and Tamrakars work in bronze. Tourist products are also made by craftsmen from formerly non-craft practising members of Nepalese society in both urban and rural contexts. Metalworkers may specialise in manufacturing religious figures and apparatus or domestic utensils, yet an individual craftsman will turn his hand to any of these as circumstances dictate. Where Newar craftsmen are absent, occupational castes fulfill their role in producing non-ferrous wares, with the exception that they will not practice lost wax casting. Ferrous and non-ferrous craftsmen have re-settled in the Kathmandu Valley to cater for increased demand.

There are variations in quality amongst metalwares, with Newar craftsmen usually producing better manufactured wares. Many of these craftsmen have maintained and increased the quality of their products, and command higher prices from tourist and export markets accordingly. The primary development amongst metalcraftsmen has been on a private basis, although the government has given limited support. This development has resulted in entrepreneurial development among some craftsmen and dealers, and in the appearance of named craftsmen, particularly figure-makers, amongst their ranks. Where Nepalese craftsmen historically were anonymous, the ' craftsman as icon' now appears in self-promotional literature, in monographs, museum catalogues and in articles in journals with international circulation.

Tourist and export demand, the two are not easily separated, has

stimulated changes in methods of production, such as the adoption of assembly-line methods by some craftsmen; in decorative techniques, the production of two-tone figures and filigree work; and in new products, relief work in sheet metal, skeuomorphic artifacts and westernised sculpture and painting. Despite recent social change in Nepal, especially in the Kathmandu Valley, demand from these markets does not yet appear to have led metalworkers to produce significant changes in traditional religious art. This continues to be produced to Newar and Tibetan rather than foreign taste, which calls into question the premise of stylistic change occurring according to outside influence. This persistence is helped by demand from Tibetan refugee communities in Nepal and elsewhere, and other Asian countries especially Japan, Taiwan, Hong Kong, Tibet and latterly Mongolia.

In Patan today different forms of the division of labour are practised. Horizontal, where the child learns his fathers' skills; vertical with both selective specialisation, blacksmiths are also farmers; and defined specialisation a craftsmen member of an occupational caste makes an artifact in entirety; and a functional division where specialist craftsmen are interdependent with other craftsmen for different stages of production, for example in casting and finishing on a piece work basis, that is 'heterogenous manufacture'.

Nepal, in part, now has more of a tourist than an industrial economy. In general the development in the metalcrafts industry would appear to be ' economic expansion' using traditional methods, rather than ' economic growth' and industrialisation. Yet views which assert the failure of Nepalese industrialisation are disproved by the individual cases of

metalworking and textiles. The problem is whether to interpret the Nepalese economy on a global scale or in terms of separate micro-develoments, which do indicate development.

Current production continues to increase to meet demands from an expanding population of diverse patrons including local consumers, pilgrims, tourists and export markets. Patronage is thus increasingly multiple whilst clientage remains more constant, that is production remains closely if not entirely linked with the two social groups which provide metal craftsmen: the Newars and the Kamis. Some Newar metalcraftsmen have profited from recent change, and now produce for an international market, whilst others continue to manufacture traditional implements and utensils. Both groups of craftsmen are vulnerable to global economic and political conditions in terms of affordability of raw materials and the presence of customers. In Third World countries such as Nepal craft production is one of the few avenues towards economic development. Given the present underdevelopment of industry in Nepal, the role of hand metalworkers persists and, along with other crafts, should be nurtured. Particular problems are the expenses involved in training craftsmen, especially non-caste group members, and the transport of wares.

Nepal has played a significant role for centuries in trade and the transmission of cultural traits from South Asia and its own society, notably in the diffusion of Buddhism by means of the production of metal figurative art and religious apparatus. In general terms, whilst Nepal has been acculturated from both India and Tibet at differing times, the Valley kingdoms and the nation-state of Nepal in their turn have also acculturated other societies in Central and East Asia, and latterly

western Europe and North America. The tourist market and localised prosperity of part of the population, including some metalcraftsmen, in the Kathmandu Valley represents a growing tip in the Nepalese economy. It is probable that similar features have been present, if variable and unrecorded throughout the history of Nepal. The apparent change from ' tradition to tourism' must therefore be treated with caution. What is apparent is that craft metalworking in the tourist process appears as one of the areas of expansion in the Nepalese economy, and an exception to its overall condition of stress and dependency.

The modernisation of Asian societies is often associated with some kind of decline from ' traditional' beliefs and values. The invidious effect of tourism in Nepal is cited as an example of this process. Rather than such secularisation, Nepalese metalcrafts are involved in a revival of religious values. Recently there has been an increased and renewed demand, particularly for Buddhist artifacts, from both Asian and non-Asian countries. This demand, in which tourism is a factor in stimulating interest and possibilities, is being met primarily by Newar (Buddhist) metalworkers, a 'survival' in a sense of the tradition of monastic craftsmen in South and Central Asia, who combine their stock of religious motifs with economic activity in their craftwork for contemporary markets. Contemporary production indicates that metalworking provides avenues for entrepreneurial activity and that tourism has helped economic development in a country where opportunities for small-scale industry are scarce.

GLOSSARY

This Glossary is sub-divided as in the chapters on Production, that is into Ferrous, Precious and Non-ferrous working; but one should note that some tools are used to work all metals.

Ferrous metalworking terms and products

Achum/bhao/bhoncha/khalatis. Bellows made from sheep or goatskin.

Agari/Khaniwals. Miners.

Ara/karauti. Saw.

Aran/arun. Forge where an Indian-made metal bellows is used.

Bancharo (Nep)/*ta* (Gurung)/*thari.* Axe.

Bankh. Scrapers.

Batti/Boti (Gur). Tin lamp.

Bhari. Hammer with a pointed head.

Bhatno. Forming plugs for shaft holes.

Bhatti. Forge where a skin bellows is used.

Chakku/choku/jaiku/ashi (Gur). Knife.

Chalakh. Cleaver.

Chalhui muga. Large hammer with 5" head, used to form a *gagri* base.

Chali (New). Tongs used to form pots.

Chiga muga. Middle-sized hammer.

Chhina/chino. Chisel made from an iron bar.

Chimta. Iron tongs with flat blades, often with a hanging ring attached to the handle, used to feed wood onto the fire.

Choka. Miniature stake anvil.

*Chulesi/*jhati. Vegetable cutter consisting of an iron blade about 12" long, set in to a wooden, or more rarely, an iron base. The base is held down with the foot, whilst the material is cut by pushing it against the blade, which has its edge facing the user. Such cutters form a common type in south Asia.

Compas (Nep)/*khoti* (New). Iron calipers.

Dhatu. Metal.

Dur. Wooden water trough used for quenching hot metal.

Gal. Crowbar.

Ghan (Nep)/*muga* (New). Hammer.

Genu. Stake anvil with a square face, mounted on a large, circular face pillar.

Hotro/buttey mocha (New). Large hammer with 4½" head.

Hshang and hshangdo. Steelyard and stone weight.

Incha (New). Sickle.

Ispata. Steel.

Jhanjar/jharia. Flat perforated spoon used for removing fried food from the cooking oil.

Jhati. Vegetable grater made from nails in a wooden block.

Jhir. Iron skewer with two or more prongs, used for roasting meat.

Kachali. Tongs.

Kainchi/koicha (New). Iron snips.

Kami. Blacksmith.

Karahi. Iron frying pan with two loop handles and a round or flat base, used for deep frying.

Katam. Iron trident, symbol of Siva.

Kati/killa. Nail.

Khani. A mine.

Kholu/khalu. Stake anvil with vertical stem and a top like a protruding tongue.

Kon. Miniature form of *Kholu.*

Kotia/ei (Nep)/*hasilla/hansia/hasiya* (New)/*sora.* Sickle.

Kurpa. Billhook, clearing tool with a blade about 15" long and 2 1/4" wide.

Kurpate. Wooden sickle holder, used only in western Nepal; in the east the sickle is held in the hand.

Kwancha (New). Soldering iron, a leaf-shaped blade with straight tip mounted in a wooden haft.

Laha. Grindstone.

Li. Iron wedge used for cutting metal.

Liumocha (New). Hammer used to start making pots.

Makhlo. Stake anvil with a working face shaped like a hammer head, 3" long, tapering from one end 2" wide to an edge 1½" wide., the stem is 4½ft long.

Maasu. A knife for cutting meat.

Masinic/machine. Indian-made metal bellows.

Mecha. Strike-a-light (Kihara 1957, 324).

Muga. Small hammer; head with one square end, one flat end.

Nat kholu. Stake anvil like a straight rod with a circular face.

Neku muga. Hammer with a heavy head.

Odan/wodhan/jongo (Gur). Iron tripod or trivet for supporting utensils and pans. The trivet is commonly used inside a clay fireplace, but may be used inside the three walls formed from a tin box hearth.

Ogina. Bed of charcoal.

Painhalnay. Tempered.

Phalama. Iron.

Phalzap. Hatchet, very like a billhook.

Phicha/parchhi. Stake anvils with circular faces, supported with two wooden legs.

Pin muga/necakey mocha (New). Hammer used for spot-hammering decoration.

Rapi. Scraper/chisel

Reti. File

Sabel. Shovel.

Sanaso (Nep)/*Kapchali* (New). Iron tongs with rounded or flat jaws, may have spurs on the ends of the handles; used for holding hot utensils or moulds.

Sanglachi. A wooden stay on two legs with a hole to hold a moveable stake anvil in position.

Sansatto. Tongs made from iron strip, used to hold a chisel.

Santha. Iron spike-anvil, stake-shaped with a flat working surface.

Sat muga. Hammer used to form walls of water pots from inside.

Shiliuliu. A shaping block: a large block of wood with hollows for hammering sheet metal into when forming utensils.

Shimuga. Shaper mallet, head with one end diameter: 2½", the other 1½", weighs 2.3 kg,

Suiro. Iron spikes used for piercing holes in metal.

Sumba. Punches.

Suncha (New). Scrapers made from iron strip.

Ta (Gur)/*khap* (Tib). Needles.

Ta muga. Hammer with 8" head, used for deep hammering.

Taga muga. Large hammer (with a 6" head, weighs 6½ kg).

Tai tapke. Iron frying pan.

Tala/talcha (Nep)/*mata* (New)/*sanzo* (Gur). Padlock.

Tango. Iron stake anvils with T or half-T shaped heads.

Tar. Wire.

Tua kholu. Stake anvil with two flat projections at the top.

Precious metalworking terms and products

Anguliya. Finger rings.

Authi. Ring.

Bagi (New). Bride's leg ornament.

Baidurya mani. Turquoise.

Bala. Bracelet.

Bugnal. Metal blowtube, made in steel or brass.

Chadi. Silver.

Chap. Pattern formers.

Chino. Nail punches.

Dhoosa. Newar caste group which retrieves precious metal from waste.

Dhungri. Plate earrings in gold. Tarangpur women are now renowned for wearing plate earrings some 5" in diameter; the results of increased earnings from the trade in commodities. Forty years ago they wore 3" earrings, like the women of several other groups of hill peoples.

Gahana. Ornaments.

Gaureyaka. Breast ornament.

Gomed mani. Zircon.

Grivabhusana/keyura/taya/tik/tikha. Necklaces.

Handi. Clay crucible.

Hara. Necklace or breast ornament.

Hatauri. Heavy hammer used by jewellers.

Hira. Diamond.

Janch/jantari. Wire drawing plate.

Jarao/jadoba. filigree work inset with stones and jewels.

Juharat. Jewel.

Kalya (New)/*Bahi* (Hind). Bride's protective bracelet.

Kasala. Jeweller's mould, an iron cube with depressions of varying sizes.

Karadhani. Hip belt.

Kata. Clip.

Keyura. Gold armlets (upper).

Kohyon. Smelted precious metal.

Koti mura. Silver chapes for kukri sheaths.

Kucha. Bamboo blowing tube.

Kucho. Wire brush.

Laha. Mastic made from clay, gum from *Sal* trees, and mustard seed oil.

Li. Anvils of varying sizes.

Majhinawa. Ingots of precious metal.

Makal. Clay basin hearth used by jewellers.

Mani. Ruby.

Martol. Heavy hammer used by jewellers.

Mayli. Smallest hammer used for fine work.

Moti. Pearl.

Muga. Coral.

Mundri. Earring.

Nattha. An ornament made of plain gold or silver wire between 1½ - 6" in diameter; worn by Brahmin, Chetri and Tharu women. Smaller versions are worn in the ear or nostril, larger ones, inset with stones, are worn by married women on the head.

Navaratna. Gold ring set with nine jewels.

Nawsarga. Acid used for cleaning precious artifacts.

Nilatutu. Cleansing solution.

Nilmani. Sapphire.

Nupura. Bell ornament worn on ankle.

Padaka. Gold breast pendant.

Panna. Emerald.

Phuli. Gold nosepin or ring.

Pitalo. Brass mould used in working precious metal sheet.

Piyucha (New). Gold bangle presented to a new-born child by its father's sister.

Pukhraj. Topaz.

Ratna. Gems.

Ratnamala. Breast pendant.

Rasian/rhation. Solder.

Sanaso. Pincers.

Sancha. Brick mould for forming ingots.

Satiphalli. Silver plait cover.

Sikri. Chain.

Suhaga/swarg. Solder flux.

Sun. Gold.

Sunar. Goldsmith.

Sutra. A metal chain with a perforated disc, decorated with rosettes, lotus petal, *nilotpala*, designs, worn through the ear lobes by both men and women.

Taillo. Copper pendant, maybe gilded; a betrothal ornament.

Tap. Earstud.

Tappal. To carve an ornament.

Tarpin. Mixture of mustard oil and brick dust used as a cushion when forming or carving precious artifacts.

Tilari. A necklace of several strands of red glass beads which pass through a cylinder composed of seven gold rings joined with lac. Four of the rings usually have a flower design, and three a design of arrows. Worn by married woman to indicate her status.

Nepalese-Tibetan jewellery:

Nepalese highlanders, *Bhotias*, and Tibetans prefer silver jewellery, although gold is also worn, which is characterised by fine filigree work, with high, sharp relief and numerous inset stones including lapis lazuli, turquoise, coral and mother of pearl. This Tibetan-style jewellery, which is strongly influenced by the Newars, is illustrated by the Tamang who use silver extensively, for its talismanic effects. Tamang jewellery is made from embossed sheet, with beaded and wire decoration:

Bulaki. Centrally placed nose ring of gold or silver, usually with a triangular design.

Dhungri. Plate earring about 2½ - 3½" in diameter, often inset with a precious stone and carved with Buddhist symbols and flower patterns.

Gau. Metal prayer box, often silver inset with turquoise, engraved with the Eight Precious Symbols, astamangala, and containing written mantras. They may be supported on gold or silver chains, cotton thread or a leather thong and worn around the neck.

Phuli. Nosepin, usually round with a stone inset in a flower design, worn by girls in the left nostril from early childhood.

Other jewellery in the highlands of West central Nepal includes:

Kaka/gaga. Man's necklace, an amulet against evil spirits consisting of three beads, the central one is a zi or striped bead, flanked by 2 coral beads, churu. A *zi* may cost from R200-2000, and is best if it has 9 stripes.

Ngoti genzin. Apron clasp.

Sunge pungja. Bangles.

Jewellery in the Middle Hills

Necklaces are worn almost exclusively by women. The commonest consist of red coral beads with gold and silver coins. Thakalis do not wear nose ornaments, nor usually jewellery on the arm, foot or waist.

Gurung jewellery

Anguti. Man's gold ring.

Asurphi. Ring for left hand.

Dalmar. Boys' earrings.

Dodi. Bar brooch.

Dumri. Small earring.

Guname. Woman's gold ring.

Hamil. Gold coin necklace.

Ialim. Drop earring.

Kilip. Gold clip.

Maduli. Earring.

Mara tsura. Gold bangles.

Mara tu. Gold headband.

Nagu. Large loop earring.

Puli/phuli. Woman's nose ring.

Ryan. Bracelet.

Shirmundi. Earring.

East Nepal:

Rai and Limbu women all wear a nose stud, *bulaki*, in the right nostril; a small nose stud, *phuli*; a nose pendant, *dungri*, and earrings, *marwari*. The Kulunge Rai live in the Hongu valley, north of Bhojpur. The women wear jewellery as a sign of wealth: rupee coin necklaces, silver 'plate' earrings, gold or brass nose button in left nostril, ring.

Womens' jewellery among the Athapahariya Rai may be divided into three types:

1. head ornaments: *kilip, tika, kansi/karnaful, bijkini, nakadhungri(*), munri, bulaki(*).*
2. neck ornaments: *chikima/ranchi, kanthi(*), mala(*), puwali.*
3. hand ornaments: *bain(*), chura(*), anguthi(*).*

Items marked (*) are worn everyday, the others are worn on special occasions. As with the Limbu, there are no specific leg ornaments, nor those to distinguish unmarried girls from married women. The kanthi may or may not be taken off to show mourning for one year, but there is no ornament to mark widowhood. All ornaments are made only by untouchable goldsmiths, Sunars, who are directly linked with the Hindu hierarchy. Occasionally Athpahariya men wear rings, but they usually do not wear ornaments.

Limbu women do not have a great deal of jewellery. Although more gold jewellery is owned than silver, all have silver bracelets, some have silver anklets too and the wealthiest have a silver charm box. Fifty per cent of women have only a gold nose ring and stud. The most popular, and distinctive headdress of Limbu women is the *sirful*.

Newar jewellery

Head:

Bindi. A locket, often decorated with precious stone insets, worn on the forehead and fastened to the hair with a gold chain. This is of modern origin and is worn at weddings.

Karnaphul/looswa. A circular ornament of brass or gold wire inset with red coral or garnet traditionally worn at the centre of the head by a bride. The designs are of flowers, birds or animals.

Lote. A circular, hollow gold ornament about 2-3" in diameter with a loop fastening.

Lurga. Repousse brass ear ornament.

Marwari. A pair of solid gold pieces worn in the ear lobes, highly decorated with designs flowers, leaves and religious symbols.

Mundri. Multiple earrings worn on the rim of both ears in a set of ten or twenty. Usually of plain gold wire, they may also be fish-shaped or decorated with leaf designs.

Sirbini/sivpanni. Head ornament consisting of a gold clip in three sections of differing shapes set at right angles to each other on a red velvet base; usually decorated in flower patterns.

Tika. The religious symbol worn on the centre of the forehead, usually a daub of vermilion or sindur paste, may consist of precious or semi-precious stones, for example diamonds, on a red or black velvet background on special occasions.

Tops. A pair of gold ear clips inset with precious stones, maybe with filigree decoration. Modern designs are now used for these ornaments.

Tuki. Groups of ten or twelve rings worn on the rim of the ear by Buddhist Newars. Men may wear a single ring.

Vali. Thick wire rings worn as a pair in the ear lobes, made of gold or silver.

According to the CIED nd, and Nepali (1965) the Newars do not wear the *dhungri.* According to Barker & Barker (1984, 113), and Lobsiger-Dellenbach (1955, fig 32) village Newar women do wear a *dhungri*, that is a large round brass or golden earring, about 3/4 - 1" in diameter, which may have precious stone insets in a flower design. The *dhungri* is worn in a pair screwed through the centre of the ear.

Like the Thakali, the Newars do not wear nose ornaments - the only groups not to do so in Nepal (CIED 15).

Neck:

Nagfuli. Chains and lockets: men may wear just a chain, whilst women will wear several chains and add a locket, often inset with precious stones, and coins and decorated with filigree and carving.

Tik-mala. A neck ornament which may also be worn on the head by a bride, green tourmaline is set around a band of gold chain or sheet mounted on a velvet or cotton backcloth. The tik-mala is usually held in trust by the temple priest.

Wo-sikha. A necklace. According to Nepali (1965) Jyapu Newar women do not wear a *tilari*, which is only worn by Hill women. According to Barker & Barker (1984, 113), *tilari/tilahari* is worn by Newar village women. Unmarried girls wear a necklace of bullet-shaped, silver Malla coins plugged with fruit pits.

Arms:

Bahi/baju/bala. A set of two bracelets of carved solid or hollow gold or silver. The carved finial designs are often of tigers or elephants. Single gold or silver bracelets may also be worn.

Luchuri. Finger rings: of gold or silver, maybe inset with stones, or plain in the case of poorer people.

Legs:

Kalli A pair of round hollow cylinders of engraved silver, given to a child at six months of age (the first rice eating ceremony). After three years male children stop wearing them but women continue to wear them on both ankles.

Paujeb. Silver or gold linked chains with numerous plates or cylinders worn on both ankles by women.

Khimbu. A silver spoon which is hung from the waistband.

Non-ferrous metalworking terms and products

Achum/bhao/bhoncha/bhow/khalatis. Goat or sheepskin bellows.

Astadhatu. An alloy or compound of eight metals: copper, tin, lead, antimony, zinc, iron, gold and silver.

Bakh (Nep)/*hong* (New). Scraper.

Banki. The head and shoulders of a figure.

Bhonsa/bhoncha/bhoca (New). Crucibles made of clay or iron.

Butta. Impressed wax sheet.

Butta ko chap. Open stone mould used to form applique decoration from wax sheet.

Chalaca/chalamca. Iron wax-modelling knife.

Chali/sanyaso. Iron tongs, cross-armed with semi-circular ends.

Charesh. Alloy made from 1 *dharni* of copper and 1 *pau* of plate bronze, *kans/kanwa*. A superior grade of Charesh is made from 6 *pau* of copper and 6 *pau* of tin.

Chin. Iron punches.

Chomhon/hon. Wax scraper.

Cikula-si. 'Winter wax'.

Dam halne/butta dam/nurajao (New). Spot hammered decoration.

Dhalot. Bronze. Superior quality is made from either 1 *dharni* of brass and half a *pau* of zinc, or 6 *pau* of copper and 6 *pau* of zinc. Medium grade bronze is made from 1 *dharni* of brass and 1¼ *pau* of zinc. Copper-coloured bronze is made from 1 *dharni* of copper + 4½ *pau* of zinc.

Dharni. Unit of weight; two kilos 400 gms.

Dhwaya/naupyah/nowcha. Wax runner with three branches and a sprue cup fastened to base of a model for casting.

Gicha/pahenlo mato. Outer layers of a wax model investment, a mixture of clay, rice husks and cow dung.

Gol. Charcoal. Made from various woods including: *agrath, angeri, banjh, guras, katus, phalant, shakua*.

Gudh/patru. Malleable coppers suitable for production of sheet.

Hanlutho. Clay crucibles.

Jaki. Punches.

Jasta. Zinc.

Kans/kas/phool kasa (Nep)/*kayen* (New). Either true bronze, an alloy of copper and tin in varying proportions; or plate bronze, made from 2 *pau* of copper, 1 *pau* of *satisa* and 1 *pau* of zinc.

Kata. Shaped dies for smoothing metal.

Kataniya (Nep)/*katamkigu* (New). Lost-wax casting.

Khalo. Spike anvils mounted in a wooden A-frame.

Khalsi. Sandpaper.

Khapri. Copper scrapings.

Khodankigu (New). Engraving and chiselling.

Khola. Copper suitable for making plate alloy, *kans.*

Khu. Non-ferrous scrap metal.

Koila. Coal.

Kora. Black metal polish.

Kuna/ha. Decorative features on a wax model.

Kuney kal (Nep)/*nyan/yan/yon* (New). Lathe.

Kwajhya. Two-storey charcoal fuelled oven or furnace used to melt metal in crucibles.

Kwancha (New). Soldering iron.

Lac (New). Term for all coloured paints.

Laha. Appears to refer to two materials: beeswax; and a river-sand compound used to make grinding stones.

Laiton. White metal.

Lal. Red metal polish.

Li (Tib). Bell metal, an alloy of copper, zinc or iron, gold and silver, in varying proportions.

Lon macha. Stone rolling pin for pressing wax into moulds.

Lon thasa. Stone mould for wax modelling. There are three types: *hako lon*, black stone; *salan lon*, soft stone; *naga lon*, blue stone.

Lunshigu (New). Gold plating.

Nowcha. Pouring hole in a lost-wax mould.

Maca lho. Wooden or stone mallet used for hammering wax.

Main. Beeswax.

Makal/milaca. Portable clay stove used for warming wax when modelling.

Masincha/maisincha/mashino/mato/noshincha. Mixture of water, fine clay and cow dung used for the first layer of investment of a wax model.

Mha. Lead.

Murtikar. Sculptor.

Palan. Ingot mould.

Palla. Clay open moulds for forming plates.

Panchdhatu/panchloha (Hind). An alloy of five metals: gold, silver, copper, zinc and lead.

Pao/pau. Unit of weight, one pao = 200 gms.

Paro. Mercury.

Pata. Sheet copper.

Phul. Bell metal.

Pital/pitala/pittal. Brass or brass scrapings.

Pwaka/ga (New). Bowl-shaped stone mould.

Rang (Nep)/*kayentha* (New). Either tin or white metal typeface.

Rasian. Soldering compound made from one part zinc, three-quarters of a part of brass scrapings, and one quarter part of swarg.

Reti. File.

Sacha. An investment of clay mixed with rice husks for lost wax casting.

Sansha. Open ingot moulds.

Santa. Iron spike anvils held in a wooden A-frame, *twakal.*

Saya-ga. Two-storey oven used to fire clay moulds in lost-wax casting.

Sdya. Wax model in clay investment.

Shilhogu/shilhoyagu/silwhegu-ga/silhvaygu-ga. De-waxing oven.

Si. Refined beeswax.

Sija. Copper.

Sila/shilla/silah/silay. Beeswax, ghee and resin mixture used to make wax models for casting.

Silayaku/silaku/shilaku/silatu. Wax-modelling spatulas in horn or wood.

Silin twaka/shilin lin. Wooden former used for raising the sides of a metal pot.

'Silver'. Aluminium.

Sisa. Lead.

Suanch. Wax smoother.

Suhag/swarg/lisan. Borax flux.

Tama. Copper.

Tapla-si. 'Summer wax'.

Thakayen. An alloy of 6-8 parts copper and 2 parts tin used for casting.

Thasa/das. Wax matrix moulds, often 'key' sections of a wax model.

Tronjah (New). Embossing and repousse, that is carving or moulding in relief with the object set in a bed of pitch or mastic made from wax, resin and brick dust.

Tvaka. Wooden swage block.

Vahca/vacha (?)(New). Files.

Non-ferrous utensils and implements

Traditional wares, formerly made in brass or copper, may now be made in stainless steel and aluminium. Some of these latter may be decorated in the traditional manner by spot-hammering. Stainless steel wares are largely made in Nepal, aluminium wares in India. Note: plates, dishes, bowls and teapots etc. may serve domestic and religious functions.

Achmani/Kushi/Kosha(Hind). Copper spoon for oil, ghee, offering.

Amkhora/ankhora. Water pot with a bulbous body on a pedestal base, with an everted rim and narrowed neck. Traditionally made in brass or bronze , this vessel is now also made in stainless steel and aluminium.

Anti/onti/jhari onti. Cast bronze or bell metal spouted wine jar, a long-necked decanter used by Buddhists for spirits, 'wine', or rice beer.

Argha. Yoni-shaped oil vessel for an altar, which sits on a tripod, *trikhunti.*

Bacha/tin khola. Bell metal cup used by Buddhists.

Bata. Bowl or circular basin used for various purposes. Made in various sizes in copper, aluminium and stainless steel.

Bata/chwamu bata. Brass, flat based bowl for storing water.

Bhagoni/dekchi. Saucepan with a flat bottom and lid but no handle. Often made in aluminium

Bhu/Kundi. Ritual vessel made from copper, used by Hindus.

Cholamu. Bronze or brass mandala used by Buddhists to make rice or vermilion offerings.

Dabaka (Rai). Brass bowl for serving food or beer.

Daru. Brass spatula/ladle.

Dema/shifala dema/gassele/bata. Shallow bell metal bowl or dish, when it has a 'navel' it is used by a pregnant woman.

Dhaney thasala. Small grain cooking pot of brass or stainless steel.

Dhunuchi. Brass incense burner.

Dio (Hind)/*Panch Deep/Dipaura/Khadolu.* Lamp.

Fika dani (Nep)/*pyudani* (New). Spitoon.

Gagri/gagro/ghan/ghada/gha/maghagha/paschim gagri (W. Nepal). Brass or copper container, and latterly aluminium, for collecting and storing water. A variety of types include *tama ko gagri*, a copper vessel with a rounded base; and *maghaga/paschim gagri*, a copper vessel with a flat base.

Ghaila. Small gagri.

Gilas. Stemmed goblet.

Hukka/bungu/champakali. Water pipe.

Jalahari. Copper water pot with hole, used to wash the Siva image.

Jhari/sherkim bhumba (Tib)/*phumba/bhumba* (New)/*kalash* (Nep). Brass pot for holy water.

Jethi (Rai). Large copper vessel.

Jola phakon. Brass mirror, Buddhist.

Jwalanhaika(n) (New). Bronze ritual mirror.

Kachora. Small basin for serving cooked food.

Kalan (New)/*Chandan*. Offerings container or carrier with small cups inside holding offerings of rice, flowers, wine, sindur etc., made of brass, copper or basketry.

Kalas/Kalasha. Spouted water pot (Nep)/*bajra kila* (with spout and rim in brass)/*bhumba* (Tib), (with copper belly, rim, spout and foot in cast brass).

Kanchani bachcha/tun khola. Flat bell metal bowl used by Buddhists; shows Indian influence.

Kans (Nep)/*kayen* (New). Plate with raised sides. Formerly made in bronze, or in wrought bell metal when it is called *shiphala dema/ shifela dema*; now made in stainless steel, as is a *thal*, a tray/dish with compartments; of Indian origin.

Kasaudi/kasauri. Brass pot with a globular body, round base and a narrow, everted rim, used for cooking rice and lentils. Formerly made from brass or bronze, but may now be made from aluminium or stainless steel.

Kasi. Very large copper vessel.

Kasori (New). Rice bowl.

Khansi/Jhansi (New). Cooking pots.

Kharkula (Nep)/Kharkulo/khashi/kharkhanda/jansi (New). Large brass or copper cooking vessel with two ring handles.

Kolla. Copper vessel used by Hindus for holding votive material, *pind*; or, a brass water pot.

Kopara (New). Chamber pot.

Koruwa/kharuwa/karuwa/karua/karao/bhumba (New)/*tanpha* (New)/*kalash* (Nep). Bell metal or bronze water drinking vessel with a spout. Found in various forms, including a bulbous body, very like the *amkhora*, or with a cylindrical body. The base is usually a pedestal but may be merely flat. The neck is narrowed with an everted rim. There may or may not be a lid. The spout may be decorated with an encircling band. Formerly made in brass or bronze, the *koruwa* may now be made in stainless steel and aluminium. An aluminium *koruwa* may be used

in the privacy of one's home, since vessels made from this material are recognised as inferior to those made in brass or bronze.

Kota. Tray for carrying ritual objects.

Kupi. Peacock-shaped oil lamp.

Mana pathi. Grain measure. First made in copper, later in brass. Over the last 300 years these measures have changed in shape from a shallow dish, to a carafe and then a flask shape. They are made in a series of seven: 1/16, 1/3, 1/4, ½, 1, 2, 8. The five largest usually have a government registered date stamp, embossed with a description. Some of the sizes provide recognised amounts of food for men and women, and for different occupations.

Mashushina. Bronze or brass container for yellow sindur.

Nakon (Nep)/*Jwala Nakon (New).* Ritual mirror.

Panch deep/dipaura/serkunda/sukunda/khadolu (decorated lamp holder). Ritual lamps made in brass.

Paniu/panyu. Brass ladle/spatula.

Pathriwal. Wrought bell metal cup with footring, used by Buddhists for cooked vegetables, dhal, curd, milk or wine.

Phonsi/phosi/fosi/foshi and baja/bata. Brass or copper pot with separate upper part for cooking meat, rice and for distilling spirit, *rakshi*, from grain. Usually made in non-ferrous material, may now be made in aluminium.

Purnakalasha. Buddhist ritual pot.

San. Copper cooking pot.

Sapta pala/saplapa/saplapala. Brass or copper tray with compartments for offerings.

Shinhamu. Container for sindur powder.

Surahi. Bell metal wine jar with long neck used by Buddhists.

*Surkunda/sikunda/*sukunda. Ritual lamp.

Tasaula/tasala/tossala. Round based brass pot for cooking rice and lentils, *dhal.*

Thaibu. Food dish with a pedestal.

Thal. Plate with raised sides or a tray with compartments. Now often made in stainless steel.

Thon/thapin. Bell metal mug for beer, used by Buddhists.

Tin khola. Large, wrought bell metal cup used by Buddhists.

Toyarba (New). Pedestal temple lamp.

Tshebung. Brass blessing vessel.

Twaduwa/twadeva (New). Tiered lamp and offering stand.

Vajra (Hind)/dorje (Tib). Ritual thunderbolt made of brass.

Musical instruments

Musical instruments serve religious and social functions, for example at rituals, festivals, weddings, birthdays. I list only metal instruments.

Babu. Large cymbals made in bell metal.

Bhushyas. Cymbals used by Buddhists

Ga/ghali. Cymbals.

Ghanta. Bell with a handle, used by Buddhists in combination with the thunderbolt in rituals.

Hong. Brass trumpet.

Jhali/jhalo/madhurul. Small cymbals/castanets in wrought bell metal, used by Buddhists.

Jiughant. Bronze temple bell.

Jinimuni/jrital. Triangle.

Kahal. Long copper trumpet.

Karnal. Copper or brass trumpet.

Kartal. Rattle.

Narsingha. Curved copper trumpet.

Pong/ponga. Jointed copper trumpet.

Ta. Smallest cymbals.

Tai nai. Bell metal gong used by Buddhists.

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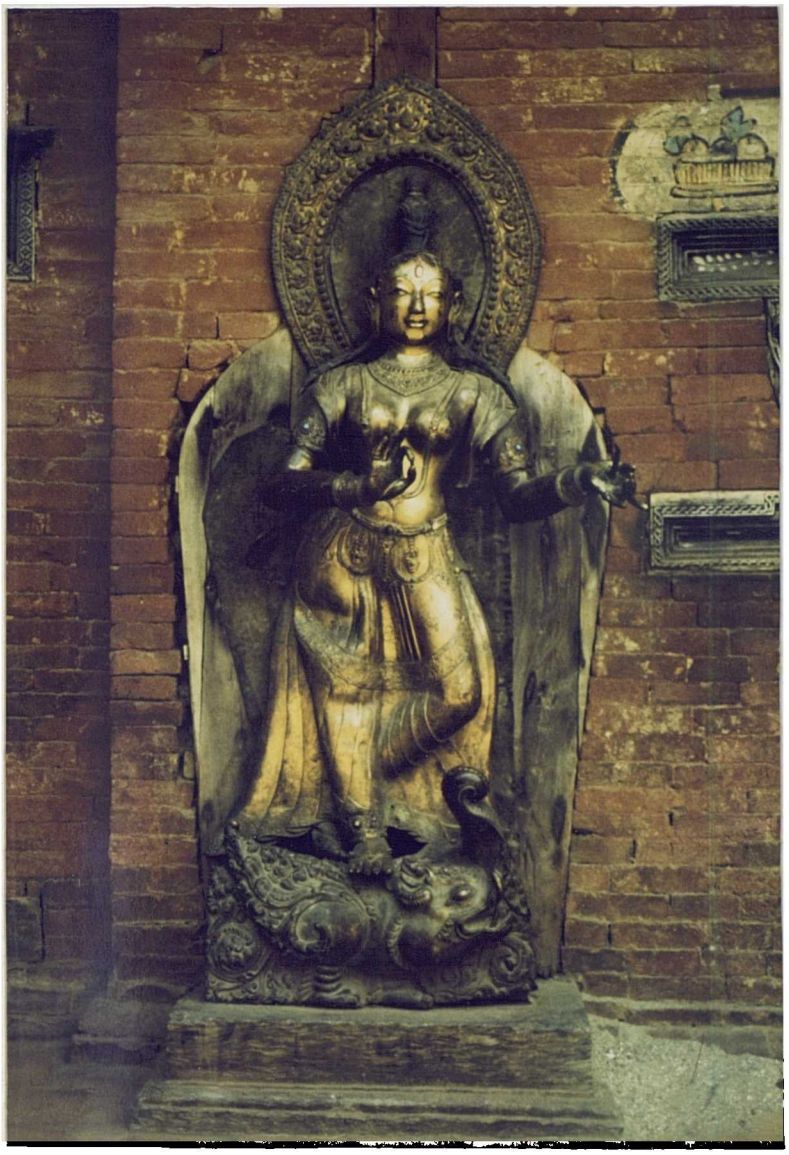
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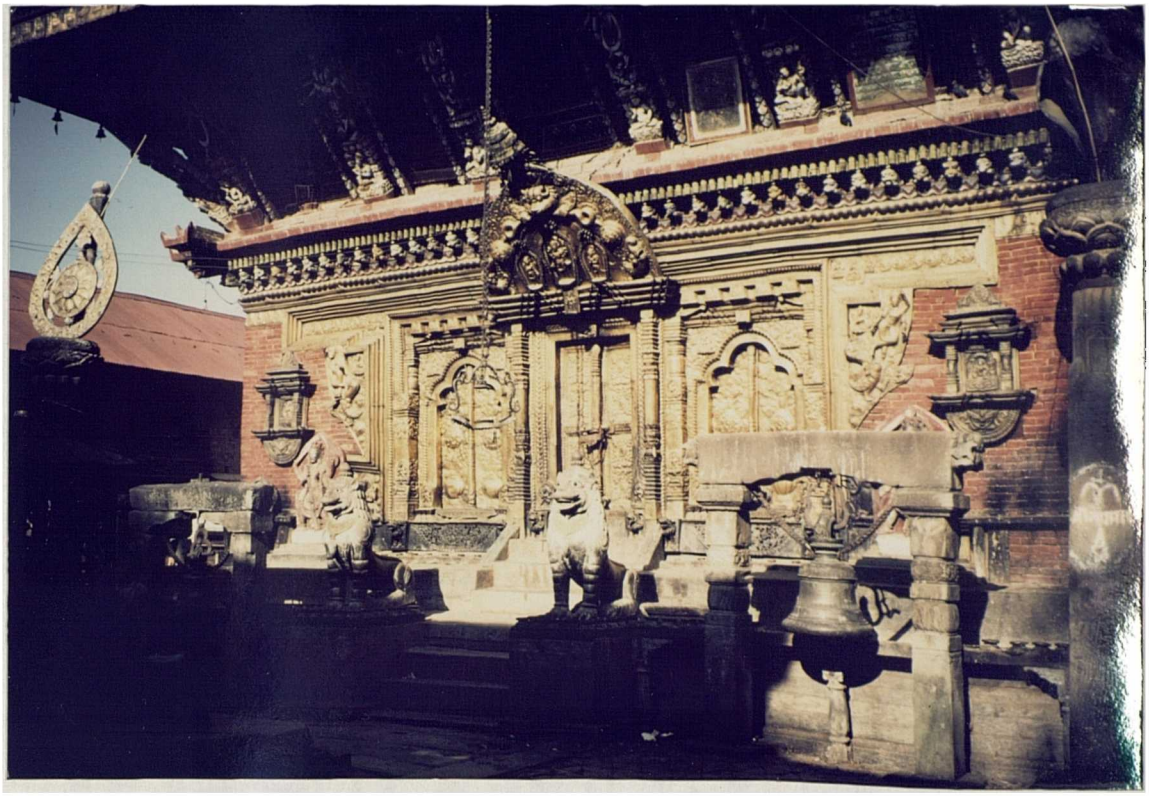
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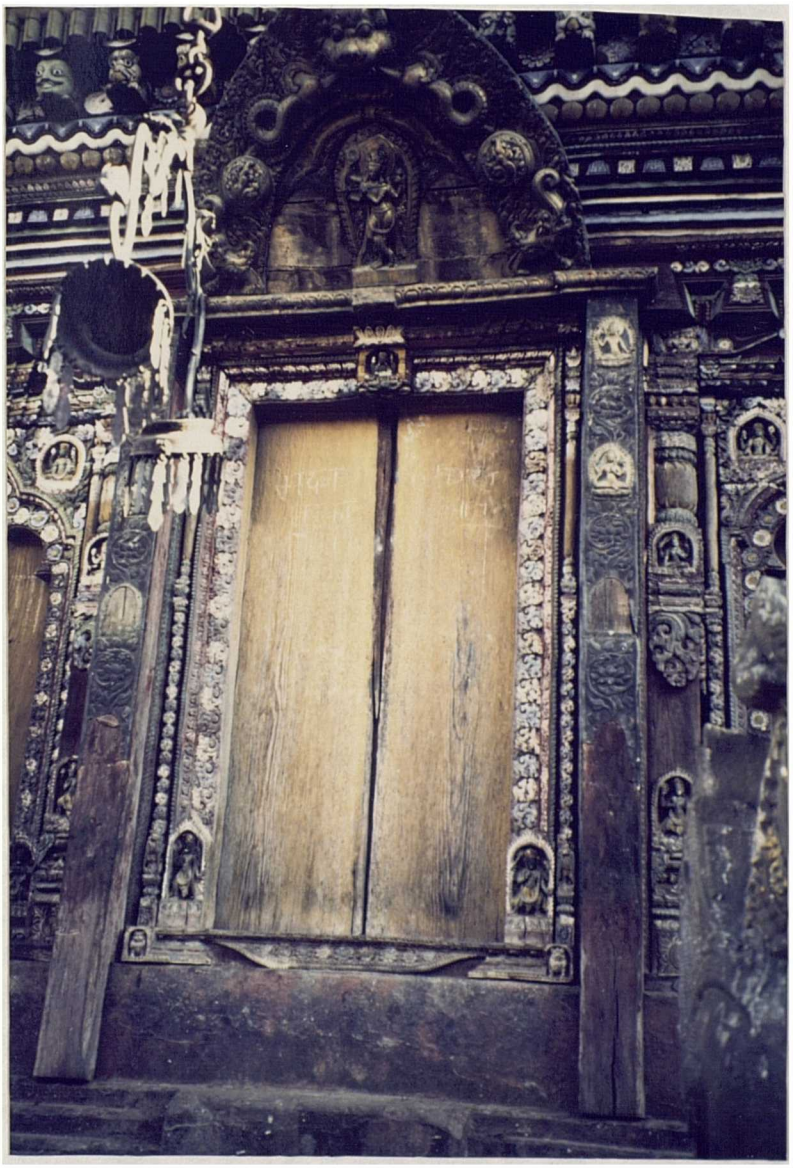
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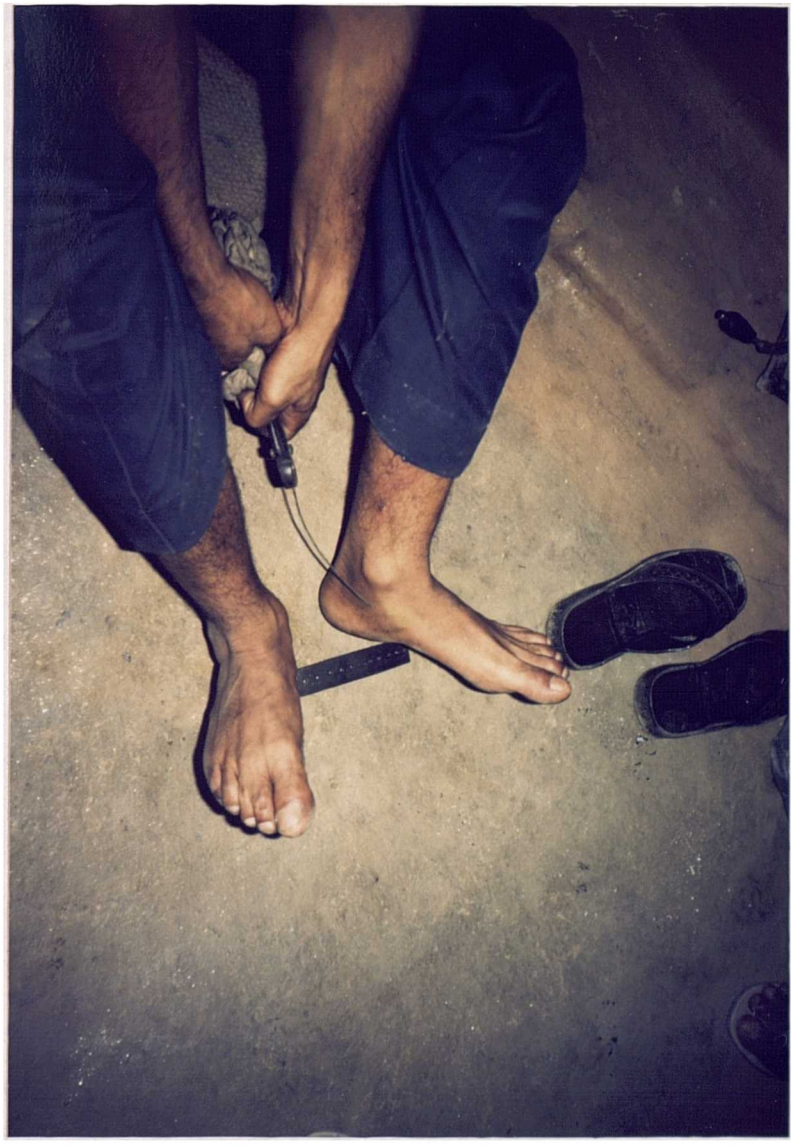
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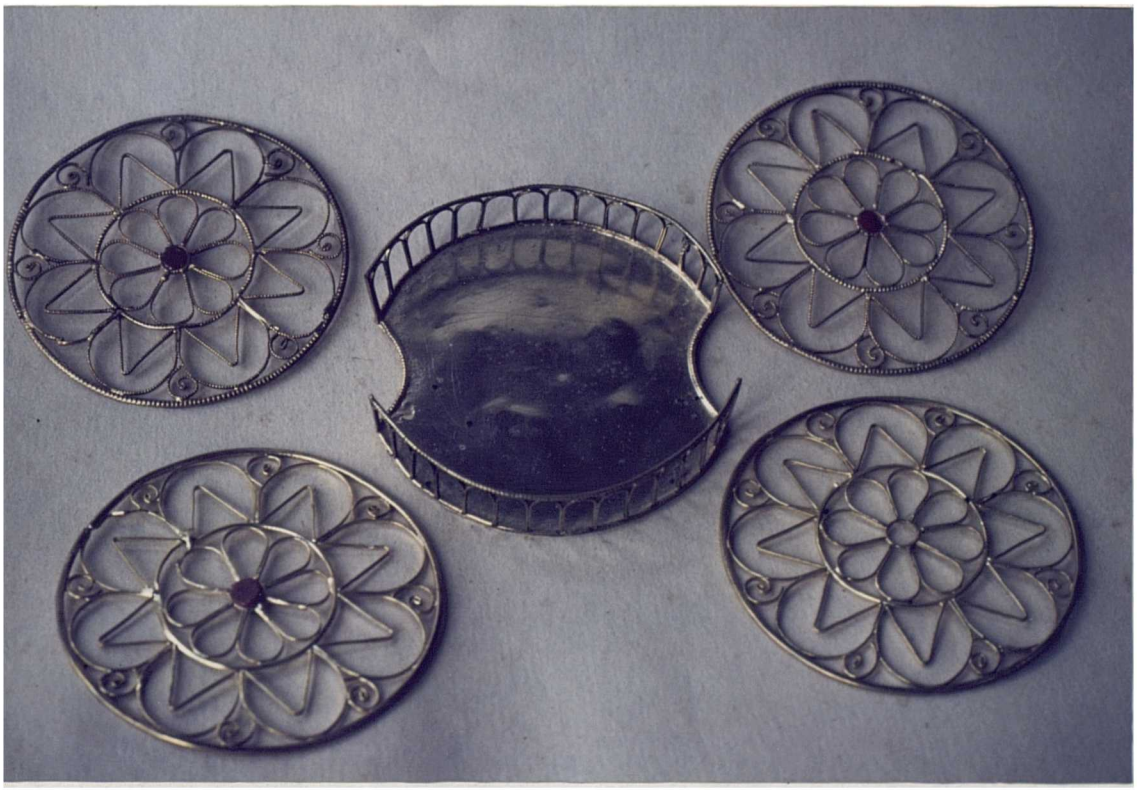
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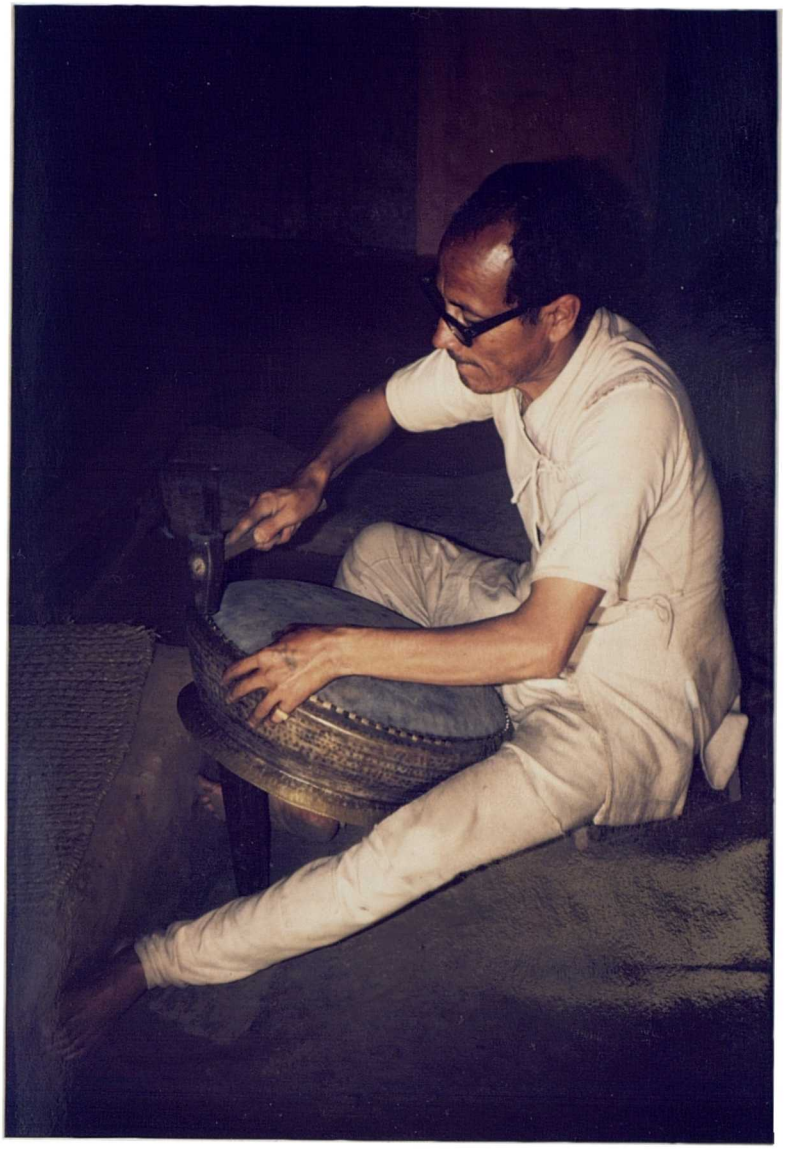
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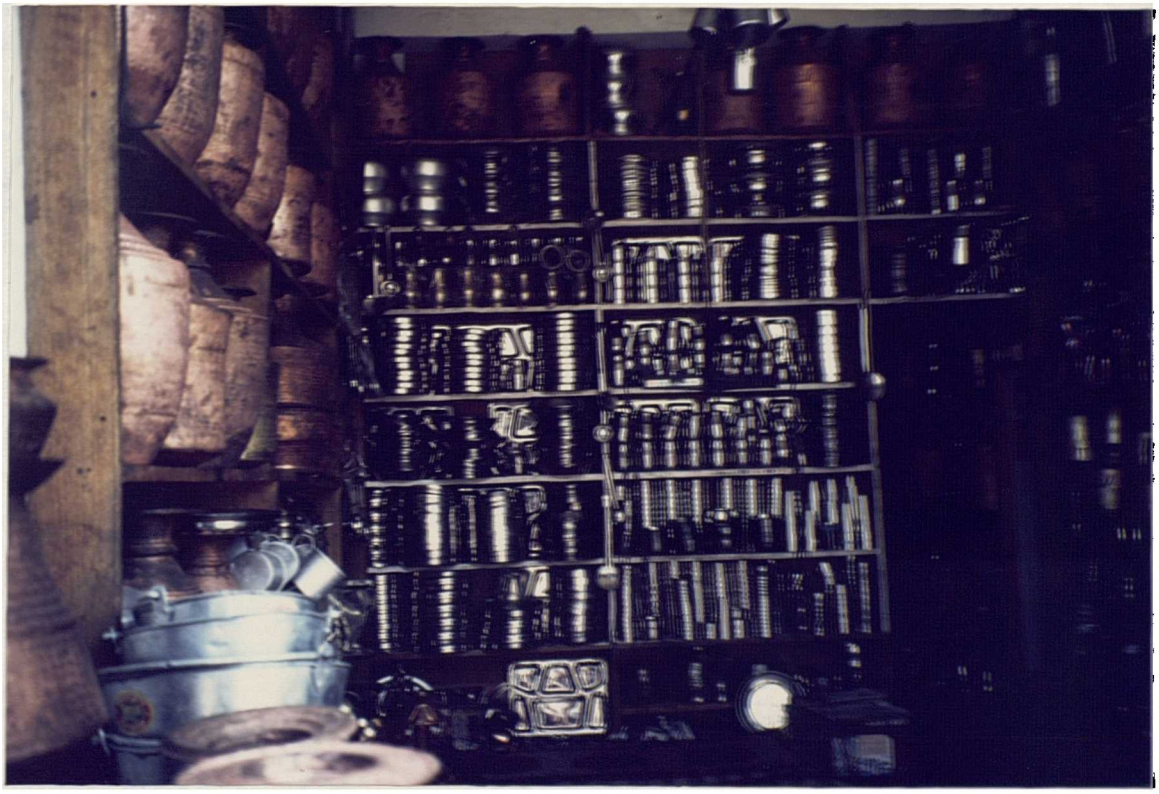
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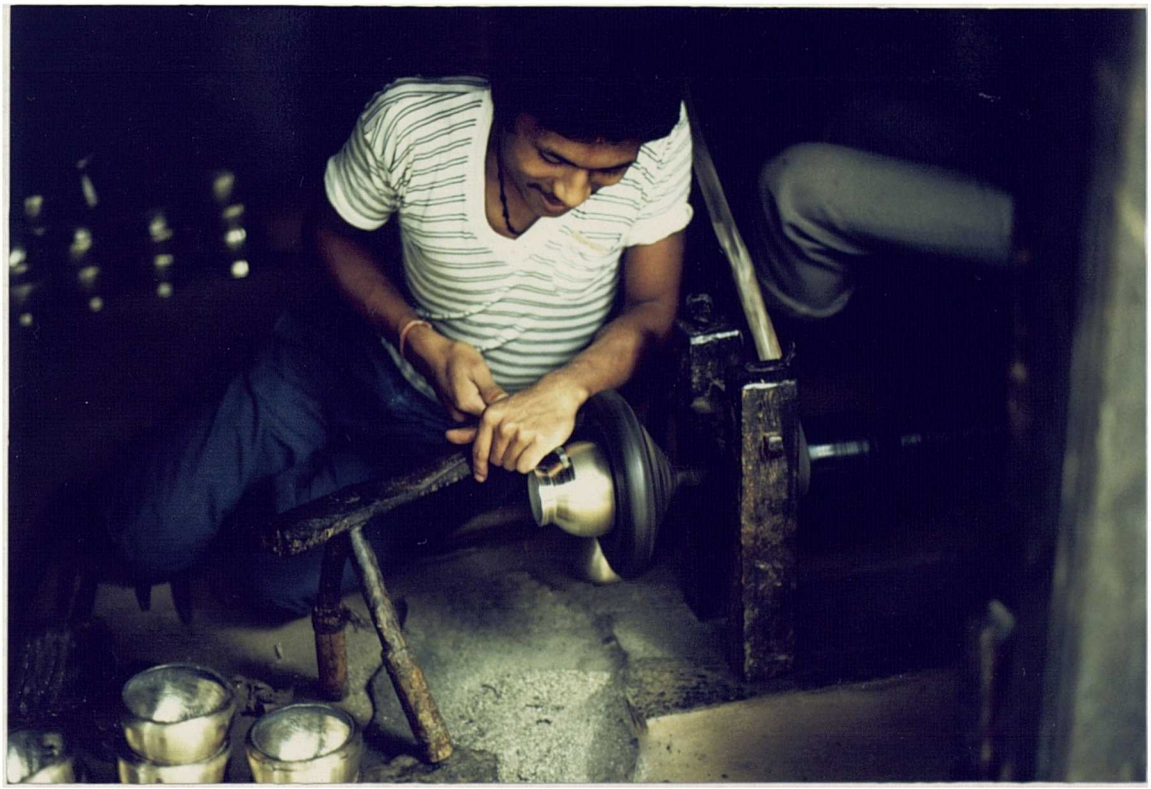
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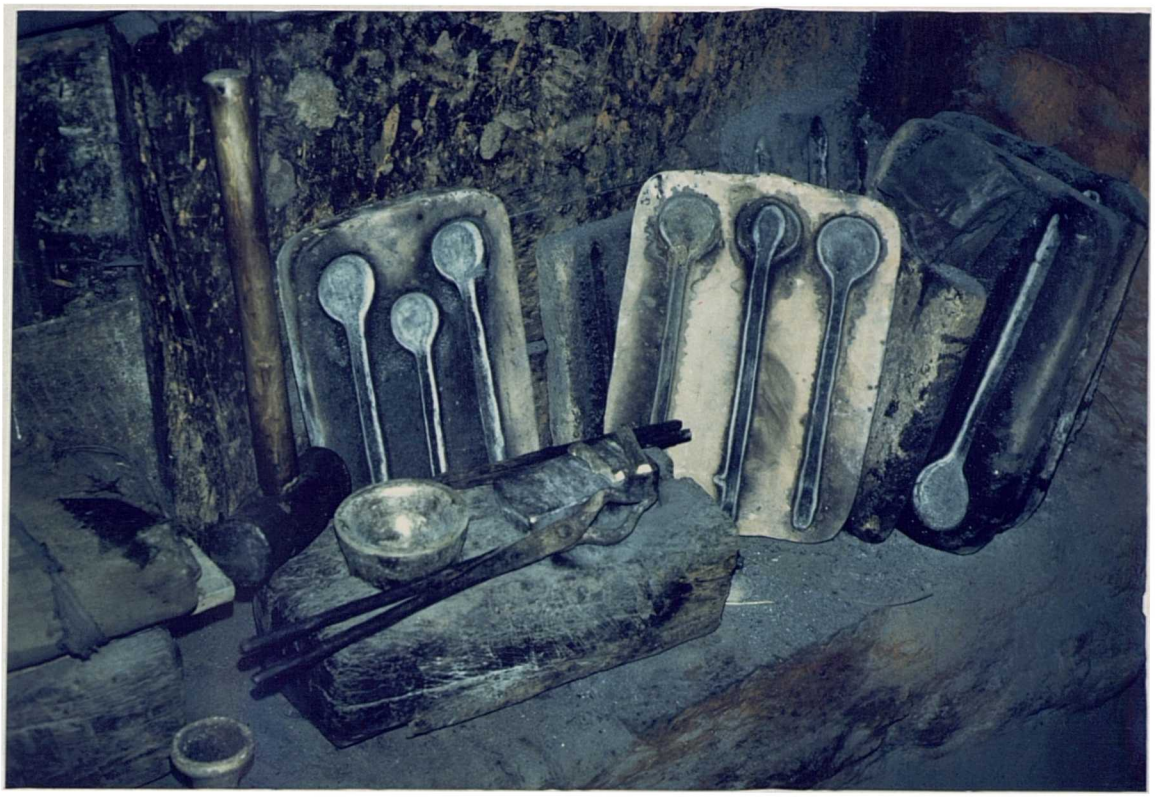
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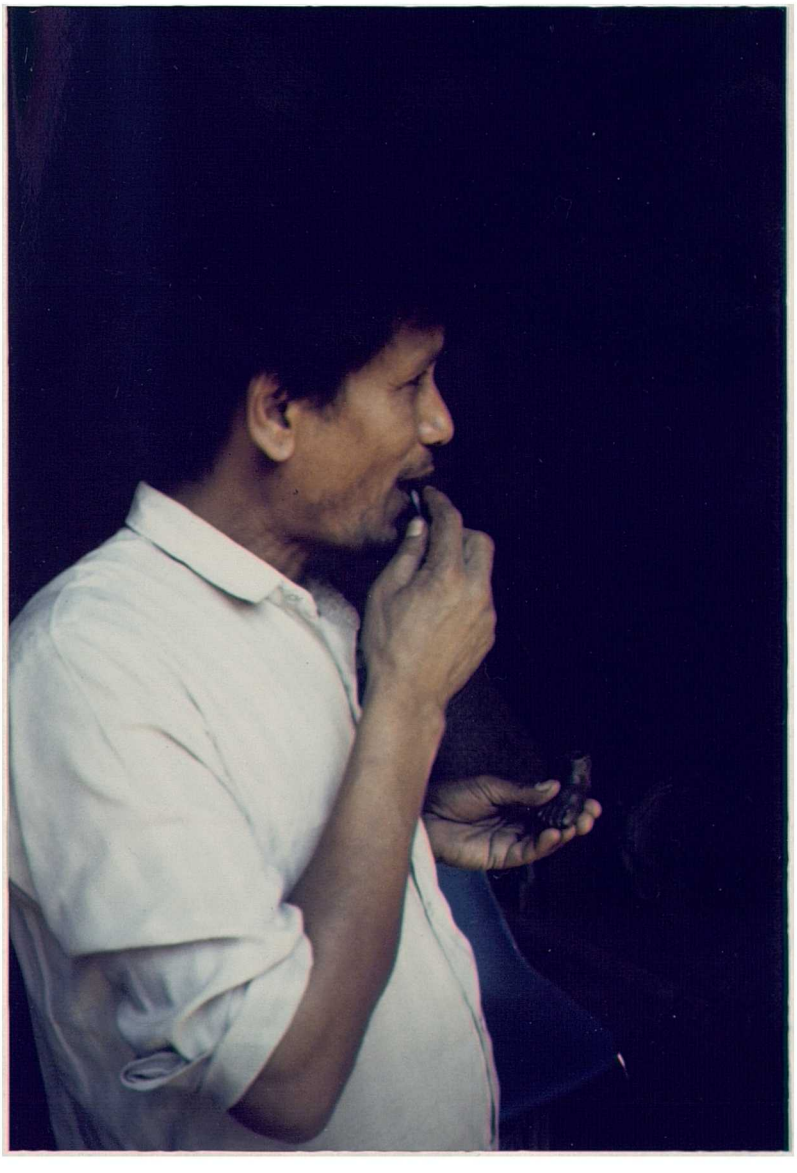
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87. Siddhi Raj - the eldest son assembling fuel for casting Patan 1991



88. Siddhi Raj and his daughter pouring metal, Patan 1991



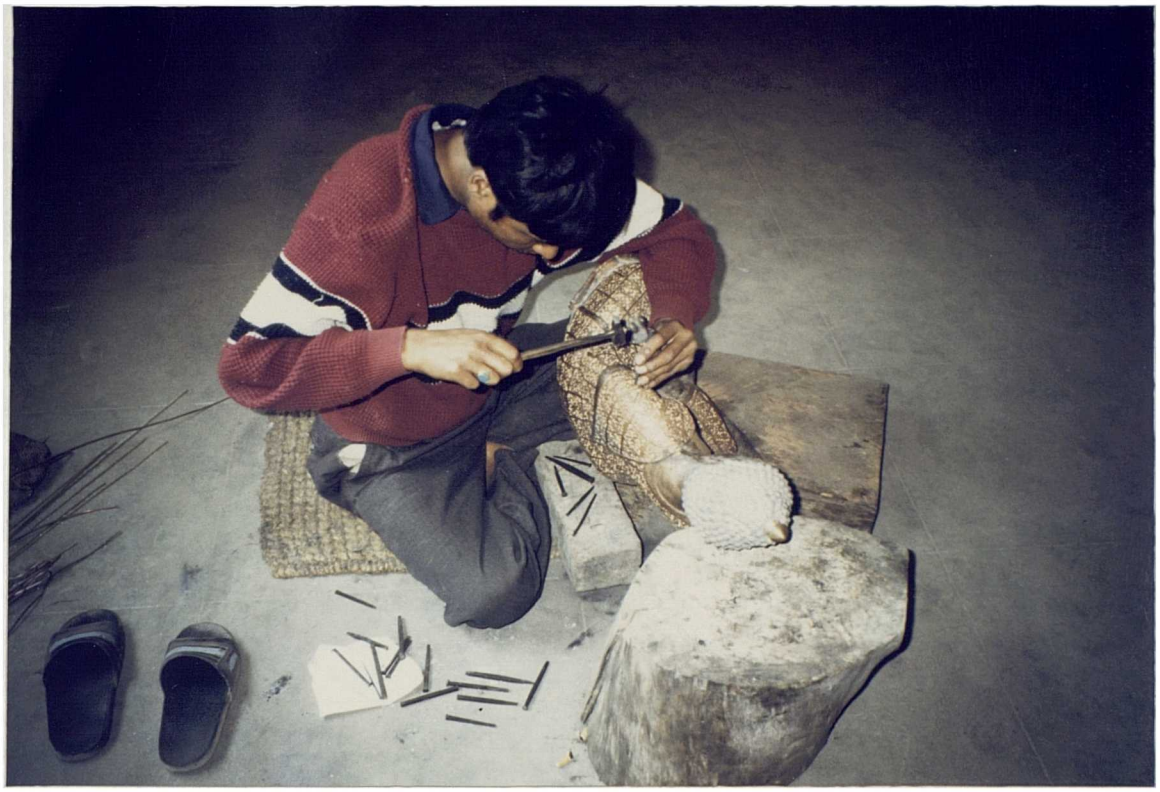
89. Breaking the investment, Patan 1991



90. The figure emerges, Patan 1991



91. Siddhi Raj and his sons with the cast figure, Patan 1991



92. Siddhi Raj's workshop - finishing a figure, Patan 1991



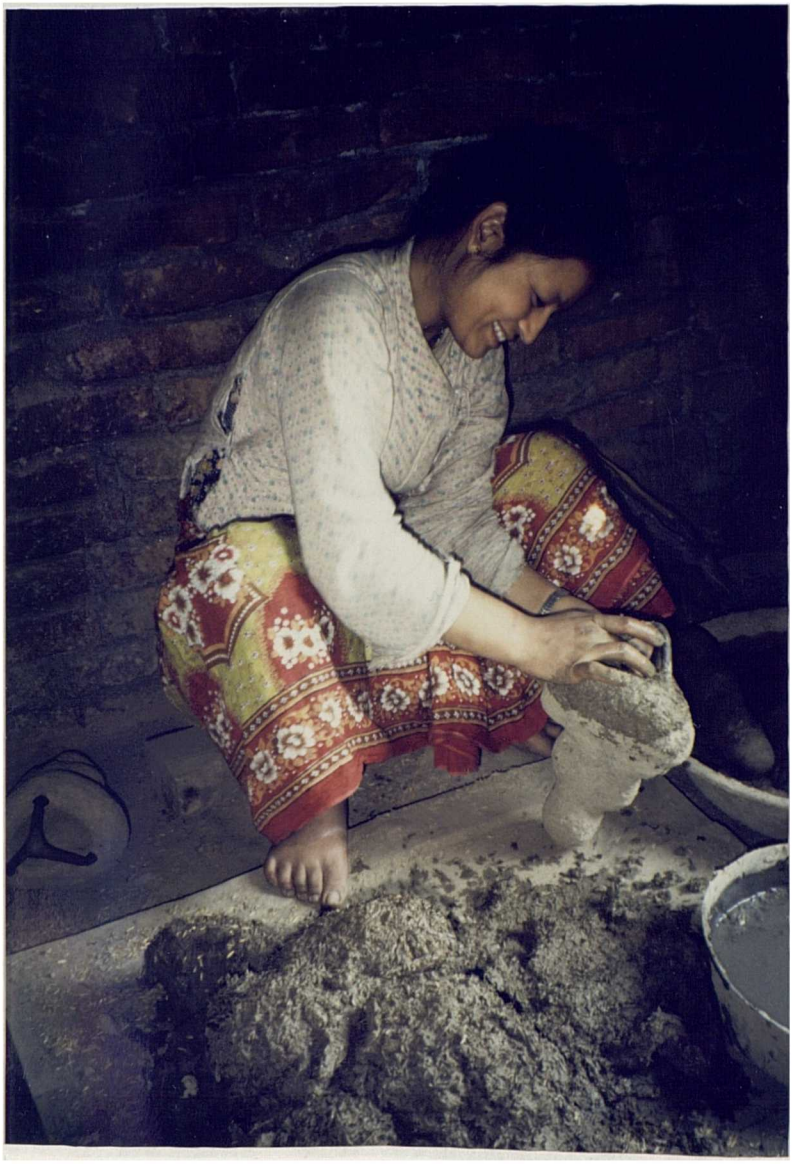
93. Siddhi Raj's house - finished figures, Patan 1991



94. Modelling sprues, Patan 1991



95. Investing the wax model - first stage, Patan 1991



96. Completing the investment, Patan 1991



97. Drying the investment, Patan 1991



98. Opening the oven of baked investments, Patan 1991



99. Removing the sprues, Patan 1991



100. Chini Kaji - toolkit, Kathmandu 1991



101. Chini Kaji - figure making stages, Kathmandu 1991



102. Wax models of figures, Patan 1991



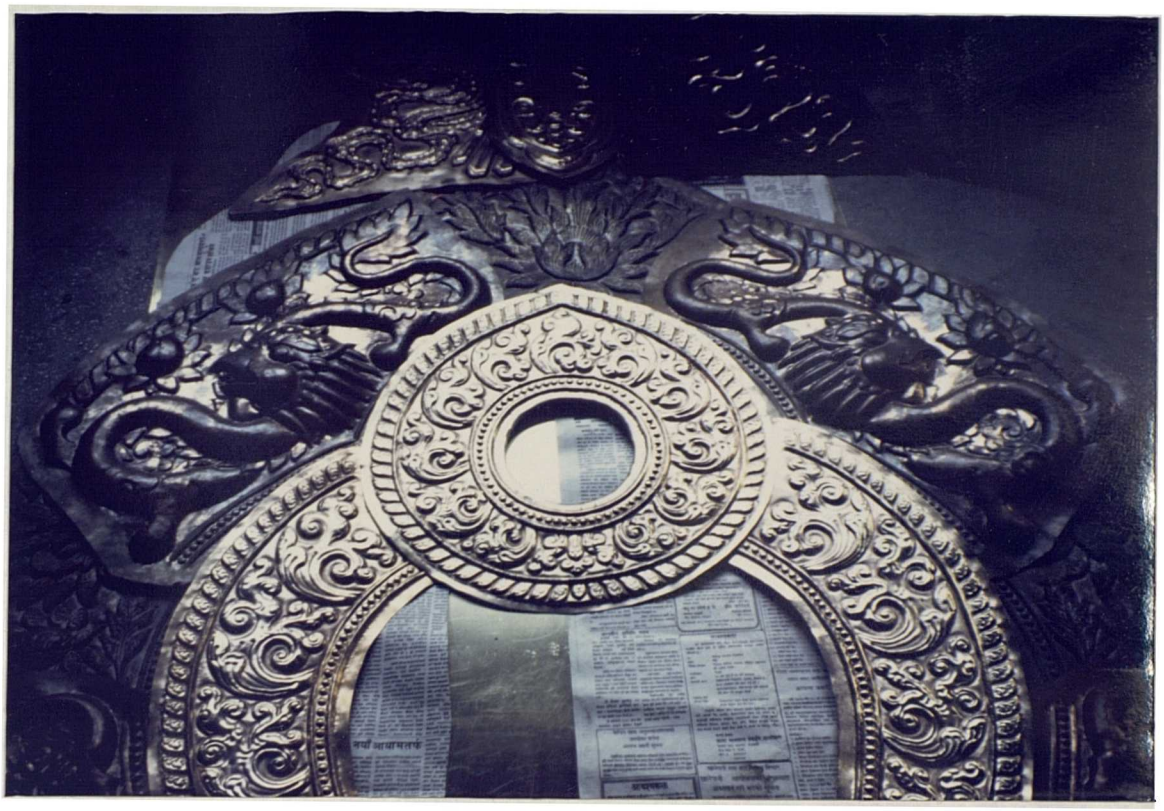
103. Wax models of bell parts, Patan Industrial Estate 1991



104. Part assembled Buddha, Patan Industrial Estate 1981



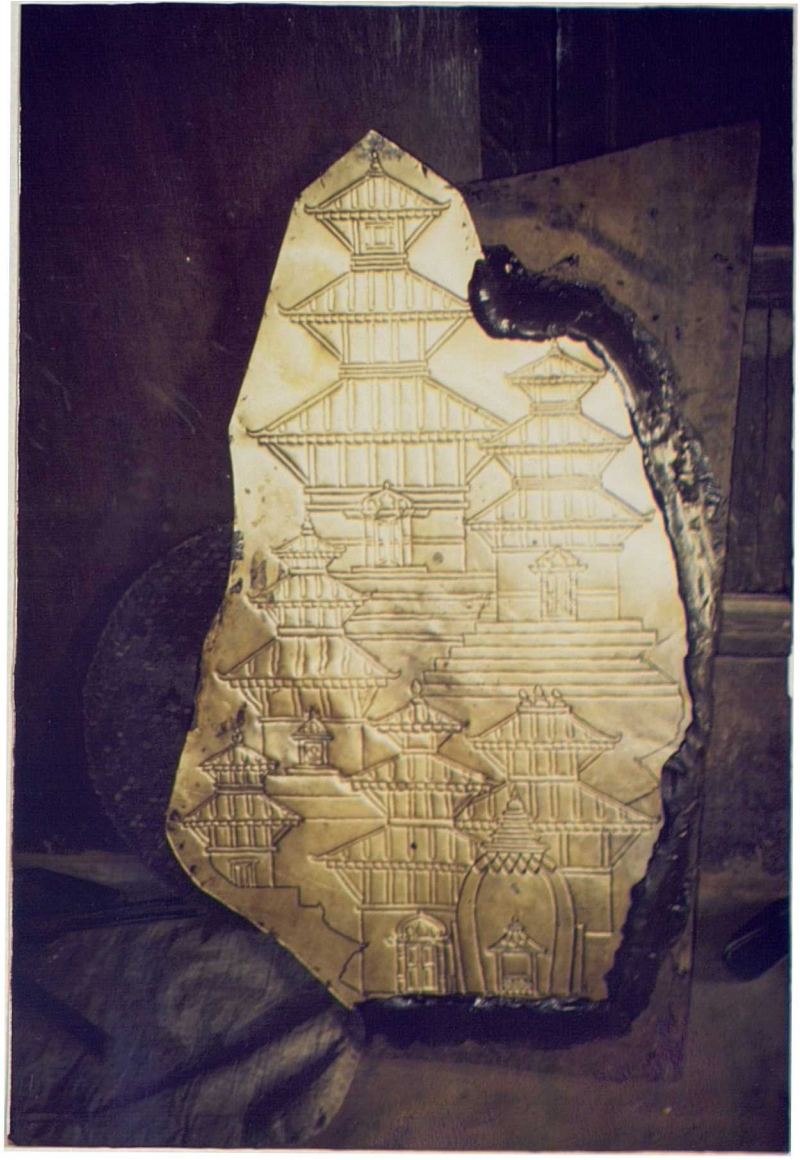
105. Yab-yum figure and sculptor, Patan 1991



106. Relief background for a temple figure, Patan 1991



107. Working a relief, Patan 1991



108. Part of an engraving for the Blue Star Hotel, Patan 1991



109 Rajkumar Sakya - Working the engraving, Patan 1991



110. Tea cauldrons made to order for Lhasa, Patan Industrial Estate 1984



111. Tinned tsampa bowls made to order for Lhasa, Patan Industrial Estate 1991



112. Sections of temple furniture made to order for Thailand, Patan 1991



113. Wholesaler's collection of material for the export and tourist markets, Patan 1991



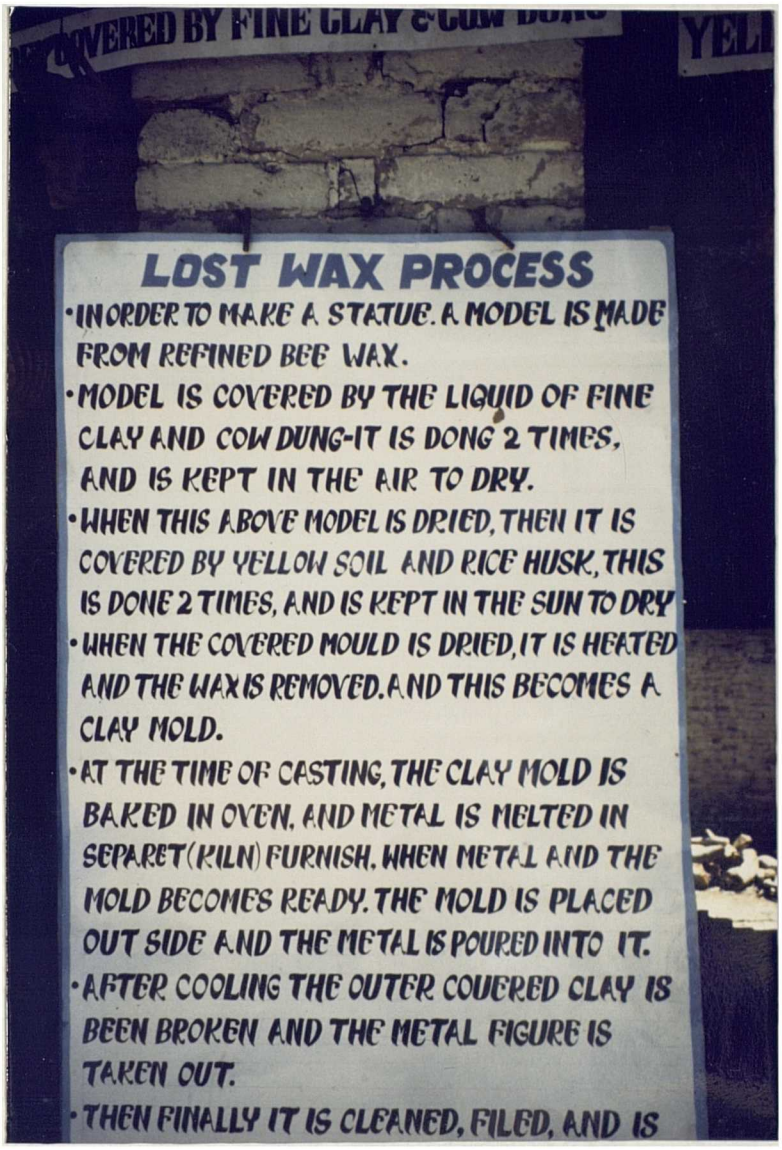
114 - 115 Patan Metalworkers' Co-operative shop, Patan 1991





116 - 117. Small factory production of utensils, Pokhara 1987





118 - 119. Assembly line production, Patan Industrial Estate 1991





120 - 121. Assembly line production, Patan Industrial Estate 1991





122 - 123. Assembly line production, Patan Industrial Estate 1991





124 - 125. Stages in production of jeans' ornaments, Patan 1981





126 - 127. Stages in production of jeans' ornaments, Patan 1981





128 - 129. Tourist products, Patan Industrial Estate 1991



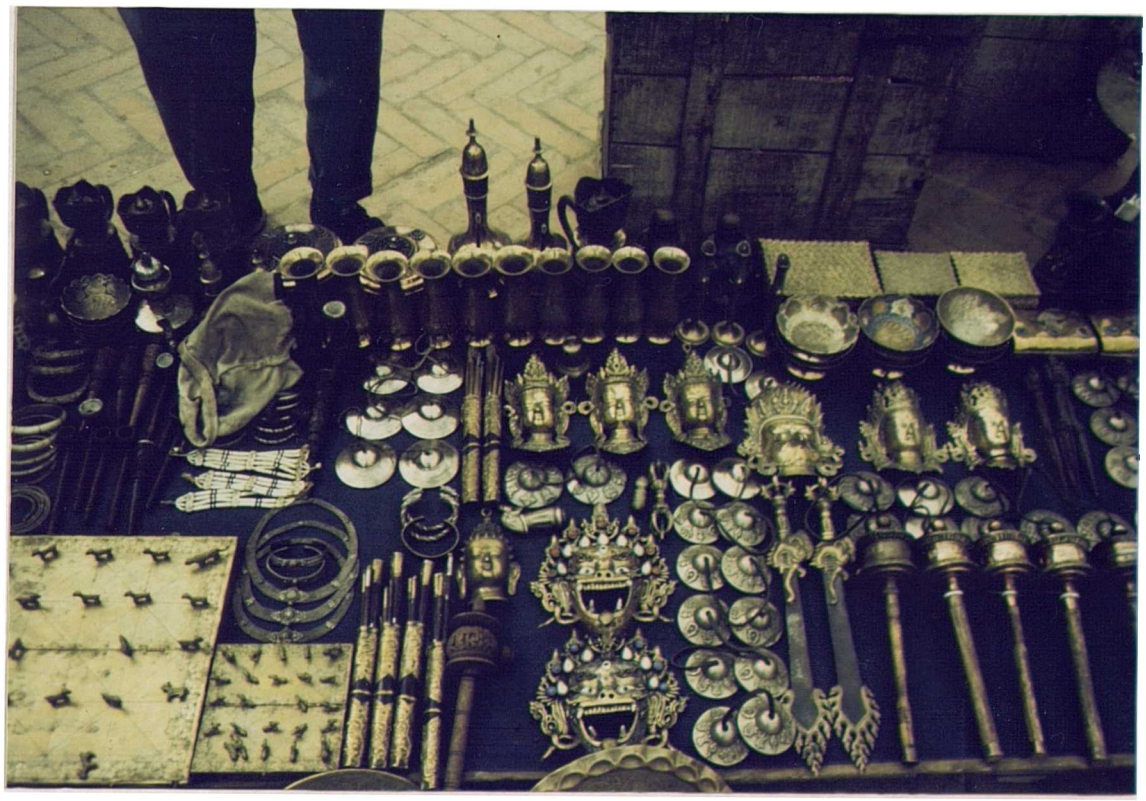


130 - 131. Tourist products, Patan Industrial Estate 1991





132 - 133. Tourist pitches, Kathmandu 1984, 1987





134 - 135. Tourist pitches, Kathmandu 1991





136. Tourist pitches, Durbar Square, Kathmandu 1991